Reward systems in prison

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1 General Introduction■

1.1 Background

A primary objective of imprisonment is to change and improve behaviour of individuals in prison. Both on the short and long term (i.e., specific prevention, incapacitation, and rehabilitation) (Snacken et al., 2013). At the same time, maintaining order and safety in the prison through inducing behavioural compliance of incarcerated individuals is an important objective for prison management. In recent decades, the responsibility for attaining such state objectives has increasingly been transferred from states to individual incarcerated individuals (Garland, 2001). The 'penal archetype' of these responsabilisation strategies are reward systems in prison, as they resemble managerialist approaches to regulating behaviour of incarcerated individuals (Khan, 2022, p. 108; also see Boone, 2021).

Reward systems in prison (RSPs) are a specific type of contingency management system, which focus on reinforcing behavioural change through attaching positive consequences to behaviours deemed desirable by the prison management or policymakers (Gendreau et al., 2014; Gendreau & Listwan, 2018). Those positive consequences or rewards can range from receiving extra visits, to gaining access to rehabilitation courses, and becoming eligible for conditional release (Gendreau & Listwan, 2018). Rewards are used to motivate incarcerated individuals to change their behaviour across the world, such as in Canada, England and Wales, Romania, and the United States (Crewe & Ievins, 2020; Michigan Department of Corrections, 2020; Mitchell, 2010; Morar et al., 2019; Serin & Hanby, 2009; The Guardian, 2019). The Netherlands has also implemented a reward system in all its prisons in 2014 (Van Gent, 2013). Its objective is to create responsible incarcerated individuals by externally motivating them to comply with behavioural demands and change their behaviour (Dutch Ministry of Justice and Security, 2020). To date, however, this system has not yet been evaluated (the advisory Council for the Administration of Criminal Justice and Youth Protection (RSJ), 2020). How this system is assumed to attain its objectives

■ The co-authored articles on which this dissertation is based (Chapters 2, 3, 4 and 5) can be ascribed primarily to the PhD candidate. Chapters 1 and 6 can be fully ascribed to the PhD candidate. The PhD candidate was also primarily responsible for the data collection and development of the instrument on which this dissertation is based. All co-authors gave feedback on the instrument, design of the study, and chapters at different stages of the conception of the study and writing process; the intensity of the contribution is reflected in the order of authorship.

(programme theory), how it is applied (programme application), and the effects it sorts on behaviour and attitudes of incarcerated individuals (programme outcomes), are therefore largely unknown.

At the same time, however, there are serious concerns regarding all three of these aspects. First, scholars question the degree to which criminological theory can support the central assumption that external rewards adequately motivate incarcerated individuals to change their behaviour. Some American scholars defend this assumption and its theoretical soundness (Gendreau & Listwan, 2018). Dutch scholars, however, have questioned the degree to which punishing misconduct aligns with criminological theories depicting motivation as ambiguous and dynamic, and behaviour change as a process of trial and error (Boone, 2012; 2013; Van Ginneken, 2018). Second, Dutch investigatory reports indicate that the application of the Dutch system, by prison management and prison officers, poorly corresponds to its programme theory (Dutch Inspectorate of Justice and Security, (IJV), 2019; RSJ, 2019; 2020). The effects of these disparities on system outcomes are unknown.

Third, the degree to which all incarcerated individuals can equally benefit from the system is questioned. A reward system in prison requires individuals to self-govern 'all aspects of conduct, addressing both the psyche and the body' (Crewe, 2011b, p. 522). They themselves are considered the primary agents responsible for change. Support is only reserved for those *deserving* of support (i.e., compliant individuals). Some incarcerated individuals, however, are likely to experience difficulties self-governing their behaviour to such a high degree. For example, because of low self-governance ability, which is very prevalent in Dutch prisons (Den Bak et al., 2018; Kaal, 2013). Self-governance ability can be understood as all personal skills required to initiate, manage, and monitor behaviour. These abilities can be categorised as executive, conceptual, social and practical in nature (see Paragraph 4.2.5). Examples of such abilities are understanding the concept of time, impulse control, and planning ability.

Illustrative of the link between self-governance ability and progression in reward systems in prison is Crewe's (2013) observation, which he made during his ethnographic study among incarcerated individuals participating in the *Incentives and Earned Privileges* (IEP) scheme in English prisons: '[…] due to mental health problems, learning difficulties or cognitive limitations, for example, incarcerated individuals may not understand incentive schemes or may just find it difficult to conform to their demands, however much they wish to' (p. 123). Other researchers echo these observations, stating that incarcerated individuals with low self-governance ability participating in the IEP scheme appear less successful in complying with complex behavioural demands (Hutton, 2017). This would frustrate their ability to earn rewards; rewards which – ironically – are argued to contribute to their behavioural change (Craig, 2004). Finally, individuals for whom it is difficult to live up to behavioural demands, run the risk of being labelled 'unmotivated' and thus 'undeserving' by prison staff.

If these hypothetical concerns were to be empirically validated, this would be problematic. A flawed programme theory (assumptions on causal mechanisms) can frustrate reaching the system's objectives, and even produce aversive outcomes (Donaldson & Lipsey, 2006). Furthermore, even if the programme theory would be supported by criminological research and theory, poor programme integrity could frustrate system success (Andrews & Bonta, 2010). Some scholars specialised in contingency management systems even argue that disparities between system design and application are the main cause of poor system outcomes (Gendreau et al., 2014). Moreover, incarcerated individuals low on self-governance ability have been found to be at high risk of recidivism in prior empirical studies (Chaplin et al., 2017; Søndenaa et al., 2008; Teeuwen et al., 2020).

Ironically, many empirical studies have also illustrated that supporting incarcerated individuals who have a high risk for future criminal behaviour, has the most impact on overall recidivism rates (Andrews et al., 2006). If incarcerated individuals low on self-governance ability have smaller chances of obtaining a reward status, they would also miss out on rewards known that promote rehabilitation (Craig, 2004). One such promotor of rehabilitation is subjective autonomy, which is theorised to be crucial to long-term behaviour change (Andrews & Bonta, 2007; Ryan & Deci, 2000b; Ward et al., 2007). Subjective autonomy can be understood as the perception that one can make and implement independent, self-directed choices (Niemiec et al., 2010). That would conflict with the Dutch penological aim to adequately prepare incarcerated individuals for their re-entry into society as far as possible (Boone, 2012; 2013; Van Ginneken, 2018; Meijer, 2020). Therefore, both the academic interest and societal relevance to study the programme theory, application, and effects of this Dutch reward system in prison is undisputed. The current study aims to do so by adopting a broad evaluative approach, aimed at answering the following question: *What are the programme theory, application and effects of the Dutch reward system in prison?* This question is further divided into four research questions:

1. What is the programme theory of the Dutch reward system in prison, as it was implemented in 2014?
2. What is known about the effects of reward systems in prison on the behaviour and attitudes of incarcerated individuals?
3. To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?
4. 1. To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)?
   2. To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)?
   3. To what extent do the relationships mentioned in research questions (4.1 and 4.2 depend on incarcerated individuals' self-governance ability?

Before discussing the theoretical framework of these research questions and prior (inter)national research on reward systems in prison, the Dutch prison context and the policy framework of the Dutch reward system in prison are first outlined.

1.2 The Dutch Prison Context

Prison sentences in the Netherlands are relatively short. The average sentence length is four months (Dutch Custodial Institutions Agency (DJI), 2021). There (currently) are 26 operational Dutch prisons, which offer different regimes (DJI, 2023). The most common regimes are pre-trial detention (for individuals awaiting sentencing) and regular prison regimes (for individuals sentenced to prison). Specialised regimes aim to accommodate vulnerable or violent individuals, such as extra care regimes, regimes for severe psychiatric patients, and maximum-security regimes. Two-third of all incarcerated individuals are housed on single cells (Van Ginneken & Palmen, 2022).

Even though the influx of incarcerated individuals has decreased over recent decades, the Dutch prison population has arguably become more complex. The number of adult individuals passing through Dutch prisons has dropped from nearly 45,000 in 2005 to nearly 27,000 in 2021 (Central Bureau for Statistics, 2022; DJI, 2021). At the same time, there is empirical research indicating that up to 45 percent of persons detained in Dutch prisons are screened positive for having a mild intellectual disability (Kaal, 2013; Kaal, 2016; Den Bak et al., 2018). Moreover, at least 25 percent of the Dutch prison population displays (serious) antisocial behaviour (Beijersbergen et al., 2014), 12 to 40 percent reports problematic use of alcohol or drugs (e.g., Beijersbergen et al., 2016; Den Bak et al., 2018; Dirkzwager & Nieuwbeerta, 2018), and over 20 percent report psychological problems, such as depression or anxiety (e.g., Dirkzwager et al., 2016; 2019).[1]

Finally, how prisons are operated has also changed over recent decades. Dutch prisons have become understaffed, whilst the workload of prison officers has increased due to additional tasks – some of which inherent to the Dutch reward system in prison (RSJ, 2019). Consequentially, programmes and policies are often applied differently than intended. The supervision of incarcerated individuals, the documentation of their behaviour (IJV, 2018; RSJ, 2019), and support of incarcerated individuals to prepare for re-entry (Pasma, 2023), has been found to fall short. One of those programmes is the Dutch reward system in prison, which is described next.

1 For a recent overview of studies on the characteristics of the Dutch prison population, see (in Dutch): Appelman et al. (2021).

1.3 The Dutch Reward System in Prison

The introduction of a reward system in Dutch prisons in 2014 constituted a far-reaching change in the Dutch prison climate. Ever since 1950s, prison policy in the Netherlands has been increasingly focused on strengthening of incarcerated individuals' rights and rehabilitation (Franke, 1990). Imprisonment was ought to resocialise individuals so that they, upon release, would again be able to function well within society. To that end, privileges turned into rights (e.g., yard time, compliant procedures), incarcerated individuals were provided opportunities to practice with re-entry into society by moving to less secure regimes over the course of their sentence, and prison staff was ought to support incarcerated individuals in their process of rehabilitation by acting as role models (Franke, 1990). However, retribution has revived as an important aim of imprisonment in Dutch prison policy over recent decades, at the cost of rehabilitation (Molleman, 2021). From the early 2000s onwards, activities previously available to all incarcerated individuals (e.g., rehabilitation courses), began to be reserved for compliant and motivated individuals (House of Representatives, 2005/2006; 2007/2008). The idea that resocialisation was a privilege to be earned became central to Dutch prison policy, culminating in the development of a reward system in prison (Boone, 2021). By doing so, individuals were made increasingly responsible for the content and course of their time in prison, and rehabilitation support was no longer the same for all incarcerated individuals (Boone & Van Hattum, 2014).

The Dutch reward system in prison is officially named the system of Promotion and Demotion. The system was central to an overarching Dutch policy masterplan (*Programma Modernisering Gevangeniswezen)* directed at promoting self-governance of incarcerated individuals, humane treatment of incarcerated individuals and safe reentry into society, by tailoring correctional interventions to criminogenic needs, personal characteristics and stressing the responsibility of individuals to engage in programming and effectuate change (Dutch Ministry of Justice, 2009). The system of Promotion and Demotion was originally implemented in 2014, revised in 2020 and expanded in 2021. In this paragraph, the evolution of the policy of this Dutch reward system in prison and its impact is discussed. The degree to which the policy framework and practical application of the system correspond, is addressed later (see Paragraph 1.4.2).

1.3.1 The Original Policy (2014)

The main objective of the system of Promotion and Demotion did not change over the years. Its objective was and is to motivate incarcerated individuals to comply with behavioural demands, by rewarding compliance with internal and external freedoms. Non-compliance can be punished with (permanent) deprivation of those freedoms. Systems using rewards

to modify behaviour of incarcerated individuals are often designed so that incarcerated individuals can progress from one level to another (Hamels, 1996). The Dutch system operates with two levels: a Basic and a Plus level (called programmes)[2]. A Basic programme includes 43 hours of activities per week, twenty of which represent work assignments. The remaining activities are visitation, spiritual support, yard time, education, recreational activities, sports, rehabilitation courses and aftercare activities focused on housing, income, debt, and care. Essentially, the daily programme offered to incarcerated individuals in a Basic programme meet minimum requirements set out in Dutch law (Art. 49, Law on Penal Principles (*Penitentiaire Beginselenwet*)). By demonstrating compliant behaviour, incarcerated individuals can be 'promoted' to a Plus programme, which offers a set of rewards.

A Plus programme can offer additional opportunities for incarcerated individuals to receive visits and work assignments with greater degrees of responsibility and freedom (such as greenkeeping or cleaning) compared to a Basic programme. Work assignments in a Plus programme can also come with higher wages and/or (vocational) training. In addition, this programme can include an evening and weekend programme. A Plus programme comprises of 48 hours of activities per week. Overall, individuals on a Plus programme spend eleven more hours outside their cells compared to individuals on a Basic programme – if all these rewards are assigned. Notably, the system is only available to individuals on regular prison units. Individuals residing in special regimes cannot participate in the system (e.g., extra care; see Chapter 2). Individuals in pre-trial detention (*Huis van Bewaring*) can earn reward status, yet the associated rewards are only effectuated when (and if) they are transferred to a regular regime.

Incarcerated individuals on a Basic programme can be promoted to a Plus programme when they meet the behavioural demands for a minimum of six weeks. A multidisciplinary team of prison staff (*Multidisciplinair Overleg*, MDO) assesses once every six weeks whether this requirement has been met, unless there is reason to do so more often. This team consists of mentors, case managers, head of the work unit and – when necessary – a psychologist, among other prison officials. Assessments are based on the behaviour of incarcerated individuals observed by these members of staff. Based on their combined observations, the multidisciplinary team discuss and eventually advise the prison governor to promote or demote an incarcerated individual or not make changes in his reward status (art. 1d Regulation on Selection, Placement and Transfer of Prisoners (*Regeling Selectie Plaatsing en Overplaatsing van Gedetineerden* (RSPOG)). This advice must be substantiated by prison staff using their observations and their multidisciplinary discussions. Ultimately, the prison governor will decide

2 Throughout this dissertation, I will also refer to prisoners on a Basic programme as prisoners *without* a reward status, and prisoners on a Plus programme as prisoners *with* reward status.

on promotion, demotion, or retention, which also requires substantiation by law.

The original policy outlines three behavioural categories: green, orange, and red (RSPOG, 2014). All three categories consist of eighteen to twenty-six behaviours which touch upon the three main domains of safety and security, care and supervision, and re-integration and resocialisation. Green behaviour is desirable behaviour, which is rewarded. Examples of green behaviours include not trading in narcotics and maintaining a good personal hygiene. Orange behaviour is behaviour which does not entirely meet the behavioural demands but is paired with a motivation to change. Orange behaviours are not necessarily punished with demotion but are discouraged (this has now changed, see next paragraph). Examples are regularly swearing or cursing and mildly protesting staff directions. Red behaviour is undesirable behaviour, which leads to retention or demotion to a Basic Programme. Examples of red behaviour include knowingly causing stench and pollution and being physically aggressive toward others. Incarcerated individuals also must demonstrate motivation for change to earn rewards. This motivation translates to participation in two courses aimed at promoting self-reflection and motivation to change (Reflector and Choosing to change (*Kies voor Verandering/Aan de bak*)). Failing to participate in these courses is interpreted as lacking motivation and is punished with being allocated to a Basic Programme. Not being able to participate in the Choose for Change course due to poor language skills is not a reason to deny individuals access to a Plus programme (Van Gent, 2013).

1.3.2 The Revised Policy (2020)

The policy was revised to overcome practical challenges. These challenges related to ease of application, consistency and uniformity in behaviour assessment and decisions to promote of demote incarcerated individuals (Dutch Ministry of Justice and Security, 2020). The five most relevant revisions are addressed here. First, the definitions of behavioural demands were generalised. Definitions of these demands were quite specific and factual in the original 2014 policy framework (e.g., maintain a good personal hygiene), whereas these definitions were generalised in 2020 (e.g., comply with house rules). In accordance, the number of behavioural demands was downsized from twenty-six or more per behavioural category, to just six to nine per category (see Table 1.1). This arguably increased the discretionary power of prison officers regarding the tailoring of behavioural demands to individuals, as well as regarding their interpretation of the extent to which these objectives are met. Second, the orange behaviour category was abolished. This may limit the degree to which self-governance ability of incarcerated individuals can be accounted for when assessing behaviour. However, the new policy stipulates opportunities to include self-governance of incarcerated individuals in tailoring personal sentence plan objectives, as long as

they fit within the general demands. The revised policy does not, however, outline that prison staff can respond with different measures other than promotion or demotion in case incarcerated individuals low on self-governance ability struggle to attain the goals set out for them (Meijer, 2020).

Third, a category of impermissible' behaviour was added (e.g., an incarcerated individual reacts physically aggressively or refuses a urine test). This new category of behaviours is not subdivided into behavioural domains. Prison governors are obliged to punish impermissible behaviour with withdrawing rewards (Art. 1d, sub 5, RSPOG, 2020). The new policy still leaves discretionary power to the prison governor to promote or demote incarcerated individuals based on (un)desirable behaviour (but not impermissible behaviour; see Table 1.1). Fourth, the revised 2020 policy reframed behaviour categories. This policy no longer contains references to colours and replaced the three main behaviour domains of the 2014 policy (safety and security, care and supervision, and re-integration and resocialisation) by two main topics: re-integration and resocialisation and stay and liveability. What inspired this reframing is unclear, as is its impact on behaviour observations and assessments. Fifth, the period in which desirable behaviour must be demonstrated was widened from a maximum of six weeks to a minimum of six weeks. This means that after six weeks of demonstrating desirable behaviour, an incarcerated individual is not automatically eligible for promotion to a Plus programme.

1.3.3 The Expanded Policy (2021)

Finally, with the enactment of the Punishment and Protection Act (*Wet Straffen en Beschermen*) in 2021, having a reward status has become a prerequisite for becoming eligible for leave and conditional release. Moreover, incarcerated individuals can only go on leave when this leave serves a specific rehabilitative goal or condition described in their sentence plan. Notably, an incarcerated individual can also only become eligible for conditional release if he or she has demonstrated compliance with behavioural demands throughout his or her *entire* prison sentence.

1.4 Prior Empirical Studies

In this section, we successively describe prior (inter)national studies on the theoretical assumptions of reward systems in prison (plan evaluations), empirical studies on their implementation and application (process evaluations), as well as what is known about reward systems in prison's effects on behaviour and attitudes of incarcerated individuals (impact evaluations).

1.4.1 International Studies

Plan evaluations of reward systems in prison (RSPs) are extremely scarce, as we could identify only one in the criminological literature. This evaluation concerns the *Incentives and Earned Privileges* (IEP) scheme (Bosworth & Liebling, 1995), which is similar to the Dutch system of Promotion and Demotion in multiple respects. Both systems aim to encourage responsible behaviour and promote order and safety in the prison by rewarding compliant behaviour (Liebling, 2008). Based on their analysis of prior literature and policy documents, the researchers concluded that the programme theory of the IEP scheme was overly simplistic and lacked a sound scientific evidence base. For instance, their analysis implied both that rewards are the sole factor driving behaviour and that incarcerated individuals are capable of rationally deciding on whether to meet behavioural demands. According to the researchers, these assumptions were inadequately substantiated and incongruent with criminological research, which indicates that many other factors can influence (the effects of rewards on) behaviour of incarcerated individuals, such as personal characteristics, prison subculture, and intrinsic motives to comply (Liebling, 2008; Liebling et al., 1997; also see Khan, 2016).

Furthermore, few process evaluations of reward systems in prison exist. The two available evaluations indicate that RSP implementation and application can be plagued by various problems, which in turn can moderate RSP outcomes. Almost fifty years ago, an evaluation was conducted on a large-scale token economy in two American segregation prisons in the 1970s (Geller et al., 1977). A token economy is a specific type of RSP in which tokens are offered for compliant behaviour, which can be redeemed for social, material, and active rewards (e.g., extra visits, cigarettes, gym access). This evaluation indicated that over the course of the first year-and-a-half, there was insufficient staff to run the system, available staff was inadequately trained in maintaining standard operating procedures, funds and time allocated to the system were inadequate and management pressured staff to apply the system in a certain manner (Geller et al., 1977). Prison officers also reported that the rigidity of the token economy guidelines frustrated building rapport with incarcerated individuals.

Some fifteen years later, the IEP scheme in England and Wales was evaluated right after its implementation (Liebling, 2008; Liebling et al., 1997). Again, implementation issues were found. Based on feedback seminars, observations, and interviews with over 100 incarcerated individuals and staff in five prisons, the researchers concluded that the system was not applied fairly. Incarcerated individuals were not aware of which behavioural demands to comply with, and they experienced staff decisions to reward allocation as arbitrary and unfair. Formal procedures to hold staff accountable for their decisions were either not implemented or unclear. Incarcerated individuals also experienced the conditionality of satisfying some of their basic psychosocial human needs (e.g., contact with family and friends) as extremely threatening to their autonomy.

Table 1.1
Behavioural demands in the Dutch system of Promotion and Demotion (2024)

Desirable behaviour	Undesirable behaviour	Impermissible behaviour
A prisoner goes through the required screening/diagnostics and intake	A prisoner *does not* go through the required screening/diagnostics and intake	A prisoner culpably returns late or does not return from leave
A prisoner actively participates in sentence planning, including articulating a plan of action on how to secure basic re-entry needs (e.g., housing, job, bank account)	A prisoner *does not* cooperate in the development of the prisoner's own sentence plan, including a plan of action on basic conditions	A prisoner brings prohibited goods into the prison, trades in them or possesses them
A prisoner implements the sentence plan	A prisoner *does not* implement the sentence plan	A prisoner flees the prison or attempts to do so
A prisoner cooperates in the daily programme	A prisoner *does not* cooperate in the daily programme	A prisoner behaves physically aggressive or seriously threatens staff or a fellow prisoner
A prisoner cooperates in work assignments	A prisoner *does not* cooperate in work assignments	A prisoner is prosecuted for committing or co-committing a crime while in custody
A prisoner complies with (house) rules	A prisoner *does not* comply with (house) rules	A prisoner uses alcohol drugs, or refuses to take a drug test or commits fraud in taking the test
A prisoner keeps appointments	A prisoner *does not* keep appointments	
A prisoner accounts for behaviour when asked	A prisoner *does not* account for behaviour when asked	
A prisoner does not use alcohol or drugs and cooperates with drug testing (urine testing)		

Impact evaluations of reward systems in prison are somewhat more prevalent, yet still sparse. In a prior scan of the literature, only three impact evaluations of RSPs emerged (Serin & Hanby, 2009). These researchers concluded that the evidence that reward systems in prison can effectively promote compliance in prison is – at best – mixed. However, the identified studies were dated (1973-2003), small-scale or involved studies on specific target groups, such as female incarcerated individuals on segregated units or in high-security facilities. One of these studies concerned the IEP scheme. In the first years after the IEP scheme was implemented, compliance of incarcerated individuals did not increase. On the contrary, vulnerable incarcerated individuals and youth exhibited more misconduct than before, and staff-incarcerated individual relationships generally deteriorated (Liebling, 2008; Liebling et al., 1997). Some of the IEP scheme implementation issues (i.e., arbitrary and unfair system application) may account for these aversive outcomes. However, a later meta-analysis identified ten studies that exclusively examined token economies (Gendreau et al., 2014). This meta-analysis suggests that token economies can successfully modify incarcerated individual behaviour in 69 percent of cases. These meta-analysts argue that many of the negative or non-significant positive effects rendered by reward and punishment systems are due to poor implementation and application (Gendreau & Listwan, 2018). These researchers also stated that researchers 'have often chosen to ignore hypothetical constructs in the learning process, but […] individual differences […] might affect performance in CM programmes' (Gendreau et al., 2014, p. 1091). One of those factors could be self-governance ability (Boone, 2012; Crewe, 2011b; Hutton, 2017; Van Ginneken, 2018).

1.4.2 National Studies

Formal plan, process, and impact evaluations of the *Dutch* reward system in prison are absent. However, two (complementary) commentaries have been written on the general theoretical presumptions of the Dutch system. The conclusion was that the programme was not in line with criminological research and theory. Based on close readings of policy documents, Boone (2012; 2013) identified the presumption central to the Dutch RSP to be that manipulating the reward-cost balance of compliant behaviour by introducing rewards will influence incarcerated individual behaviour, as incarcerated individuals are capable of making rational decisions based on benefits and costs. However, according to Boone, this assumption is hard to reconcile with the life course perspective in criminology. This perspective implies that behaviour change is a process of trial and error, reciprocally influenced by both personal and environmental factors. Hence, to contribute to lasting behavioural change, reward systems in prison should also account for personal skills (e.g., ability to self-govern behaviour) and not punish incarcerated individuals who fail to comply with behavioural

demands. Moreover, according to Boone (2012), incarcerated individuals who experience difficulty with self-governing their lives are in most need of support in behaviour change.

Process evaluations of the Dutch reward system in prison are also limited. The available data indicates that, also regarding the Dutch system, there are application issues. Unfortunately, the outcomes of internal best practice meetings and internal audits by the Ministry of Justice and Security are not publicly available. There are, however, three reports from the Inspectorate of Justice and Security (IJV) and the RSJ, which provide some empirical insight in the application of the system of Promotion and Demotion. These reports are based on qualitative data (e.g., analysis of prison policy documents, observations, interviews and focus groups with various prison officers and incarcerated individuals in up to eleven prisons). They indicated a serious disparity between the policy and the application of the system. Specifically, staff often failed to supervise and observe incarcerated individuals on the unit, provide input for decisions on promotion or demotion, and formally substantiate those decisions (IJV, 2018; RSJ, 2019; 2020). A review of jurisprudence on complaints of incarcerated individuals corroborated the conclusions on poor operation of multidisciplinary meeting participation and substantiation of recommendations to prison governors (Jacobs & De Groot, 2019). The prison layout (frustrating visibility and thus observation of behaviour), shortage of staff, shortage of time for the available staff and a lack of behaviour assessment skills and training were mentioned as causes of these problems. Notably, prison officers also indicated that 'not all prisoners are capable of bearing the responsibility' of self-governing their behaviour on the unit, such as incarcerated individuals suspected of having mild intellectual disabilities (IJV, 2018, p. 23).

A last empirical perspective on how the Dutch reward system is applied, is offered by Beckmann's (2016) study on behavioural assessments by prison staff and participatory observations in Dutch prisons. The findings from this study indicate that incarcerated individuals find it difficult to understand what behaviour is exactly expected of them, as the generally formulated behavioural demands leave much room for interpretation, causing feelings of uncertainty and distrust.

Finally, impact evaluations on the system of Promotion and Demotion in its current form have not been conducted either. However, there have been five evaluations concerning pilot-based self-governing regimes in Dutch prisons. These evaluations indicate that some incarcerated individuals can be extrinsically motivated (i.e., through rewards) to comply, yet that rewards do not necessarily reduce stress and increase these individuals' perception of autonomy. The pilot participants were placed on separate units. Three pilots exclusively concerned incarcerated individuals with a reward status, who were deemed socially capable of functioning well in a self-governing regime (De Jong et al., 2015). Although privileges differed slightly between pilots, they predominantly included internal freedoms (e.g., greater freedom of movement on the unit, out of cell in the evening)

and material rewards (e.g., higher wages for work assignments, using a designated smoking area, using the shower every day). All three pilots were evaluated by interviewing incarcerated individuals on the experimental regimes (N = 5 and N = 8, De Jong et al., 2015; N = 16, Farahi & Van de Rijt, 2016). Many of the men complied with the unit's rules out of anxiety of losing rewards. The men also experienced greater subjective autonomy, increased self-reflection and self-efficacy, and increased mental health. Unfortunately, sample sizes were small, there were no pre-measurements, and only well-behaving men were selected for pilot participation (i.e., those with a reward status and deemed sufficiently socially skilled to function in a group setting). Therefore, it is difficult to conclude which elements of the self-governing regime were responsible for the reported changes, the size of those changes, and the degree to which these findings can be translated to the greater prison population, which includes incarcerated individuals low on self-governance ability.

The final two evaluations concerned one pilot (Vollaard et al., 2019; Zaalberg et al., 2020), but looked at different outcome measures. Incarcerated individuals in the experimental regime were allowed to order groceries, cook their own meals, close their cell (from the outside) with their own key, and independently go to and come back from activities using a card. The first evaluation concerned 172 incarcerated individuals (including a control group) and measured the effects of these self-governing regimes on stress (Zaalberg et al., 2020). In short, residing on a self-governing regime did not reduce self-reported nor physiological signs of stress. Notably, the experimental and control group both contained individuals with and without reward status. Even though not having a reward status was correlated with greater stress, the experimental condition was not. The second evaluation regarded effects on prison misconduct and mental health (Vollaard et al., 2019). Officially recorded aggressive behaviour dropped by 60 percent compared to a control group in a regular regime, and participants in the experimental group also reported more subjective autonomy. Contrarily, mental health, physical health and sleep did not significantly increase (Vollaard et al., 2019). The relationship between subjective autonomy and misconduct was not examined. Although having a reward status was not a prerequisite to participate in the experimental pilot, reward status was not controlled for in the models testing effects of the experimental conditions. Neither was self-governance ability.

1.4.3 Limitations of Prior Studies

In sum, international and national evaluations on reward systems in prison have multiple limitations. First, prior evaluations only marginally touched upon the role of personal characteristics of incarcerated individuals in how reward systems in prison achieve objectives (Gendreau et al., 2014), even though incarcerated individuals report different levels of engagement in

and compliance with reward systems (Crewe, 2011b; Crewe & Ievins, 2020). One personal characteristic potentially contributing to such differential effects is self-governance ability, which is necessary to meeting behavioural demands, but does not appear to be equally distributed over the prison population: some struggle more than others to comply (Hutton, 2017). Models for effective correctional interventions too suggest that several (non-criminogenic) personal characteristics of incarcerated individuals could mediate progression in and outcomes of reward systems in prison, such as internal capacities and skills (Andrews & Bonta, 2010; Purvis et al., 2011). Stepping into this literature gap on the role of personal characteristics, and self-governance ability specifically, in reward systems in prison using data from the Netherlands is both suitable and timely. An evolving body of literature indicates that the Dutch prison population is characterised by an array of problems, among which low self-governance ability (Den Bak et al., 2018; Kaal, 2013; Kaal et al., 2011). The degree to which incarcerated individuals low on self-governance ability are responsive to a system requiring self-governance to obtain rewards, therefore is questionable but understudied.

Second, the findings from available prior studies are also difficult to generalise to the Dutch system, mainly due to differences in timeframe, context and system design. Most prior studies were conducted in a very different time and place: over 50 years ago, in the United States. The prison context in the United States differs largely from the current Dutch prison context in terms of dominant aim of imprisonment (retribution versus rehabilitation) and staff-incarcerated individual relationships (focus on static versus dynamic security). Moreover, the past 60 years has seen an increase in drug use, psychosocial problems in the prison populations and gang membership, to name a few major developments. These temporal and environmental differences are likely to influence the mechanisms assumed to underlie the Dutch reward system in prison (Pawson & Tilley, 1997), such as the extent to which rewards extrinsically motivate incarcerated individuals to comply with behavioural demands. Moreover, most prior studies focused on prison Token Economies, which differ in design from the Dutch reward system. Most notably, in the Dutch system, rewards are not *immediately* provided and are *universal*, not individually tailored.

Importantly, such system design differences have been found to considerably impact outcomes of punishment and reward systems in prison (Kazdin, 2001; Sulzer-Azaroff & Mayer, 1991), making it difficult to generalise these findings to the current Dutch system. Most like the Dutch system arguably are studies on the *Incentives and Earned Privileges scheme* in United Kingdom, in terms of timeframe, prison context and system design. Unfortunately for generalisation purposes, studies conducted on the IEP scheme are almost exclusively qualitative, questioning the degree to which the findings are representative of the greater British prison population – let alone the *Dutch* prison population. These qualitative studies do, however, offer hypotheses which can be tested empirically on a larger scale, also in the Netherlands.

The aforementioned limitations of prior research could be the consequence of a lack of studies but could also (partially) be traced back to a lack of *overview* on existing studies. Perhaps relevant studies have remained under the radar until now. Only one literature scan and one meta-analysis (which had a much broader focus) have been carried out on reward systems in prison. The literature scan identified only five studies (Serin & Hanby, 2009), whilst the meta-analysis included studies dating back to the 1960-1970s and almost exclusively concerned Token Economies, which cannot be equated to the design of the Dutch system (Gendreau et al., 2014). Also lacking from these two prior attempts to summarise the existing knowledge on reward systems in prison are qualitative studies. However, there has been recent work on the IEP scheme which might offer valuable insights on the mechanisms by which reward systems in prison attain their outcomes (Crewe, 2011a; 2011b; Crewe & Ievins, 2020; Khan, 2016; 2022). Therefore, a systematic review and synthesis of prior literature on this topic will be part of this dissertation.

Finally, prior research has primarily focused on *describing* system outcomes, instead of identifying and testing underlying causal assumptions (for the only example, see Liebling et al., 1997). This omission limits researchers' ability to empirically verify or falsify such assumptions, and refine the programme theory (Funnell & Rogers, 2011; Sampson et al., 2013). Therefore, policymakers cannot make evidence-based decisions on how to alter specific system elements to optimise its effectivity and mitigate possible aversive effects (Donaldson & Lipsey, 2006). Two small-scale studies evaluating effects of Dutch pilots allowing incarcerated individuals to earn rewards identified some possible mechanisms of change, among which extrinsic motivation (e.g., anxiety of losing privileges and no longer being trusted by staff) (De Jong et al., 2016; Farahi & Van de Rijt, 2016).

It is unknown, however, whether these mechanisms apply to all participants of the Dutch reward system. Participants of these pilots were specifically selected on having a (i) reward status and (ii) being capable of self-governing their behaviour, thus focusing on a very specific subset of the prison population that is not representative of the whole prison population. How and whether these mechanisms of change operate is likely to be dependent of contextual factors, among which participant characteristics (Greenhalgh & Manzano, 2022; Pawson & Tilley, 1997). Generalisation of these findings is thus not advised, whilst they do offer valuable hypotheses.

Overall, prior research on reward systems in prison has not been systematically collected, analysed and synthesised. Studies that have been identified focused on describing rather than explaining outcomes, cannot be generalised to the Dutch context, and often failed to account for important personal characteristics, such as self-governance ability. This study was designed to overcome these issues. As empirical data on reward systems in prison is limited, it is paramount to describe the theoretical lenses through which the mechanism of these systems can be understood.

1.5 Theoretical Framework

Reward systems in prison have been criticised on theoretical grounds. Specifically, by penal and criminological scholars from the United Kingdom and the Netherlands – countries in which reward systems in prison are operational. We first state those objections here, and next assess these objections, and the relationship between rewards and incarcerated individuals' behaviour more generally, by consulting theories on compliance and models for effective correctional interventions.

1.5.1 Theoretical Objections

The first objection scholars raised is that reward systems in prison overemphasise the role of formal rewards in behavioural change (Boone, 2012; 2013; Liebling, 2008; Liebling et al., 1997). First, scholars argued that (i) this narrow focus on *formal* rewards overlooks important *informal* factors (e.g., prison subculture, import characteristics; Liebling et al., 1997), and (ii) that an emphasis on extrinsic motivation ignores the crucial role of *intrinsic* motivation to change behaviour. Second, it was objected that the Dutch reward system mostly ignores the role of individuals' ability to live up to behavioural demands. This is relevant, as a large part of the (Dutch) prison population is faced with intellectual disabilities, meaning they have trouble understanding causal relationships, and processing information (Boone, 2012; 2013; Van Ginneken, 2018). A final objection is that incarcerated individuals do not learn *how* to become responsible agents by punishing their 'undesirable' behaviour (Boone, 2012; 2013).

1.5.2 Prison Compliance Theories

As will become even more apparent in Chapter 2, the Dutch reward system in prison is set out to promote incarcerated individuals' 'behaviour change', which is sometimes interpreted by policymakers as compliance, and at other times as rehabilitation. We therefore first consult theories that explain compliance of incarcerated individuals, and next turn to models that describe principles for effective correctional interventions (or: rehabilitation models).

Prison researchers have developed typologies of incarcerated individuals' attitudes towards compliance (Bottoms, 2002; 2012; Crewe, 2013; 2022; Crewe & Ievins, 2020; Khan, 2022; Liebling et al., 1997; Sparks et al., 1996; Sykes, 1958). Common threads running through those typologies are distinctions between (a) extrinsically motivated compliance and intrinsically motivated compliance, and (b) short-term and long-term compliance. The latter distinction is also framed as behavioural change versus psychological change. Unfortunately, 'empirical research investigating compliance in the

correctional setting is sparse' (Bello & Matshaba, 2023, p. 1). More importantly for the current study, how these typologies relate to reward systems in prison is unclear. Only few researchers based their typologies on research among RSP participants. Crewe's (2013) typologies were derived from ethnographic research among participants of the IEP scheme: he found an array of motives to comply with (or resist) the IEP scheme, ranging from extrinsic to intrinsic. It is unclear from his findings what role personal characteristics play in adopting certain motives. Somewhat more telling in that regard are Khan's (2022) typologies of the 'visibly compliant' and the 'invisibly compliant' incarcerated individual. Khan argues, based on interview data with 16 men, that only *visible* compliance will result in IEP progression. His participants also linked introversion traits to invisible compliance, indicating the influence of personal characteristics on being rewarded for compliance.

Also, procedural justice has been theorised to promote compliance with the law by Tyler (1990), and prison researchers have adopted his approach to study compliance of incarcerated individuals (Bottoms, 2002; Barkworth, 2021). Most of those empirical studies operationalised compliance as decreased misconduct or increased perceived staff legitimacy. However, misconduct can be regarded is one particular type of non-compliance, whereas perceived staff legitimacy is understood as a particular motive for compliance (Bottoms, 2002). The Dutch system differentiates between compliance (i.e., desirable behaviour) and misconduct (i.e., impermissible behaviour) (see Figure 1.1). Even though it is generally expected that differences in type of behaviours can contribute to differences in effects of contingency management systems (Kazdin, 2001; Sulzer-Azaroff & Mayer, 1991), it remains unclear whether and how motives are related to different types of behaviour. Moreover, these typologies obscure how extrinsic and intrinsic motivation are related, and how rewards specifically relate to motives for compliance. Finally, these typologies almost exclusively focus on motivational postures, overlooking the role of opportunity and capacity to comply. Models for effective correctional interventions, however, emphasise that, next to motivation, capacity and opportunity are important ingredients for behaviour change.

1.5.3 Models for Effective Correctional Interventions

Models for effective correctional interventions outline which principles contribute to effective correctional interventions. These models can provide an initial framework to assess how rewards, motivation and self-governance ability relate to behaviour change in prison. Two dominant correctional rehabilitation models will be described below: the *Risk-Needs-Responsivity* (RNR) model (Andrews et al., 1990) and the *Good Lives Model* (GLM) (Ward, 2002). Whereas the RNR model emphasises the utility of rewards and other external factors to motivate incarcerated individuals to change behaviour, the GLM poses that interventions should facilitate intrinsic motivation to

change behaviour, which stems from internal drives to meet basic psychosocial human needs. Both models ascribe importance to self-governance ability.

Risk-Needs-Responsivity Model

The *Risk-Needs-Responsivity* model of offender rehabilitation aims to describe *what* works in correctional assessment and treatment (Andrews et al., 2011). Its main assertion is that behaviour can be influenced by manipulating the environment, such as through rewards and punishment (Andrews & Bonta, 2010). Although the current model has grown to include fifteen principles for effective treatment (Andrew et al., 2011), the three principles of risk, need and responsivity make up its conceptual backbone. The *Risk*-principle states that the intensity of the intervention should be based on the offender's risk of reoffending. Generally, offenders at high risk of offending should be offered more intensive interventions. The *Needs*-principle contends that interventions should focus on eliminating criminogenic needs or repairing deficits. The model expects that when criminogenic needs are sufficiently addressed, antisocial behaviour is unlikely to occur. The central eight criminogenic needs include having a history of antisocial behaviour, antisocial personality pattern, antisocial cognition, antisocial associates, dysfunctional family and/or relationship, low levels of performance in employment and/or education, low levels of involvement in leisure and/or recreation, and substance abuse (Andrews et al., 2011).

The *Responsivity*-principle holds that interventions should match offender characteristics. The responsivity principle is subdivided into general and specific responsivity. General responsivity refers to using empirically validated intervention techniques (Andrews & Bonta, 2010). The creators of the RNR model put forward cognitive-behavioural and cognitive-social techniques as most reliable, such as rewarding, punishing, and modelling (Andrews & Bonta, 2010). Specific responsivity refers to adapting the intervention style and mode to offender's strengths, learning style, personality, motivation, and bio-social characteristics (Andrews & Bonta, 2010; Dowden & Andrews, 1999).

Underlying the descriptive RNR model are explanatory perspectives on behaviour change: the General Personality and Cognitive Social Learning (GPCSL) perspective on human behaviour, and the Personal, Interpersonal, and Community Reinforcement (PIC-R) perspective (Andrews & Bonta, 2006; Andrews & Dowden, 2007). These perspectives are, in turn, informed by theories on operant conditioning, rational choice, and social (cognitive) learning (Agnew, 1985; Akers & Jennings, 2016; Bandura, 1977; 1986; Burgess & Akers, 1966; Hirschi, 1969; Skinner, 1938; Sutherland, 1939). Central to these perspectives is the presumption that antisocial behaviour is caused, and can be changed, by rewarding desirable behaviour and punishing undesirable behaviour (Andrews, 1982).

In other words, the RNR-doctrine contends that motivation for behaviour change is predominantly externally influenced (Azrin & Holz, 1966;

Skinner, 1938). This builds upon another presumption of this model, which is that offenders are capable of making rational decisions (Andrews & Bonta, 2010). Advocates of this model state that the role of personal skills (e.g., problem-solving, self-control) in motivational processes is mainly limited to the degree to which a lack of skills thwarts incarcerated individuals' perception of rewards and costs (Andrews & Bonta, 2010). Based on the RNR model and its underlying perspectives, some scholars claim that reward and punishment systems in prison can successfully modify the behaviour of incarcerated individuals (Gendreau et al., 2014).

Good Lives Model (GLM)

The Good Lives Model (GLM) was developed in response to criticisms on the RNR model (Ward, 2002). The RNR model has been criticised for overemphasizing risk and criminogenic needs, at the expense of attention to individual needs and skills (Laws & Ward, 2011; Ward & Stewart, 2003; Ward et al., 2007; Ward et al., 2012). Even though the responsivity-principle could theoretically account for this, this principle is argued to be empirically neglected and 'theoretically unsophisticated' (Polaschek, 2012, p. 16). In practice, the responsivity principle is allegedly narrowed down to offenders' motivation (Wilson & Yates, 2009), overlooking their skills, learning styles and strengths. According to some critical scholars, downplaying the role of personal skills and intrinsic motivation in correctional interventions unjustly directs their focus towards external manipulation of contingencies (e.g., rewards, punishments) for behaviour (Purvis et al., 2011). Such an operant conditioning perspective is stated to offer unsatisfying explanations for behaviour change in offenders (Polaschek, 2012; Ward et al., 2012).

The GLM, in contrast to the RNR model, states that the primary goal of (prison) interventions should be to learn offenders how to satisfy their basic human needs (called primary goods) in legitimate ways (Fortune et al., 2012; Ward & Stewart, 2003). This model assumes that human beings are all motivated by *primary goods* or intrinsic basic human needs. GLM-theorists derived eleven different groups of human needs from psychological, biological, and anthropological studies: life, relatedness, hobbies and recreational pursuits, excellence in work (including mastery experiences), community, pleasure, creativity, knowledge, freedom from stress, having a sense of meaning and purpose, and agency (i.e., autonomy, power, and self-directedness) (Purvis et al., 2011; Ward & Brown, 2004; Ward & Marshall, 2004; Purvis et al., 2011). According to the GLM, one or multiple of these needs can be satisfied through different means (called *secondary goods*), such as work, relationships, or certain activities.

GLM-theorists further state that, next to external capacity, internal capacity is also important mediator of acquiring primary goods (Ward & Stewart, 2003). *External capacity* refers to opportunities of the (prison) environment, such as social support, resources, and access to activities. *Internal capacity* refers to personal characteristics, like skills, knowledge,

motivations, and beliefs (Purvis et al., 2011). Hence, according to the GLM, strategies to satisfy basic human needs are situated both in the (prison) environment and the person. Interventions should support offenders in replacing ineffective strategies to acquire primary goods by effective strategies (Ward & Maruna, 2007; Wilson & Yates, 2009). When internal and external capacities are low, this can prompt offenders to look for other (illegal) ways to satisfy their needs. The claim that behaviour change requires specific internal capacities (e.g., cognitive skills, social skills, practical skills) is echoed by multiple (social) learning and self-regulation theories (Bandura, 1986; Schunk & Zimmerman, 2012; Schunk & Pajares, 2009). In sum, GLM states that correctional interventions should aim to develop skills (i.e., internal capacity) required to change behaviour, and create environments which facilitate opportunities to learn how to change behaviour (i.e., external capacity) (Purvis et al., 2011). The GLM consequentially states that relapse into antisocial behaviour can be ameliorated by incorporating positive reinforcement (external capacity), but that rewarding compliant behaviour alone is insufficient in inducing behaviour change (Ward et al., 2012).

1.5.4 Contrasts and Limitations

Regarding the relationship between rewards and behaviour, and the role of self-governance ability, the RNR model and the GLM differ in two important respects.

First, although both models contend that behaviour change can be affected by both environmental (i.e., extrinsic) and personal (i.e., intrinsic) factors, they place different emphases on causes of behaviour change, and, thus, the focus of correctional interventions. The RNR model proposes that offenders will primarily be extrinsically motivated (e.g., by rewards and punishments) to change their behaviour, whereas the GLM contends that intrinsic motivation (i.e., striving towards basic human need satisfaction) is the most important driver of behaviour change. Hence, rewarding compliant behaviour aligns with the principles of the RNR model, but according to the GLM rewards can at best be complementary to the pursuit of incarcerated individuals' primary goods (e.g., autonomy). GLM's explanation of behaviour change is therefore more focused on cognitive learning (internal influences on behaviour) than on the behaviourist and social learning perspective to RNR (external influences on behaviour) (Ziv, 2017). In conclusion, it can be expected based on these models that extrinsic rewards *can* promote behaviour change. Based on RNR principles, we expect that rewards will provide motives to comply with behavioural demands to all incarcerated individuals. Based on the tenets of GLM, we expect that incarcerated individuals will, on average, be extrinsically motivated to change behaviour through providing extrinsic rewards for good behaviour, but only superficially and on the short-term.

Second, personal skills are only deemed relevant by the RNR model in as far as they affect the offender's ability to learn from the environment. For instance, when they influence their perception of rewards and costs. However, the GLM argues that intrinsic motivation for change is primarily derived from incarcerated individuals' own strengths, including skills, in pursuing their primary goods. The GLM thus centralises personal skills as enabling effective, legal strategies to pursue basic human needs. Correctional interventions based on GLM will therefore also always be directed towards developing personal skills, as well as creating environments that promote the development of such strategies. In contrast, RNR principles will only address personal skills if they frustrate social learning techniques. In conclusion, it can be expected based on these models that self-governance ability *is likely to* have a mediating effect on the relationship between extrinsic rewards and behaviour change of incarcerated individuals. Following RNR, lack of personal skills can thwart rationally outweighing rewards and costs for behaviour change. Based on the GLM, incarcerated individuals will not be able to legally pursue their goals without adequate personal skills.

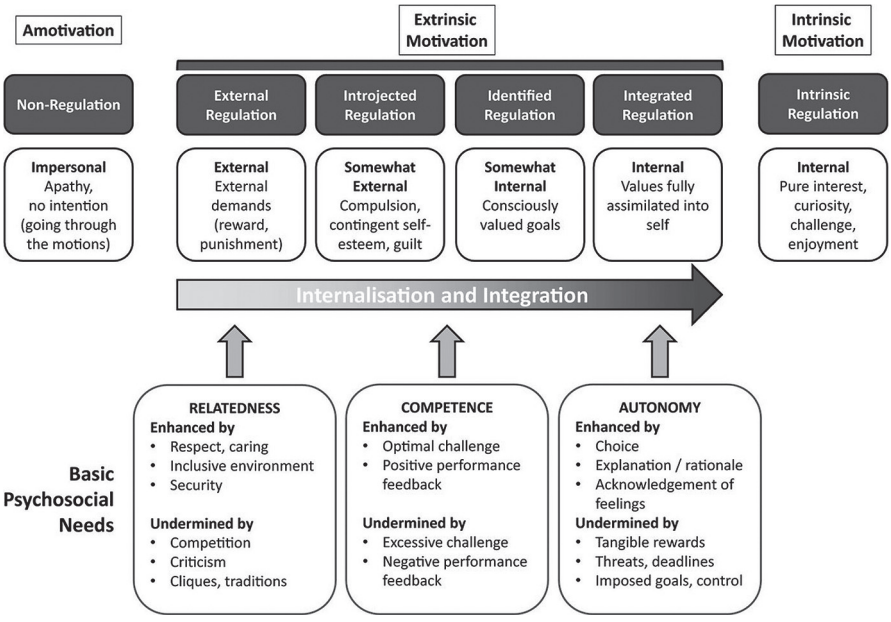
Notably, however, neither of these models can supply hypotheses on *how* rewards are related to behaviour change. Due to their descriptive and practice-oriented nature, these correctional rehabilitation models only describe *what* works in correctional programming (Ward & Durrant, 2021). They do so in general conceptual terms, of which the link to underlying explanatory theories is sometimes opaque (Ward & Durrant, 2021). This is unfortunate, as part of this study also aims to explore a potential underlying mechanism of change: the extent to which the extrinsic rewards of the Dutch reward system in prison can promote human need (autonomy) satisfaction (Chapter 5). To provide a theoretical framework on *how* rewards may contribute to behaviour change, explanatory theories must be consulted. One explanatory theory that offers more in-depth insight into how rewards relate to behaviour change is the Self-Determination Theory (Deci & Ryan, 2000a; 2000b). This theory has seldomly been used in criminological research (Van der Kaap-Deeder et al., 2017). However, criminological scholars increasingly advocate the use of psychological theories – such as the Self-Determination Theory – to inform and advance criminological research (Brezina, 2020; Johnston et al., 2019; Petrich, 2020). Moreover, prison scholars have argued that 'penological research on compliance should become much more interdisciplinary' (DeCoene & Beyens, 2013, p. 222), as it is now focused mainly on misconduct and rational choice perspectives (Etiènne, 2010).

1.5.5 Self-Determination Theory

According to the Self-Determination Theory, intrinsic motivation generally is the most effective source of psychological growth, well-being, and behaviour change (Ryan & Deci, 2017). According to the Self-Determination Theory, the core difference between intrinsic and extrinsic motivation is that

the latter means that individuals are motivated by separable *consequences* of behaviour, whereas intrinsic motivation refers to properties inherent to the *behaviour itself*, such as joy, pleasure, and curiosity (Ryan & Deci, 2000b). However, it is theorised that extrinsic motivation can also be gradually replaced by intrinsic motivation, by learning and internalising the intrinsic value of behaviour (see Figure 1.1). The Self-Determination Theory states that behaviour is inherently satisfying when it contributes to three basic psychosocial human needs: competence, relatedness, and autonomy (Ryan & Deci, 2000b; Deci & Ryan, 2004).

Figure 1.1
Self-Determination Theory visualised. Derived from Cook & Artino (2016)



Competence is defined as the perception of mastery. Relatedness can be defined as the need to feel connected to others. Autonomy is understood as the need to perceive that one can make and implement independent, self-directed choices (Niemiec et al., 2010). Following the Self-Determination Theory framework, autonomy supportive environments (an environment characterised by freedom and independence) can promote satisfaction of the basic psychosocial human need for autonomy (Ryan & Deci, 2000b). In contrast, this effect can be frustrated by experiences of external control, such as tangible rewards, supervision, and deadlines (see Figure 1.1) (Vansteenkiste & Ryan, 2013; Vansteenkiste et al., 2020). Based on Self-Determination Theory, it is expected that rewards will not contribute to behaviour change when these rewards are experienced as controlling.

1.6 Current Research

The objective of this study is to take a first step in filling the theoretical and empirical void in current literature on reward systems in prison. To do so, a broad theory-driven evaluative approach is adopted, including a plan evaluation, systematic review of prior studies, a process evaluation, and an impact evaluation of the Dutch reward system in prison. As studies on correctional interventions commonly focus on one type of evaluation (mostly impact evaluation), this comprehensive approach is quite unique. The aim of the current study is to answer four related research questions.

The first research question concerns: *What is the programme theory of the Dutch reward system in prison, as it was implemented in 2014?* Answering this research question aims to provide a holistic view on policymakers' theoretical assumptions of the Dutch reward system in prison. Answering this question also aims to map the extent to which, and in what way, policymakers aim to consider the self-governance abilities of incarcerated individuals in rewarding compliant behaviour. Lastly, assessing the scientific plausibility of these assumptions identifies well-supported and poorly supported assumptions, simultaneously providing testable hypotheses on working mechanisms which can inform impact evaluations.

The second research question concerns: *What is known about the effects of reward systems in prison on the behaviour and attitudes of incarcerated individuals?* The purpose of answering the second research question is to create a complete overview of the prior studies on the effects of reward systems in prison and assess their methodological quality. Creating this overview can expose gaps in the literature and possibly inform (re)design of reward systems in prison.

The third research question concerns: *To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?* (See Figure 1.2 for the conceptual models of research questions 3 and 4). This process evaluation tests to what extent the application of the Dutch reward system in prison corresponds to its policy framework, specifically regarding the extent to which behaviour, self-governance ability and motivation are associated with obtaining rewards. It aims to distinguish between possible failures in implementation (not done right) and theory (done right but still did not work) (Funnel & Rogers, 2014). Self-governance ability is included as prior research implies that self-governance ability of incarcerated individuals could mediate engagement and progression in reward systems in prison (Crewe, 2011b; Hutton, 2017). Assessing the extent to which incarcerated individuals experience legal and extra-legal factors determining their opportunities for progression in the Dutch reward system in prison can be considered an important first step in examining the practical application of the system.

The fourth and final research question was subdivided into three coherent questions: *To what extent is having a reward status related to greater objective autonomy? To what extent is greater objective autonomy related to more subjective*

autonomy (both an increase in satisfaction and a decrease in frustration)? To what extent do the relationships between (a) reward status and objective autonomy and (b) objective autonomy and subjective autonomy (both satisfaction and frustration) depend on incarcerated individuals' self-governance ability? The purpose of this question is to generate insight into both application (prevalence of obtained rewards) and effects (an incarcerated individual's perceptions of autonomy) of the system. Its focus thus lies on examining a possible mechanism of change, transcending questions of system effectiveness. Also, empirical attention towards autonomy is warranted because perceptions of autonomy are likely to influence many other aspects of the prison climate (Boone et al., 2016).

1.7 Method and Data

In this section it is described which methods are adopted and which data sources are consulted to answer the research questions.

1.7.1 Research Question 1

Answering the first research question requires thorough document analysis. A plan evaluation is conducted using a policy scientific approach (Leeuw, 2003). This entails systematically collecting and analysing the programme manual, parliamentary papers, and other relevant documents related to the programme theory on the Dutch reward system in prison (N = 12). Documents were analysed using qualitative data analysis software (Atlas.ti). To assess the scientific plausibility of the hypothesised causal assumptions which are distilled from these documents, relevant literature on behaviour management systems is studied.

1.7.2 Research Question 2

To answer the second research question, an extensive systematic review of prior studies on the effects of reward systems in prison on behaviour of incarcerated individuals and attitudes is conducted. This systematic review has three specific methodological advantages. First, this review adheres to systematic review procedures common in criminology (Petticrew & Roberts, 2008). Second, it uses a wide and complimentary range of multidisciplinary and monodisciplinary databases, assuring a near to complete overview of studies, including studies that do not solely focus on reward systems in prison but are conducted on incarcerated individuals participating in such a system. Third, this systematic review is methodologically progressive as it includes both quantitative and qualitative studies, which are all assessed on their methodological merits using well-known quality appraisal instru-

ments (Maryland Scientific Methods Scale, Cook & Campbell, 1979; Critical Appraisal Skills Programme Checklist, Critical Appraisal Skills Programme, 2018).

1.7.3 Research Questions 3 and 4

The third and fourth research questions are both answered using quantitative data from the *Life in Custody* (LIC) study. The LIC study is a unique, long-term collaborative research project of the Dutch Custodial Institutions Agency and Leiden University, which uses the *Prison Climate Questionnaire* (PCQ). This questionnaire has good psychometric properties and is standardised (Bosma et al., 2020b). The PCQ measures six domains that are theorised to be central to the prison climate: (1) autonomy, such as the ability to make self-determined choices, (2) social contacts in prison (e.g., prison official-incarcerated individual, incarcerated individual-incarcerated individual), (3) social contacts with people outside of prison, (4) meaningful activities, (5) safety and order, and (6) facilities in the prison, such as the ability to prepare meals (Boone et al., 2016; Bosma et al., 2020b). For the current study, an adapted version of the original PCQ was used.

Compared to the standardised PCQ, the PCQ 2022 is unique in multiple aspects. First, the survey was anonymous, which it was not in prior waves (e.g., Berghuis, 2022; Pasma, 2023). Second, it included additional items on self-governance ability, behavioural compliance, motivation to comply with behavioural demands, subjective autonomy, and various background characteristics (e.g., time served, incarceration history), among other variables. Third, unique to the PCQ 2022 is the inclusion of an instrument which was specifically developed for the purpose of this study: the *Leiden Self-Governance Ability Scale* (LSGAS). After reviewing existing literature and instruments, it was concluded that there was no instrument that measured self-governance ability, which was self-report and suitable for large scale prison application. Many existing instruments were other report, required professionals that administer the instrument, were extremely lengthy, too expensive to administer on a large scale, showed poor validity and/or reliability, measured capacity (functioning under ideal circumstances) instead of day-to-day ability (functioning under daily circumstances), still in developmental phase, and/or focused on measuring one specific skill (e.g., impulsivity or executive functions). Therefore, a new instrument was devised to measure self-governance ability of incarcerated individuals, based on theories on cognition, intelligence, and self-government. The instrument was cross validated against a screener for intelligence and learning disabilities (SCIL 18+; Nijman et al., 2018), which was administered to 39 incarcerated individuals of the analytical sample (r (39) = .41, p = .01;). Fourth, since this study aimed to measure self-governance ability (including reading ability), items were formulated in clear, simple and concise wording. The Dutch version of the PCQ 2022 was piloted among eight incarcer-

ated individuals. Four of these them were indicated (but not diagnosed) by prison officers as having mild intellectual disabilities or learning difficulties. These participants rated the survey as clear and understandable. Developing and piloting the entire PCQ 2022 roughly took one year. The survey was available in Dutch and English.

The rich sample used for analysis consisted of 1011 incarcerated individuals. During data collection, 3210 incarcerated individuals were housed in the nine prisons selected for data collection. Some of them (8,1 percent) could not be invited to participate, because of their stay in solitary confinement, they were transferred to another unit or prison, severe mental health issues, aggressivity or not understanding Dutch or English. Of the remaining 2950 individuals who could be approached to participate, 741 individuals chose not to participate. Some of reasons for non-participation were 'don't want to', lack of time and a lack of trust in survey outcomes leading to real changes in prison, among other reasons. Eventually, 2209 incarcerated individuals successfully participated and filled out the PCQ 2022. This resulted in a response rate of 75 percent. All participants were informed of the purpose of the study and had to consent to taking part. Only 1011 individuals were sentenced and incarcerated on regular prison regimes and thus constituted the sample used for our analyses participated in the Dutch RSP; other regimes are formally excluded.

1.7.4 Impact of the Covid-19 Pandemic

The Covid-19 pandemic seriously impacted the planning, sample size, research design and, possibly, results of this dissertational study. Regarding planning, data collection for research questions three and four was planned to start in February 2021, in all 26 Dutch prisons. However, the Dutch Custodial Institutions Agency had to last-minute postpone the data collection until further notice, because external access to prisons was kept to a strict minimum to prevent Covid-19 outbursts in prison. Months later, another attempt was cancelled several days before data collection was supposed to start. Eventually, data was collected after restrictions on external access to prisons were lifted, 13 months after the initial start date. Due to the postponements, many preparatory data collection tasks also had to be conducted multiple times (e.g., recruiting research assistants, training them, making arrangements with prison officials on procedures and planning). Regarding sample size, to make up for lost time, ambitions were toned down to collecting data in nine prisons, instead of all 26. These nine prisons were carefully selected based on the regimes they offered, their size and geographical location. In those aspects, they are representative of the 26 Dutch prisons, at face value. Moreover, Covid-19 restrictions in prisons impacted the research design. It was impossible to collect qualitative data at the first half of the research project, which was part of the initial mixed-methods research design. Due to the delay caused by the Covid-19

pandemic, completing a qualitative data collection at a later stage was not feasible within the four years reserved for this project. Finally, the Covid-19 pandemic may have influenced incarcerated individuals' answers to the PCQ, and thus results. For instance, as is reflected upon in Chapter 5, incarcerated individual's experiences of autonomy may be affected by (then) recent restrictions on the daily programme (e.g., not being allowed to receive any visitors).

1.8 Relevance of the Current Study

1.8.1 Scientific Relevance

First, this study aims to be relevant by starting to fill a gap in the empirical literature regarding the operation and effects of reward systems in prison on incarcerated individuals' behaviour and attitudes. Filling this gap is paramount, given how narrow our understanding of these systems is, whilst their impact on the daily lives of incarcerated individuals (also post-release) can be large. Knowing how to improve the current system could possibly mitigate adverse effects and provide tools to optimise effectivity.

Second, this study aims to transcend filling an empirical gap, by also contributing to theorising on reward systems in prison. Primarily by identifying *how* the Dutch reward system in prison is assumed to reach its objectives. Secondarily by assessing to what extent those assumptions are scientifically valid. Lastly, by formulating new testable hypotheses on how reward systems in prison might work (which I turn to in Chapter 6). Over the past two decades, criminologists have become aware that research questions on *what works* – however relevant to determine programme effectivity – obscure *how* policies, programmes or interventions (fail to) reach their objectives (so-called *black-box approaches*; Funnell & Rogers, 2011; Sampson et al., 2013). Identifying working mechanisms that cause policy outcomes and thus are responsible for effectivity, however, has several advantages. First, it can be argued that knowledge of causal mechanisms underlying prison policy is necessary for successful programme delivery, especially when that programme is applied in different locations, and among different groups of incarcerated individuals (Sampson et al., 2013). Mechanisms can be dependent of context and target group characteristics (Greenhalgh & Manzano, 2022; Pawson & Tilley, 1997; Sampson et al., 2013). A focus on identifying and empirically testing (assumed) causal mechanisms, whilst accounting for context and target group, could thus help explain why prior studies on reward studies in prison found mixed outcomes. Furthermore, explaining programme effects can also inform policymakers on which programme elements should be altered to increase programme effectivity, and counter aversive outcomes (Sampson et al., 2013). Considering RNR and GLM frameworks do not offer satisfactory theoretical explanations for reward systems in prison (see Paragraph 1.5.3), it is opportune to try and

refine the programme theory by reviewing relevant literature and conducting empirical tests.

Finally, this study aims to contribute to the current prison research literature by conceptualising and measuring self-governance ability of incarcerated individuals. There is a growing body of literature indicating that persons with cognitive and non-cognitive impairments, which are required to adequately govern behaviour, are overrepresented in Dutch prisons (Den Bak et al., 2018; Kaal, 2013; 2016; Kaal et al., 2011), as well as in other countries (García-Largo et al., 2020). By developing and testing a new, brief self-report instrument to measure self-governance ability in prison (the *Leiden Self-Governance Ability Scale* (LSGAS)), which can easily be used on a large scale, this study also aims to add to the methodological toolbox of prison researchers.

1.8.2 Societal Relevance

Mapping the programme theory, determining factors that influence reward status and in-depth studying effects of the Dutch reward system in prison is also of great interest of policymakers, practitioners, incarcerated individuals, and society. First, if the system of Promotion and Demotion were found to be based on theoretically flawed assumptions, the system is unlikely to attain its intended objectives, irrespective of how the system is applied (Astbury & Leeuw, 2010). Possibly, the system could even produce aversive effects. That would seriously frustrate the government objective of implementing evidence-based correctional interventions and negatively impact both incarcerated individuals and society. Second, the Dutch system appears to be demanding of prison staff (e.g., observing and assessing behaviour, reporting, and substantiating, advising the prison governor). National reports also indicate that the Dutch system in its current form is not well implemented and/or not easily applicable for staff (IJV, 2018; RSJ, 2019; 2020). Inadequate application may frustrate the ability of the system to promote individual behaviour change, contribute to a better prison climate and ultimately increase societal safety.

Third, poor intervention outcomes can weigh heavily on both individual incarcerated individuals and society. Research implies that large parts of the Dutch prison population experience difficulties in self-governing their behaviour. This may limit their responsivity to a (generic) reward system in prison, as meeting behavioural demands is too challenging (Crewe, 2011b; Hutton, 2017; Van Ginneken, 2018). When their needs remain unrecognised, however, they run the risk of being unfairly qualified as 'unmotivated' and thus 'undeserving'. Often, incarcerated individuals experiencing these difficulties also deal with other (e.g., psychosocial) problems, and are at relatively high risk of recidivism (Søndenaa et al., 2008; Chaplin et al., 2017; Teeuwen et al., 2020). If these individuals were to be significantly less likely to attain rewards, than they would consequentially also be deprived of

rehabilitative resources and satisfaction of basic psychosocial human needs. That deprivation would run counter to correctional rehabilitation models which argue that correctional interventions should be tailored to incarcerated individuals' skills and treat high-risk groups more intensively (Ward & Maruna, 2007; Andrews & Bonta, 2010). In the end, not attending to their (criminogenic) needs could frustrate the system's objective to facilitate their behaviour change. Considering these comments, conducting a comprehensive evaluation study to assess the theory, application, and effectiveness of the Dutch system of Promotion and Demotion is clearly legitimised.

1.9 Study Outline

The outline of this study follows the steps of evaluation research, starting with a plan evaluation, next adopting a process evaluation, and finishing with an impact evaluation. The different chapters outline a study of the theoretical principles of the system of Promotion and Demotion (Chapter 2), a systematic review of prior outcome evaluations (Chapter 3), a study of how the system is applied (Chapter 4) and a study on its outcomes (Chapter 5). The outline and content of each chapter will be briefly discussed below (for an overview, see Table 1.2).

Chapter 2 discusses the results of the plan evaluation of the system of Promotion and Demotion, as it was implemented in 2014. This chapter outlines policymakers' expectations of the system's intended target population, resources, objectives, and mean-objective relationships (causal assumptions). Any inconsistencies and incoherencies between policy documents are noted. Next to policy document analysis, relevant theory and empirical research is consulted to assess the plausibility of these causal mechanisms.

In Chapter 3, the results of the systematic review of prior studies on the effects of reward systems on the behaviour and attitudes of incarcerated individuals are identified, analysed, and synthesised, and studies' methodological qualities are described. Gaps in the literature are highlighted. In sum, this chapter creates an exhaustive overview on the effects of reward systems in prison, by conducting a rigorous and systematic literature review. Findings predominantly underline the need for conducting more research on this important topic.

Chapter 4 continues by reporting on the process evaluation. The cornerstone of the policy of the system of Promotion and Demotion is that rewards should be earned by demonstrating compliant behaviour. This process evaluation assesses the degree to which desirable behaviour, self-governance ability and motivation predict obtaining reward status. By doing so, this chapter provides an insight into the degree of overlap or disparity between the policy and the way the system is applied in practice.

Chapter 5 concludes the empirical part of this study, by reporting on the impact evaluation that addresses three research questions revolving around the effects that the Dutch reward system in prison has on incarcerated indi-

viduals. First, the chapter reports on the extent to which incarcerated individuals residing on a Plus programme are also actually receiving rewards, which is the first research question. The second research question examines to what extent objective autonomy (i.e., number of rewards) relates to subjective autonomy (the perception that an individual can make and implement independent, self-determined choices). The final research question focuses on the degree to which incarcerated individuals' self-governance ability affects the relationships in the previous two research questions. To distinguish between effects, incarcerated individuals high and low on (self-reported) self-governance ability are divided into two groups.

A general discussion is presented in Chapter 6, which provides a summary of the main conclusions, and situates findings against a backdrop of prior research and theory as discussed in this general introduction. Next, the theoretical implications are discussed, as are the strengths and limitations of the studies included in this study. Finally, recommendations are made for future research, and implications for policy and practice are described.

Figure 1.2
Conceptual models of research questions 3 and 4

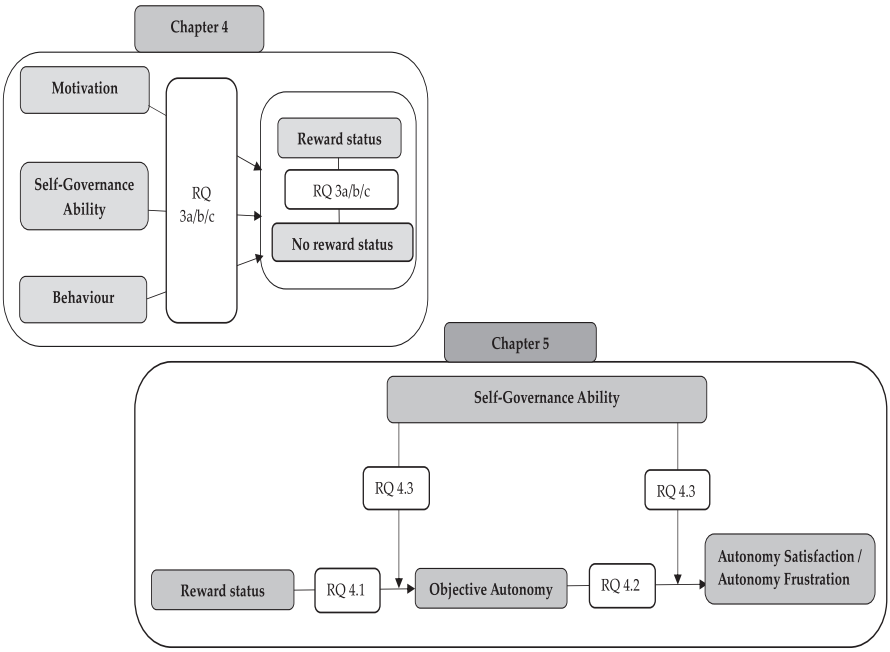


Table 1.2
Study outline

Chapter	Design	Subject	Research question(s)	Data	Method/Analysis
1	-	Introduction	-	-	-
2	Plan evaluation	Programme theory	1. What is the programme theory of the Dutch reward system in prison, as it was implemented in 2014?	12 policy documents	Document analysis
3	Systematic literature review	Prior studies	2. What is known about the effects of reward systems in prison on the behaviour and attitudes of incarcerated individuals?	21 empirical studies	Systematic literature review
4	Process evaluation	Prediction	3. To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?	1011 Prison Climate Questionnaires, Life in Custody	Group comparisons Logistic / Linear regression
5	Impact evaluation	Effects	4.1. To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)? 4.2. To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)? 4.3. To what extent do the relationships mentioned in research questions 4.1 and 4.2 depend on incarcerated individuals' self-governance ability?	1011 Prison Climate Questionnaires, Life in Custody	Group comparisons Logistic / Linear regression
6	-	Discussion	-	-	-

2 The Programme Theory of the Dutch Reward System in Prison■

2.1 Introduction

Around 31,000 persons pass through Dutch prisons annually (Dutch Custodial Institutions Agency (DJI), 2020). In recent decades, these incarcerated individuals have increasingly been made co-responsible for the content and course of their prison sentence. As early as the 1990s, it was introduced that desirable behaviour in Dutch prisons could be rewarded with additional recreational activities, education and psychosocial help (House of Representatives, 1993/1994). In the early 2000s, it was decided to ration these rewards: rewards had to be reserved for compliant and motivated individuals (House of Representatives, 2005/2006; 2007/2008). In 2008, the Dutch policy programme Modernising the Prison Service (*Modernisering Gevangeniswezen* (MGW)) put this into practice (House of Representatives, 2007/2008). MGW aimed to disrupt antisocial behaviour patterns by redesigning the daily programme in prison so it would optimally encourage personal responsibility for resocialisation (Ministry of Justice, 2009). This 'responsabilisation' of incarcerated individuals was in line with the social and political trend in the Netherlands of increasingly activating citizens to participate in the execution of (security) policy (Drosterij & Peeters, 2011; Schinkel & Van Houdt, 2010). Moreover, only investing financial resources in suitable and benevolent individuals also served as an opportunity to realise necessary cutbacks (De Jong et al., 2016). The redesign of the daily programme took shape in the policy programme Tailor-Made Daily Programme, Security and Supervision (*Dagprogramma, Beveiliging en Toezicht op maat* (DBT)), which is the direct predecessor of the system of Promotion and Demotion, which was implemented in 2014 (Government Gazette, 2014). This reward system ultimately placed the responsibility for the content and course of prison sentences entirely on incarcerated individuals – which was presented as an individualised, tailor-made approach. Within this system, (un)desirable behaviour was to be systematically observed, assessed, rewarded, and punished.

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Criminological and legal scholars have argued that the system of Promotion and Demotion is inconsistent with the principle of resocialisation because the activities that can be 'lost' by behaving undesirably partly serve resocialisation purposes (Boone & Van Hattum, 2014). Besides normative criticism, these scholars have countered that the system is inconsistent with prevailing criminological theories on successful offender rehabilitation (Boone & Uit Beijerse, 2018). Finally, it has been questioned to what degree individuals with poor self-governance ability are responsive to this system (Council for the Administration of Criminal Justice and Youth Protection (RSJ), 2013a; Kelk, 2015; Van Ginneken, 2018). However, 'no proper evaluation' of the programme theory or the effects of the system of Promotion and Demotion has ever been conducted (RSJ, 2020, p. 3).

In this contribution, we therefore focus on the following research question: *What is the programme theory of the system of Promotion and Demotion as introduced in 2014?*

Although some adjustments were made after the introduction of the Dutch reward system in prison in 2014, this contribution focuses on the system as it was introduced in 2014. This contribution is part of a dissertation project. In the following, we first describe the system of Promotion and Demotion. We then discuss the theoretical framework of, and previous research on, behavioural management systems in prisons. We then explain the methodology used and the importance of reconstructing programme theory. The results are presented using the components of programme theory: the intended target group, means, (intermediate) goals and assumptions on causal mechanisms. Next, we test how well the most prominent and fundamental causal assumptions align with relevant theory and research. In the discussion, we conclude by reflecting on our findings and limitations of this evaluation and make recommendations for future research.

2.1.1 The system of Promotion and Demotion

The system of Promotion and Demotion in Dutch prisons aims to reward (motivation for) desirable behaviour using internal and external freedoms (Government Gazette, 2014). Undesirable behaviour and lack of motivation can be punished with (permanent) removal of those freedoms. The system has a Basic and a Plus programme. The Basic programme includes 43 hours of activities per week (House of Representatives, 2018/2019), of which 20 hours consist of work assignments. The remaining activities are receiving visits, spiritual care, yard time, education, recreational activities, sports, rehabilitation activities and aftercare activities focused on housing, income, debt and (health) care. The Plus programme includes 48 hours of activities per week. Additional opportunities to receive visits are granted, as well as more freedoms and responsibilities when completing work assignments (such as greenkeeping, or a job as unit cleaner). Work in the Plus pro-

gramme may also be better paid, involve better (vocational) training and/or be of a higher level (House of Representatives, 2013/2014). In addition, this programme offers weekly activities on two evenings and on weekends. In total, individuals residing in a Plus programme spend 11 additional hours outside their cells compared to those in a Basic programme.

Incarcerated individuals in a Basic programme can be promoted to the Plus programme if they show desirable behaviour and motivation for change (Government Gazette, 2014). A multidisciplinary team (*Multidisciplinair Overlegorgaan* (MDO)) assesses every six weeks whether these two requirements have been met unless there is reason to do so more frequently. Based on that assessment, the prison governor decides on promotion, demotion, or retention (art. 1d Regulation on Selection, Placement and Transfer of Prisoners (RSPOG)). In the RSPOG (2014), desirable behaviour is defined in more or less specific behavioural demands (green behaviour), as is defined which behaviour leads to retention or demotion to the Basic programme (red behaviour). An orange (this-could-be-better) behaviour category also existed until October 2020. Orange behaviours are not necessarily punished with demotion but are discouraged. Examples of green behaviour include cooperating in the daily programme and being willing to quit crime. Orange (this-can-be-better) behaviours include having a short fuse and not taking responsibility for one's own behaviour. Examples of red behaviour include knowingly causing stench and pollution and physical aggression towards others. Incarcerated individuals must also show motivation to change, to get to and stay in the Plus programme. This change is operationalised as participation in two motivational courses (Reflector and Choose for Change (*Kies voor Verandering*)). Not participating in these courses is interpreted as a lack of motivation and punished with allocation to the Basic programme (Government Gazette, 2014). Not being able to participate in the Choosing for Change course because of poor language skills is an invalid reason to deny individuals access to the Plus Programme (House of Representatives, 2017/2018; Van Gent, 2013).

2.1.2 Contingency Management

The system of Promotion and Demotion is a type of Contingency Management (CM) system. These behaviour management systems are based on operant conditioning theory (Spiegler & Guevremont, 1993). The principles of this theory assume that desirable behaviour increases when it is systematically rewarded. The same applies to the decrease of undesirable behaviour through punishment (Burdon et al., 2001). The use of CM systems in corrections was especially popular in the 1950s to 1970s (see Gendreau et al., 2014). In the following years, these systems were criticised by scientists because of the limited role they attributed to cognition, which conflicted with new insights from cognitive behavioural science (Woolredge & Smith, 2018). Today, CM systems are applied in prisons in Canada, England and

Wales, the Netherlands, Romania, and the United States (Crewe & Ievins, 2020; Michigan Department of Corrections, 2020; Mitchell, 2010; Morar et al., 2019; The Guardian, 2019; Serin & Hanby, 2009; Van Gent, 2013). Rewards used in CM systems in detention are often material (such as shopping items, money), social (such as compliments, phone cards, extra visiting opportunities) and/or involve more time for activities (such as leisure or yard time) (Gendreau & Listwan, 2018). Punishments, in addition to adding negative consequences (such as spending time in isolation), can also consist of removing positive consequences (rewards), as in the system of Promotion and Demotion.

CM systems can differ in many ways: their intended target group, prison environment, definitions of (un)desirable behaviour, the selection and application of rewards and punishments, as well as their goals. Historically, CM systems were applied in corrections for two purposes: to promote rule compliance and, in turn, maintain safety and order in the institution, and to support incarcerated individuals in recovering from addictive behaviour (Kratcoski, 2017). To our knowledge, these systems have not previously been deployed among (non-addicted) incarcerated individuals in regular regimes to promote rehabilitation in the broader sense of the term (sustainable psychological change). Some researchers do ascribe CM systems such rehabilitative value (Gendreau et al., 2018), even though scientific evidence for that claim is not readily available.

2.1.3 Prior Research

There has been little empirical research on CM systems implemented in regular prison populations. Serin and Hanby (2009) conducted a literature review and found five studies. These studies do not provide an accurate overview of the working mechanisms of reward systems in prison. The studies are dated (1973-2003), very small-scale (N<10), or involved studies on specific target groups, such as female incarcerated individuals on segregated wards, or in a high-security facility. The five studies involved three impact evaluations, one process evaluation and one reconstruction of a programme theory. Serin and Hanby (2009) concluded from the impact evaluations that the evidence indicating that CM systems can effectively promote rule compliance in prison is – at best – mixed. Among other things, this finding raises the question of exactly how these systems apply operant conditioning principles and when one can speak of effective goal achievement. A question central to reconstructions of programme theory. The only reconstruction of programme theory found by the Canadian researchers concerned the British *Incentives and Earned Privileges* (IEP) scheme (Bosworth & Liebling, 1995).

Reconstructions of programme theory of CM systems applied among regular prison populations are rare. Even a decade after Serin and Hanby's (2009) review, Bosworth and Liebling's (1995) study appears to be the only

exception (known to the authors). The evaluators examined the means, goals, and assumed causal mechanisms of the (still operational) IEP scheme. This scheme involves rewarding and punishing incarcerated individuals based on their behaviour and motivation. Among other things, the scheme aims to encourage incarcerated individuals to take responsibility for their behaviour and promote safety and order in the institution. Thus, in addition to the two historical objectives distinguished by Kratcoski (2017), encouraging responsibility-taking can also be identified as a contemporary objective of CM systems in prison. Rewards used include extra visits, availability of television on cell and more time out of cell. The evaluators found that English policymakers at the time relied on simplistic assumptions about the scheme's underlying causal mechanisms. For example, policymakers initially assumed that individuals make rational behavioural choices, and that the selected rewards were sufficiently attractive to promote rule compliance and reduce recidivism post-release (Khan, 2016; Liebling, 2008), without supporting those claims with scientific evidence or empirically validating them.

The added value of reconstructing a system's programme theory is that, by unfolding programme theory, insight into how effects of (criminal justice) interventions may have come about can be provided (Donaldson & Lipsey, 2006). This is achieved by uncovering 'mechanisms'. Policy evaluators define mechanisms in different ways (Lemire et al., 2020), but generally assume that they consist of hidden cognitive, social and behavioural mechanisms (Astbury & Leeuw, 2010). Understanding working mechanisms provides a good basis for formulating informed and focused research questions for impact research, interpreting (un)intended intervention effects, and adjust the system in specific areas (Donaldson, 2007; Van der Knaap, 2010). Although reconstructions of programme theory in the security domain are not often conducted ex ante, an ex-post reconstruction of a programme theory offers the same advantages as outlined above (Astbury & Leeuw, 2010).

2.2 Methods

2.2.1 Reconstruction of Programme Theory

To answer the research question, a reconstruction of the programme theory of the system of Promotion and Demotion was conducted. This form of evaluation is used to assess how policies achieve their objectives (Rossi et al., 2004). This requires reconstructing and evaluating the assumed causal (social and behavioural) mechanisms, goals, and expected effects in relation to the intended target group (Leeuw, 2008). Designating mechanisms as 'causal' may incorrectly suggest that they cause an objective in isolation, and in a linear manner (e.g., Mayne, 2012). We therefore refer in this plan evaluation to the extent to which mechanisms can *contribute* to a

particular (intermediate) goal. However, in line with previous evaluations (Bosma, 2017; Van Noije & Wittebrood, 2008) and the language used in the documents studied, we do use the term 'causal' assumptions to refer to the hypothesised mechanisms.

Reconstructing and evaluating the programme theory of criminal justice interventions is becoming increasingly common in the Netherlands (see, e.g., Bosma, 2017; Van Noije & Wittebrood, 2008). Leeuw (2003) developed a policy scientific method to perform this reconstruction (also see Ehren et al., 2005; Klein Haarhuis & Leeuw, 2004;). This method systematically exposes the objectives and assumed causal mechanisms of an intervention and allows for an assessment of the extent to which they are based on scientific knowledge (Van der Knaap & Schilder, 2004). The chronological steps of this approach are: (1) identify means; (2) link means to identified goals; (3) rewrite mean-goal relationships into 'if, then' statements; (4) identify causal mechanisms underpinning these relationships; (5) integrate means and goals and hypothesised underlying causal mechanisms into a (logical) theoretical model; and (6) determine the plausibility of the theoretical model. This approach was followed in this review because it is well suited to policies for which written information is available (Leeuw, 2003). Plausibility was determined by assessing the congruence of the programme theory with relevant empirical research and theory. The central research question of this contribution is: What is the programme theory of the system of Promotion and Demotion as introduced in 2014? Using the policy scientific approach, this overarching question is broken down into the following five sub-questions:

1. What is the target group of the system of Promotion and Demotion?
2. What are the (intermediate) goals and means of the system of Promotion and Demotion?
3. What are causal assumptions of the system of Promotion and Demotion?
4. Is the programme theory of the system of Promotion and Demotion in line with scientific research?
5. To what extent is the programme theory of the system of Promotion and Demotion consistent and coherent?

2.2.2 Data Collection

For mapping the programme theory, documents were searched through the academic search engines Web of Science and Google Scholar, as well as various (Dutch) websites: search.officiëlebekendmakingen.nl, tweedekamer.nl, eerstekamer.nl, commissievantoezicht.nl, inspectie-jenv.nl and puc.overheid.nl/rsj. The Dutch search terms used are: 'promo*', 'degrad*', 'stimuleren', 'ontmoedigen', 'dagprogramma', 'straf*', 'belon* and a combination of these terms. Documents were collected from January to March 2020. No

date or language restrictions were applied. This yielded many hits. The results were screened using pre-established inclusion criteria:

– containing relevant information on the intended target group, means, (intermediate) goals and/or (the rationale for) causal assumptions of the system; and
– dating from before 1 March 2014.

Only pre-implementation documents were selected because the programme theory of the original system was the subject of study. Finally, 98 documents met the first inclusion criterion. These documents can be categorised as (explanatory notes to) laws and regulations (2), parliamentary letters and reports of political meetings of the Senate (2) and House of Representatives (41), reports of the Inspectorate of Justice and Security (IJV) (5), the Dutch Custodial Institutions Agency (DJI) (3), the Scientific Research and Documentation Centre (WODC) (3) scientific articles (11), student theses (4), prison house rules (1), research reports by independent research agencies (2), government policy opinions such as those by the Council for the Administration of Criminal Justice and Protection of Juveniles (RSJ) and the Council of State (RvS) (9), and case law (15). Of these documents, 12 met the inclusion criteria: the (explanatory notes to the) Regulation on the Selection, Placement and Transfer of Prisoners (RSPOG) in which the system of Promotion and Demotion is described, the behaviour assessment manual for the system, and ten Parliamentary letters and reports of political meetings of the House of Representatives (see Appendix A). The remaining 86 documents were not used to reconstruct the programme theory. If they contained references to relevant scientific research, those references were checked for the benefit of the scientific test conducted (research question 4). However, the scientific test is primarily based on international literature from a systematic literature review on reward systems in detention; a study that is also part of the current dissertation project (see Chapter 3). To this end, the databases Web of Science, PsychInfo, Criminal Justice Abstracts, ProQuest and Google Scholar were consulted in March 2021. The search terms used in that literature review are: ('contingency management' OR 'response cost*' OR 'positiv* reinforc*' OR 'negativ* reinforc*' OR incentiv* OR privilege* OR reward* OR 'operant* condition*' OR 'radical behav*' OR 'behav* modif*') AND ('correctional institution*' OR 'correctional facilit*' OR penitentiar* OR *prison* OR jail* OR incarc*) NOT ('prisoner's dilemma*' OR 'prisoners' dilemma*' OR 'prisoner's dilemma*' OR 'prisoners' dilemma*').

When the system was being designed, independent advisory reports were issued regarding the system design (Plaisier & Van Ditzhuijzen, 2009; RSJ, 2012; 2013a; 2013b). According to its own writing (Van Gent, 2013), the system of Promotion and Demotion is largely based on an independent advisory report titled Encouraging and Deterring (*Stimuleren en Ontmoedigen*), which contains an extensive literature analysis (Plaisier & Van Ditzhuijzen, 2009). However, it is not entirely clear to what extent the programme theory is indeed based on this report. For this reason, the analysis indicates where the programme theory differs from the report, whenever possible.

In line with prior Dutch evaluations of safety and security policies (Van Noije & Wittebrood, 2008), in identifying the means, goals and presumed causal mechanisms of the system of Promotion and Demotion, statements about target group, means, (intermediate) goals and causal relationships were carefully mapped, by searching for specific words such as 'aim', 'pillar', 'aimed at ...', 'intended', 'through which', 'leads to' etc. Goals, means and mechanisms were coded using qualitative analysis software Atlas.ti. Often, assumed causal mechanisms are only implicitly described in policy documents (Van Noije & Wittebrood, 2008). This study aimed to identify both implicit and explicit means, goals and assumed causal mechanisms. Implicit assumptions from the documents were only included if the surrounding text contained sufficient information to logically arrive at this conclusion.[1] If a statement about one of the components of the programme theory was mentioned in one document, but not repeated in documents of later date, an inconsistency was observed. If a statement was contradicted in other documents, refuted, or their interrelationship was unclear, an inconsistency was noted.

2.3 Results

2.3.1 Target Group

The first question we answer is: what is the target group of the system of Promotion and Demotion? The answer to this question is shown schematically in Figure 2.1. This figure shows that the aim is that most persons are automatically placed in the Basic programme upon entering prison, in which they spend at least six weeks. Convicted persons who voluntarily report to the judiciary to serve their prison sentence ('self-reporters') should, however, start in the Plus programme (Government Gazette, 2014). Decisions to promote or demote are taken once every six weeks. Thus, if incarcerated individuals are detained for less than six weeks, they will generally have to stay in one and the same programme, for their entire time in prison.

The programme theory envisages that the Plus programme is only offered in regular prison regimes, meaning that other regimes by default offer a Basic programme or an adapted daily programme (see Figure 2.1). In addition, it is envisaged that arrestees and persons in pre-trial detention also participate in the system of Promotion and Demotion, but because all pre-trial detention does not offer a Plus programme, if their behaviour is desirable (green), they will receive rewards only when they – if convicted –

1 To check whether the conclusions drawn are correct, additional interviews were held with a former policy advisor at the Ministry of Security and Justice and a scientific policy researcher involved in the development of the system. The purpose of these interviews was to retrieve (missed) relevant documentation, as well as to gain insight into the development of the system.

transfer to a regular prison regime. Foreign nationals detained under criminal law (both in pre-trial detention and those sentenced) should also be able to participate in the system, although the rules they must abide by are not aimed at rehabilitation but to return to country of origin (Government Gazette, 2014). Nor can they de facto be promoted while in pre-trial detention.

Moreover, the system aims for some groups of incarcerated individuals to remain permanently in the Basic Programme, because more freedom is not in keeping with the nature of their imprisonment. This applies to incarcerated individuals at an Extended Security Facility or Unit (UBI), Extra Secure Facility (EBI) and Terrorist Unit (TA) (art. 1e RSPOG opening words and under c). In addition, it is envisaged that certain groups of incarcerated individuals will be permanently excluded from system participation (see Figure 2.1). They are ought to follow their own daily programme. One of the reasons for excluding these groups of 'incapable' persons ('*niet-kunners*') is the assumption that they do not possess sufficient psychological capacity to participate. The programme theory assumes that incarcerated individuals placed in forensic hospitals or in psychiatric regimes are incapable of exhibiting green behaviour due to disorders, such as intellectual disability or severe mental illness (including severe addiction problems). Individuals requiring extra care, but for whom care and support in regular regimes are adequate, should be able to participate in the system (Van Gent, 2013). It is envisaged that the behaviour of these 'incapable' persons will be assessed less strict. If they are motivated to change (i.e., participate in the Reflector and Choose for Change courses), they can qualify for the Plus programme, even with exhibiting orange behaviour on the Care and Support component (art. 1d paragraph 4 RSPOG; Government Gazette, 2014).

2.3.2 Means and (Intermediate) Goals

The second research question we answer in reconstructing the programme theory is: what are the (intermediate) goals and means of the system of Promotion and Demotion? Analysis of the 12 policy documents illustrates that three means can be used to achieve the goals, namely: punishments, rewards, and motivational interviewing. The punishments and rewards of the system of Promotion and Demotion have already been described in the introduction. Punishments and rewards are identical since punishment equates to removing rewards. Rewards are usually granted or removed as a set, not individually. At its core, motivational interviewing is a counselling method based on respect, humanity, trust, support, and interaction, and aims to help individuals reflect on their behaviour and encourage their motivation to change (Van Gent, 2013).

Ten (intermediate) goals could be identified in the policy documents, which can be distinguished at three levels: micro, meso and macro. At the micro or individual level, the goals are to increase motivation to change (extrinsic and intrinsic) (Government Gazette, 2014; House of Representa-

tives, 2013/2014), promote desirable behaviour (Government Gazette, 2014; Van Gent, 2013), encourage responsibility-taking (responsabilisation), reduce detention damage and to reduce recidivism. However, reducing recidivism has only been described as an indirect objective, never as a direct objective (Van Gent, 2013). Responsabilisation of incarcerated individuals here implies that they themselves are held responsible for the course of their time in prison, rather than the government or prison authorities. Incarcerated individuals are to some extent allowed to choose whether they behave 'responsibly' (green) or not (red) but must also suffer the consequences of those choices. If they behave desirably and show motivation, they are rewarded. If not, they are denied or lose those rewards.

At the meso or organisational/political level, three goals could be identified: promoting safety and order in prison (Van Gent, 2013), efficient use of financial resources (Van Gent, 2013; House of Representatives, 2010/2011) and helping to decide on detention phasing (House of Representatives, 2011/2012; Van Gent, 2013). We would like to provide further explanation on two points. First, the programme theory showed that maintaining safety and order within prisons has a higher priority than providing (additional) opportunities to incarcerated individuals to act responsibly (Van Gent, 2013). Safety and order are considered important for providing a safe working and living environment. Second, the efficient use of financial resources is apparent in the principle 'don't invest, unless ...' (Government Gazette, 2014). This principle means that financial resources are only invested into (i.e., rewards are granted to) incarcerated individuals who are motivated to change, and likely to improve, their behaviour (House of Representatives, 2010/2011) and *therefore* are deemed deserving of that investment (Van Gent, 2013). In the policy documents studied, no argument was found for this distinction other than this financial one. Finally, the system aims to lead incarcerated individuals to electronic detention and early release, partly based on their behaviour and motivation in prison. At the macro or societal level, increasing societal safety has been described as goal (House of Representatives, 2011/2012).

2.3.3 Causal Assumptions

Next, we unravelled the assumed mean-goal relationships. Underlying these are also causal assumptions, which we now identify. In doing so, we answer the third research question: what are the causal assumptions of the system of Promotion and Demotion? Examination of the 12 policy documents shows that 24 assumed causal mechanisms are mentioned. These mechanisms are indicated by arrows in Figure 2.2. In the documents studied, three causal chains are most frequently and extensively discussed. They cover all means, six out of ten (intermediate) goals, and seem to contain the most prominent and fundamental causal assumptions, at, mainly, micro-level. For these reasons, they are discussed below. The first chain touches on

the principles of operant conditioning. The second chain addresses the role of individuals' encouraging incarcerated individuals to take responsibility for their behaviour. The third chain focuses on motivational interviewing, which was thought to be indispensable for the functioning of the system (Van Gent, 2013). As the system would be largely based on the advice of Plaisier and Van Ditzhuijzen (2009), underpinnings of the causal assumptions indicated in this advisory report are also presented.

1. *Causal chain 1: Rewards (arrow 2) + Punishments (arrow 6) → Desirable behaviour (arrow 17) → Prison safety and order*

The first assumption in this chain is that rewards and punishments contribute to desirable behaviour in prison. Rewards and punishments are mentioned in the same breath in many policy documents, including when it comes to intended effects (Van Gent, 2013). For this reason, they are combined in this causal chain. The assumption that a combination of rewards and (mild) punishments has a positive and sustainable effect on behaviour change is described in the manual accompanying the system (Van Gent, 2013). In doing so, the manual explicitly relies on a literature review included in the advisory report of Plaisier and Van Ditzhuijzen (2009) but does not substantiate why the rewards and punishments selected in the system would contribute to compliance with the behavioural demands. The literature review cited in the manual includes insights from general learning theories and empirical research on operant conditioning (Anderson & Skinner, 1995; Skinner, 1938), enforcement and rule compliance in the public domain (Kazdin, 2001; Van der Pligt et al., 2007), Token Economies[2] (Kazdin, 1982), as well as expert meetings held for the benefit of developing the manual. According to the manual (Van Gent, 2013), it also follows from these sources that merely punishing undesirable behaviour will not contribute to compliance in the long term. When the system of rewards and punishments is eliminated, as in the case of release, the effects could quickly diminish.

The second assumption in this chain is that desirable behaviour contributes to safety and order in prison. Safety and order in prison is understood as compliance with rules and agreements, creating an open and respectful climate (House of Representatives, 2013/2014). Compliance with rules, honouring rules, and agreements, as well as respectful treatment of staff are included in behavioural demands for incarcerated individuals (see RSPOG). However, the expected core of this assumption seems to be minimising misconduct (Plaisier & Van Ditzhuijzen, 2009). Decreasing misconduct also removes a primary reason for transfers, according to programme theory (Van Gent, 2013). Thus, desirable behaviour is theorised to directly contribute to safety and order in the institution.

2 A *Token Economy* is a Contingency Management system where participants can earn tokens, which they can redeem for rewards of their liking.

2. *Causal chain 2: Rewards (arrow 1) → Encouraging taking personal responsibility (arrow 12) → Limiting detention damage*

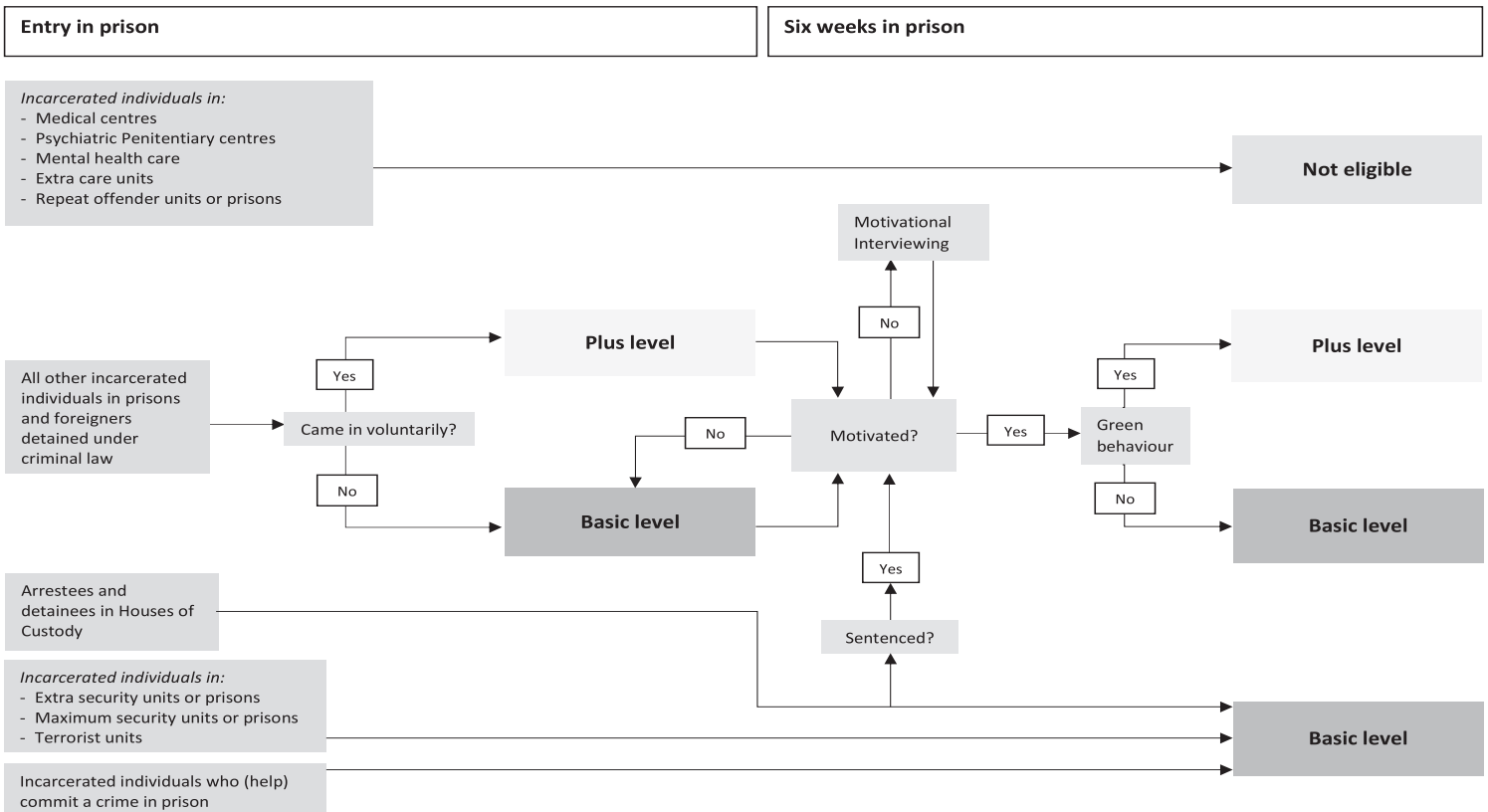
First, the second chain assumes that rewards contribute to encouraging taking responsibility for behaviour. The policy documents do not mention what inspired the choice of specific rewards. The rewards seem to be implicitly derived from disciplinary measures and behavioural norms that have been used in Dutch prisons for decades (see Plaisier & Van Ditzhuijzen, 2009). However, it is unclear why the programme theory assumes that precisely these selected rewards will encourage incarcerated individuals to take responsibility for their behaviour. The manual argues that the value of a punishment or reward may differ from one individual to another, and therefore individualisation is important to some extent (Van Gent, 2013). That claim is substantiated with a reference to correspondence with remedial educationalists knowledgeable about incarcerated individuals with mild intellectual disability (*Licht Verstandelijke Beperking*, LVB). Behavioural experts indicated in the development phase of the system that individualising rewards and punishments is important (especially for individuals deemed 'incapable'), because the rewarding value of a punishment or reward may differ from one individual to another (Van Gent, 2013). Moreover, the policy documents do not mention why and what form and degree of individualisation might contribute to encouraging self-responsibility.

The second chain then assumes that encouraging responsibility-taking contributes to reducing detention damage (House of Representatives, 2007/2008). The policy documents do not explicitly explain what is to be understood by 'encouraging' incarcerated individuals to 'take responsibility' (see also RSJ, 2012). Implicitly, responsibility-taking is more than once equated to gaining access to Plus activities and possibly conditional release by displaying desirable behaviour – as opposed to by default (House of Representatives, 2012/2013; 2013/2014). According to the advisory report of Plaisier and Van Ditzhuijzen (2009, p. 8), detention damage can be caused by a prison climate which is characterised be indifference, anomy, and free of obligations, but '(…) independence of prisoners and the possibility to take initiatives themselves' can prevent this. However, this part of the opinion is not explicitly referred to in the policy documents, where no substantiation of this assumption was found.

3. *Causal chain 3: Motivational interviewing (arrow 5) → Intrinsic motivation (arrow 22) → Reductions in recidivism*

First, the third chain assumes that motivational interviewing contributes to intrinsic motivation to comply. The programme theory assumes that motivational interviewing reinforces positive self-esteem and gives hope, by applying principles of respect, humanity, trust, support, and interaction in the treatment of incarcerated individuals. This would increase individuals'

Figure 2.1
Target group, influx, and afflux in prison (art. 1 RSPOG, Government Gazette, 2014, 4617)



intrinsic motivation to change their behaviour (Van Gent, 2013). That outcome is stated to be in line with Self-Determination Theory (Deci & Ryan, 1995; Ryan & Deci, 2000b).

The third chain then assumes that intrinsic motivation contributes to recidivism reduction. This assumption is put forward indirectly and mostly implicitly in the documents studied. Intrinsic motivation is said to lead to behavioural change, by encouraging more participation in rehabilitation activities and behavioural interventions, and thus indirectly to recidivism reduction. It is also assumed that individuals with an intellectual disability are unlikely to be and become intrinsically motivated. Rather, they are ought to become extrinsically motivated, at best (Van Gent, 2013).

2.3.4 Scientific Test

Finally, we study the extent to which the assumptions underlying the system are in line with results of empirical studies. In other words, we answer the fourth research question: is the programme theory of the system of Promotion and Demotion in line with scientific research? To answer this question, we first reviewed all empirical studies mentioned in the policy documents studied, and assessed whether these sources support the causal assumptions (ex tunc test). In addition, we also included relevant empirical studies published after implementation of the system in 2014 in assessing the scientific evidence (ex-nunc test). In particular, in recent years, knowledge on the responsivity and treatment of incarcerated individuals with intellectual disability has advanced, and there are additional (qualitative) insights into the effects of the IEP scheme in England and Wales. Below, we indicate for each causal chain (see above) whether the policy assumptions are adequately substantiated.

Causal Assumptions

1. *Causal chain 1: Rewards (arrow 2) + Punishments (arrow 6) → Desirable behaviour (arrow 17) → Prison safety and order*

There is a lack of convincing empirical evidence that this assumption holds true for convicted persons. Empirical research shows that people differ in their experience and appreciation of rewards. Some incarcerated individuals who participated in the IEP scheme attached great importance to visitation (Booth, 2020), but incarcerated individuals without a social network did not (Khan, 2022). Which rewards incarcerated individuals value most requires more empirical research (Gendreau et al., 2014). Individual differences may explain why scarce studies on behavioural incentives in mixed prison populations show mixed effects on rule compliance (Liebling, 2008; Serin & Hanby, 2009). Qualitative research among IEP participants additionally shows that arbitrary implementation and application of such a system can contribute to

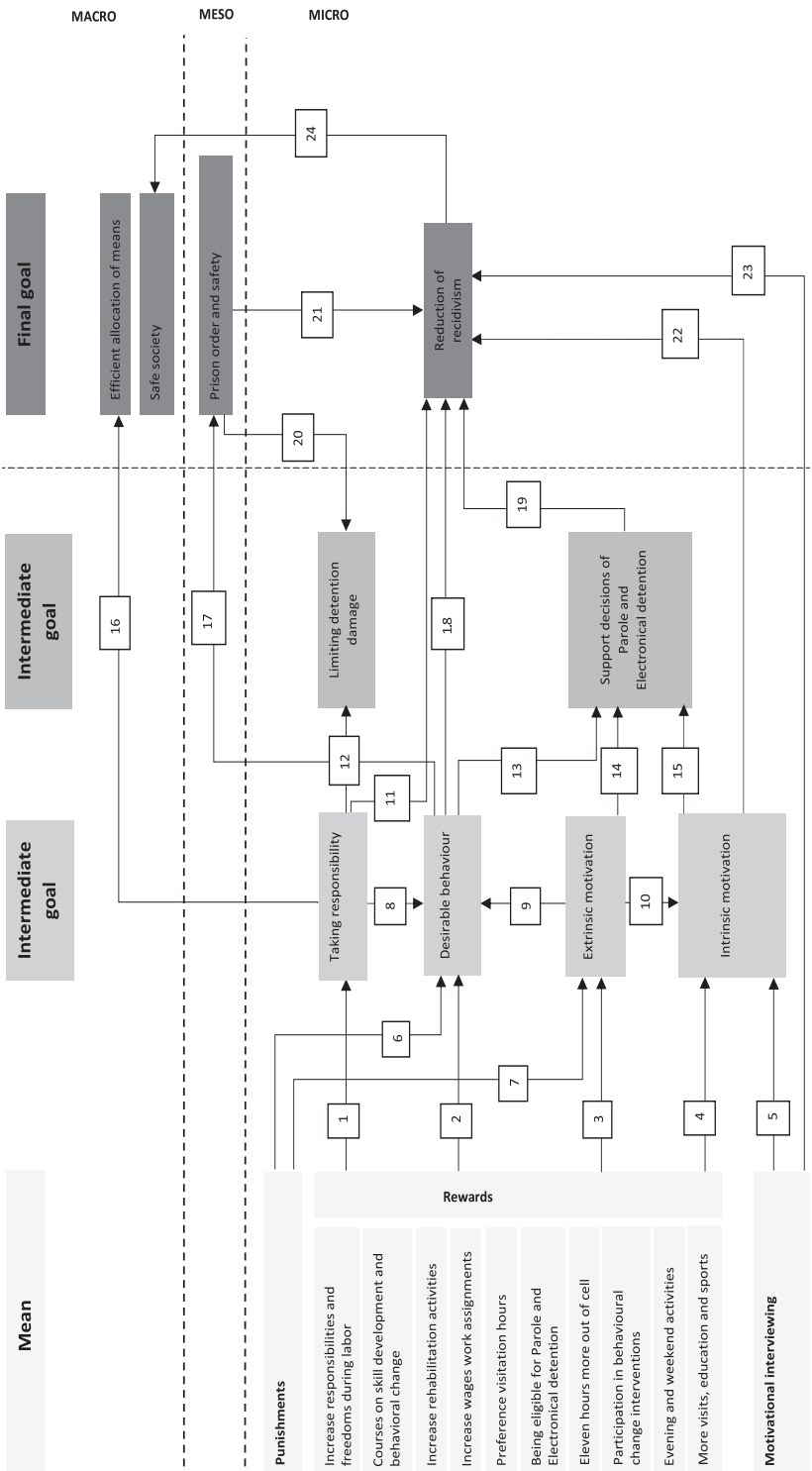


Figure 2.2
Visual model of the programme theory of the system of Promotion and Demotion

feelings of anxiety, helplessness (Crewe, 2011b) and unfair treatment among incarcerated individuals (Liebling, 2008), potentially further frustrating rule compliance. Moreover, the policy documents do not refer to (research on) the IEP scheme at all. The advisory report of Plaisier and Van Ditzhuijzen (2009) offers general starting points for the effects of (not necessarily systematic) use of rewards and punishments, in non-prison target groups. Literature focusing specifically on systematically rewarding and punishing in prisons is under largely lacking from their literature review. Studies dating back to after the introduction of the system suggest that these general insights translate poorly to the Dutch prison population, given its special characteristics, such as limited intellectual capacity and addiction problems (De Jong et al., 2016; Den Bak et al., 2018), which are accompanied by exceptional environmental characteristics (coercion, closed group setting).

Desirable behaviour contributes to safety and order in prison. It is plausible that misconduct by one individual spurs misconduct of another, thus de facto disrupting safety and order. For example, Ellis and colleagues (1974) found that individuals placed in a prison where there are many violent offenders are more likely to engage in misconduct themselves. It is also plausible that transfers can give rise to turmoil and (violent) incidents. Kigerl and Hamilton (2016) examined transfers of nearly 6.000 incarcerated individuals in the United States and found that several factors contribute to misconduct following transfers. Examples of such factors include mental health problems, overcrowding and population instability in the destination unit, as well as characteristics of the old unit environment. Reducing transfers might thus benefit safety and order in the prison, yet to what extent transfers relate to a higher likelihood of misconduct has not been empirically studied. Based on these empirical insights, it is plausible that desirable behaviour contributes to safety and order in prison, although empirical evidence for the Dutch context is lacking.

2. *Causal chain 2: Rewards (arrow 1) → Encouraging responsibility-taking (arrow 12) → Limiting detention damage*

Rewards contribute to encouraging responsibility-taking. From prison research, no convincing evidence emerges to support the assumption that the selected rewards under the given conditions encourage responsibility-taking. In some respects, this assumption even contradicts empirical findings that follow from research in non-prison populations. Studies on rule compliance in non-prison populations have often shown that rewards are effective if they are proportional (Cipani, 1990; Hodos & Kalman, 1963) and appropriate to the individual and the environment in which they are granted (Anderson & Skinner, 1995; Van der Pligt et al., 2007). In addition, rewards are effective when they are attractive to the individual (Kazdin & Bootzin, 1972). However, it has not been made explicit whether and how individualisation of punishments and rewards is implemented in prison practice, in a system that aims to standardise behavioural assessment (House of Representa-

tives, 2013/2014). Moreover, it follows from the aforementioned literature on animal conditioning and human compliance that a short interval between behaviour and consequence is most effective in influencing future behaviour (Anderson & Skinner, 1995; Van der Pligt et al., 2007). Empirical research among offenders also suggests that the longer the time between the display of desirable behaviour and the reward, the more likely offenders are to turn to undesirable behaviour (*delay gratification*) (Cipani, 1990; Pierce et al., 1972), and possibly chose the rewards inherent to non-compliance – even if those rewards are less attractive than rewards of compliance (Arantes et al., 2013; Hanoch et al., 2013). That effect seems even larger for individuals with addictions (MacKillop et al., 2011), although it is unclear whether addiction or personal characteristics (or a combination) causes that effect. For punishment, however, the opposite is true: people generally prefer a small short-term loss of rewards to an anticipated larger long-term loss (Holt et al., 2008). One possible explanation for delay gratification is inadequate impulse control that characterises the prison population (Meijers et al., 2015). This suggests that the immediacy of rewarding may mediate behavioural effects. The six-week period after which individuals receive a promotion, demotion or retention of their reward status does not meet the qualification of immediacy. Additional empirical research on effective rewards and punishments among incarcerated individuals is necessary to find out whether these findings also hold in the Dutch context.

Encouraging responsibility-taking reduces detention damage. As described, policymakers leave the interpretation of these concepts to the reader. If it is assumed that 'encouraging responsibility-taking' means motivating people to display desirable behaviour, this assumption can be partially supported by empirical and theoretical insights, depending on the intended target group. The assumption holds true for incarcerated individuals who successfully reach the Plus programme, because that programme offers (rehabilitation) activities that have been empirically proven to contribute to reducing detention damage by finding and maintaining housing, employment and social relationships during and post-release (Boone & Van Hattum, 2014). This knowledge was available at the time that the system was developed. Convincing empirical evidence that this assumption holds true for incarcerated individuals in a Basic programme was not available at the time the system was introduced. Because the Basic programme offers fewer rehabilitation activities, it can be argued that the detention damage of Basic incarcerated individuals does not decrease. The qualitative research on the IEP scheme (which is similar to the Dutch system) even indicates that their detention damage may *increase*, as feelings of anxiety, helplessness and unfair treatment may frustrate engagement in or effects of other (reintegrative) interventions. Feelings of anxiety, helplessness and powerlessness seem to be associated with an increase in relative autonomy within prison walls (Crewe, 2011b; Shammas, 2014). Indeed, prevailing models for effective correctional interventions pose that poor therapeutic relationships, lack of external resources, and cognitive limitations, among others, can

interfere with the effectiveness of criminal justice interventions (Bonta & Andrews, 2010; Chambers et al., 2008). Research from the United Kingdom suggests that a limited group of convicted individuals seems to benefit from a system that generates a relative increase in autonomy and responsibility: those inmates who are already largely capable of self-governance (Crewe & Ievins, 2020). However, it is unclear whether and how rewards and punishments contribute to this.

3. *Causal chain 3: Motivational interviewing (arrow 5) → Intrinsic motivation (arrow 22) → Reductions in recidivism*

Motivational interviewing contributes to intrinsic motivation. There is some empirical and theoretical evidence supporting this assumption, but more empirical research is needed. The purpose of motivational interviewing is to promote readiness to change (Miller & Rose, 2009). This counselling technique was considered promising for offenders even before the development of the system (Ginsburg et al., 2002). Recent research underlines this promise (Stinson & Clark, 2017). Indeed, the principles of motivational interviewing are congruent with both general learning and motivation theories, and models for effective correctional interventions. For instance, the general Self-Determination Theory (Ryan & Deci, 2000b) states that autonomy, relatedness, and competence lead to intrinsic motivation for (change of) behaviour and psychological growth. According to this theory, it is plausible that motivational interviewing contributes to intrinsic motivation by promoting self-efficacy (Ryan & Deci, 2000b). Thus, the claim that this assumption is consistent with the tenets of Self-Determination Theory (Van Gent, 2013) is plausible. Unfortunately, this theory has hardly been validated in prison populations (Van der Kaap-Deeder et al., 2017). Thus, at the time of its introduction, and to this day, this assumption needs empirical validation. Another indication of the validity of this assumption can be found in prevailing criminological rehabilitation models. Promoting self-efficacy is also in line with the Good Lives Model (Chambers et al., 2008). On the other hand, motivational interviewing could also increase the general responsivity to interventions, a key success factor for behaviour change according to the RNR model (Bonta & Andrews, 2010).

Unfortunately, at the time of its introduction, there was (and still is) a lack of convincing empirical evidence that motivational interviewing has a positive effect on incarcerated individuals' intrinsic motivation (McMurran, 2009). This is also true for individuals low on self-governance ability, such as those struggling with intellectual disabilities (Panting et al., 2018). The scarce available studies mainly concern case studies (Mann & Rollnick, 1996) and use small samples (e.g., Anstiss et al., 2011; Austin et al., 2011; Ginsburg et al., 2002). The small-scale studies do provide evidence that motivational interviewing can promote incarcerated individuals' self-reported readiness to change (Austin et al., 2011; Anstiss et al., 2011). Additional empirical research in prison populations is required to validate this effect.

Intrinsic motivation contributes to reductions in recidivism. Several theories support this assumption, but unequivocal empirical evidence is not available. In general learning theories (Bandura, 1989), motivation theories (Ryan & Deci, 2000b), as well as in prevailing rehabilitation models (Bonta & Andrews, 2010; Chambers et al., 2008), intrinsic motivation is considered essential for lasting behavioural change. Empirical research in the prison population on the relationship between intrinsic motivation and recidivism reduction in the context of motivational interviewing is limited. One small-scale study of motivational interviewing targeting several criminogenic factors showed a 21 percent recidivism reduction compared to a control group (Anstiss et al., 2011). The use of motivational interviewing among probationers also shows promising effects on recidivism (Lin, 2018). There are mixed results regarding the relationship between motivational interviewing and a reduction in substance use (Clair-Michaud et al., 2016; McMurran, 2009). Empirical psychological research in non-prison populations shows that motivation (intrinsic or extrinsic) is not sufficient to achieve behavioural change independently, when cognitive constraints or a behaviourally restrictive environment prevent this (Zimmerman & Schunk, 2008). Thus, 'motivation' does not equal 'behaviour': individual and environmental characteristics must also be favourable for behaviour change to occur.

2.3.5 Policy Consistency and Coherence

Finally, this section outlines how consistent and coherent the programme theory is. Three points stand out regarding the consistency of the programme theory. One incoherence stands out in relation to the independent advisory report on which the system is allegedly largely based (Plaisier & Van Ditzhuijzen, 2009).

First, in the final system guidelines, promoting safety and order in prison is described as an expected side effect, but not as a primary goal (Van Gent, 2013). Previous policy documents did describe this as an intended goal of the system (House of Representatives, 2012/2013).

Second, it appeared that reducing detention damage was only explicitly described as a system goal in older documents dating from the development phase of the system (House of Representatives, 2008/2009), but not in more recent policy documents. It is therefore unclear whether reducing detention damage was (still) an objective at the time of the system's implementation.

Third, the drafters of the advisory report argue that the causal assumptions of a new behavioural management system, which have no or limited empirical evidence in prison contexts, should be tested on a small scale among incarcerated individuals before applying the system on a large scale (Plaisier & Van Ditzhuijzen, 2009). The policy documents do not show that this has recommendation has been followed.

Fourth, based on literature research, the advisory report argues that rewarding desirable behaviour works more effectively in changing behav-

iour than punishing undesirable behaviour. Therefore, a mix of rewards and mild punishments is suggested in the approach to incarcerated individuals, where undesirable behaviour should be primarily ignored (Plaisier & Van Ditzhuijzen, 2009). In contrast, in the final manual, punishment for undesirable behaviour (demotion) is always looming for incarcerated individuals in a Plus programme (Van Gent, 2013). The recent elimination of the orange behaviour category could potentially reinforce that focus on punishment. Reward and punishment are sides of the same coin. Possibly for that reason, they are often mentioned as one intervention in policy documents, also regarding their expected effectiveness. For that large role of punishment in the behavioural change of – incarcerated individuals – compared to the advisory report -, scientific support is lacking in the programme theory. No justification was found for the deviations from the advisory report and its scientific basis.

2.4 Conclusion and Discussion

The central question of this evaluation was: what is the programme theory of the system of Promotion and Demotion as introduced in 2014? To answer this question, by answering separate sub-questions, the system's target group, resources, (intermediate) goals and causal assumptions were identified, using a policy scientific approach (Ehren et al., 2005; Leeuw, 2003). Three main conclusions follow from the findings of this plan evaluation.

First, the intended target group of the system of Promotion and Demotion includes the regular prison population. This is similar to the IEP scheme (Liebling, 2008), but contrasts with the mostly specific subpopulations included in other studies of CM systems in prisons (Serin & Hanby, 2009). Based on current empirical knowledge, this reconstruction suggests that the system of Promotion and Demotion is likely to fail to adequately account for the heterogeneity of its intended target population. Exploratory research suggests that up to 45 percent of incarcerated individuals in Dutch prisons deal with intellectual disabilities (Kaal, 2016). While the programme theory accounts for the limitations of some groups of incarcerated individuals, it is not sufficiently clear how these are considered. There is a risk that persons with intellectual disabilities are only partially responsive to a generic system of rewards, punishments, and motivational interviewing. Previous impact studies show that CM systems in prison are not all successful (Serin & Hanby, 2009). A discrepancy between what the system demands and the capacity of part of the target group could undermine the potential effectiveness of the system, or possibly even have aversive effects. Examples of such effects include reducing (intrinsic) motivation for behavioural change, non-compliance with rules and deteriorating contact with staff and practitioners due to perceived lack of procedural justice (e.g., Crewe, 2011a; 2011b; Liebling, 2008). Recent research shows this discrepancy, between autonomous functioning and the capacities of incarcerated individuals

with intellectual disabilities, even after release, and contributes to problems in many areas of life and an increased risk of recidivism (Teeuwen et al., 2020). It is to be expected that this discrepancy will receive attention in the coming years. For instance, there is already increasing research on the self-governing capacities of incarcerated individuals with intellectual disabilities (e.g., Kaal et al., 2011; Molleman, 2014), how these individuals can be identified within prison (Kaal, 2013), and how prison officers can deal with their disabilities and behaviour (Vrij & Kaal, 2015). Finally, it is plausible that a part of the prison population (more capable of self-governance) does not experience this discrepancy and may benefit from this system, as was found in the IEP scheme (Crewe & Ievins, 2020).

Furthermore, it follows from the programme theory that the system of Promotion and Demotion uses three means (punishments, rewards, and motivational interviewing) to achieve ten (intermediate) goals. The rewards are largely similar to the material and social rewards and activities typically used in CM systems, such as increased wages, additional opportunities to receive visits, and more rehabilitation activities (Gendreau & Listwan, 2018). The emphasis on punishments and rewards illustrates the principles of operant conditioning by which CM systems operate (Gendreau et al., 2014). The tension scholars expected between the system and the principle of resocialisation is made even more explicit by this contribution. Resocialisation is made largely dependent 'n individuals' behaviour and motivation (Boone & Van Hattum, 2014), meaning that rewards indeed often seem to serve rehabilitative purposes, such as participation in specific rehabilitation activities, behavioural interventions, and activities (in life domains important for resocialisation, such as education and social network). Some of the (intermediate) goals of the system of Promotion and Demotion are like the goals of the IEP scheme, such as individual responsabilisation, rule compliance and recidivism reduction (Liebling, 2008). It is notable that responsabilisation is a primary goal of this system, alongside the more historical goals of maintaining safety and order, and unlearning addictive behaviour (Kratcoski, 2017).

Finally, this contribution illustrates that the scientific plausibility of the main causal chains (how means lead to goals) in the programme theory of the system of Promotion and Demotion is highly variable. Out of 24 causal assumptions, seven were examined in the form of three causal chains. Several assumptions lacked convincing empirical evidence at the time the system was introduced (and still do), such as regarding the assumption that rewards encourage self-responsibility. The assumptions on those points are too premature and seldomly substantiated in policy documents, similar to the conclusions on the IEP scheme (Bosworth & Liebling, 1995). On other aspects, there is theoretical evidence that the assumptions are tenable, such as the assumption that intrinsic motivation to comply can lead to reductions in recidivism. Unfortunately, empirical research demonstrating that these assumptions hold true for individuals in a prison environment is mostly lacking. Regarding these aspects, it can therefore be argued that at the

time of implementation, they were provided with an evidence base which was too general and theoretical. That said, the Dutch government has for years been committed to anchoring prison policy in scientific knowledge, and specifically the system of Promotion and Demotion (House of Representatives, 2007/2008). The absence of practically applicable knowledge on effects of systematic rewarding in prison may also be blamed on the criminological research field. Yet the lack of convincing empirical and/or theoretical evidence need not be a reason for policymakers to throw out the baby with the bathwater. However, the starting point in that case should not be large-scale application, but small-scale steps through the empirical cycle and testing specific assumptions. However, the policy documents do not demonstrate such a phased approach.

In conclusion, the policy documents were not consistent or coherent on four counts. Changing resources and to some extent (intermediate) goals over time can affect the programme theory and thus affect the expected effects. However, little account has been taken of this. The use of motivational interviewing in prison, whether accompanied by a system of rewards and punishments, when properly implemented, seems likely to do justice to the overarching policy goal of a tailor-made, individual approach. Although more empirical research on motivational interviewing in prison is required, there are initial, promising indications that this instrument can contribute to readiness to change.

2.4.1 Methodological Remarks and Implications

This reconstruction of programme theory was the first systematic evaluation of the system of Promotion and Demotion in Dutch prisons as implemented in 2014. Some comments are in order. Public documents were used to reconstruct the programme theory. It is possible that certain (policy) documents were not public and thus remained under the radar (*publication bias*). However, there is no concrete indication that fundamental means, goals, or assumptions have been missed. A second observation concerns the selection of documentation. As the aim of this contribution was to map the original programme theory, no documents published after 1 March 2014 were included. In the years following its implementation, the system was modified in certain respects, such as the deletion of the orange behaviour category, and the generalisation of the remaining behavioural demands. However, the causal chains discussed appear unchanged. A third observation is that the scientific test was only applied to some fundamental causal chains of the programme theory. This leaves the scientific plausibility of the remaining causal chains uncertain. This reconstruction does provide clear starting points for a comprehensive test. Finally, the scientific plausibility of the causal chains examined is based primarily on a systematic literature review of reward systems in prison. In doing so, rewards and punishments, were treated as categories. No mechanisms were identified for the relation-

ship between individual rewards or punishments and (intermediate) goals based on broader behavioural literature. Policy evaluators do advocate this broader and even more in-depth approach when evaluating complex systems in which multiple mechanisms, often non-linear and at multiple levels, appear to interact (e.g., Pawson, 2013; Westhorp, 2012; 2013). This limitation may mean that (indirectly) relevant mechanisms that could explain the identified assumptions have not been identified. Moreover, this alternative approach could specifically further clarify the operation of mechanisms in the prison context, which includes, for example, the prison setting, interpersonal relationships between incarcerated individuals (and staff) and individual capacities of incarcerated individuals (Pawson, 2013). This also applies to differentiation of working mechanisms according to different target groups. For example, this review has provided limited clarity on the extent to which procedural justice might have a mediating effect on the behavioural outcomes of different target groups in reward systems in prison. Other behavioural literature may be able to provide useful hypotheses for this. Herein lies a concrete starting point for follow-up research.

Several findings point to recommendations. A logical first recommendation for follow-up research concerns testing the other causal chains. In addition, a process and impact evaluation of the entire system is recommended. This evaluation has provided insight into the set of assumptions underpinning the system. This provides a good basis for formulating informed and focused research questions on effects, interpreting (un)intended effects, and specific guidance for revision of programme theory (Van der Knaap, 2010). A process evaluation can provide more insight into the extent to which the system has been implemented in accordance with programme theory and implementation theory, which partly depends on the implementing organisation, implementers, and political influences (Coolsma, 2008). Moreover, it also allows to examine the extent to which the realisation of any (un) intended effects can be traced to deviations in or from the implementation theory. The Ministry of Justice and Security did announce an impact evaluation of the system (House of Representatives, 2013/2014), but it is unclear what outcomes this internal evaluation produced. Both evaluations could contribute to a debate on the normative assumptions of the system, for instance regarding what can be expected from (detained) citizens. Future evaluations of the system should be mindful of two concerns.

First, the specific responsivity of incarcerated individuals struggling to self-govern behaviour, especially those with intellectual disabilities. Although an individualised approach is advocated on paper, after reconstructing the programme theory, it is still unclear how the system of Promotion and Demotion tailors its means and (intermediate) goals. Criminologists and criminal justice scholars have previously been critical of the normative assumptions of the system, such as the high degree of self-governance it demands from incarcerated individuals (e.g., Kelk, 2015; Van Ginneken, 2018). Incarcerated individuals low on self-governance in particular might not be able to meet behavioural demands, and therefore

enjoy few rewards and lack helpful tools for rehabilitation (Boone & Uit Beijerse, 2018). It is advisable to investigate this (im)possibility further, with the growing scientific knowledge about the size, characteristics, and responsivity of this group of offenders in mind. A process evaluation could remove this ambiguity. The identification of individuals with intellectual disabilities in prison proves difficult (Kaal & De Jong, 2017). Consequently, they are unlikely to receive the extra care and attention they need. Therefore, it is also advisable to pay more attention in practice to the identification of incarcerated individuals low on self-governance ability, and the tailoring of appropriate interventions (such as rewards, mild punishments, and motivational interviewing) by practitioners. Better identification first requires overarching prison policies that prioritise this target group, and arrange time, resources, and training of prison officers. In contrast, the Inspectorate of Healthcare and Youth (2020) found that in most prisons, such identification is not yet systematically addressed.

Second, follow-up research on effects should be mindful of unintended aversive effects of a system of punishments and rewards. For instance, recent qualitative research among individuals participating in the IEP scheme shows that (poor implementation of) such a system can also lead to feelings of powerlessness, anxiety, helplessness, and unfair treatment. Possibly, those feelings are related to the manner and degree of behavioural assessment by prison officers (Crewe, 2011a). A process evaluation could also provide more insight into the functioning and quality of this assessment process. Finally, the results of this contribution show that the programme theory of the system of Promotion and Demotion is too premature in some respects. This applies in particular to the connection of the generic system to incarcerated individuals. In this context, it is also relevant to further investigate the impact of eliminating the orange behaviour category on incarcerated individuals low on self-governance ability in particular, who may be more likely to fall into this category due to their limited mental capacity. Future research may shed more light on the (unintended) effects of this reward system on different target groups.

Appendix A

Documents used to reconstruct the programme theory of the Dutch reward system in prison

Government Gazette (2014), no. 4617.
House of representatives, *Parliamentary papers*, 2005/06, 30300 VI, no. 147.
House of representatives, *Parliamentary papers*, 2008/09, 24587, no. 299.
House of representatives, *Parliamentary papers*, 2008/09, 24587, no. 310.
House of representatives, *Parliamentary papers*, 2008/09, 24587, no. 310, appendix 1.
House of representatives, *Parliamentary papers*, 2009/10, 24587, no. 367.
House of representatives, *Parliamentary papers*, 2010/11, 29270, no. 52.
House of representatives, *Parliamentary papers*, 2010/11, 29270, no. 61.
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3 Prior Studies on the Effects of Reward Systems in Prison■

3.1 Introduction

Reward systems are commonly used in prisons worldwide to influence the behaviour and attitudes of incarcerated individuals. Reward systems in prison (RSPs) apply the technique of awarding rewards contingent on display of 'good' behaviour and removing rewards following misconduct (Burdon et al. 2003). RSPs do not use any other type of punishment. Good behaviour (e.g., hygiene maintenance, participation in work or activities) in prison has long been rewarded with sentence discounting (Demleitner, 2017; Hyneman, 1927; Weisburd & Chayet, 1989) and incremental degrees of freedom and privileges (e.g., Gillin, 1930; Hamels, 1996; Maconochie, 1846). Today, rewards are used to manage and change behaviour in prison (units) in Canada (Serin & Hanby, 2009) and the United States (Michigan Department of Corrections, 2020; Mitchell, 2010; The Guardian, 2019) and in the entire prison systems of England and Wales (Liebling, 2008), Romania (Morar et al., 2019), the Netherlands (Dutch Custodial Institutions Agency (DJI), 2013), and Ireland (Irish Prison Service, n.d.). Considering tens of thousands of offenders are sentenced to prison in these countries each year, these reward systems potentially impact the behaviour and attitudes of many incarcerated individuals.

RSPs can be an attractive management tool for encouraging compliance, for the benefit of order and safety in prison. It is believed by rewarding individuals with, for example, extra opportunities for visitation or recreation motivates them to behave well (see also the section 'Rationale of Contingency Management Systems' below). Additionally, it sends the message that resources are only spent on individuals who have earned it, which can be considered politically persuasive. Indeed, this take on treating incarcerated individuals is in line with the current trend of responsabilisation. This neoliberal governance strategy refers to transposing responsibilities of rehabilitation and reform from the government to incarcerated individuals (Garland, 1996; 2001; Hannah-Moffat, 2005; Shammas, 2014).

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Surprisingly, very little is known on RSP effectiveness in terms of change in incarcerated individuals' behaviour and attitudes, since published reviews of the empirical literature on this topic are nearly absent (Burdon et al., 2003; McGuire, 2018). The only exception – known to the authors – concerns a meta-analysis by Gendreau et al. (2014). These authors examined the effectiveness of one type of RSPs: Token economies. These systems reward good behaviour with tokens, which can be exchanged for social, material, and active rewards (e.g., extra visits, cigarettes, and access to the gym). Their findings suggest that Token economies can successfully change behaviour of incarcerated individuals in 69 percent of cases. However, the included studies do not provide insight into the effectiveness of RSPs in which people are not allowed to select their own rewards, nor distinguishes effects between RSPs targeting different behaviours and populations. This could be essential, as prior empirical research on reward effectiveness has shown that being able to select rewards which are attractive to an individual can moderate RSP effectiveness in terms of behavioural and attitudinal change (Lee et al., 2010; Premack, 1965; Sulzer-Azaroff & Mayer, 1991). Other variables presumably affecting the effectiveness of systematic rewarding are system monitoring, choice of target behaviour (Kazdin, 2001; Sulzer-Azaroff & Mayer, 1991) and target population; as participants must possess sufficient (cognitive) capacities to be able to change and regulate their behaviour and be responsive to rewards (Andrews & Bonta, 2010; Kazdin, 1982; Schunk & Zimmerman, 2012; Sulzer-Azaroff & Mayer, 1991).

Of course, numerous reviews on the effectiveness of interventions on behaviour and attitudes of incarcerated individuals have been conducted (for a non-exhaustive overview, see Lipsey & Cullen, 2007), yet they do not provide insight into RSP effectiveness. Unfortunately, many of these overarching reviews do not differentiate between reward and punishment techniques in discussing intervention effectiveness (Andrews et al., 1990; French & Gendreau, 1996; Garret, 1985; Keyes, 1996; Koehler et al., 2012; Landenberger & Lipsey, 2005; Lipsey et al., 2007; Morgan & Flora, 2002; Pearson et al., 2006; Wilson et al., 2005). Be that as it may, offender rehabilitation experts pose that rewards are more effective in changing behaviour than punishments (Gendreau et al., 2014), in line with empirical research on this topic (Azrin & Holz, 1966; Marlowe & Kirby, 1999). Some of these reviews do not differentiate between criminal justice settings either (e.g., Lipsey et al., 2007; Pearson et al., 2006). However, empirical prison research suggests that institution-level factors, such as social prison climate, quality of staff-incarcerated individual relationships and security level, can mediate rule compliance (Bosma et al., 2020a; Huebner, 2003; Pappas & Dent, 2021; Steiner & Woolredge, 2008), suggesting that prior empirical findings, such as among drug court participants and probationers, might not translate well to the unique prison setting. Furthermore, reviews mostly examined effectiveness in terms of recidivism post-release, but not behavioural and/or attitudinal change in prison. Those that do, report inconclusive outcomes (French & Gendreau, 1996) or small reductions in prison misconduct (Keyes,

1996), and a considerable advancement in a range of psychosocial outcomes (e.g., self-esteem) (Morgan & Flora, 2002).

The lack of an overview of empirical knowledge on reward systems in prison and the lack of consensus on its effects can be explained by the fact that this strand of research has primarily focused on non-incarcerated offenders, specifically substance abusers, probationers, and parolees. This body of research has indicated that (removal of) rewards (often money vouchers or prizes; Petry, 2000) can stimulate therapy engagement, reduce substance related offences (Burdon et al., 2003; Petry, 2000) and promote abstinence in substance abusers (Ainscough et al., 2017; Davis et al., 2016; Griffith et al., 2000; Lussier et al., 2006; Prendergast et al., 2005). Effect sizes were found to be moderated by reward volume and immediacy of application (Lussier et al., 2006). In probation and parole, rewards are most used to increase parole-meeting attendance and reduce recidivism. However, an extensive meta-analysis has shown their effectiveness on these two outcome measures to be ambiguous (Prendergast et al., 2015). At best, recidivism seems to be delayed using rewards in post-prison supervision (Sloas et al., 2019). At the intersection of prison and community are sentence discounting programmes (e.g., good or earned time credit). The available research suggests that granting or removing good time, has no or even negative effects on both misconduct in prison and recidivism post-release (Emshoff & Davidson, 1987; Johnson & Stageberg, 2014; Steiner & Cain, 2014; 2019). The extent to which these specific findings among non-incarcerated offenders can be transposed to those in prison, is unclear.

Therefore, in this paper we aim to create more insight in the effectiveness of RSPs, by addressing the following research question: What is known about the effects of reward systems in prison on the behaviour and attitudes of incarcerated individuals? To answer this research question, we conduct a systematic review of the international empirical literature on this topic. With this review, we aim to identify the available knowledge on the effectiveness of reward systems in prison, assess its methodological quality, and identify helpful new avenues for empirical research in this field.

An overview on RSP effectiveness is both theoretically and practically relevant. RSPs are assumed to yield positive effects on behaviour. Scholars have even hypothesised that encouraging incarcerated individuals to earn rewards with good behaviour can promote their self-rehabilitation through reinforcing prosocial behaviour, and by offering motivated individuals extra education and training (Gendreau et al., 2014). In contrast, other scholars argue that rehabilitation in prison can be frustrated by making access to known promotors of behavioural change dependent on their behaviour, such as qualitative social relationships in prison (Craig, 2004), access to visitation (Hutton, 2017) and other activities evidenced to promote rehabilitation (Prison Reform Trust, n.d.). An overview of the empirical studies on this topic can provide data to assess these hypotheses.

Additionally, the aim of this systematic review is to generate actionable knowledge for policymakers in the criminal justice system and profession-

als working in prisons. Providing an oversight of RSP effectiveness can aid criminal justice policy decision-making and professionals working in prisons to implement and operate reward systems effectively. In answering our research question, we discuss the target populations, target behaviours, and techniques of the three types of studies on RSPs which emerged from our findings. Before focusing on the effects of reward systems in prison (RSPs) on behaviour and attitudes, we briefly discuss the mechanisms behind possible effects of these systems. In other words, we discuss the theoretical framework that is commonly assumed to underpin RSPs.

3.1.1 Rationale of Contingency Management Systems

The assumption that systematic rewarding influences the behaviour of incarcerated individuals can be traced back to contingency management systems, of which RSPs are one example. Contingency management systems are based on the principles of operant or instrumental conditioning, which underpin classical behaviour therapy (Skinner, 1938). Operant conditioning principles are used in many areas of life, such as pet training, classroom management, and work productivity. Its core assumptions are that behaviour is determined by anticipation of its consequences and that the cause of behaviour lies in environmental stimuli instead of in the actor himself (Ayllon & Milan, 1979). Pleasant consequences of behaviour are believed to increase the likelihood of its recurrence and unpleasant consequences its extinction (Azrin & Holz, 1966; Skinner, 1938). According to the principle of extinction, removing reinforcement will generally cause the performance of previously rewarded behaviour to fade out (Vurbic & Bouton, 2014). Following this theoretical perspective, rewards may serve as incentives of compliance in prison, up to the point of release and thus removal of reinforcement. The behaviours which contingency management aims to increase, are referred to as target behaviours.

Four types of rewards and punishments can be distinguished: positive and negative reinforcement,[1] and positive and negative punishment. The labels 'positive' and 'negative' are not morally laden, but simply refer to functions. Positive reinforcement translates to adding something positive

1 Throughout time and disciplines, scholars and policymakers have used several terms to describe positive reinforcement, such as rewards (Howard League for Penal Reform, 2018), privileges (Chantraine, 2006), reinforcements (Milan, 1971; Glimmerveen et al., 2018), credit (Burchard, 1967; Morar et al., 2019; Durnescu & Poledna, 2020) and incentives (Liebling et al., 1999; Irish Prison Service, n.d.). In this paper, we will refer to rewards to describe stimuli that are thought to increase the likelihood of future behaviour occurring (Miller, 2006), as we find this lay-term more accessible than 'reinforcement', less normative than 'privilege', more general than 'credit' – which indicates a specific form of reward –, yet more specific than 'incentive', which can refer to any type of stimulus.

contingent on performing a desirable behaviour (e.g., rewarding hygiene maintenance with extra meals), whereas negative reinforcement refers to removing something unpleasant (e.g., unlocking the cell between activities). The goal of reinforcement is to reinforce the behaviour performed. The behaviours which reward systems aims to increase, are referred to as target behaviours. Positive punishment translates to adding an aversive consequence after performing an undesirable behaviour (e.g., isolation following an incident), whereas negative punishment refers to removing a reinforcer (e.g., removing visitation privileges following an incident). Negative punishment is also referred to as response cost (Kazdin, 1972). The goal of punishment is to decrease the behaviour performed. Systems which use operant conditioning principles to influence behaviour are often referred to as contingency management systems. They can use a selection of all four types of rewards and punishments. However, reward systems in prison exclusively use positive reinforcement (reward awarding) and negative punishment (reward removal). Several techniques for reward application can be used, such as the use of tokens or points which can be exchanged for rewards, pre-selected sets of rewards that are provided upon level progression, and the use of contingency contracts in which mutually agreed upon target behaviours and rewards are described, upfront.

RSPs thus rely heavily on extrinsic motivation as a driver of positive behaviour, but this may be at the cost of intrinsic motivation to change. Previous research found that external regulation of behaviour and extrinsic rewards (e.g., in a school context) may undermine intrinsic motivation (Deci, Koestner & Ryan, 1999). Given the popularity of RSPs, the lack of a clear evidence base, and potentially adverse and undesirable effects, research on the application and effectiveness of RSPs is timely and necessary.

3.2 Methods

The main goal of this study was to assess the effects of RSPs on the behaviour and attitudes of incarcerated individuals. Therefore, we conducted a systematic review following these recommended steps: identification, screening, eligibility, and inclusion (Higgins & Green, 2021; Petticrew & Roberts, 2008). The entire screening process is visually captured in the PRISMA flowchart (see Figure 3.1) (Moher et al., 2009).

3.2.1 Identification of Possibly Relevant Publications

First, we searched for relevant publications in several academic research databases. Given the topic of this study and our research question, we chose to identify relevant records by searching scientific databases Web of Science (1945-present), PsychInfo (1967-present), Criminal Justice Abstracts

(1968-present), ProQuest and Google Scholar. Web of Science (which hosts a collection of databases, e.g., MEDLINE and ScIELO) was selected as it is the world's leading multidisciplinary scientific search tool. PsychInfo complements this database as it has been found to include studies on psychological and psychiatric topics that are not available in other databases, such as MEDLINE (e.g., Brettle & Long, 2001; Stevinson & Lawlor, 2004). To avoid publication bias, Criminal Justice Abstracts (which includes dissertations, government reports, books, and unpublished papers), ProQuest Dissertations and Theses, and Google Scholar were also searched. No temporal search limits were set. The entire search was conducted in March 2021. We conducted the literature search with specific inclusion criteria – and thus search terms – that were based on the central research question.[2] Therefore, publications were only considered relevant if these described a study in which (a) the reward system was applied in a prison or jail, (b) the reward system involved providing and/or removing rewards, (c) the rewards were provided based on an assessment of a defined target behaviour, (d) the effects / outcomes discussed were attributed to the RSP and (e) rewards were at least partially enjoyed in prison. Study quality was not an inclusion criterion, as we aimed to map all relevant research on this topic and assess its methodological quality. Additionally, to further minimise publication bias, we snowballed through references of the included studies and important retrieved literature reviews and meta-analyses on contingency management systems in incarcerated populations (e.g., Gendreau et al., 2014; Serin & Hanby, 2009). Snowballing did not reveal additional unique records. These search strategies combined resulted in 2972 records. After removal of 557 duplicates, 2415 unique records were identified.

3.2.2 Screening Title and Abstract

Second, each of the 2415 unique publications was screened by title or abstract and selected when relevant. The aim of screening was to exclude publications that did not meet the inclusion criteria. As a result, reward systems in other settings than prisons or jails, such as forensic hospitals, reformatory schools, problem-solving courts, parole, and probation, were excluded. Studies on remission systems, good and earned time credit, and early release programmes were also excluded. This also applied to RSPs

2 Based on the research question and inclusion criteria, we conducted a search with the following search terms: ("contingency management" OR "response cost*" OR "positiv* reinforc*" OR "negativ* reinforc*" OR incentiv* OR privileg* OR reward* OR "operant* condition*" OR "radical behav*" OR "behav* modif*") AND ("correctional institution*" OR "correctional facilit*" OR penitentiar* OR *prison* OR jail* OR incarc*). We inserted a 'NOT' command to exclude irrelevant topics: NOT ("prisoner dilemma*" OR "prisoners dilemma*" OR "prisoner's dilemma*" OR "prisoners' dilemma*").

that only use positive punishment, and RSPs introduced as part of a non-contingent multimodal treatment programme. Yet, RSPs in which engaging in such programmes was a specific target behaviour and thus rewarded, were included. The screening of all unique 2415 publications, resulted in 334 potentially relevant studies, of which 79 full texts were not located. The remaining number of 255 studies is substantial, as we chose to screen full texts when in slightest doubt of relevance. And doubt there often was, because titles and abstracts often contained terms such as 'behaviour modification', 'reinforcement' or 'incentive', whereas those labels did not reveal whether it concerned reward (removal) or other forms of reinforcement and/or punishment. Although labour-intensive, this approach was chosen to circumvent unfortunate exclusion of relevant studies.

3.2.3 Screening Full-texts

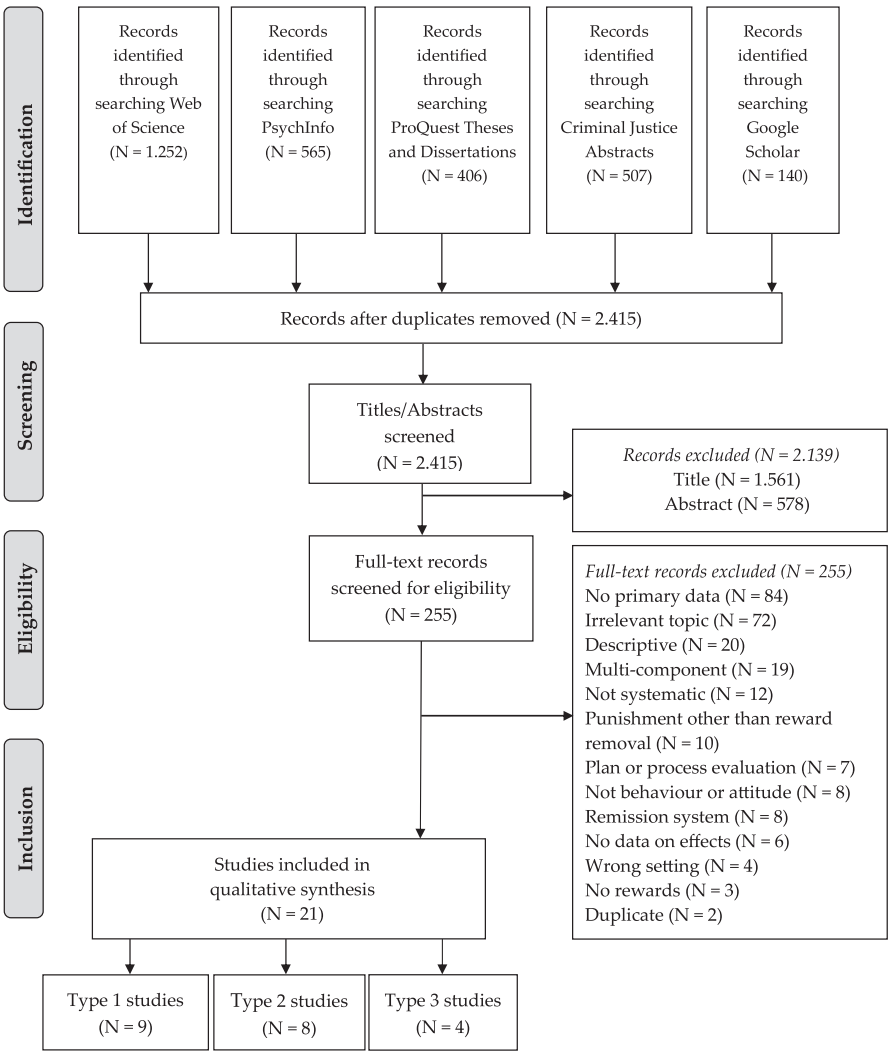
Third, the full texts of the remaining 255 studies were read, and publications were excluded when they did not meet the inclusion criteria. Again, the same inclusion criteria were used as in the first and second step. Note that quantitative studies, mixed-methods, and qualitative studies were included. Inclusion of qualitative studies in systematic reviews is not common in criminology (Azjenstadt, 2016). However, doing so was relevant to our research question, as qualitative insights could potentially be helpful for understanding effects found in quantitative studies (Seers, 2015) and identifying side effects. The screening of the full texts of 255 studies resulted in a selection of 21 relevant studies. Two of those studies were reported in one publication (Milan et al., 1979b). Two separate publications reported results from the same sample (Khan 2016, 2020). Most full-texts were excluded for reasons of not containing primary data, full-texts not being available or being irrelevant upon further inquiry (see Figure 3.1).

3.2.4 Synthesis

Finally, all 21 studies that met the inclusion criteria were synthesised, focusing on study outcomes and quality. Synthesis involved a critical appraisal of the results. For this purpose, we extracted data from the studies. For quantitative studies, a data extraction form was prepared with key meta-data (e.g., sample characteristics, setting, reward types, reported effects, etc.), which was analysed for patterns. The same method was used for qualitative studies, except that the results consisted of themes that were described and discussed by the author. No additional content analysis of these studies was conducted to see if other themes would emerge. When reading the selected 21 studies, a pattern emerged in the sense that three types of studies could be distinguished, and we classified each study into one of these types. The three distinct types of studies on RSPs are: (1) quantitative studies con-

ducted before 1993, (2) quantitative studies conducted after the year 2000 and (3) qualitative studies conducted after the year 2000.[3] After reading all 21 studies carefully, we classified 9 studies as type 1, 8 as type 2 and 4 as type 3. Note that the three types of studies do not only differ according to their publication date or whether these are qualitative or quantitative, but more importantly in context, sample size, dominant research method, research design and technique, as well as immediacy of reward application (see our discussion below and table 3.1).

Figure 3.1
PRISMA Flowchart



3.2.5 Quality Assessment

The Maryland Scientific Method Scale (SMS) (Cook & Campbell, 1979) was used to assess study quality of quantitative studies, which is commonly used in criminology (Farrington et al., 2002; Petticrew & Roberts, 2008). This scale is a five-point scale ranging from 1 (cross-sectional correlations) to 5 (randomised-controlled trials). Six studies were scored as 1, as these cross-sectional studies lacked control groups. We scored the quality of seven studies as 2, among which were ABA-designs, which included before-after comparisons, but lacked counterfactuals and randomised participant selection. Three studies were scored 3, as they included before-after comparisons and control groups, but important unobserved differences were likely to exist between these groups. One quasi-experimental study (before-after comparison, matched (but not randomised) control group, use of control variables) was scored 4. That no randomised-controlled trials were found is in line with previous findings indicating the scarce use of this golden standard to study intervention outcomes in prisons (e.g., Lipsey & Cullen, 2007; Beaudry et al., 2021). Thus, overall study quality of quantitative studies was low to medium in terms of SMS-scores. However, this does not necessarily mean these studies do not contribute to our understanding of reward systems in prison. On the contrary, cross-sectional study outcomes can be valid when the exposure to the intervention can be assumed to be stable over time (Kesmodel, 2018), which can be argued to be the case for these prison-based studies. Although hard to draw robust conclusions on causality based on low- to medium-score studies, they did present valuable information on correlations between systematic rewarding and behavioural or attitudinal outcomes.

For assessing quality of qualitative studies, we used the Critical Appraisal Skills Programme (CASP) checklist for qualitative research (Critical Appraisal Skills Programme, 2018). The CASP is a commonly used tool for study quality appraisal, supported by the Cochrane Qualitative and Implementation Methods Group (Long et al., 2020) and contains questions which are included in most study-quality appraisal tools (Munthe-Kaas et al., 2019). This checklist contains ten review questions (e.g., 'was the research design appropriate to address the aims of the research?'), which have to be answered with 'yes', 'can't tell' or 'no'. A common difficulty in the use of CASP is how to distinguish between genuine research flaws and lack of reporting (Long et al., 2020). Fortunately, this issue was easily overcome, as all the included qualitative studies were part of larger dissertational research projects, all of which provided additional information relevant for assessing individual study quality. Another issue of using CASP is how to arrive at overall quality judgements; determining which or how many no's indicate poor quality (Long et al., 2020). As most questions for most of the included qualitative studies were answered affirmatively, and no's did not relate to any fatal flaws (Dixon-Woods et al., 2004) or essential elements (Carroll et al., 2012) – such as rigor of data collection or appropriateness of using a qualitative methodology – we concluded that all four studies were of good quality.

3.3 Results

3.3.1 Characteristics of Studies on RSP Effectiveness

As discussed above, our systematic literature review resulted in 21 studies, and three types of studies were distinguished (Appendix B lists all study key characteristics). Nine studies were categorised as type 1: quantitative studies conducted before 1993, eight studies were categorised as type 2: quantitative studies conducted after the year 2000, and four studies were categorised as type 3: qualitative studies conducted after the year 2000.[3]

The three types of studies clearly differed in their study characteristics (see Table 3.1). Type-1 studies were characterised by (i) exclusively being conducted in the US, (ii) with relatively small sample sizes, (iii) using quantitative research methods. More importantly, however, all studies concerned experimental token economies, in which rewards were provided immediately following good behaviour. Six of these studies were conducted in a special experimental unit in Draper correctional centre in Elmore Alabama, in the 1960s. Rewards were awarded immediately upon display of target behaviour. Four out of nine studies were included in a prior meta-analysis (Gendreau et al., 2014). Apart from the RSP in one study (Ellis, 1993), all systems were developed, implemented, and monitored by external researchers. All type-1 studies monitored and tracked behaviour of single subjects.

Type-2 studies were characterised by (i) being conducted in various countries (predominantly United States (US) and United Kingdom (UK)), (ii) with relatively large sample sizes, (iii) using quantitative research methods, (iv) to study non-experimental RSPs, (v) which use non-immediate rewarding. In contrast with most type-1 studies, type-2 studies mostly included participants who did not volunteer for system participation. Moreover, two out of eight systems in these studies were developed, implemented, and monitored by external researchers. The remaining six studies were conducted by prison administrations. Three out of eight systems in these studies involved points or tokens. Time between display of target behaviours and receiving rewards was usually less immediate than in the type-1 studies, as this period ranged from 1-7 days (Feinstein, 2000), 14-28 days (Liebling, 2008, see Ministry of Justice, 2011), 14-120 days (Reid et al., 2000), 30 days (Sharma & Marino, 2017), 30-60 days (Meyers et al., 2018) to 30-90 days (Meyers et al., 2020). All type-2 studies monitored and reported on behavioural change of single groups. None of the type-2 studies were included in a prior meta-analysis (Gendreau et al., 2014).

Type-3 studies were characterised by (a) being exclusively conducted in the UK, (ii) with relatively small sample sizes, (iii) qualitative research methods, (iv) non-experimental RSPs and (v) non-immediate rewarding.

3 No qualitative studies dating before 1993 were found. Therefore, this type of study is not distinguished.

The findings of these four recent studies (2011-2020) were all based on either semi-structured interviews, in-depth interviews, or extensive ethnographic research, in UK prisons where the Incentives and Earned Privileges (IEP) scheme was in place. None of the type-3 studies were included in a prior meta-analysis (Gendreau et al., 2014).

Table 3.1
Characteristics of three types of RSP studies

Characteristics	Type 1	Type 2	Type 3
Study			
Number of studies	9	8	4
Publication date	Pre or in 1993	Post 2000	Post 2000
Context	US	US, UK, Romania	UK
Sample size	Range = 2 – 56	Range = 10 – 4960	Range = 16-72
Methodology	Quantitative	Quantitative, mixed,	Qualitative
Participation	Part voluntary, part imposed	Imposed	Imposed
System			
Design	Experimental	Non-experimental	Non-experimental
System	One-levelled token economies	One-levelled token economies, multiple level progression-dependent reward systems	Three-level progression-dependent reward systems
Immediacy of rewards	Immediately following target behaviour(s)	1-120 days following target behaviour(s) and/or attitudes	14-28 days following target behaviour(s) and/or attitudes

3.3.2 Effectiveness of RSPs

Effects are discussed per study type, by focusing on target populations, target behaviours and attitudes, and techniques (including reward types), as empirical research building upon the operant-conditioning framework suggests that these variables can moderate RSP effectiveness (Andrews & Bonta, 2010; Kazdin, 1982; 2001; Premack, 1965; Schunk & Zimmerman, 2012; Sulzer-Azaroff & Mayer, 1991).

3.3.3 Type-1 Studies

All but one type-1 study (McKee, 1971) researched a token economy, which is why we do not differentiate between the effectiveness of different techniques here (e.g., contracts, systems using pre-selected sets of rewards awarded upon level progression).

A review of these type-1 studies on the effects of token economies (N = 8) indicated that, overall, these RSPs were effective in improving academic achievement (e.g., language skills), and personal hygiene and cellblock maintenance, through immediately rewarding with tokens exchangeable for a range of reward types.

The synthesis of these studies also showed that the effects of these studies did not differ according to the type of target population. The effects of RSPs on individual academic achievement and performance of daily-living activities were found to be predominantly positive in volunteers who cognitively functioned below average (IQ 80-89). Positive effects on these outcome measures were found for seven out of nine studies, six of which included cognitively below average functioning (M IQ = 88.3) men aged 17-35 years who volunteered for experiment participation (Kandel et al., 1976; McKee, 1971; 1972; Milan & McKee, 1976; Milan et al., 1979a, study 1 & 2; Milan et al., 1979b), and one included adolescent girls (aged 11 to 15) with learning difficulties (Rice, 1970). Three studies reported that positive effects quickly declined to baseline level after the token economy had been terminated (Milan & McKee, 1976; Milan et al., 1979a, study 1). Notably, the sample of four studies, containing adult men, was identical (Milan & McKee, 1976; Milan et al., 1979a, study 1 & 2). There was no indication from these studies that personal characteristics (e.g., age, gender, ethnicity, sentence length) influenced the effects found. However, apart from cognitive functioning, these studies did not report data on risk, need or responsivity of the participants.

Furthermore, the synthesis of type-1 studies also showed that the effects of the RSPs did not differ according to target behaviours and attitudes. Positive findings related to target behaviours focused on academic achievement (Kandel et al., 1976; McKee, 1972; 1971; Milan et al., 1979b; Rice, 1970), maintenance of personal and area hygiene (Milan & McKee, 1976), violent behaviour (Ellis, 1993), rule compliance (Milan et al., 1979a, study 1), and time watching news (Milan et al., 1979a, study 2). Behavioural change in type-1 studies was measured either through observations (e.g., news watching), incidents reported, or number of academic tests passed. Type of measurement did not appear to affect RSP effectiveness. As it was possible to exchange tokens for a wide range of reward types (e.g., material, social, internal freedom) in the RSPs reported on in these studies, and the frequency with which reward types were selected by participants was not documented, it was impossible to distinguish the effect of reward type on RSP effectiveness. Reward types were unknown in one study (McKee, 1971).

3.3.4 Type-2 Studies

A review of the type-2 studies (N = 8) showed that the effectiveness of the examined RSPs differed considerably. These recent quantitative studies indicated that RSPs can be effective in advancing mental health among

mentally ill participants, decreasing violent behaviour among high-risk participants, increasing academic achievement, and reducing problem behaviour among adolescents and young adults. The RSPs did not appear to be effective in decreasing misconduct – both during and post imprisonment – in heterogenous populations, nor in promoting engagement in substance-use treatment among incarcerated men and women with substance use problems.

The synthesis of these studies also showed that RSP effects differed according to target population type. Although it is difficult to draw robust conclusions, effects generally were more positive for smaller and specific target populations, compared to larger and more heterogeneous groups of participants. This is illustrated by the fact that lower-quality studies on RSPs in female adolescents (aged 14 to 18) and young adults (aged 18 to 21) (in both minimum-security and maximum-security settings) (Feinstein, 2003; Sharma & Marino, 2017) and high-risk men in a restrictive housing unit (Reid et al., 2000) reported positive effects on participants' behavioural change. There were, however, three exceptions, reported in studies with somewhat higher study quality. Another study on high-risk men in restrictive housing reported mixed outcomes: no change in mental health, but a considerable decrease in antisocial behaviour lasting over twelve months after RSP termination (Meyers et al., 2018). In contrast, a study on individuals with a serious mental illness found significant positive effects of RSP on mental health, but negative effects on minor violations (e.g., maintaining personal hygiene, littering, smoking) (Meyers et al., 2020). Although no clear explanation for these findings was provided, the authors did note that minor violations increased leading up to RSP participation and gradually decreased during RSP participation. Effects in this study were less favourable for both participants at higher risk of suicide or self-harm and participants refusing to partake in programmed activities more than once. Furthermore, a study among incarcerated individuals with substance use problems reported no significant change in treatment engagement and psychosocial functioning (Burdon et al., 2013). RSPs implemented in entire prison systems, and thus in heterogenous populations, illustrated less favourable results overall (Liebling, 2008; Morar et al., 2019). Moreover, effects reported in one of these studies were even more negative for compliant, at-risk-of-suicide, older and more educated individuals in the UK system (Liebling, 2008). Based on three studies including both male and female participants (Burdon et al., 2013; Liebling, 2008; Morar et al., 2019), there is no indication that effects were gender specific.

Furthermore, synthesis also showed that the effects of the RSPs studied differed according to target behaviours and attitudes. Generally, target behaviours aimed at cognitive change, particularly dynamic criminogenic needs, were associated with increased RSP effectiveness. Specifically, seven studies included target behaviours aimed at cognitive change, of which five exclusively (Feinstein, 2003; Reid et al., 2000; Sharma & Marino, 2017) or predominantly (Meyers et al., 2020; 2018) reported positive outcomes.

These, cognitive programmes focused on changing dynamic criminogenic needs: criminogenic cognitions, school and work, and substance use (Andrews et al., 2006). Programmes included participation in cognitive restructuring programmes aimed at changing antisocial thinking, attitudes, behaviour and choices, dealing with problems and conflict resolution (Sharma & Marino, 2017), self-reflective self-study programmes, cognitive-behavioural group therapies, and need-oriented individual counselling (Meyers et al., 2020; 2018), anger management and positive peer culture (Feinstein, 2003), as well as a range of group cognitive and mental health programmes addressing thinking errors, self-esteem and moral reasoning (Reid et al., 2000). However, one study included cognitive-behavioural therapy, but found contradictory results on measures of criminal thinking and psychosocial functioning, and non-significant results on substance use treatment engagement, compared to a control group (Burdon et al., 2013). It was unclear to which degree one of the RSPs included programmes targeting cognitive change (Morar et al., 2019).

Finally, the synthesis of these studies illustrated that the effects of type-2 studies slightly differed according to technique. Studies show somewhat more favourable behavioural outcomes for RSPs in which pre-selected rewards were awarded upon level progression (which in some cases took up to more than days), compared to the use of exchangeable tokens – which, in contrast, allow for personal selection of rewards, directly after completing a target behaviour. Two studies reporting on token economies did not find significant effects on post-release recidivism and psychosocial functioning (Burdon et al., 2013; Morar et al., 2019), whereas a prior study on an RSP among incarcerated adolescents did find a decrease in problem behaviours (Feinstein, 2003). However, both outcome measures and measurement instruments differed considerably among these studies. Out of five studies using pre-selected rewards in level systems, three found merely positive results (Meyers et al., 2018; Reid et al., 2000; Sharma & Marino, 2017), one study reported mixed outcomes (Meyers et al., 2020) and another study found negative effects on behavioural outcomes (Liebling, 2008). The time between display of target behaviour and reward reception did not seem to have an impact on RSP effectiveness, even though this time varied considerably between studies. In general, there were no indications that RSP effectiveness was impacted by selection of reward type. However, RSPs in which internal freedoms (transfer to general population (in restrictive housing), time out of cell, freedom to move around the unit or facility) were used as rewards, reported more favourable outcomes regarding behavioural change compared to those that did not (Meyers et al., 2018; Reid et al., 2000; Sharma & Marino, 2017), yet not exclusively (Burdon et al., 2013).

3.3.5 Type-3 Studies

Overall, type-3 studies (N = 4) indicated that RSP effectiveness can be

affected by (perceptions of) programme elements and implementation factors. The scope of these studies was wider than the study of RSP effects yet contained relevant data on RSP effects. Type-3 studies were not synthesised by target population, target behaviours and technique, not least because they all concern participants in the UK's three-levelled IEP scheme. Instead, we describe the most prominent themes emerging from these studies, which can influence RSP effectiveness: the pain of self-government, perceived legitimacy, and family-contact rewards.

The synthesis of type-3 studies showed that RSP effectiveness can be moderated by the pain of self-government. Three studies, using semi-structured interviews (Khan, 2016; 2020) and extensive ethnographic research (Crewe, 2009; 2011), reported that the pain of self-government can frustrate RSP effectiveness. This psychological burden was described as resulting from being held accountable for one's behaviour (Crewe, 2011b), while one's agency is simultaneously constrained (Khan, 2022). This led participants to feel constantly 'on edge', as they were held 'responsible for an increasing range of decisions' and experienced 'less freedom to be left alone and move through the system passively' (Crewe, 2011b, p. 518-519). This pain can frustrate RSP effectiveness either because individuals lack adequate self-regulatory skills to cope with this burden and display target behaviours, because it may trigger resistance, or both. Both incapability and demotivation to display target behaviours has been documented in studies throughout the last decade, indicating that RSP responsivity is a persistent factor (e.g., Crewe, 2011b; Khan, 2022).

Furthermore, synthesis of these studies indicated that perceived legitimacy could affect RSP effectiveness. Participants in two studies (Crewe, 2011b; Khan, 2016) reported that RSPs impacted their behavioural choices more positively when they felt that rewards and behavioural assessments were applied legitimately (i.e., neutral, and respectful). These findings were in line with Liebling's (2008) questionnaire-based outcomes. Khan (2016) found that participants at higher system levels perceived the system as more legitimate, compared to those at lower levels. Additionally, participants who felt that they were treated respectfully by staff, chose to display target behaviours more often (Khan, 2022). In contrast, participants reporting little perceived legitimacy, also experienced decreased psychological well-being, demonstrated by feelings of powerlessness (Khan, 2016; 2022), anxiety and helplessness (Crewe, 2011b). Contributing to a feeling of powerlessness, particularly among introvert and passively complying participants, was the experience that prison officers often failed to notice and monitor performed target behaviours (Khan, 2022). Being required to 'actively' (i.e., visibly) engage in prosocial behaviour may have decreased progression opportunities for those individuals whose compliant behaviour went unnoticed, which in turn demotivated them to display target behaviours (Khan, 2022). Hence, both perceptions of system application and outcomes (i.e., rewards) appear to influence RSP effectiveness, through altering extrinsic motivation levels.

Finally, synthesis of these qualitative studies highlighted that using family contact as a reward can positively influence RSP effectiveness, whilst simultaneously creating resistance. All studies (Booth, 2020; Crewe, 2011b; Khan, 2016; 2020) reported that using family contact as a reward (i.e., additional visits, telephone credit; British Ministry of Justice, 2013) had an overall positive effect on incarcerated individuals' display of target behaviours, even though they generally perceived this as highly unfair. Interviews with incarcerated mothers illustrated that mother-child contact is an important social need, which serves as an important motivator for RSP compliance (Booth, 2020). The RSP was experienced as a barrier to fulfil this social need when mothers were unable to maintain contact due to a lack of telephone credit (a reward tied into level progression). Yet, contact with children was also experienced as a source of motivation for system compliance among incarcerated fathers – that is, for those attributing value to social contact (Khan, 2022). In essence, these qualitative findings not only illustrate that the attractivity of rewards is personal and subjective, but also that behavioural change can be increased by using attractive rewards. However, rationing what matters most may also create resistance and perhaps inflict upon perceptions of legitimacy.

In summary, studies on experimental token economies conducted in the 1960s-1970s found positive effects on academic achievement and hygiene maintenance, in target populations cognitively functioning below average (IQ 80-89), although statistical significance of these findings is unclear (type-1 studies). Contemporary, non-experimental RSPs yielded positive behavioural outcomes when targeting high-risk participants, including cognitive-programme engagement as target behaviours, and using pre-selected sets of rewards awarded upon level progression. RSPs applied in large, heterogenous target populations were generally less effective (type-2 studies). Qualitative studies indicated that several implementation factors can influence system compliance and behavioural change among participants, such as the pain of self-government, perceived legitimacy, and using family contact as a reward. Severity of impact depends on participant characteristics and perceptions of system application (type-3 studies).

3.4 Conclusion and discussion

Until now, criminological literature lacked an oversight of the effectiveness of reward systems in prison (RSPs). Therefore, this systematic review set out to answer the research question: What is known about the effects of reward systems in prison (RSPs) on the behaviour and attitudes of incarcerated individuals? Twenty-one studies met the inclusion criteria, which could be categorised in three distinct types: type-1 studies concerned 20th-century research on experimental token economies, type-2 studies were contemporary, non-experimental, and quantitative, and type-3 studies were qualitative and UK-based. It stands out that while RSPs are widely implemented,

the quality and quantity of recent and relevant research lags behind. Still, we can build on the synthesis of findings from each of these categories of studies.

The synthesis of type-1 studies (N = 9) illustrated that experimental token economies improved academic achievement and hygiene maintenance in target populations cognitively functioning below average. This finding is in line with the results from a meta-analysis on correctional token economies using punishments and rewards, in which five of these studies were included (Gendreau et al., 2014). However, the internal validity of these studies is questionable. However, the internal validity of these studies is questionable. The ABA designs (having non-contingency periods between token interventions) of most of these studies may have consolidated learning (Gendreau et al., 2014). Moreover, four of these studies were conducted on the same participants, facilitating testing effects. Furthermore, voluntary RSP participation may indicate a relatively high motivation baseline, which is generally associated with offender-treatment completion (Andrews & Bonta, 2010) and, in turn, behavioural change (Olver et al., 2011). Lastly, one third of the studies reported that positive effects deteriorated after experiment termination, indicating that token economies are suitable for managing behaviour in prison but are not associated with lasting change. This corroborates findings of meta-analyses on contingency management application in non-incarcerated individuals with substance use problems (Benishek et al., 2014; Sayegh, et al., 2017). A common explanation for short-lived effects of behavioural interventions is that rewarding prosocial behaviour does not unlearn antisocial behaviour (Crossley et al., 2013), nor instils intrinsic motivation to do so.

The synthesis of type-2 studies (N = 8) indicated that contemporary, non-experimental RSPs reported positive behavioural outcomes when targeting high-risk participants, including cognitive programmes as target behaviours, and using pre-selected sets of rewards awarded contingent on level progression. RSPs applied in large, heterogenous target populations were generally less effective. RSPs including cognitive programme elements adhered to multiple RNR-principles, such as addressing dynamic criminogenic needs (e.g., antisocial cognition and substance abuse) through cognitive-behavioural treatment (CBT) (e.g., Thinking for a change) (Andrews et al., 2011; Bonta & Andrews, 2007). Research on the cumulative effect of reward application and contingent CBT engagement of incarcerated individuals is scarce, and available evidence is mixed (Bahr et al., 2012; Carroll et al., 2012). More importantly, effects might differ for systems paired with cognitive change programmes, compared to systems in which engagement in such programmes is part of an RSP and thus rewarded. The conclusion that RSPs applied in heterogenous prison populations, using universal rewards, produce heterogenous effects (e.g., Liebling, 2008), could partially be explained by the subjective valuation of reward types (Booth, 2020; Kazdin, 1982; Khan, 2016; 2020). That is, some individuals may care for (some) rewards, others may not. Lastly, somewhat more support was

found for systems that use sets of rewards awarded upon level progression, compared to Token economies. This is surprising, as prior research indicated that the attractiveness (Kazdin, 1982; Sulzer-Azarhoff & Mayer, 1991) and immediacy of receiving rewards can moderate system success, due to reward discounting and poor impulse control, which characterise incarcerated populations (Arantes et al., 2013; Hanoch et al., 2013; Meijers et al., 2015). However, in systems that use sets of rewards, participants could not choose their rewards (which ensures rewards are sufficiently attractive) and often had to wait much longer before receiving rewards (up to 120 days), compared to token techniques.

The synthesis of type-3 studies (N = 4) indicated that several design and implementation factors can influence system compliance and behavioural change among participants, such as the pain of self-government, perceived legitimacy, and using family contact as a reward. While it was previously argued elsewhere that system design deliverance can influence contingency management system outcomes (Gendreau & Listwan, 2018), these specific factors, derived from qualitative research, have not been related to RSP effectiveness before. First, being held accountable for a wide range of behaviours, but being uncapable or unwilling to act responsibly, was found to frustrate system effectiveness. Qualitative studies described that an RSP can decrease psychosocial functioning of participants by over asking their self-regulatory capacities (Crewe, 2011b). Individuals with an intellectual disability in prison may be especially prone to over asking, due to cognitive, social, practical, and conceptual impairments (American Psychological Association (APA), 2013). This potentially unresponsive subpopulation might be substantial, as intellectual disabilities are very common in (UK) prisons (Ali et al., 2016; Hassiotis et al., 2011; Murphy et al., 2017). We do not suggest that these individuals are unresponsive to reward systems in general, but rather to general reward systems. In fact, a long line of empirical research on motivation in students with intellectual disabilities suggests that this population is indeed highly responsive to extrinsic rewards (Katz & Cohen, 2014). However, there is a lack of empirical research on incarcerated individuals with intellectual disabilities. Second, decreased perceived legitimacy was found to decrease participants' well-being, worsen staff- incarcerated individual relations, and subvert system success of the UK's Incentives and Earned Privileges scheme (e.g., Crewe, 2011b; Khan, 2016; 2022; also see Liebling, 2008). Respondents expressed feeling being punished twice when arbitrarily denied rewards; an experience which according to experimental studies can indeed deteriorate relationships between staff members and incarcerated individuals and reduce perceptions of legitimacy (Azrin & Holz, 1966; Brunton-Smith & McCarthy, 2016). In turn, poor relationships with staff could have further frustrated their progress, because maintaining good relationships with staff was also a target behaviour (British Ministry of Justice, 2013). Even seminal works such as Pentonville (Morris & Morris, 1963) and Society of Captives (Sykes, 1958) already recognised that staff- incarcerated individual relationships can have an instrumental function (both for staff

and incarcerated individuals), and order and compliance are often carefully negotiated between incarcerated individuals and prison officers. Third, using family contact as a reward has been found to be effective for those individuals attributing high value to family contact. This is not surprising, as (incarcerated) individuals are motivated best by what they value most (Premack, 1965). Conditionalizing such basic need fulfilment also instilled resistance in this subpopulation. This is understandable, as social connectedness and autonomous decision-making are theorised to be important basic human needs (Ryan & Deci, 2000b) – or 'primary goods' in criminological terms (Good Lives Model (GLM) of rehabilitation, Ward & Gannon, 2006). However, the degree to which basic human-need fulfilment in prison should be behaviour-based is a question on normativity rather than effectiveness, and an issue easily overlooked by criminal justice policymakers implementing behavioural interventions such as RSPs (Liebling, 2001).

3.4.1 Limitations

This study also has several limitations, mostly related to generalisability of findings of studies on RSPs. First, the included studies were predominantly conducted in the UK and US, and often dated back decades. Geographical clustering makes it difficult to generalise findings to other contexts, because, next to obvious differences in prison management and characteristics between countries, institution-level factors (e.g., social prison climate, quality of staff- incarcerated individual relationships) often differ between correctional settings, yet are also found to influence rule compliance behind bars (Bosma et al., 2020a; Huebner, 2003; Pappas & Dent, 2021; Steiner & Woolredge, 2008). Geographical clustering may have been prompted by the exclusive use of English search terms – which may also have resulted in exclusion of relevant studies published in other languages. Additionally, as type-1 studies are temporally clustered in the 1970s, it is questionable to what degree their findings can legitimately be used to understand effectiveness of contemporary RSPs. Prisons have changed drastically over the last 50 years. Next to specific contemporary challenges (e.g., overcrowding, gang membership, drug use, psychosocial problems), offender treatment in prison has intensified and is increasingly directed at individual risks and needs (Woolredge & Smith, 2018). Consequentially, it is hard to generalise some of these findings over place and time.

There are also limitations to our ability to draw causal inferences related to methodological issues and study quality. Overall study quality of quantitative studies (type 1 and 2) was low in terms of SMS-scores. Poor quality ratings were mainly due to little use of control groups, checks for alternative explanations and an overall lack of randomised treatment. Effects were thus often measured as change over time in one sample. It is unclear to what extent the effects reported were caused by the RSP; perhaps behavioural change would have occurred regardless of systematic rewarding or was

caused by alternative variables. As such, it is hard to pinpoint the working mechanisms of RSPs. Reported effects should therefore be interpreted with caution. However, higher, and lower quality studies do not necessarily systematically differ in effect size and direction (Garrett, 1985; Pearson et al., 2006). Moreover, four type-1 studies used the same sample of volunteers, which may have overemphasised the positive effects of this study type, not least because of possible learning and testing effects, and high baseline motivation levels. It is also important to note that effects in type-1 and type-2 studies were often measured by display of target behaviours. Due to this (narrow) focus, possible side effects may have been overlooked, such as alterations in prison climate and self-regulatory capacities. Based on these findings, the rehabilitative value of RSPs is questionable, because studies often use outcome measures unrelated to criminogenic needs. This, again, raises the question to what extent display of good behaviour behind bars is associated with the gradual process of psychological, moral, and social rehabilitation (McNeill, 2012). On the upside, the exposed lack of high-quality empirical research can spur future empirical research on this topic and clarify the evidence base of this intervention to policymakers and practitioners.

3.4.2 Implications for Theory, Policy, and Practice

This review's findings have several implications for theory, future policy and practice, and research. Mixed findings highlighted in this review might relate to a lack of adequate theory on systematic reward application in prison settings (Ward, 2019). Although operant conditioning principles are described extensively (Murphy & Lupfer, 2014), little theory is developed on how certain target behaviours and rewards are ought to motivate incarcerated individuals to change their behaviour. The dominant model of offender rehabilitation (RNR) does not provide any specific answers either, other than referring to operant conditioning principles (Andrews et al., 1990; Bourgon & Bonta, 2014) and general strain theories (Andrews et al., 2011). The RNR model appears to lack a clear conception of how extrinsic and intrinsic motivation relate to offender behavioural change (Andrews et al., 2011). Fortunately, the RNR model is open to 'being informed by psychological models of motivation' (Andrews et al., 2011, p. 739). A next step would be to develop and test theories on RSPs, both in relation to prison-based and rehabilitative outcomes.

The poor methodological quality of many studies also points to the obvious implication of conducting rigorous evaluations of RSPs, especially considering the stakes involved. Indeed, some scholars have pointed out the problems of making programming and visitation (partly) conditional on good behaviour (Craig, 2004; Hutton, 2017). Future research should therefore seek to build a strong evidence base on RSPs to inform policymaking and prison management.

At present, the evidence appears to suggest that rewards and target behaviours should be individualised and reflect participants' cognitive and other self-regulatory capacities (Bonta & Andrews, 2010; Ziv, 2017), and include most attractive rewards. The number of target behaviours should be small enough to be comprehensible by the individual (Marlowe, 2006). Target behaviours should be formulated in a measurable manner, but should also be specific and simple, because complex wording may frustrate participants (Crewe, 2011b; Liebling, 2008) – especially those with impaired cognitive functioning (Gonçalves et al., 2014). Additionally, prison officers are advised to differentiate between those who are unwilling and those who are unable to take responsibility. Disappointing outcomes should not be instantly attributed to a participant failing to take responsibility. Rather, it should be examined to what degree the RSP components suit the target group, and whether the programme theory needs revising (Liebling, 2008). Simple system alterations have been found to drastically alter the outcomes of contingency management interventions (see Kazdin, 1982).

This review of RSP effectiveness provides new insights, but also raises multiple new questions. First, future research could adopt search terms in multiple languages, as well as a variety of wordings, to retrieve as many relevant qualitative and quantitative studies on RSPs as possible. Second, the attractiveness of different reward types in different target groups could be further explored on group level, to increase participant responsivity. This could be done both qualitatively and quantitatively, as is previously done in prison populations (Goddard & Gendreau, 1992) and other target groups (Glimmerveen et al., 2018). Third, interaction effects of RSP and activities directed at cognitive change could be further explored. Increased insight in the interrelations of behavioural and cognitive change may help select effective target behaviours, suitable for decreasing prison misconduct, recidivism or other policy aims. Fourth, quantitively exploring the moderating influence of perceived legitimacy on participants' behavioural and attitudinal outcomes in RSPs would be a valuable addition to the insightful qualitative knowledge on this topic (Liebling, 2008). Finally, in congruence with the line of research on temporal discounting among incarcerated individuals, it is relevant to examine how reward gain and loss are experienced by participants in different RSP levels. Kahneman and Tversky's (1979) seminal work suggests that reward loss will generally be valued higher than reward gain (*loss aversion*), which is commonly explained by *negativity bias* (Baumeister et al., 2001). Hence, hypothetically, effects are more robust for incarcerated individuals who have much to lose (those in higher levels), compared to those who have little to lose (those in lower levels). As this review highlighted that good quality studies on this topic are scarce, it goes without saying that any future research should try to expose causal relations through the adoption of experimental designs.

Appendix B

Table B1
Characteristics of type-1 studies (N = 9)

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)	Reward types	SMS score	Primary outcomes
1	Ellis (1993) US	N = 10 (M)	PR (PS)	Restrictive housing unit (U)	Attend education Be punctual Maintain personal hygiene Be respectful Follow orders Maintain area hygiene	Activities Internal freedom Material	2	Violent and assaultive behaviours (-) (.044).
2	Milan et al. (1979a) (study 1) US	N = 56 (M) M age = 24 yrs M IQ = 88.3	PR / NP (TE)	Experimental unit (Max)	Maintain personal hygiene Maintain living areas Complete education modules	Activities Internal freedoms Material	2	a) PR→ rule violations (-) b) No PR → rule violations remained low c) Follow-up → rule violations (+)
3	Milan et al. (1979a) (study 2) US	N = 56 (M) M age = 24 yrs M IQ = 88.3	PR / NP (TE)	Experimental unit (Max)	Watch news	Activities Internal freedoms Material	2	Time news watched (+)
4	Milan et al. (1979b) US	N = 56 (M) M age = 24 yrs M IQ = 88.3	PR / NP (TE)	Experimental unit (Max)	Increase academic achievement	Activities TE participation Internal freedoms Material	1	a) Education participation/ pass module tests (+) b) NP→ education participation/ pass module tests (++) c) Performance fell to pre-TE level after PR was terminated.
5	Kandel et al. (1976) US	N = 2 (M) Ages: 22 and ?	PR (PS)	State prison (Med)	Spend time on education Increase academic achievement	Material Social	2	Reading, language, arithmetic (+)

Table B1 *(Continued)*

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)	Reward types	SMS score	Primary outcomes
6	Milan & McKee (1976) US	N = 56 (M) M age = 24 yrs M IQ = 88.3	PR / NP (TE)	Experimental unit (Max)	Be punctual Maintain area hygiene Maintain personal hygiene	Activities Internal freedoms Material Social	3	a) General level of performance (+). b) Day-to-day variations in response probability (-). c) Performance deteriorated after PR was terminated.
7	McKee (1972) US	N = 13 (M) M age = 27 (See Jenkins et al., 1974)	PR / NP (PC / TE)	Experimental unit (Max)	Conduct work Maintain personal hygiene Maintain are hygiene Increase academic achievement	Activities Material	3	a) Overall grade (+) (M = 0.6) b) 6/13 passed GED c) Efficiency (+) (Mdn. = 52.6%) d) On-task behaviour (+) (73.1)
8	McKee (1971) US	N = 16 (M) Age = 17-35 yrs	PR / NP	Experimental unit (Max)	Increase academic achievement	(U)	3	a) Test-taking (+) b) Task oriented activity (+)
9	Rice (1970) US	N = 10 (F) Age range = 11-15 yrs M IQ = 76	PR / NP (TE)	Correctional institution (U)	Increase academic achievement Participate in education Maintain personal hygiene Maintain area hygiene Be respectful Comply with rules	Material Social External freedoms	1	a) Language and reading (+) b) IQ (+)

[a] M = Male, F = Female, U = Unreported.
[b] NP = Negative punishment, NR = Negative reinforcement, PR = Positive reinforcement; (PC) = Performance contract, (PS) = Point system, (TE) = Token economy.
[c] SMax = Super-maximum-security prison, Max = Maximum security prison, Med = Medium security prison, Min = Minimum security prison, U = Unreported.
[d] Reward type categories were derived from Gendreau et al. (2018): Activities (e.g., access to pool table, or the gym area), Covert events (positive thoughts and self-evaluation because of mastery of a behaviour), Material goods (e.g., food, cigarettes), Social (e.g., telephone credit, letters allowed to send). We added, however, a distinct category for Internal freedoms (e.g., permission to go off-unit or additional time out of cell) and External freedoms (e.g., temporary community visits, leave, or eligibility to early or conditional release).
* Baseline target behaviours and reward types regulated by a national framework have been reported here (PSO 2006). Local prisons were allowed to use additional target behaviours and rewards. However, indications that such additions were in effect, were not found.

Table B2
Characteristics of type-2 studies (N = 8)

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)	Reward types	SMS score	Primary outcomes
10	Meyers et al. (2020) US	N = 58 (M) M age = 37 yrs	PR / NP	Mentally ill unit (Max)	Participate in cognitive programmes Take medication Increase academic achievement	Activities Social	2	a) Mental Health scores (+)* b) Minor violations (+)*
11	Morar et al. (2019) ROM	N = 4960 (F = 198 / M = 4762) M age = 36 yrs	PR / NR / NP (PS)	All Romanian prisons (U)	Increase academic achievement Participate in cognitive programmes Participate in recreation	External freedoms Material Social	2	Early release/ Return to prison: Participants earning 100+ credits (N = 3775) compared to non-credited (<100) offenders a) Early release (+)* b) Reincarceration (-)*
12	Meyers, et al. (2018) US	N = 240 (M) M age = 32 yrs	PR / NP / NR	Restrictive housing unit (Max)	Participate in cognitive programmes Maintain personal hygiene Complete education modules	Internal freedoms Material Social	2	Psychosocial functioning / Violent behaviour over time: a) Major violations (-)* b) Staff assaults (-)* c) Inmate assaults (-)* d) Drug violations (-)* e) Minor violations (+) n.s. f) Mental health score (-) n.s.
13	Sharma & Marino (2017) US	N = 31 (M) Age = 18-21 yrs	PR / NP	Youth development unit (Max)	Actively participate in education Be respectful Follow orders Complete academic work Participate in cognitive programmes	Activities Internal freedoms Material Social	1	Academic achievement: a) Attendance rate (+) sig. U b) Academic performance (+) sig. U c) Motivation level (+) sig. U

Table B2 *(Continued)*

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)	Reward types	SMS score	Primary outcomes
14	**Burdon et al.** (2013) US	N = 168 (F = 73 / M = 95) M age **34** (F) / 36 (M) yrs	**PR** (PS)	**F** (Min) **M** (Max)	Participate in cognitive programmes Complete treatment Participate in other activities Engage in recovery and prosocial behaviour	Internal freedoms Material Social	4	Engagement in prison-based drug treatment / prosocial functioning: a) Treatment participation: n.s. b) Treatment progress: n.s. c) Treatment satisfaction: n.s.
15	Liebling (2008) UK	Q: N = 1022 (F / M) I + O: N = 100 (F / M)	PR / NP	Five UK prisons (Med / Max)	Engage in sentence planning Complete risk and need assessment Comply with rules Maintain interpersonal contact*	Activities Material Social*	1	Attitudes toward reward system / Behaviour and order / Fairness and justice / Progress and participation: Mean findings for all 5 prisons were: a) Attitude to reward system (-)* b) Misbehaviour (~) c) Orderly regime (~) d) Making progress (-)* e) Participation (-)* f) Staff fairness (-)* g) Regime fairness (-)* h) Justice dimension (-)* i) Relations with staff (-)*
16	Feinstein (2003) US	N = U (M) Age = 14-18 yrs	PR (TE)	Juvenile correctional facility (Min)	Cooperate with others Complete academic work Participate in positive peer culture Work independently	Activities External freedoms	1	(Consecutive) problem behaviour (-)
17	Reid et al. (2000) US	N = 226 (U)	PR / NP	Restrictive housing unit (SMax)	Participate in cognitive, educational, vocational and mental health programmes Comply with rules Follow orders	Internal freedoms	1	Programme completion / return to restrictive housing unit: a) 188/226 participants successfully completed the program, sig. U b) Return to restrictive housing from less secure unit = 3.7%, sig. U

Table B3
Characteristics of type-3 studies (N = 4)

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)*	Reward type(s)*	CASP score	Primary outcomes
18	Khan (2020) UK	N = 16 (M)	PR / NP	Special residential unit and general population unit (Med)	Behave well and responsibly Actively commit to rehabilitation Engage in purposeful activity Reduce risk of reoffending Behave well Help others	Material Social Internal freedom	Good	Incarcerated individuals expressed: a) Good relationships with staff à progression + extra activities b) Transparency, consistency and legitimacy → compliance (+) c) Introversion + compliance = visible (-) d) Understaffed → (-) monitoring à visibility (-)→ progression (-) e) Not all privileges were deemed equally attractive by all incarcerated individuals
19	Booth (2020) UK	N = 15 (F) M range = 26 – 47 yrs	PR / NP	Female private prison	Idem	Material Social Internal freedom	Good	Incarcerated individuals expressed: a) Restrictions on cash allowances, due to the IEP system, interfered with telephone contact, as all the mothers were positioned at 'entry' level in the first weeks of their sentence b) Being able to maintain contact with family was an important motivator for progressing through the system

Table B3 *(Continued)*

ID	Study	Sample[a]	Technique[b]	Setting[c]	Target behaviour type(s)*	Reward type(s)*	CASP score	Primary outcomes
20	Khan (2016) UK	N = 16 (M)	PR / NP	Special residential unit and general population unit (Med)	Idem	Material Social Internal freedom	Good	Incarcerated individuals expressed: a) Uncertain boundaries of target behaviours b) Unfair decision making by prison officers c) Procedural injustice leads to non-compliance e) Just and legitimate is rephrased by incarcerated individuals as respect f) Feeling of powerlessness regarding distributive outcomes (receiving privileges) g) The few incarcerated individuals which perceived the system as fair, held more positive attitudes toward staff and the system h) Enhanced incarcerated individuals reported more positive attitudes toward staff and system than Standard and Basic incarcerated individuals i) Incarcerates feel like being punished twice: by adjudication and by demotion
21	Crewe (2011) UK	N = 72 (M)	PR / NP	State prison (Med)	Engage in sentence planning Complete risk and need assessment Comply with rules Maintain interpersonal contact*	Material Social Internal freedom	Good	Incarcerated individuals expressed: a) Lack of predictability, that results from a discretionary style of governance, cause feelings of insecurity b) Psychological assessment by staff impinges on incarcerates' sense of agency and control over personal identity c) Indirect and untransparent behavioural assessment by staff resulted in a psychological burden of self-government, through incapability to live up to those responsibilities, which causes strain and/or resistance

4 Predictors of Progression in the Dutch Reward System in Prison■

4.1 Introduction

Reward systems in prison (RSPs) are applied in many countries, in different forms. This includes token economies (Gendreau et al., 2014), good-time credit (Johnson & Stageberg, 2014; Steiner & Cain, 2014; 2017) and different status-levels with associated privileges and freedoms (Liebling et al., 1997; Morar et al., 2019). RSPs fit within a broader trend of neoliberal governance, in which the responsibility and accountability for achieving state goals, such as that of behavioural and cognitive reform, is transferred largely to the individual offender (for example, see Bosworth, 2007; Hannah-Moffat, 2001). This activation of individuals manifests in RSPs by conditionally distributing rewards based on 'good' behaviour. This ought to contribute to prison order and safety, and promote behavioural reform (Bosworth and Liebling, 1994; Chapter 2). The effects of RSPs can be impactful for individuals, both during and post-prison. Their behaviour in prison determines the amount of contact they are allowed to have with their loved ones, access to programming, and even their date of (conditional) release. Therefore, it is surprising that research on this topic has been limited; existing research on reward systems in prison is mostly dated and not generalisable (Chapter 3).

Arguably the best-known example of an RSP is the Incentives and Earned Privileges (IEP) scheme, which has been operational in England and Wales for over three decades (Liebling et al., 1997). The Netherlands has adopted a very similar system in 2014 (Chapter 2). Recently, the Dutch government has introduced the Punishment and Protection Act (2021), in which conditional release has been linked to reward status in the Dutch RSP. In the Dutch and English RSPs, prison officers report on incarcerated individuals' behaviour, and (indirectly) determine the allocation of rewards. Both RSPs thus give substantial discretion and power to prison officers in deciding – or influencing the decision – whether reward status should be granted, maintained, or revoked. Reward systems with such sizable and formalised staff discretion are less common in North American prisons (Haggerty & Bucerius, 2021). It is unclear how prison officers decide on granting reward statuses and how their discretionary powers are used in that process. This raises important questions about factors influencing their decisions.

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To what degree do these decisions reflect individuals' behaviour? Do other factors also impact decisions, such as motivation or even the ability to behave well? This contribution aims to answer these questions in relation to the Dutch RSP.

4.1.1 Dutch System of Promotion and Demotion

The Dutch RSP was introduced for all convicted individuals residing in all Dutch prisons in 2014, approximately affecting half of all individuals incarcerated in Dutch prisons. Individuals without reward status (called Basic programme) are provided the minimum legal amount of programming, visitation etc. Individuals with reward status (called Plus programme) can be rewarded with more visits from friends and family, more freedom, and responsibilities in work (e.g., job as a unit cleaner), higher wages, better (vocational) training, as well as out-of-cell activities on weekends and two evenings. Overall, individuals with reward status spend 11 additional hours out of their cells. Rewards can be granted after behaving well for at least six consecutive weeks. 'Good' behaviour is defined as compliance with 10 behavioural norms: taking part in diagnostics and screening upon prison entry, cooperating in work, actively cooperating in developing and carrying out a sentence plan, keeping appointments, following house rules, cooperating in the daily programme, cooperating with urine tests, and cooperating in conversations about oneself and personal problems (State Secretary of Safety and Justice, 2014). Although RSPs focus on rewarding 'good' behaviour, misconduct precludes reward status. Other undesirable behaviour, such as non-compliance with behavioural norms, can also affect reward status. The prison governor, together with prison officers, ultimately decides on individual reward statuses, at least every six weeks.

Today, the Dutch RSP does not formally account for individual differences in reward status allocation. Behaviour ought to be the only predictor of reward status. Up until 2020, individuals who, due to mental health problems or intellectual disability, had difficulty complying with all behavioural norms, could still be granted reward status, provided they were motivated to change (Van Gent, 2013). In 2020, this clause was removed from the system guidelines. Simultaneously, the behavioural norms were simplified to promote better and more consistent staff behaviour assessments (Inspectorate of the Ministry of Justice and Security, 2018).

4.1.2 Reward Status Predictors: Behaviour, Self-Governance Ability and Motivation

The programme theory of the Dutch RSP assumes that rewarding compliance in the present will promote compliance in the future (Chapter 2). This assumption is theoretically rooted in operant conditioning principles, which

posit that positive reinforcement of behaviour (e.g., rewards) will increase its future occurrence (Murphy & Lupfer, 2014). Various issues deserve further attention in relation to the assumptions and workings of the Dutch reward system. First, although behaviour formally is the only predictor of reward status, it is unlikely that all behaviours are detected, let alone consistently interpreted and sanctioned. Some behaviours may be easily observed by staff, such as violent altercations, while other behaviours are more likely to go unnoticed, such as verbally bullying a cellmate. Moreover, some behavioural norms are clearly defined and objectifiable (e.g., producing negative urine tests), while others are more open to interpretation (e.g., cooperating in conversations about oneself and personal problems). Even if detected, staff is unlikely to sanction all rule violations, because this would be inefficient and stand in the way of good relationships between staff and incarcerated individuals (Haggerty & Bucerius, 2021). Instead, staff is more likely to exercise discretion and negotiate order. Assuming a consistent exercise of discretion, it is expected that there is no systematic variation in reward status related to extra-legal factors, such as age and nationality, apart from differences in behaviour.

A second issue is whether incarcerated individuals possess sufficient abilities to manage and monitor a broad range of behaviours, which is demanded by RSPs (Crewe, 2011b; 2022). Based on her qualitative research, Hutton (2017, p. 93) concluded that 'some prisoners may be more capable […] than others' to comply with behavioural demands in the IEP scheme. However, failing to comply results in negative consequences: loss of rewards. Struggling with self-governance is a recognised pain of imprisonment (Crewe, 2011b; Shammas, 2014). This struggle could be partially due to a discrepancy between what is demanded of individuals and their ability to self-govern their behaviour. Self-governance ability can be understood as all personal skills required to initiate, manage, and monitor behaviour. This includes, for instance, understanding the concept of time, impulse control, and planning. Navigating social structures and self-governing behaviour is challenging for citizens in general (Bovens et al., 2017), but particularly for incarcerated individuals. Individuals who experience problems with self-governing behaviour due to impaired executive cognitions, conceptual, practical, and social skills are overrepresented in prisons worldwide (Garciá-Largo et al., 2020; Meijers et al., 2015). In the Netherlands, 30 to 45 percent of incarcerated individuals are estimated to have an intellectual disability (Den Bak et al., 2018; Kaal et al., 2011). Individuals with such impairments in Dutch prisons are found to be less future-oriented compared to their normal functioning counterparts, retract from social life, and experience difficulties filling in forms (e.g., for leave). They also reported engaging in contact with peers and prison officers less frequently, due to distrust or anxiety of not knowing how to respond (Kaal et al., 2011). It may be expected, then, that poor self-governance ability frustrates compliance with the behavioural norms set out in the Dutch RSP and is associated with misconduct. For instance, being on time for appointments requires under-

standing the concept of time and planning skills, whereas developing and carrying out a sentence plan requires self-reflection and self-monitoring. Therefore, we expect to find that self-governance ability will predict behaviour and thus reward status.

A final issue is the assumption that rewarding individuals promotes compliance. The importance of extrinsic motivation is stressed in learning theories about behaviour (Akers & Jennings, 2016; Bandura, 2001;) and in the dominant Risk-Need-Responsivity (RNR) model of criminal justice interventions (Bonta and Andrews, 2007). Motivation, however, is a complex concept. According to Self-Determination Theory, there are two main types of motivation: extrinsic and intrinsic motivation (Ryan & Deci, 2000), which are regarded as the ends of a continuum from the most external drivers of human behaviour (e.g., rewards by third parties), to the most internal motives (e.g., enjoyment of behaviour). The more intrinsically motivating, the stronger the effect generally is on behaviour. Intrinsic motivation can be explained as wanting to engage in a behaviour for the reward of the engagement itself, whereas extrinsic motivation involves engaging in behaviour to obtain rewards or avoid punishment (i.e., externally regulated). Attaching rewards to certain behaviours has been found to undermine pre-existing intrinsic motivation to engage in those behaviours in some cases (Deci et al., 1999; Ryan & Deci, 2000). Although this theory has a long empirical track record outside of criminology, it is seldomly applied as a framework to understand behavioural decisions of individuals in prison (for exceptions, see Van der Kaap-Deeder et al., 2017; 2019). On the one hand, RSPs appeal to extrinsic motivation by rewarding good behaviour. On the other hand, norm compliance may be desirable (and, therefore, a function of intrinsic motivation). This means that both extrinsic motivation and intrinsic motivation may predict behaviour and thus reward status.

4.1.3 Prior Research on Reward Status Predictors

The relationship between the ability to self-govern behaviour and reward status has been left largely unattended in empirical research. Data fragments indicate that some individuals lack the capacity to self-govern their behaviour, comply and thus to obtain reward status (Hutton, 2017). This appears to align with Liebling's (2008) finding that individuals with less educational qualifications were less successful in obtaining rewards in the IEP scheme. Other studies on the IEP scheme have shown that some individuals experience little difficulty living up to the demand of self-governance, whereas others experience a severe psychological pain, influencing their compliant behaviour (Crewe, 2011b; Crewe & Ievins, 2020). Then again, a recent systematic review on RSP effectiveness did identify some North American studies in the 1960s that focused on the use of rewards to primarily promote academic achievement among intellectually low functioning individuals in prison (Chapter 3). These findings imply that behaviour of individuals with

intellectual impairments can very well be responsive to reward systems. Unfortunately, sample sizes in these studies were small, only motivated volunteers were used, and positive behavioural effects were found to wear off after system termination. Effects could be very different in contemporary, large-scale RSPs, which are imposed on entire prison populations. Considering the prevalence of impaired self-governance ability among incarcerated individuals, especially in the Netherlands, it would be an important addition to the literature to have a measurement of self-governance ability to be able to examine how this concept relates to the ability to meet behavioural demands in prison. The current study presents such a self-report instrument and uses it in a large-scale survey study on RSPs in the Netherlands.

Likewise, the role of motivation in obtaining rewards in prison is scarcely researched (Chapter 3). Studies on behavioural prison interventions illustrate that individuals not motivated to complete interventions, drop out more frequently compared to their motivated counterparts (Nunes & Cortoni, 2006; Wormith & Olver, 2002). More specifically, differences have been reported as to what motivates incarcerated individuals. One of Khan's (2022) interviewees expressed that social rewards (e.g., more family visits, telephone credit) were not attractive to him, as he had no social network. Social rewards thus failed to externally motivate him to comply in the IEP scheme. The opposite was also found. Multiple incarcerated mothers described desperately wanting to maintain contact with their children; to them, social rewards were deeply motivating (Booth, 2020). These findings indicate that the degree to which rewards can foster extrinsic motivation to comply is personal and situational. Other qualitative studies on individuals' experiences with the IEP scheme found that individual motivation levels differed, yet that many individuals voiced extrinsic rather than intrinsic motives to comply (Liebling et al., 1997; Crewe, 2011b). Dutch pilot studies indicated that being aware of the possibility that privileges can be revoked, motivated incarcerated individuals with reward status to continue behaving well (De Jong et al., 2015; 2016).

The current study aims to create a better picture on how these individual factors and staff decisions on reward status are related. This is highly relevant, considering the widespread and large-scale application of RSPs, their significant impact on individual lives and a dearth of empirical research on this topic. The following question will therefore be answered: To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?

4.2 Methods

4.2.1 Life in Custody Study (LIC)

The current study uses survey data from the Life In Custody (LIC) study (Van Ginneken et al., 2018). The current study used data collected in 2022 in

a selection of nine prisons. This selection was based on prison population, size, and location. Data was collected shortly after Covid-19 restrictions on external access to Dutch prisons were lifted. The dataset contains self-report data on domains of prison climate (e.g., autonomy and peer relationships) and various possible outcomes (e.g., misconduct and wellbeing).

4.2.2 Instrument

The data was collected using the Prison Climate Questionnaire (PCQ; Bosma et al., 2020b). An adapted version of the PCQ (2022) was used. Compared to the original PCQ, the PCQ 2022 additionally contained, inter alia, items on self-governance ability, system procedural legitimacy, behavioural compliance, motivation to comply with behavioural norms and several background characteristics (e.g., history of substance use). An additional change compared to prior LIC data collections was that the survey was anonymised, because it was not necessary to link the survey data to administrative data. As this study set out to measure self-governance ability (including reading skills), clear, simple, and concise wording was used, without altering items' meanings. The Dutch version of the PCQ 2022 was piloted among eight individuals who were incarcerated in one of the nine selected prisons. Four of these individuals were indicated by staff (not diagnosed) as having intellectual disabilities or learning difficulties. These participants evaluated the survey as clear and comprehensible. The survey was available in Dutch and English.

4.2.3 Procedure

Data were collected from March to July 2022, by a team of 10 research assistants (mostly graduate students), overseen by an experienced researcher. Prior to data collection, research assistants were extensively trained in approaching individuals in prison, the use of informed consent, documenting response and entering data in SPSS 27. During data collection, a prison officer navigated the researchers through the prison, guaranteeing their safety and access. The researchers approached each potential participant individually to explain the goal and anonymous nature of the survey and answered any questions on the survey or procedure. Every potential participant was given a small token of appreciation (e.g., a candy bar) and a pen, regardless of their participation. Surveys were generally collected the same or the next day, by again approaching the participants on their units. Throughout data collection, response was monitored per unit (e.g., number of surveys handed out, collected, non-response). Data collection lasted five days in each prison on average.

4.2.4 Sample

In total, 3210 incarcerated individuals were housed in nine male Dutch prisons during data collection. Of these individuals, 260 could not be invited to participate because of language difficulties, severe mental health problems, lack of Dutch or English language proficiency, or being placed in segregation during data collection. Of the 2950 men who were approached to participate, 2209 took part (reasons for non-participation were 'don't want to' and a lack of trust in survey outcomes leading to real changes in prison). The response rate was, therefore, 75 percent. All participants were informed of the purpose of the study and had to consent to taking part. Only 1021 individuals were incarcerated on regular prison regimes and thus participated in the Dutch RSP, which constituted the sample used for our analyses. This sample size was sufficient to conduct logistic regression analyses with our number of independent variables (see Bujang et al., 2018). Of this entirely male sample, 60 percent were born in the Netherlands, 54 percent had previously been incarcerated and 22 percent had served up to 12 months of their current prison sentence, at the time of data collection. Their mean age was 39 (Mdn. = 36).

4.2.5 Measures

Reward status. The dependent variable reward status was measured using one item ('which programme are you in now?'). Answer categories were 'Basic', 'Plus', 'pre-trial detention', 'don't know' or 'not applicable'. This variable was recoded into a dichotomous variable, representing Basic (0) and Plus (1) programme; in this paper referred to as with or without reward status. The answers 'pre-trial detention', 'don't know' and 'not applicable' were coded as missing. During the first days of data collection, we noticed that some individuals were unaware of the programme they were in. To avoid missing data, data on current reward status was additionally gathered by asking prison officers on the unit. All staff kept a detailed and transparent administration of the current programmes of all individuals at their unit (i.e., a whiteboard with red and green colour markers per individual). Reward status was written on the survey by researchers before it was handed out. When discrepancies between answers provided by staff and participants were identified, staff data prevailed.

Behaviour. We used two different measures for the independent variable, behaviour: compliance and misconduct. Compliance was measured using 10 items (e.g., 'I comply with urine tests') ($\alpha = .91$). The 10 items directly translate to the behavioural norms that dictate granting reward status. Response categories ranged from 1 (strongly disagree) to 5 (strongly agree) on a Likert-scale. A mean score was calculated if over half of the items were answered. High scores indicate high degrees of compliance. Misconduct was measured

using seven items targeting verbal and physical violence towards staff and others, property violence or theft and possession of drugs and possession of contraband (e.g., 'how often, in the last two months in this facility, have you… threatened or scolded another incarcerated individual?'). Response categories were 'never', 'once' and 'twice or more often'. This variable was recoded into a dichotomous variable, with response categories 'no misconduct' (never = 0) and 'misconduct' (once, twice, or more often = 1).[1]

Self-Governance Ability. We used the Leiden Self-Governance Ability Scale (LSGAS) to measure self-governance. The LSGAS is a newly constructed self-report scale, derived from theories on cognition, intelligence, and self-government. The LSGAS contains 14 items on self-governance ability (α = .81) (see Appendix C). After omitting heavily cross-loading items or items with factor loadings below 0.4, factor analysis indicated three subscales which made theoretical sense. Conceptual functioning (α = .73) containing three items (e.g., 'I have difficulty reading and understanding short texts (such as street signs or advertisements)'), socio-practical functioning (α = .76) containing seven items (e.g., 'I can make appointments without help from others (such as appointments at the doctor or municipality)') and executive functioning (α = .73) containing four items (e.g., 'sometimes I like to do things that will get me into trouble'). Correlations between the subscales were all between .27 and .43. These subscales were generally in line with contemporary definitions of intellectual disability stressing both adaptive functioning and intelligence (American Psychiatric Association (APA), 2013; Schalock et al., 2013) and existing measures of intellectual disability (e.g., Learning Disability Screening Questionnaire (LDSQ), McKenzie et al., 2012; Screener Intelligence and Learning Disabilities (SCIL) 18+, Nijman et al., 2018). Response categories ranged from 1 (strongly disagree) to 5 (strongly agree) on a Likert-scale. Several items were reversed, so a high score indicated a higher degree of self-governance ability. A mean score was calculated if over half of the items were answered.[2]

Motivation. The independent variable motivation to comply was measured using seven items. Factor loadings indicated the existence of two subscales: intrinsic motivation, containing four items (e.g., 'I try to follow the rules because … it helps keep me safe in this institution') (α = .70) and extrinsic motivation, containing three items (e.g., 'I try to follow the rules

1 Additional analyses with several subtypes of misconduct (e.g., verbal, or physical violence, possession of contraband) did not yield different findings.

2 To assess the validity of the LSGAS, a screener for intelligence and learning disability (SCIL 18+; α = .95) was used alongside the PCQ. The SCIL has been previously used in forensic settings and correlates well with a shortened IQ test (WAIS) (Nijman et al., 2018). Of the participants in this sample, 39 also completed the SCIL 18+. The LSGAS correlated with the SCIL 18+ sum scores (r (39) = .41, p = .01), approaching moderate concurrent validity. That this correlation was not stronger is not surprising, as the LSGAS stresses conceptual and socio-practical functioning more than the SCIL.

because … I feel like I would otherwise be punished') (α = .81). Response categories ranged from 1 (strongly disagree) to 5 (strongly agree) on a Likert-scale. A mean score was calculated if over half of the items were answered. Higher scores on either scale indicated higher levels of extrinsic or intrinsic motivation to comply.

Control variables. Based on their theoretical and empirical relevance, four control variables were included. The natural logarithm of age was included (apart from table 4.5, in which the original variable is reported). Country of birth distinguished between individuals born in the Netherlands or abroad. Time served was included as an ordinal variable with three categories: up to 6 months, between 6 and 12 months and longer than 12 months. Finally, incarceration history reflected whether a person was previously incarcerated (1 = yes).

4.2.6 Analytical Strategy

Analyses were conducted using SPSS 27.0. Appropriate bivariate analyses were used to examine differences between individuals with and without reward status. Binary logistic regression and linear regression were used for multivariate analysis to examine direct effects of independent variables on reward status, and behaviour, to detect possible indirect effects on reward status.

4.3 Results

Among the group of 1021 convicted individuals, 821 individuals had reward status (81 percent) and 190 did not (19 percent) (the reward status of 10 individuals was unknown). Table 4.1 illustrates that individuals with reward status significantly differed from individuals without reward status, in terms of behaviour, self-governance ability, motivation and control variables (except country of birth). Additional bivariate analyses illustrated that measures of reward status, behaviour, self-governance ability and motivation were mostly significantly related (see Table 4.2). We will now go into some of these results, as well as multivariate regression results (Tables 4.3-4.5).

4.3.1 Behaviour

As expected, results illustrated that individuals with reward status (M = 4.11, SD = 0.67) demonstrated significantly higher rates of compliance, compared to individuals without reward status (M = 3.71, SD = 0.78), t (240,65) = -6.22, p = < .001, Hedges g = .70 (see Table 4.1). Furthermore, individuals with reward status reported significantly less misconduct, X^2 (1, N = 924) = 65.21,

p = <. 001). Only misconduct predicted reward status (OR = 0.35, p < .001), in a multivariate model with all independent variables and control variables (see Table 4.3).

4.3.2 Self-Governance Ability

Individuals in both groups also significantly differed on self-governance ability (see Table 4.1). Individuals with reward status (M = 4.08, SD = 0.53) reported significantly higher scores than their non-rewarded counterparts (M = 3.86, SD = 0.54) on the Leiden Self-Governance Ability Scale, t (949) = -4.98, p = < .001, Hedges g = .53. Individuals with reward status also scored significantly higher on each of the subscales (conceptual, socio-practical, and executive functioning). None of these subscales had a significant effect on reward status, in a multivariate model including all independent and control variables (see Table 4.3).

Table 4.1
Differences Between Individuals With and Without Reward Status (N = 1011)

	No Reward Status (N = 190) % / Mn (SD)	Reward status (N = 821) % / Mn (SD)	Difference Hedges g or X^2	N
Behaviour				
Misconduct (yes)	53%	21%	71.74***	924
Compliance (1-5)	3.71 (0.78)	4.11 (0.67)	.70***	958
Self-governance ability				
LSGAS total (1-5)	3.86 (0.54)	4.08 (0.53)	.53***	949
Conceptual functioning (1-5)	4.38 (0.76)	4.50 (0.72)	.73*	925
Socio-practical functioning (1-5)	3.83 (0.73)	4.04 (0.63)	.65***	951
Executive functioning (1-5)	3.56 (0.78)	3.85 (0.75)	.76***	943
Motivation				
Intrinsic motivation (1-5)	3.53 (0.84)	3.80 (0.71)	.73***	897
Extrinsic motivation (1-5)	3.54 (1.02)	3.29 (1.05)	1.04**	897
Control variables				
Age	32 (10.90)	41 (12.48)	12.20***	903
Born in the Netherlands (yes)	68%	65%	0.70	933
Time served				
0-6 months	12%	5%	13.16**	64
6-12 months	21%	20%	.06	201
12+ months	60%	66%	2.45	656
Incarceration history (yes)	73%	57%	17.30***	*919*

*** p ≤ .001, ** p ≤ .01, * p ≤ .05.

Table 4.2
Bivariate Analyses for Reward Status, Behaviour, Self-Governance Ability and Motivation (N = 1011)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Reward status (yes)	1							
2. Misconduct (yes)	*.24***	1						
3. Compliance (1-5)	.22***	-.26***	1					
4. Conceptual functioning (1-5)	.07*	-.07*	.24***	1				
5. Socio-practical functioning (1-5)	.12***	-.14***	.30***	.40***	1			
6. Executive functioning (1-5)	.15***	-.27***	.23***	.43***	.27***	1		
7. Intrinsic motivation (1-5)	.13***	-.18***	.51***	.01**	.18***	.17***	1	
8. Extrinsic motivation (1-5)	-.09**	.16***	.01	.01	.07*	-.13***	.13***	1

Note. Italics represent Odds Ratio between binary variables.
*** p ≤ .001, ** p ≤ .01, * p ≤ .05.

However, executive functioning was a significant predictor of misconduct (OR = 0.43, p < .001); participants with higher scores on the subscale executive functioning were less likely to report misconduct (see Table 4.4). Moreover, conceptual and socio- practical functioning were significant predictors of compliance (respectively B = 0.08, p < .05 and B = 0.16, p < .001); higher scores on conceptual and socio-practical functioning were associated with greater compliance (see Table 4.5). Paired with not finding a significant effect in the full multivariate model (see Table 4.3), the results suggest the existence of several indirect effects of self-governance ability on reward status through both comp and misconduct.

4.3.3 Motivation

The 821 individuals with reward status (M = 3.80, SD = 0.71) demonstrated significantly higher intrinsic motivation to comply with behavioural norms, compared to the 190 individuals without reward status (M = 3.53, SD = 0.84), t (197,12) = -3.63, p = < .001, Hedges g = 0.73 (see Table 4.1). Also, individuals with reward status (M = 3.29, SD = 1.05) demonstrated significantly lower extrinsic motivation to comply, compared to the individuals without reward status (M = 3.54, SD = 1.02), t (958) = 2.73, p = .01, Hedges g = 1.04. Neither motivation type was a significant predictor of reward status in a multivariate model including all independent and control variables (see Table 4.3).

However, both intrinsic motivation (OR = 0.59, p < .001) and extrinsic motivation to comply (OR = 1.39, p < .001) were found to predict misconduct (see Table 4.4); more extrinsic motivation was associated with a higher likelihood of misconduct, and more intrinsic motivation with a lower likelihood. Additionally, intrinsic motivation to comply significantly predicted compliance (B = 0.46, p < .001), whereas extrinsic motivation to comply

did not (see Table 4.5). Paired with not finding a significant effect for either motivation type in the full multivariate model (see Table 4.3), the results suggest an indirect effect of both motivation types on reward status through behaviour.

Table 4.3
Multivariate Analysis of Predictors of Reward Status (N = 1011)

	OR	Sig.	95% CI
Behaviour			
Misconduct (yes)	0.35	***	[0.22-0.56]
Compliance (1-5)	1.38		[0.97-1.98]
Self-governance ability			
Conceptual functioning (1-5)	1.01		[0.71-1.45]
Socio-practical functioning (1-5)	1.12		[0.77-1.63]
Executive functioning (1-5)	0.94		[0.67-1.30]
Motivation			
Intrinsic motivation (1-5)	1.30		[0.93-1.82]
Extrinsic motivation (1-5)	0.83		[0.66-1.03]
Control variables			
Age	5.42	***	[2.46-11.92]
Time served			
0-6 mths	0.40	*	[0.18-0.93]
6-12 mths	*ref*	*ref*	*ref*
12+ mths	1.52		[0.92-2.53]
Country of birth (the Netherlands)	0.80		[0.48-1.32]
Incarceration history (yes)	0.59	*	[0.37-0.94]
Constant	0.25	*	

Note. Nagelkerke $R^2 = 0.24$

*** p ≤ .001, ** p ≤ .01, * p ≤ .05.

Table 4.4
Multivariate Analysis of Predictors of Misconduct (N = 1011)

	OR	Sig.	95% CI
Self-governance ability			
Conceptual functioning (1-5)	1.27		[0.94-1.72]
Socio-practical functioning (1-5)	0.88		[0.64-1.21]
Executive functioning (1-5)	0.43	***	[0.32-0.57]
Motivation			
Intrinsic motivation (1-5)	0.59	***	[0.46-0.77]
Extrinsic motivation (1-5)	1.39	***	[1.15-1.68]
Control variables			
Age	0.26		[0.14-0.51]
Time served			
0-6 mths	0.59		[0.23-1.50]
6-12 mths	*ref*	*ref*	*ref*
12+ mths	1.41		[0.90-2.22]
Country of birth (the Netherlands)	0.87		[0.58-1.32]
Incarceration history (yes)	2.06	***	[1.40-3.05]
Constant	21.96	*	

Note. Nagelkerke $R^2 = 0.24$

*** p ≤ .001, ** p ≤ .01, * p ≤ .05.

Table 4.5
Multivariate Analysis of Predictors of Compliance (N = 1011)

	Beta	B	Sig	95% CI
Self-governance ability				
Conceptual functioning (1-5)	0.08	0.08	*	[0.01-0.16]
Socio-practical functioning (1-5)	0.14	0.16	***	[0.08-0.23]
Executive functioning (1-5)	0.06	0.06		[-0.01-0.12]
Motivation				
Intrinsic motivation (1-5)	0.46	0.46	***	[0.37-0.49]
Extrinsic motivation (1-5)	-0.05	-0.03		[-0.07-0.01]
Control variables				
Age	-0.03	0.00		[-0.00-0.00]
Time served				
0-6 mths	-0.07	-0.21	*	[-0.41--0.01]
6-12 mths	*ref*	*ref*	*ref*	*ref*
12+ mths	0.02	0.03		[-0.07-0.13]
Country of birth (the Netherlands)	0.03	0.04		[-0.05-0.14]
Incarceration history (yes)	-0.05	-0.08		[-0.16-0.01]
Constant		0.14		[-0.06-0.33]

Note. Adjusted R2 = 0.30

*** p ≤ .001, ≤ .01, * p ≤ .05

4.4 Conclusion and Discussion

Little prior empirical research existed on reward systems in prison (RSPs), despite their widespread use. As a first step towards better understanding how RSPs operate, this exploratory study set out to answer the research question 'To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?' While we identified significant bivariate relationships between each of these variables and reward status, only misconduct was a significant predictor of reward status, after controlling for other variables. This finding can partially be explained by indirect effects of self-governance ability and motivation on reward status, through compliance and misconduct. We will elaborate on the interpretation and implications of the findings for each of the independent variables (behaviour, self-governance ability and motivation) below.

First, the Dutch RSP is effective in distinguishing between those who report to behave in line with prison rules and those who do not (Chapter 2). Individuals with reward status (81 percent of our sample) not only reported less 'bad' behaviour (misconduct), but also more 'good' behaviour (compliance), compared to their non-rewarded counterparts. In a model with behaviour, self-governance ability, motivation and control variables, the only significant predictor of reward status was misconduct. This can partially be explained through possible indirect effects of self-governance ability and motivation on reward status through compliance, which we will turn to in a moment. One explanation for the significant effect of misconduct on reward status is the obligation laid down in Dutch law to respond to misconduct with revoking reward status. Relatedly, prison officers may generally be focused on possible threats to order and safety (i.e., misconduct), rather than on compliance. They may also be guided more by the clearest behavioural norms in reward status allocation decision-making. Whereas misconduct is well-specified in policy guidelines, the criteria for compliance are less specific. Unclear criteria may cause ambivalence and reluctance among staff in behaviour observation, interpretation, and reward status allocation. Experts therefore generally recommend defining behavioural norms precisely and unambiguously (Gendreau et al., 2014). While misconduct surfaced as the sole predictor of reward status, many other personal characteristics were related to misconduct, which explains why there were multiple notable differences between individuals with and without reward status. Rewarded individuals were older, had served more time in prison and were less likely to have an incarceration history. This is in line with most prior research on correlates of misconduct (Steiner et al., 2014).

Second, individuals with reward status reported higher levels of self-governance ability (conceptual, socio-practical, and executive functioning) than non-rewarded individuals, as expected. Yet none of the self-governance subscales significantly predicted reward status in a model with all other variables. Indirect effects on reward status, however, possibly run through

compliance, as both socio-practical and conceptual functioning predicted compliance – but executive functioning did not. The non-significant effect of executive functioning on compliance could be explained by a hierarchy among subscales, as there is scholarly consensus that ('higher') executive functions enable the use of ('lower') conceptual, social, and practical skills (e.g., Suchy et al., 2017). In contrast, executive functioning significantly predicted misconduct. This could be an artefact of the operationalization of executive functioning because some of its items are explicitly linked to misconduct. In short, this study's findings indicate that individuals with lower self-governance ability struggle with compliance and are therefore less likely to obtain reward status. Our results do not show evidence that self-governance ability is considered in decisions on reward status.

Third, extrinsic and intrinsic motivation to comply were both associated with reward status, but in contrasting ways. Higher levels of intrinsic motivation and lower levels of extrinsic motivation were associated with (increased likelihood of) being rewarded. Neither motivation type was a direct significant predictor of reward status in a full regression model. However, we did find that intrinsic motivation was a significant predictor of compliance and thus possibly indirectly relates to reward status. Pointing in the same direction is a strong bivariate relationship between compliance and intrinsic motivation (r = .51, p = <. 001). These findings align with our expectations based on self-determination theory and empirical work suggesting that intrinsic motivation is most effective in behaviour initiation and maintenance (Deci et al., 1999; Ryan and Deci, 2000). A predictive effect of extrinsic motivation on compliance was not found. These findings raise interesting questions about the effectiveness of rewards as external motivators of compliance. One interpretation is that these findings contradict the assumption that external rewards will increase future compliance. This reading is strengthened by bivariate analyses indicating that extrinsic motivation to comply was related to an increase in misconduct. However, there are insufficient grounds for generalisation. It is possible that other personal and situational factors may also account for the non-significant effect of extrinsic motivation on reward status, such as individual differences in reward preferences (Booth; 2020; Khan, 2022), or the six-week interval between exhibiting good behaviour and obtaining rewards, which may be too long (e.g., Pierce et al., 1972; Stanger et al., 2013). Future research on how RSPs operate is therefore advised to also evaluate system components separately, such as reward attractiveness and behaviour-rewarding interval.

4.4.1 Limitations and future research

Some remarks on this study's methodology and findings are in place. First, an important novel contribution of our study is the conceptualisation and measurement of self-governance ability, using a new self-report instrument: the Leiden Self-Governance Ability Scale. This self-report instrument is

grounded in relevant theory, is reliable and is suitable for large scale application in prison research. Our pilot and cross-validation with a screener for intellectual disability indicated that individuals with impaired intellectual abilities were able to understand and complete our brief self-report instrument, and that the scores on both instruments were correlated. Further research is necessary to determine the exact psychometric qualities of this instrument, and to see if the findings can be replicated in other prison contexts. Specific attention should be given to examining social desirability bias, given that prior studies have indicated that this bias is prevalent among individuals with impaired self-governance abilities in the Dutch criminal justice system (Rassin and Candel 2010). Overall high mean scores on self-governance reported in this study may be reflective of this bias. With growing attention to the difficulties of self-governance among offenders, further developing this instrument could have valuable applications in quantitative prison research.

Second, this study did not capture the reward status allocation process from a prison officer perspective. It is unknown how the observation and interpretation of behaviour by staff relate to reward status allocation. Staff are likely to report (and ignore) behaviour strategically to maintain good relationships (Haggerty & Bucerius, 2021), which also affects individuals' reward status. Future research should explore decision-making on reward status allocation, to help interpret and contextualise the current findings.

Third, our data did not capture any social learning element other than positive reinforcement. However, it is likely that there are other factors at play in behaviour initiation and maintenance in a social environment, such as differential association, imitation, and modelling (Akers & Jennings, 2016; Bandura, 2001), which were captured by our questionnaire. Future studies should attend to the social learning environment in reward systems in prison, not least because the IEP scheme was found to foster individualism and reshape social interactions (Crewe, 2022). Since RSP characteristics (e.g., design, implementation) can differ substantially, it would be worthwhile to replicate this study in other prison systems.

In conclusion, this study shed a first light on how individual factors and staff decisions on reward status are related. The Dutch RSP was found to disadvantage individuals with poor self-governance ability, as they are less likely to be compliant and possibly to be rewarded. Even though effect sizes found in this study could be perceived as small to medium by traditional standards, their (cumulative) impact on micro and meso level can be profound (Funder & Ozer, 2019). For instance, being denied rewards will frustrate conditional release and limits the options of maintaining social ties during imprisonment, possibly negatively affecting post-release desistance from crime. Therefore, we recommend staff to take behavioural non-compliance as a starting point for further inquiry into underlying causes, such as frustration of motivation and impaired ability to self-govern daily life and perceive those causes as treatment needs.

Appendix C

Table C1

Items of the Leiden Self-Governance Ability Scale (LSGAS)

1. I can use arguments to explain to someone why I want (to do) something
2. I can make appointments without help from others (such as appointments at the doctor or municipality)
3. I follow the news (for example through the newspaper, radio or television)
4. It is easy for me to write a short text (such as a grocery list)
5. I can easily make new friends
6. It is easy for me to plan and use public transport (for example travelling by bus and train)
7. I always keep my cell clean and organised
8. Sometimes I like to do things that will get me into trouble (reversed)
9. I am easily distracted (reversed)
10. I have difficulty quitting bad habits (reversed)
11. If something unexpected happens, I get easily upset (reversed)
12. I have difficulty telling time (reversed)
13. I have difficulty reading and understanding short texts (such as street signs or advertisements) (reversed)
14. I find math difficult (reversed)

Note. Component 1: Conceptual functioning (items 12, 13, 14); Component 2: Socio-practical functioning (items 1, 2, 3, 4, 5, 6, 7); Component 3: Executive functioning (items 8, 9, 10, 11)

Table C2

Inter-Item and Item-Total Correlations of the Leiden Self-Governance Ability Scale (LSGAS)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
1	1	.46***	.35***	.38***	.34***	.32***	.31***	.09***	.09***	.10***	.15***	.27***	.28***	.22***	.58***
2		1	.37***	.30***	.24***	.33***	.34***	.19***	.13***	.18***	.16***	.28***	.32***	.24***	.61***
3			1	.33***	.27***	.24***	.42***	.19***	.17***	.12***	.12***	.23***	.22***	.23***	.56***
4				1	.29***	.29***	.27***	.07*	.08*	.11***	.13***	.19***	.17***	.17***	.51***
5					1	.25***	.23***	.07*	.15***	.14***	.12***	.11***	.15***	.11***	.46***
6						1	.23***	.08*	.12***	.07*	.09**	.15***	.18***	.17***	.50***
7							1	.24***	.19***	.22***	.16***	.25***	.25***	.20***	.55**
8								1	.33***	.45***	.24***	.28***	.28***	.30***	.51***
9									1	.48***	.47***	.21***	.22***	.32***	.53***
10										1	.42***	.22***	.19***	.24***	.52***
11											1	.27***	.23***	.29***	.51***
12												1	.55***	.42***	.57***
13													1	.47***	.58***
14														1	.57***

*** p ≤ .001, ** p ≤ .01, * p ≤ .05

5 Effects of Reward Status on Autonomy■

5.1 Introduction

The system of Promotion and Demotion was introduced in all Dutch prisons in 2014. This reward system includes a Basic programme and a Plus programme. We will refer to incarcerated individuals on a Basic programme as incarcerated individuals without a reward status, and incarcerated individuals on a Plus programme as incarcerated individuals with a reward status. Incarcerated individuals can obtain a reward status if they comply with several behavioural demands. The daily programme for incarcerated individuals without a reward status is designed in accordance with the minimum criteria set by law. In contrast, incarcerated individuals with a reward status can be rewarded with additional activities that increase their objective autonomy, which is defined as: freedom left to incarcerated individuals to make independent choices about daily living activities (Boone et al., 2016; Van der Laan & Eichelsheim, 2013). Examples of such rewards include the amount of time incarcerated individuals are allowed to spend outside their cell, the freedom of movement they are allowed and the access they have to additional rehabilitation activities, education and work assignments characterised by relatively more freedom (such as unit cleaner). Although Dutch policymakers expect these rewards to promote behavioural change (Chapter 2), this assumption has not been scientifically tested. This chapter therefore answers three related questions that address the allocation of rewards (research question 1) and the effects of these rewards on how incarcerated individuals experience autonomy (research questions 2 and 3).

First, the extent to which incarcerated individuals with and without reward status differ in the number of rewards they receive is examined. Rewards are, according to policy, reserved for incarcerated individuals who have obtained a reward status. However, there are some indications that this policy guideline is not strictly adhered to in practice. It is repeatedly found by advisory bodies that there is a serious shortage of prison staff, minimising opportunities to observe and assess behaviour of incarcerated individuals. Moreover, available prison officers are found to be inclined to promote incarcerated individuals, even when they do not comply with behavioural demands, as demotion requires additional administrative work (Inspectorate of Justice and Security (IJV), 2018; Council for the Administration of Criminal Justice and Youth (RSJ), 2019; 2020). These organisational

■ This chapter has not yet been submitted for publication.

challenges could facilitate arbitrariness in allocating reward statuses, and thus create uncertainty among incarcerated individuals regarding how rewards can be earned. Unfortunately, arbitrariness and uncertainty can lead incarcerated individuals to disengage from the system (e.g., Liebling et al., 1997; Crewe, 2011b).

In addition, a relevant and fundamental question is to what extent objective autonomy contributes to the subjective autonomy of incarcerated individuals. Subjective autonomy can be understood as the perception that an individual can make and implement independent, self-determined choices (Niemiec et al., 2010). Policymakers expect rewards to intrinsically motivate incarcerated individuals to comply with behavioural demands (Chapter 2). Subjective autonomy is an important source of intrinsic motivation and, ultimately, behaviour change in incarcerated individuals (Bourgon & Bonta, 2014; Deci & Ryan, 2001; Ward & Maruna, 2007). If rewards were to contribute to that subjective autonomy, intrinsic motivation could potentially be promoted. However, the *Self-Determination theory (SDT)* (Ryan & Deci, 2000a; 2000b; 2017) suggests conflicting expectations about the extent to which objective autonomy can contribute to subjective autonomy, in the context of a reward system in prison. While an environment characterised by freedom and autonomy can theoretically promote subjective autonomy, that effect may be frustrated by experiences of external control, such as rewards, supervision, and deadlines (Vansteenkiste & Ryan, 2013). This article tests both hypotheses. As desirable behaviour has recently also become a condition for leave and conditional release, the political relevance of that empirical test has only grown.

Finally, an important debate within the Dutch prison system revolves around whether the relatively large number of incarcerated individuals experiencing difficulties with self-governing their behaviour can keep up in a reward system (Boone, 2013; Van Ginneken, 2018). Up to 45 percent of the Dutch prison population may have an intellectual disability (Kaal, 2013; Den Bak et al., 2018), meaning they experiences difficulties such as anticipating outcomes, connecting causes and effects, and communicating (Talbot, 2010; Kaal et al., 2011). In other words, they experience difficulties in self-governing their behaviour. These incarcerated individuals regularly struggle to make good use of freedom and independence, as was found in studies in the English Incentives and Earned Privileges scheme (Crewe, 2011b; Hutton, 2017), as well as in Dutch pilot studies on self-governing regimes (De Jong et al., 2015; 2016; Farahi & Van de Rijt, 2016). Finally, findings from Chapter 4 illustrate that incarcerated individuals who are relatively low on self-governance ability also struggle with obtaining a reward status in the Dutch system of Promotion and Demotion. Self-governance ability consists of abilities facilitating thinking and acting (Bovens et al., 2018). Ability to think encompasses skills to collect and weigh up information and, based on this, make a plan of action. Ability to act can be translated with being able to implement, monitor and adjust that plan as needed (Bovens et al., 2018). Those skills, according to social learning

theories, are prerequisites of making and executing choices independently (Bandura, 1991; Zimmerman & Schunk, 2012). In theory, limitations in the ability to think and act could very well explain why some incarcerated individuals struggle to comply with behavioural demands and obtain a reward status. The degree to which self-governance ability also plays a role in reward allocation and, subsequently, experiencing greater autonomy because of employing those rewards, is unclear. Nevertheless, this question is relevant to the prison system, as Dutch offenders low on self-governance ability were found have a high risk of recidivism (Teeuwen et al., 2017), and preventing recidivism is the ultimate aim of imprisonment. In case incarcerated individuals low on self-governance are not intensively supporting in their rehabilitation process, this may set them back even further compared to incarcerated individuals who have few difficulties self-governing their behaviour (Van Ginneken, 2018). In summary, in this chapter we aim to answer three related research questions on the allocation and effects of rewards:

1. To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)?
2. To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)?
3. To what extent do the relationships mentioned in research questions (1) and (2) depend on incarcerated individuals' self-governance ability?

Before turning to theory and prior research related to these research questions, we first briefly describe the system of Promotion and Demotion.

5.1.1 The Dutch Reward System in Prison

The policy of the Dutch reward system has been adjusted over time. We describe these adjustments in this section, as well as what is known about the application of the system.

The original system (2014)

A reconstruction of the programme theory of the system of Promotion and Demotion illustrates that when obtaining reward status (i.e., being allocated to a Plus program), the following rewards can be granted that enhance objective autonomy: more responsibility and freedom during work assignments, courses on skills and behavioural change, more rehabilitation activities, better paid work assignments, higher-level work assignments and/or work assignments coupled with (vocational) training, participation in behavioural interventions, evening and weekend program, more visits, education and sports activities, requesting when to receive visitors, and

eligibility for conditional release (Chapter 2). In total, incarcerated individuals with a reward status can spend 11 hours longer per week outside their cells than incarcerated individuals without such a status – provided that the aforementioned rewards are all granted and practised. It is plausible for several reasons that this theoretical distinction between programmes is not so clear-cut in practice. Because adequate supervision of incarcerated individuals is frustrated by shortages of staff, time, and poor visibility of incarcerated individuals (IJV, 2018; RSJ, 2019; 2020), there may also be little control over which incarcerated individual receives which reward. In addition, such shortages of staff and time may make it practically unfeasible to offer (work assignments-intensive) rewards.

Incarcerated individuals without a reward status can obtain a reward status, in line with the system introduced in 2014, when they demonstrate desirable behaviour for a minimum of six weeks. The policy requires a Multidisciplinary Consultative Body (MDO; *Multidisciplinair Overleg*) to decide whether that condition is met, based on their behavioural observations. They must then make a reasoned recommendation to the prison governor. The governor must then decide on promotion, demotion or retention and substantiate that decision. Yet here too, practice proves deviant. The RSJ (2019; 2020) repeatedly found that incarcerated individuals who displayed desirable behaviour to a limited extent, were nevertheless allocated to a Plus programme. This was prompted by shortages of time, staff, and adequate training (IJV, 2018).

Examples of desirable behaviour are cooperating in the daily programme and work assignments, as well as going through the necessary screening, selection and possibly diagnostics. Examples of undesirable behaviour are not cooperating in the daily programme and not being approachable on behaviour. In practice, desirable behaviour is often referred to as green behaviour and undesirable behaviour as red behaviour. A 'this-could-be-better' (orange) behaviour category was also introduced in 2014. Examples of that behaviour included having a short fuse and not taking responsibility for behaviour. Incarcerated individuals who displayed partly orange behaviour due to mental or addiction problems could still be promoted under the old policy (Chapter 2). Moreover, staff can – within the framework of the general behavioural demands – tailor certain behavioural demands to the capacities of incarcerated individuals. To what extent this possibility of differentiation also applies to the allocation of rewards is unclear.

The current system (2020)

In October 2020, the system was revised for the benefit of better and more consistent behavioural assessments, uniformity, legal equivalence, and ease of applicability (Ministry of Justice and Security, 2020). We mention four relevant changes here. First, the definitions of (un)desirable behaviour have been strongly generalised (RSJ, 2020). In the old system, those definitions

were specific and factual (e.g., doing homework when asked). Nowadays, they are a lot more general and abstract (e.g., an incarcerated individual keeps appointments). When incarcerated individuals display partly desirable and partly undesirable behaviour, the overall picture of behaviour and its development over the course of prison will be assessed. Second, the 'this-can-be-better' behaviour category was abolished in 2020. However, there is said to be room under the new policy to consider incarcerated individuals' thinking and doing abilities when setting personal behavioural goals. Also, if desirable, an incarcerated individual could receive more targeted counselling support in developing desirable behaviour (Ministry of Justice & Security, 2020). Third, a category of 'inadmissible' behaviour has been added (e.g., an incarcerated individual reacts physically aggressively or refuses a urine test). Inadmissible behaviour must always be followed by a decision to demote to a Basic programme. Fourth, the period in which desirable behaviour must be displayed has been broadened from a maximum to a minimum of six weeks. This means that after six weeks of displaying desirable behaviour, an incarcerated individuals not automatically eligible for obtaining a reward status.

5.1.2 Theory

Theory on which reward systems are based is unclear about the relationship between objective and subjective autonomy. The system of Promotion and Demotion is based on behavioural principles of operant conditioning (Chapter 2). Those principles assume that linking rewards to behaviour can motivate people to display that behaviour in the future (Murphy & Lupfer, 2014). But what role (subjective) autonomy plays in that process is unclear. Self-determination theory is more explicit about this. Self-Determination Theory (Deci & Ryan, 2000b) is a direct inspiration of the Dutch reward system (Van Gent, 2013) and provides explanations for general principles of the Good Lives Model (Ward & Maruna, 2007). This theory explains human motivation based on interactions between the (social) environment and the individual (Deci & Ryan, 2000b). Roughly speaking, the theory distinguishes two forms of motivation. Extrinsic motivation comes from sources external to the individual, such as rewards or punishments. Intrinsic motivation is promoted by (subjective) satisfaction of psychological needs for autonomy, competence, and connectedness (Ryan & Deci, 2000b). The theory then distinguishes two dimensions of subjective autonomy. Autonomy satisfaction involves experiencing behaviour as self-wanted and self-chosen. Autonomy frustration is the experience that (external) obstacles stand in the way of choices consistent with one's own will. These dimensions also differ in their impact on individuals' behaviour and attitudes. Autonomy frustration can lead to more resistance and psychological suffering faster than an unsatisfied need for autonomy (Vansteenkiste & Ryan, 2013).

Based on Self-Determination Theory, rewards can be expected to evoke autonomy frustration in incarcerated individuals if rewards are perceived as external control (Ryan & Deci, 2017; Vansteenkiste et al., 2020) (research question 2). Indeed, such control may instinctively appear at odds with the idea that behaviour is self-chosen. This theory assumes that a sense of autonomy is promoted when (incarcerated) individuals perceive that the environment provides meaningful choices, the goals and values of those choices are explained to them, the environment provides possibility and opportunity to initiate choices themselves, and/or the social environment respects their choices (Niemiec et al., 2010; Vansteenkiste & Ryan, 2013). The rewards used by the system of Promotion and Demotion seem to partly meet those qualifications. Nevertheless, the satisfying effect of that objective autonomy is likely to be frustrated, according to Self-Determination Theory, because that freedom is highly regulated through external rewards and possibly supervision (Vansteenkiste et al., 2020) (research question 2). First, rewards and behavioural targets are prescribed and not self-determined. Moreover, rewards are also only conditionally available. Although incarcerated individuals can choose not to comply with behavioural demands, there are far-reaching consequences to that choice (e.g., limited access to rehabilitation courses). For this reason, the rewards of the Plus programme can be expected to evoke autonomy frustration. However, Self-Determination Theory also argues that this frustration effect is unlikely to occur when individuals are intrinsically motivated to perform the behaviour being rewarded, because in that case they do not perceive rewards as a form of external control (Ryan & Deci, 2017).

Finally, there is some theoretical evidence that the relationship between incarcerated individuals' objective and subjective autonomy may depend on their self-governance ability (research question 3). Multiple theories (Bandura, 1991; Zimmerman & Schunk, 2011) and models for effective correctional intervention (Bourgon & Bonta, 2014; Ward & Maruna, 2007) imply that thinking and doing skills are necessary to initiate and modify behaviour. This is probably also true for rewards that require initiation, monitoring and reflection, such as attending education or a rehabilitation course. If a reward does not match the incarcerated individual's skill level, it is unlikely to make that individual feel more autonomous because of that reward. This is no different for incarcerated individuals low on self-governance ability; improving these skills is considered conditional for their exercise, and thus possibly perception, of autonomy (Wehmeyer, 2004).

5.1.3 Prior Research

There is also some empirical evidence that an increase in objective autonomy in prison is associated with an increase in subjective autonomy. Research on prison experiences has repeatedly indicated that a deprivation of objective autonomy is perceived as profound (see Woodall et al., 2014).

In contrast, effects of an increase in objective autonomy on incarcerated individuals' subjective autonomy have been much less extensively studied. However, participants in Dutch pilot studies of self-governing prison units did report an increase in their subjective autonomy, which they attributed to the freedoms unique to that unit (Vollaard et al., 2019). Among other things, incarcerated individuals on those units were given a movement card, key to the (outside) cell door and were allowed to cook for themselves. These freedoms were conditional: in case of undesirable behaviour, a transfer back to a regular regime could follow. Incarcerated individuals in (semi-) open prisons in other countries also reported more subjective autonomy and well-being as a result of a relative increase in freedom to choose independently – although they felt far from fully autonomous (Reiter et al., 2018; Talay & Pali, 2020). Although incarcerated individuals in these 'freer' regimes also described anxiety about being returned to regular regimes, stress and frustration (pains of freedom; Shammas, 2014), it is unclear to what extent these pains stemmed from a sense of external control over their behaviour. The (perceived) arbitrariness and unaccountability regarding decisions about (re)location is the most reported explanation for these negative experiences (Reiter et al., 2018; Shammas, 2014; Talay & Pali, 2020).

Research focusing specifically on reward systems in prison is very scarce, so there is also little empirical knowledge about the relationship between objective and subjective autonomy in that context (Chapter 4). In an ethnographic study among participants of the English equivalent of the Promotion and Demotion scheme (the Incentives and Earned Privileges scheme), incarcerated individuals reported that being rewarded, including more visiting opportunities and television on cell, increased their subjective autonomy (Crewe, 2011b). Nevertheless, incarcerated individuals reported feeling strongly controlled, due to monitoring and normative judgements about their choices (Crewe, 2011b). Again, this study suggests that an increase in objective autonomy can be associated with an increase in subjective autonomy, and that external control does not (entirely) frustrate that relationship. Possibly this can be explained by a correspondence between external and internal motivation of incarcerated individuals to display desirable behaviour (Ryan & Deci, 2017); a correspondence that has also been found among participants of the system of Promotion and Demotion (Chapter 4). Based on theory and prior research, we expect, on the one hand, that objective autonomy is associated with greater satisfaction of the need for autonomy. On the other hand, we expect that rewards may be perceived as external control and thus frustrate autonomy needs (research question 2).

A previous study illustrated that incarcerated individuals low on self-governance ability were less able to comply with behavioural demands, making them more likely not to progress to a Plus programme (Chapter 4). Yet, no previous research has been conducted on receiving rewards in the Dutch system in relation to incarcerated individuals' self-governance ability. Within the system of Promotion and Demotion, it is not formal policy to exclude incarcerated individuals low on self-governance ability

from rewards (see sections 2.1 and 2.2). However, the aforementioned pilot studies on self-governing prison units do indicate that prison officers experienced that incarcerated individuals struggling to self-govern behaviour were also unable to benefit from the freedom offered to make their own choices; although it is unclear what staff exactly meant by this (De Jong et al., 2015; 2016; Farahi & Van de Rijt, 2016). A possible example is being allowed to request additional visitation via a form when an incarcerated individual does not understand the language and concepts on the form (Talbot, 2010). Research among non-incarcerated individuals low on self-governance ability also illustrated the conditionality of thinking and doing skills for being able to use freedom to act independently. Indeed, the very ability to choose and regulate behaviour independently contributes to increasing their subjective autonomy (Frielink et al., 2018; Carey et al., 2022). As a result of this limited ability to think and act, incarcerated individuals low on self-governance ability may not experience more autonomy satisfaction (nor reduction of autonomy frustration) when there receive rewards, compared to individuals who report higher levels of self-governance ability (research question 3).

5.2 Methods

5.2.1 Data Collection

The current study uses survey data from the Life in Custody (LIC) study, a large-scale research project by Leiden University and the Dutch Correctional Institutions Service (DJI) that measures the prison climate in all prison in the Netherlands (Palmen et al., 2019). The current study used data collected in 2022 in a selection of nine prisons. These prisons were selected based on numbers of incarcerated individuals on regular prison units, as the system of Promotion and Demotion is formally operational only on those wards. In addition, diversity in size (small, medium, large) and geographical location (six provinces) of the prisons were considered. From March to July 2022, surveys were distributed and collected by a team of 10 research staff (mainly Master students in Criminology at Leiden University), under the supervision of the first author of this contribution. Research staff received extensive training in research ethics, obtaining informed consent, motivating incarcerated individuals to participate in research, and handling difficult situations. The researchers approached each potential participant individually to explain the purpose, importance, independence, voluntariness and confidentiality of the study, and answer questions. All incarcerated individuals who were approached received a small token of appreciation upfront (such as a candy bar), regardless of their decision on study participation. The distributed surveys were usually collected by the researchers the next day. Incarcerated individuals who, for whatever reason, had difficulty completing the survey were offered an oral intake.

5.2.2 Instrument and Participants

Data were collected using the validated Prison Climate Questionnaire (PCQ; Bosma et al., 2020b). The standard PCQ was supplemented with a module developed for this study, which included items on objective autonomy, subjective autonomy (satisfaction and frustration) and self-governance ability. The wording of some items was also simplified. In addition, the survey was completely anonymous. The Dutch version of the survey was piloted among eight incarcerated individuals, four of whom were designated (undiagnosed) as mild intellectually disabled by prison officers on their unit. All participants rated the survey as clear and comprehensible. The survey was available in Dutch and English.

A total of 3210 incarcerated individuals were residing in the selected facilities at the time of data collection, in a variety of regimes. Of these, 260 could not be invited to participate because of insufficient English or Dutch proficiency, or because of serious mental health problems or placement segregation or time-out during data collection. In the end, 2209 of the 2950 (75 percent) remaining incarcerated individuals completed a survey. The intended sample for this study consisted of individuals detained on regular prison regimes whose reward status was known (N = 1011). Of this all-male sample of 1011 incarcerated individuals, 65 percent was born in the Netherlands, 60 percent had previously served time in prison, and 65 percent had served more than 12 months of their current prison sentence at the time of data collection. They were 39 years old on average (Mdn. = 36).

5.2.3 Variables and Analyses

Reward status. Reward status was measured with one item ('Which programme are you currently in?'). The response categories were 'Basic', 'Plus', 'Pre-trial detention', 'don't know' or 'not applicable'. These were transformed into a dichotomous variable (No reward status = 0; Reward status = 1). The remaining responses were coded as missing.

Objective autonomy. The Prison Climate Questionnaire (v2022) measures perceptions of incarcerated individuals of seven out of eleven rewards that can be granted to those who have earned a reward status (see Elbers et al., 2021). We initially aimed to measure these seven rewards, constituting a measurement of objective autonomy, representing freedom to make independent choices in the domains of mobility, visiting, work assignments, education, and activities (e.g., 'I can choose here if, when and how often I... receive visits'). However, bivariate analyses revealed that incarcerated individuals in both programmes differed significantly on only three of these seven rewards, namely on work assignments, mobility and education (see Table 5.2). Although this insight is useful in assessing how the system is applied or at least perceived (research question 1), our additional goal was

to measure the effect of rewards *as applied* on subjective autonomy (research questions 2 and 3). Therefore, we chose to reduce the scale for objective autonomy to these three rewards. Thus, the results of the regression analyses represent the effects of rewards actually applied in practice, and thus about the functioning of the system rather than about the potential effects of rewards on subjective autonomy. The original response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert scale. These categories were converted to 0 (completely disagree, disagree, neutral) and 1 (agree, completely agree) to simplify interpretation. A sum score was calculated if more than half of the items were answered. The number of missing values on this sum scale was small at 7 percent. Higher scores indicated greater objective autonomy (range 1 to 3).

Subjective autonomy: satisfaction and frustration. Subjective autonomy was measured using the validated autonomy subscale of the Basic Psychological Need Satisfaction and Need Frustration Scale (BPNSNF; Chen et al., 2015). Specifically, we used a Dutch-language version of the scale, which contains simple language and was also previously used in a Belgian study on autonomy perception in prison (Van der Kaap-Deeder et al., 2017). Theory and previous research – also among individuals low on self-governance ability – distinguished two dimensions of this scale: autonomy frustration and autonomy satisfaction (Ryan & Deci, 2017; Chen et al., 2015; Frielink et al., 2019). For our research questions, it is relevant to use the two autonomy subscales (satisfaction and frustration) since rewards can act as a source of frustration (Vansteenkiste et al., 2020). From our factor analysis, these two factors also emerged as such. Both subscales were equally reliable ($\alpha = 0.82$), and their mutual correlation was reasonable ($r = -0.49$). Autonomy satisfaction (e.g., 'What I choose to do suits what I want to do myself') and autonomy frustration (e.g., 'I feel compelled to do many things, which I do not really want to do') of participants was assessed using four items for both subscales. Response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert scale. A mean score for the subscales was calculated if more than half of the items were answered. The number of missing values on both subscales was about 5 percent. Higher scores indicated more satisfaction or frustration.

Self-governance ability. We used a modified version of the Leiden Self-Governance Ability Scale (LSGAS) to measure self-governance ability. The LSGAS is a newly constructed self-report scale based on theories of cognition, intelligence and self-governance ability. Although our factor analysis highlighted two factors, we chose to include all items as one scale because of the comprehensibility of the results. A total score of ten items was calculated that covered two relevant domains: conceptual functioning (three items, e.g., 'I find short texts difficult to read and understand (such as street signs or advertising leaflets)') and socio-practical functioning (seven items, e.g., 'I can make appointments (such as at the doctor's office or the town

hall) without help from others'). All ten items loaded at least .43 on the reliable total scale (α = 0.79), and the mean inter-item correlation is acceptable with r = 0.28. Response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert scale. A mean score was calculated if more than half of the items were answered. For specific analyses, two groups were created. Incarcerated individuals who scored in the lowest 40 percent (0.00 to 4.00) were coded as 'low on self-governance ability' and those who scored in the upper 60 percent (4.00 to 5.00) as 'high on self-governance ability'. This choice is in line with an indication of the prevalence of mild intellectual disability (Licht Verstandelijke Beperking; LVB) in prison (30 to 45 percent), a target group that is, by definition, reduced in their ability to self-govern behaviour (Kaal et al., 2011; Den Bak et al., 2018).

Control variables. We controlled for five background characteristics based on their theoretical and empirical relevance. Age in years was included as a continuous variable. Country of birth distinguished between incarcerated individuals born in the Netherlands (1) or abroad (0). Time served in prison up until data collection was included as an ordinal variable with three categories: 0 to 6 months, between 6 and 12 months and longer than 12 months. Incarceration history indicated whether a person had previously served time in prison (1 = yes). Because intrinsic motivation for compliance can override any frustration of autonomy needs, this background characteristic was also included (Ryan & Deci, 2017). Intrinsic motivation was measured as a mean score of four newly developed items (e.g., 'I try to behave according to the rules because desirable behaviour suits me'). A factor analysis indicated that these four items measure one construct and do so reliably (α = 0.70).

Analyses. Analyses were conducted using SPSS 27.0. Besides descriptive statistics, t-tests and chi-square tests were conducted to identify differences between incarcerated individuals with and without reward status on the (in)dependent variables. Three linear regression analyses were conducted to answer the three research questions. All statistical conditions were met. Those analyses were conducted for the total sample, and again separately for the two groups of self-governance (low vs high). This was chosen because we also wanted to identify the extent to which the effects differed for a vulnerable group, namely the incarcerated individuals low on self-governance ability. Three additional linear regression analyses were conducted to examine possible interaction effects (research question 3). Tables presented in the results paragraph do not contain control variables for reasons of clarity. All regression analyses are presented with control variables in tables D1 to D3 in Appendix D.

5.3 Results

The bivariate analyses show some striking results (see Table 5.1). First, of the 1011 participants, the vast majority (81 percent) reported having a reward status (N = 821). In addition, it was found that incarcerated individuals without a reward status (M = 1.65, SD = 1.50) and incarcerated individuals with a reward status (M = 2.79, SD = 1.55) were significantly different from each other regarding the objective autonomy they reported (t (949) = -8.86, $p < .001$). Yet, this was not true for four of seven rewards measured (see Table 5.2). At the same time, no difference was found in reported subjective autonomy (both satisfaction and frustration) between incarcerated individuals without and incarcerated individuals with a reward status.

5.3.1 Reward Status and Objective Autonomy

Research question 1 concerns the relationship between a reward status and objective autonomy. The first regression analysis showed that having obtained a reward status is a significant predictor of the extent to which incarcerated individuals report objective autonomy when controlling for background characteristics (Table 5.3, column 'Total'). Thus, a reward status is associated with greater objective autonomy (B = 0.43, $p < .001$), that is, with a higher number of reported rewards. This finding was consistent with the expectation we had established based on the programme theory. It is important to remember that in measuring objective autonomy, we measured only the three rewards on which incarcerated individuals in both programmes significantly differed.

5.3.2 Objective Autonomy and Subjective Autonomy

Research question 2 addresses the relationship between objective autonomy and subjective autonomy. Here, we break down subjective autonomy into satisfaction and frustration of autonomy. The analyses (see Table 5.3, column 'Total') illustrate that incarcerated individuals who report greater objective autonomy also report significantly greater satisfaction of their autonomy needs (B = 0.33, $p < .001$). Similarly, it appears that incarcerated individuals who report greater objective autonomy report significantly less frustration of their need for autonomy (B = -0.26, $p < .001$). Consistent with our hypotheses, this implies that incarcerated individuals experience greater autonomy when they report a greater number of rewards. This further suggests that rewards do not have a frustrating effect on the satisfaction of autonomy needs.

5.3.3 The Role of Self-Governance Ability

Research question 3 focused on a possible interaction effect of self-governance ability on the relationship between a stay in a Plus programme and objective autonomy (research question 1) and the relationship between objective autonomy and subjective autonomy (research question 2). In the analyses, we compared two groups: incarcerated individuals low on self-governance ability and incarcerated individuals high on self-governance ability. Having a reward status was conducive to the objective autonomy reported by incarcerated individuals high on self-governance ability ($B = 0.43$, $p < .001$), as was the case for incarcerated individuals low on self-governance ability ($B = 0.37$, $p < .01$) (see Table 5.3, columns 'Incarcerated individuals high on self-governance ability' and 'Incarcerated individuals low on self-governance ability').

In addition, linear regression analyses disclosed that all significant effects in the total sample for the relationship between objective and subjective autonomy also emerged in both self-governance ability subgroups (see Table 5.3). The direction of the effects found of objective autonomy on autonomy satisfaction (+) and autonomy frustration (-) is similar for both groups. Both effects were, however, larger in the group incarcerated individuals high on self-governance ability (satisfaction: $B = 0.35$; frustration: $B = -0.31$) than in the group with incarcerated individuals low on self-governance ability (satisfaction: $B = 0.27$; frustration: $B = -0.19$).

Non-significant interaction effects

To examine whether these group differences between incarcerated individuals low and high on self-governance ability were significant, three linear regression analyses with interaction terms were conducted. In none of the analyses the interaction term was significant (see Table 5.4). In the first analysis, objective autonomy was the dependent variable, the independent variable was reward status and the interaction term was reward status X self-governance ability. The interaction term was not significant ($B = 0.01$, $SD = 0.18$, $p = .95$). This means that the relationship between reward status and objective autonomy was independent of self-governance ability. In the second analysis, the dependent variable was autonomy satisfaction, the independent variable was objective autonomy and the interaction term was objective autonomy X self-governance ability. This interaction term was not significant ($B = 0.08$, $SD = 0.08$, $p = .28$). The third analysis, with autonomy frustration as the dependent variable and the same independent variable as used in the second analysis showed that the interaction term (objective autonomy X self-governance ability) was not significant ($B = -0.14$, $SD = 0.07$, $p = .06$). In sum, the relationship between objective autonomy on the one hand, and satisfaction and frustration of autonomy needs on the other, does not depend on the self-governance ability that incarcerated individuals reported.

See Appendix D for an overview of all control variables used in the three regressions reported in Table 5.4 and described in this paragraph.

Table 5.1
Descriptive statistics on the relationship between autonomy and reward status (N = 1011)

	Total (N = 1011) % / Mn (SD)	No Reward status (N = 190) % / Mn (SD)	Reward status (N = 821) % / Mn (SD)	Group differences Hedges g or X^2	N
(In)dependent variables					
Objective autonomy (1-7)	2.58 (1.60)	1.65 (1.50)	2.79 (1.55)	1.54**	951
Objective autonomy (1-3)	1.16 (0.89)	0.80 (0.76)	1.24 (0.90)	0.87**	944
Subjective autonomy					
Autonomy satisfaction (1-5)	2.99 (0.88)	3.00 (0.93)	2.99 (0.87)	0.88	961
Autonomy frustration (1-5)	3.10 (0.87)	3.10 (0.86)	3.09 (0.87)	0.87	977
Self-governance ability (1-5)	4.14 (0.58)	3.99 (0.64)	4.18 (0.56)	0.58**	949
Low self-governance ability (0-1)	37%	47%	35%	8.37*	351
Background characteristics					
Age (years)	39 (12.55)	32 (10.86)	41 (12.48)	12.20**	903
Intrinsic motivation (1-5)	3.75 (0.74)	3.53 (0.84)	3.80 (0.71)	1.54**	896
Born in the Netherlands (yes)	65%	68%	65%	0.70	933
Time served					
0-6 mths	6%	12%	5%	13.16**	64
6-12 mths	20%	21%	20%	0.06	201
12+ mths	65%	60%	66%	2.45	656
Incarceration history (yes)	60%	74%	57%	17.30**	919

** $p \leq .001$; * $p \leq .01$

Table 5.2
Bivariate statistics of objective autonomy per item (N = 1011)

	Total (N = 1011)	No reward status (N = 190)	Reward status (N = 821)	Group differences (X^2)	N
Objective autonomy					
Reward 1: Freedom during work assignments (0-1)	41%	13%	45%	39.10**	761
Reward 2: Free movement between activities (0-1)	63%	53%	66%	10.21**	946
Reward 3: Evening programme twice a week (0-1)	79%	31%	89%	288.36**	972
Reward 4: Receiving extra visitors (0-1)	32%	27%	34%	2.91	940
Reward 5: Participation in education (0-1)	23%	20%	24%	1.64	901
Reward 6: Participation in rehabilitation activities (0-1)	23%	20%	24%	1.14	888
Reward 7: Participation in reentry activities (0-1)	15%	13%	15%	0.38	794

** p ≤ .001; * p ≤ .01.

Table 5.3
Results of linear regression analyses research questions 1 and 2

	Total			Low Self-governance ability			High Self-governance ability		
	B	SE	N	B	SE	N	B	SE	N
Reward status (1 = Yes) → Objective autonomy (1-3)	0.43**	0.09	766	0.37*	0.14	260	0.43**	0.12	494
Objective autonomy (1-3) → Autonomy satisfaction (1-5)	0.33**	0.03	758	0.27**	0.05	256	0.35**	0.04	491
Objective autonomy (1-3) → Autonomy frustration (1-5)	-0.26**	0.04	764	-0.19**	0.06	261	-0.31**	0.05	492

Note. Background characteristics age, country of birth, time served, incarceration history, and intrinsic motivation for rule compliance were controlled for.
** p ≤ .001; * p ≤ .01.

Table 5.4
Results of linear regression analyses research question 3: interaction effects

	Total		
	B	**SE**	**N**
Reward status (1 = Yes) → Objective autonomy (1-3)	0.54	0.96	754
Interaction term: Reward status (1 = Yes) x Self-governance ability (1-5)	*-0.03*	*0.14*	*754*
Objective autonomy (1-3) → Autonomy satisfaction (1-5)	-0.11	0.25	747
Interaction term: Objective autonomy (1-3) x Self governance ability (1-5)	*0.11*	*0.06*	*747*
Objective autonomy (1-3) → Autonomy frustration (1-5)	0.16	0.25	753
Interaction term: Objective autonomy (1-3) x Self governance ability (1-5)	*-0.10*	*0.06*	*753*

Note. Background characteristics age, country of birth, time served, incarceration history, intrinsic motivation for rule compliance and self-governance ability were controlled for.

** $p \leq .001$; * $p \leq .01$.

5.4 Conclusion and Discussion

Upon entering prison, incarcerated individuals are deprived of their freedom to make independent choices. In the Dutch reward system of Promotion and Demotion, incarcerated individuals can earn back some of that freedom. By displaying desirable behaviour, they can earn a place in a Plus programme (obtain a reward status), which on paper offers significantly more independent choice space than the austere Basic programme in which incarcerated individuals without a reward status are placed. Although the implementation and effects of the system of Promotion and Demotion have not previously been scientifically outlined, there are concerns about how and to what extent system objectives are being achieved (RSJ, 2020). A specific concern is to what extent this system connects to the large part of the prison population which is characterised by low self-governance ability (Boone, 2013; Van Ginneken, 2018). Therefore, the aim of this article was to answer three related research questions on the allocation of rewards (research question 1) and the effects of rewards on incarcerated individuals' subjective autonomy (research questions 2 and 3).

The first research question was: To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)? Although the data showed that incarcerated individuals with a reward status reported significantly greater objective autonomy than incarcerated individuals- without a reward status, this was also limited to three of the seven rewards measured. There was no difference in receiving additional visitors, access to education, participation in rehabilitation activities and reentry activities. Most incarcerated individuals in both programmes reported having no access to these rewards. This suggests that the policy guidelines are only partially applied or are experienced differently by incarcerated individuals. Perhaps some of the rewards were not offered during data collection due to staff shortages in the aftermath of the Covid-19 pandemic. An alternative explanation is that in practice it is difficult for staff to distinguish between incarcerated individuals on both programmes in granting rewards, potentially resulting in rewards being awarded to all incarcerated individuals on one unit or none. For example, because incarcerated individuals with and without reward status share units and cells, but also because of a shortage of time and prison officers (IJV, 2018; RSJ, 2019; 2020). That would raise questions about the feasibility of the system in its current form. Finally, it is possible that incarcerated individuals were not (yet) aware of the possibilities of using certain rewards, which some incarcerated individuals also told us during the data collection for this study.

The second research question was: To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)? To answer this question, inspired by the Self-Determination Theory (Ryan & Deci, 2000a; 2017), we divided subjective autonomy into satisfaction and frustration of the need for autonomy. Autonomy satisfaction arises from self-determined and chosen

behaviour, while autonomy frustration represents obstacles that stand in the way of that satisfaction (e.g., rewards). Incarcerated individuals with and without reward status reported approximately equal levels of autonomy satisfaction and frustration. In addition, incarcerated individuals who reported more objective autonomy also reported significantly more satisfaction and less frustration with their need for autonomy. This objective autonomy was measured as the presence of the three rewards on incarcerated individuals with and without a reward status significantly differed, so that the effect of reward status on subjective autonomy was indirectly outlined. The fact that freedom to choose and act independently can contribute to subjective autonomy is in line with the assumption of policymakers (Chapter 2), previous research into an English reward system in prison (Crewe, 2011b) and Dutch pilot research into self-governing prison units (Vollaard et al., 2019). We found no evidence that a greater number of rewards was associated with more frustration of the need for autonomy. This implies that providing objective autonomy in the form of a reward does not stand in the way of satisfaction of the need for autonomy (Ryan & Deci, 2017). Together with an increase in satisfaction, we found a decrease in frustration of the need for autonomy. Regarding this finding, it can be noted that demotions to a Basic programme seem to be rare in practice (RSJ, 2019; 2020) and that the differences between the Basic and Plus programme appeared to be small regarding the rewards that are offered to incarcerated individuals. As a result, any pains of freedom (Shammas, 2014) are relatively small. A possible explanation for this finding is that the behaviours that have been designated as desirable behaviour are largely in line with the intrinsic motivations of incarcerated individuals with a reward status (Chapter 4). In that case, according to the Self-Determination Theory, rewards are unlikely to be perceived as external control and generate frustration of the need for autonomy (Ryan & Deci, 2017).

The third research question concerned possible interaction effects of self-governance ability on the relationships tested in the two previous research questions. The findings imply that the effects do not depend on the self-governance ability reported by incarcerated individuals. Incarcerated individuals who reported low self-governance ability also experienced greater objective autonomy when having obtained a reward status and that objective autonomy contributes to the satisfaction and reduction of frustration of their need for autonomy. Specifically, the findings imply that incarcerated individuals low on self-governance ability also experienced greater autonomy when they are allowed greater freedom in work assignments, mobility, and education. In that respect, the system seems to be at least partly responsive to this target group and does not seem to create any further inequality among incarcerated individuals – concerns previously raised by prison scholars (Boone, 2013; Van Ginneken, 2018). This seems to contradict the hypothesis that the relationship between objective and subjective autonomy depends on self-governance ability. Still, rejecting this hypothesis may be premature, as the number and type of rewards included

in the analyses may have biased the results. When using a scale with all seven measured rewards, the group difference would have been significant. It is also plausible that more self-governance ability is required to participate in education and courses (rewards not included in the analyses) than to leave the cell during evenings or to stay outside the cell between activities (rewards that are included in the analyses). Moreover, it is important to bear in mind that, according to previous research (Chapter 4), incarcerated individuals low on self-governance ability are less likely to obtain a reward status because they (are less able to) comply with behavioural demands.

In conclusion, this article provides insight into an important part of the Dutch system of Promotion and Demotion, namely the allocation and effects of rewards on incarcerated individuals, specifically regarding their subjective sense of autonomy. The data suggests that the system is perceived or applied differently than intended, given the non-significant differences in most rewards reported by incarcerated individuals with and without reward status. Nevertheless, the rewards that are significantly awarded to a greater extent to incarcerated individuals with a reward status do have a stimulating effect on their sense of autonomy. This also applies to incarcerated individuals who report that they low on self-governance ability, although they have a smaller chance of obtaining a reward status (Chapter 4). This finding suggests that incarcerated individuals who are low on self-governance ability also benefit from more freedom to act independently – at least, in terms of type of work assignments, freedom of movement between activities and evening program, in terms of subjective autonomy. This means that it remains unclear to what extent they also possess the necessary thinking and doing capacity to be able to practice some rewards, such as actively participating in a (vocational) course. Studying the use of rewards can be relevant with a view to incarcerated individual rehabilitation.

5.4.1 Remarks

In summary, determining the effects of rewards on the subjective autonomy of incarcerated individuals is challenging. This is partly due to methodological choices. First, the survey used does not measure all rewards that can be formally offered in a Plus programme (Chapter 2). Because the unmeasured rewards could also contribute to subjective autonomy, the reported effects may represent an underestimation. At least, if it is assumed that those rewards are actually awarded. Second, the data used in this study was collected immediately after all Covid-19 measures in prisons were lifted. Also in this period, certain rewards in specific departments could have been (temporarily) cancelled due to, among other things, increased staff absenteeism. This may partly explain why the prevalence of some rewards on both programmes was relatively low (see Table 5.2). On the other hand, however, the Life in Custody also shows that autonomy scores for the Dutch prison population have almost the same for 2017, 2019 and 2022

(Berghuis et al., 2017; De Jong et al., 2019; Elbers et al., 2022). This suggests that autonomy scores were back at baseline at the time of data collection, and that effects of Covid-19 had mostly worn off. Other explanations for low reward prevalence can relate to the fact that incarcerated individuals are unfamiliar with rewards, or shortages in staff and staff training – which appears to be the status quo rather than an exceptional situation (IJV, 2018; RSJ, 2019; 2020). Third, these cross-sectional data do not provide insight into the extent to which pre-existing individual and situational differences explain the observed effects of rewards on the satisfaction and frustration of the need for autonomy. A selection effect cannot be ruled out because no pre-measurement of subjective autonomy or predictors thereof has been performed. If a selection effect exists, the effects found cannot be fully attributed to the reported rewards.

On the other hand, a cause of this complex empirical task is a lack of understanding of how rewards are awarded in practice. Incarcerated individuals with and without reward status did not differ significantly on four rewards, nor in the subjective autonomy they report. This suggests that the application of the system deviates from programme theory, or that incarcerated individuals have a different perception of that application – for example, that they are not aware of the rewards that have been awarded to them. If the application of the system deviates from the intended application, this may influence the effects.

5.4.2 Implications for Policy and Practice

The findings imply that the policy is not fully applied or experienced as intended, as evidenced by the small differences between the rewards reported by incarcerated individuals with and without reward status. In the absence of insight into the application of the system, explanations for this are often hypothetical. It is therefore recommended that policymakers carry out (or commission) a process evaluation of the application of decisions regarding promotion, demotion, and retention. An obvious research question concerns the extent to which rewards are awarded in the same way in different units and in different prisons, and how this process is experienced by incarcerated individuals. Insight could also be created into the frequency of and reasons for differentiation in that allocation. In this way it can also be examined to what extent the advice and decision-making by the MDO, and the prison governor are followed up on by prison officers, and what can explain deviations from such decisions. Interviews with incarcerated individuals and prison officers, observations of MDO consultations, as well as case law of complaints committees, and study of the content of MDO reports and decisions of prison governors, can contribute to this evaluation.

Appendix D

Table D1

Linear regression results for the effect of reward status on objective autonomy (three items), including interaction terms.

	Total		Total (interaction)		Low Self-Governance Ability		High Self-Governance Ability	
	B	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
(Constant)	-0.31	0.24	-0.78	1.07	-0.32	0.37	-0.17	0.33
Reward status (1 = Yes)	0.43**	0.09	0.54	0.58	0.37*	0.14	0.43**	0.12
Self-governance ability (1-5)	-	-	0.13	0.26	-	-	-	-
Reward status X Self-governance ability	-	-	-0.03	0.14	-	-	-	-
Age (in years)	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time served								
0-6 mths	0.03	0.15	0.05	0.15	-0.14	0.22	0.20	0.21
6-12 mths	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
12+ mths	0.20	0.08	0.21**	0.08	0.06	0.13	0.29*	0.10
Born in the Netherlands (yes)	-0.02	0.07	-0.06	0.07	0.03	0.11	-0.10	0.09
Incarceration history (1 = Yes)	-0.09*	0.06	-0.07	0.06	-0.16	0.11	-0.05	0.08
Intrinsic motivation for compliance (1-5)	0.11	0.04	0.11	0.04	0.14	0.07	0.09	0.06
R^2	0.08		0.08		0.09		0.07	
N	766		754		260		494	

** p ≤ .001; * p ≤ .01.

Note. In total, this integrated table contains the results of three separate regression analyses. Columns 'Total' and 'Total (interaction)' present the results of two consecutive models in one linear regression analysis. Columns 'Low Self-Governance Ability' and 'High Self-Governance Ability' present results of two separate linear regressions, conducted for both subgroups.

Table D2

Linear regression results for the effect of objective autonomy on autonomy satisfaction, including interaction terms.

	Total		Total (interaction)		Low Self-Governance Ability		High Self-Governance Ability	
	B	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
(Constant)	1.94**	0.19	2.66**	0.38	2.05**	0.27	1.81**	0.27
Objective autonomy (1-5)	0.33**	0.03	-0.11	0.24	0.27**	0.05	0.35**	0.04
Self-governance ability (1-5)	-	-	-0.18	0.08	-	-	-	-
Objective autonomy X Self-Governance ability	-	-	0.10	0.06	-	-	-	-
Age (in years)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time served								
0-6 mths	0.20	0.14	0.23	0.14	-0.02	0.19	0.44	0.20
6-12 mths	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
12+ mths	0.10	0.07	0.11	0.07	0.05	0.11	0.15	0.10
Born in the Netherlands (yes)	0.00	0.06	0.02	0.07	0.10	0.09	-0.02	0.09
Incarceration history (1 = Yes)	0.18*	0.06	0.17*	0.06	0.12	0.10	0.19	0.08
Intrinsic motivation for compliance (1-5)	0.15**	0.04	0.16**	0.04	0.17*	0.06	0.16*	0.05
R^2	0.08		0.08		0.09		0.07	
N	766		754		260		494	

** p ≤ .001; * p ≤ .01.

Note. In total, this integrated table contains the results of three separate regression analyses. Columns 'Total' and 'Total (interaction)' present the results of two consecutive models in one linear regression analysis. Columns 'Low Self-Governance Ability' and 'High Self-Governance Ability' present results of two separate linear regressions, conducted for both subgroups.

Table D3

Linear regression results for the effect of objective autonomy on autonomy frustration, including interaction terms.

	Total		Total (interaction)		Low Self-Governance Ability		High Self-Governance Ability	
	B	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
(Constant)	3.34**	0.20	2.62**	0.39	2.69**	0.28	3.88**	0.28
Objective autonomy (1-5)	-0.26**	0.04	0.16	0.25	-0.19**	0.06	-0.31**	0.05
Self-governance ability (1-5)	-	-	0.19	0.09	-	-	-	-
Objective autonomy X Self-Governance ability	-	-	-0.10	0.06	-	-	-	-
Age (in years)	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
Time served								
0-6 mths	0.08	0.15	0.07	0.15	0.38	0.20	-0.21	0.21
6-12 mths	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
12+ mths	0.13	0.08	0.14	0.08	0.25	0.11	0.07	0.10
Born in the Netherlands (yes)	-0.02	0.07	-0.04	0.07	0.00	0.10	-0.09	0.09
Incarceration history (1 = Yes)	-0.10	0.06	-0.09	0.06	-0.06	0.10	-0.12	0.08
Intrinsic motivation for compliance (1-5)	0.06	0.04	0.05	0.04	0.13	0.06	0.00	0.06
R^2	0.08		0.09		0.08		0.10	
N	764		753		261		492	

** p ≤ .001; * p ≤ .01.

Note. In total, this integrated table contains the results of three separate regression analyses. Columns 'Total' and 'Total (interaction)' present the results of two consecutive models in one linear regression analysis. Columns 'Low Self-Governance Ability' and 'High Self-Governance Ability' present results of two separate linear regressions, conducted for both subgroups.

6 General Discussion

6.1 Introduction

In 2014, the Netherlands implemented a reward system throughout its entire prison system: The system of Promotion and Demotion (*Promoveren en Degraderen*) (Van Gent, 2013). Reward systems in prisons (RSPs) aim to change behaviour of incarcerated individuals by systematically rewarding compliant behaviour and punishing non-compliance. This Dutch system was the object of the current dissertation. Even though the Dutch reward system has been in operation for nearly ten years, its working mechanisms, application and effects remain unclear (RSJ, 2020). This is unfortunate, as both criminological scholars and national advisory bodies have expressed serious concerns regarding all three of these system elements.

First, scholars have questioned the degree to which criminological theory can support the assumption that extrinsic motivation is an adequate source of behaviour change (Boone, 2012; 2013; Van Ginneken, 2018). A poorly designed programme theory can result in ineffective policy or even adverse outcomes (Donaldson & Lipsey, 2006). Second, national reports have indicated that the application of the Dutch system poorly corresponded to its policy framework (Dutch Inspectorate of Justice and Security, (IJV), 2018; the Dutch advisory Council for the Administration of Criminal Justice and Youth Protection, (RSJ), 2019; 2020). Poor programme delivery, however, can also frustrate reaching programme objectives (Andrews & Bonta, 2010). Third, the degree to which all incarcerated individuals can equally benefit from the system has been questioned. Many incarcerated individuals experience difficulties with self-governance (e.g., Den Bak et al., 2018; García-Largo et al., 2020; Kaal, 2016; Kaal et al., 2011). These incarcerated individuals could be less successful in meeting behavioural demands (Crewe, 2011b; Hutton, 2017; Van Ginneken, 2018), frustrating their ability to obtain a reward status and engage in courses on, for instance, rehabilitation. These concerns are especially pressing considering the increasing importance which is attached to reward status in Dutch prisons. For instance, following the enactment of the Punishment and Protection Act (*Wet Straffen en Beschermen*) in 2021, reward status over the course one's imprisonment is a prerequisite for being allowed to go on leave and for conditional release.

Considering the widespread use of rewards in prison contexts, the fact that reward systems in prison are invasive, yet understudied, and no empirical studies to date have been conducted on the Dutch reward system,

this dissertation on the (supposed) functioning of the system of the Dutch reward system in prison was therefore very timely and necessary. The aim of this study was to answer the following question: *What are the programme theory, application and effects of the Dutch reward system in prison?* This question was divided into four research questions, which were addressed by conducting a plan evaluation, a systematic literature review, a process evaluation, and an impact evaluation:

1. What is the programme theory of the Dutch reward system in prison, as it was implemented in 2014?
2. What is known about the effects of reward systems in prison on the behaviour and attitudes of incarcerated individuals?
3. To what extent is reward status predicted by (a) behaviour, (b) self-governance ability, and (c) motivation?
4. 1. To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)?
   2. To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)?
   3. To what extent do the relationships mentioned in research questions 4.1 and 4.2 depend on incarcerated individuals' self-governance ability?

6.2 Summary of Main Findings

6.2.1 Main Conclusions

Findings from Chapter 2 indicate that causal assumptions central to programme theory of the Dutch reward system in prison are only partially supported by scientific literature. Moreover, individual and contextual factors theorised to be influence reward system in prison effectiveness were overlooked. Findings from Chapter 3 indicate that the available research on reward systems in prison suggested that both individual factors (e.g., self-governance ability) and contextual factors (e.g., type of reward, legitimate application) can influence the effects of reward systems. Unfortunately, these studies are limited in quantity and methodological quality. Findings from Chapter 4 indicate that the strongest predictor of obtaining a reward status was misconduct – despite system policy dictating that compliance should be leading in granting rewards. Moreover, intrinsic motivation was shown to predict an increase in compliance, whilst extrinsic motivation was found to increase misconduct. Moreover, the Dutch system appears to be applied (or experienced) differently than policymakers had intended, as not all rewards are available to incarcerated individuals with a reward status and that they are also not exclusive to this group. Perhaps most important, the system appears to disadvantage incarcerated individuals low on self-

governance ability, as these individuals are less likely to obtain a reward status. Finally, findings from Chapter 5 indicate that obtaining the rewards of the Plus programme is associated with a subjective sense of autonomy, irrespective of incarcerated individuals' level of self-governance ability. However, analyses also revealed that rewards were not exclusively and systematically reported by incarcerated individuals with a reward status. Instead, incarcerated individuals with and without a reward status reported equal (low) prevalence of four rewards. The main findings of each chapter are described below in more detail.

6.2.2 Plan Evaluation (Chapter 2)

This chapter addressed the research question: *What is the programme theory of the Dutch reward system in prison, as it was implemented in 2014?* This research question was answered by reconstructing the programme theory of the system of Promotion and Demotion, through collecting and systematically analysing policy documents (N = 12). Results indicated that the target audience of the Dutch system comprised of all sentenced incarcerated individuals residing on regular units – who make up a large part of the Dutch prison population. According to policy documents, the means which can be used to affect behaviour of incarcerated individuals were reward (removal) and motivational interviewing. In total, 24 assumptions on causal relationships between means and goals were found, ten of which were assessed on the degree to which they are supported by scientific evidence.

Three main conclusions were drawn from this reconstruction and appraisal. First, it was a hardship to deduct assumptions on causal relationships from policy documents, as key concepts were ill-defined, and documents did not articulate a clear (visual nor textual) programme theory. Second, prominent assumed causal relationships were overly simplistic and/or lacked empirical support. For instance, empirical studies indicate that individual and contextual factors, on multiple dimensions, and in concert, determine the degree to which rewards can effectively promote behaviour change (e.g., Liebling, 2008). Examples of such factors are the time interval between behaviour and reward reception, attractiveness of rewards and procedurally legitimate system application. These factors were partially discarded in policy documents, potentially frustrating the likelihood and extent to which rewards can influence behaviour of incarcerated individuals. Third, how the system aimed to consider the self-governance ability of incarcerated individuals was largely unclear. Based on these implications, it was concluded that the system of Promotion and Demotion is likely to fail to adequately account for the heterogeneity of its intended target population, especially incarcerated individuals low on self-governance ability.

6.2.3 Systematic Literature Review (Chapter 3)

This chapter aimed to answer the second research question: *What is known about the effects of reward systems in prison on incarcerated individuals' behaviour and attitudes?* To answer this research question, an extensive systematic literature review was conducted. The database search resulted in 2415 hits, which were narrowed down to 21 studies. The results of a synthesis and critical appraisal of these 21 studies indicated that three types of studies could be distinguished. Type-1 studies (N = 9) included studies on experimental token economies conducted in the 1960s-1970s. Type-2 studies (N = 8) included studies on contemporary, non-experimental reward systems in prison. Type-3 studies (N = 4) were all qualitative studies on contemporary reward systems in prison.

The primary conclusion of this systematic literature review was that the empirical body of literature on these reward systems in prison is limited in both quantity and methodological quality. Indicative of this is the small number of studies found, and the fact that they were often dated. Critical appraisal of methodological quality using validated instruments (Cook & Campbell, 1979; Critical Appraisal Skills Programme, 2018) revealed that overall study quality was low for quantitative studies, yet high for qualitative studies. These qualitative studies indicated that several individual and contextual factors can impact compliance of incarcerated individuals and behavioural change among participants, such as a pain of self-government, perceived legitimacy of system application, and reward attractiveness. As incarcerated individuals can differ in these respects, heterogeneous effects are to be expected when applying reward systems in prison on a large scale. Considering their widespread use and invasive nature, additional research on the application and effects of reward systems in prison was warranted. To that end, subsequent studies empirically examined predictors or progression in the Dutch reward system in prison (Chapter 4) and effects of obtaining a reward status on autonomy, whilst accounting for self-governance of incarcerated individuals (Chapter 5).

6.2.4 Process Evaluation (Chapter 4)

This chapter concerned the third research question: *What is the relationship between reward status and (a) behaviour, (b) self-governance ability, and (c) motivation?* This question was answered by conducting a process evaluation. This process evaluation empirically tested to what extent the application of the Dutch reward system in prison corresponds to its programme theory, especially regarding the extent to which behaviour, self-governance ability and motivation predict obtaining reward status. This research question was answered using survey data (N = 1011) of the large-scale Dutch Life in Custody study (wave 2022) (Van Ginneken et al., 2018). Novel was the

use of a self-report instrument aimed to measure incarcerated individuals' self-governance ability: the Leiden Self-Governance Ability Scale (LSGAS).

Three main conclusions were drawn regarding the relationship between reward status, behaviour, self-governance ability, and motivation. First, the Dutch reward system in prison appeared generally effective in awarding reward statuses to compliant incarcerated individuals, whilst withholding reward status from non-compliant incarcerated individuals, as the 81% of our sample reported to have a reward status reported significantly less misconduct and more compliance. Misconduct was the primary predictor of reward status. Second, incarcerated individuals low on self-governance ability appeared to be disadvantaged by the Dutch system, as they were less likely to comply and thus obtain a reward status. This also held true for incarcerated individuals who were less intrinsically motivated. Third, intrinsic motivation to comply seems to be the strongest predictor of compliance, whilst extrinsic motivation (operationalised as coercion, punishment, and anxiety of reward loss) is associated with aversive effects (i.e., misconduct). These findings cast serious doubts on the efficacy of extrinsic motivation to promote compliance of incarcerated individuals and put forward intrinsic motivation as an overlooked asset to achieve compliance.

6.2.5 Impact Evaluation (Chapter 5)

This chapter addressed the fourth and final research question, which was subdivided into three coherent questions: *1. To what extent do incarcerated individuals with a reward status also receive rewards (objective autonomy)? 2. To what extent do rewards increase a sense of autonomy (that is, both an increase in subjective autonomy satisfaction and a decrease in autonomy frustration)? 3. To what extent do the relationships mentioned in research questions 4.1 and 4.2 depend on incarcerated individuals' self-governance ability?* The goal of this study was to assess the extent to which rewards were associated with an increase in incarcerated individuals' (subjective) autonomy, and the degree to which this effect varied between incarcerated individuals with self-reported high and low levels of self-governance ability. To answer these questions, the same survey data and sample was used, as was used to answer the research question in the previous chapter.

Three main conclusions were drawn from this final study. First, there appeared to be a disparity between the programme theory and system application. Incarcerated individuals with and without a reward status significantly differed with respect to only three rewards (freedom during work assignments, free movement between activities, and evening programme twice a week). This could either be explained by the perception and experiences of incarcerated individuals, or flawed system application. Second, the rewards used in the Dutch reward system in prison were associated with an increase incarcerated individuals' subjective autonomy, which has been repeatedly theorised and empirically found to predict intrinsic motivation

to change behaviour. As rewards were not found to frustrate subjective autonomy, these findings also seem to suggest that extrinsic and intrinsic motives of incarcerated individuals to comply, can co-occur instead of being mutually exclusive. Finally, findings suggest that incarcerated individuals who are low on self-governance ability, and successfully obtain a reward status, can also benefit from more objective autonomy. However, this effect is possibly overestimated due to the nature of rewards measured, which – at face value – require few skills (e.g., being allowed to leave the cell for two evenings). It remained unclear to what extent these incarcerated individuals also possess the necessary self-governance ability to employ other rewards, such as pursuing a (vocational) education, without support or adjustments of such activities. Finally, it should also be kept in mind that the prior study (Chapter 4) indicated that incarcerated individuals low on self-governance ability were less likely to obtain reward status in the first place.

6.3 Implications for Theory on Reward Systems in Prison

Above all, this dissertation illustrated reward systems in prison are under theorised. Due to their limited explanatory power, go-to models for effective correctional interventions could not generate useful hypotheses on potential causal mechanisms between motivation, abilities and behaviour (Ward, 2019; Ward & Durrant, 2021). Even explanatory theories underpinning these models could not adequately explain how systems in prison operate. For instance, principles of operant conditioning are 'atheoretical' (Gendreau & Listwan, 2018, p. 37) and disregard cognitive factors to a large extent. Considering the impact reward systems in prisons have on behaviour of incarcerated individuals and society at large, there is a need to advance theory on this topic. By doing so, mixed effects of reward systems in prison (see Chapter 3) might be explained, and policymakers can be informed on how to design programme theories for reward system in prison. In the current dissertation, theoretical advancement on reward systems in prison was aimed for by (1) consulting the Self-Determination Theory (Ryan & Deci, 2000a; 2017), (2) refining the programme theory of the Dutch reward system in prison, and (3) developing the concept of self-governance ability, in relation to reward systems in prison. In the following paragraphs, all three aspects are addressed in more detail.

6.3.1 Contribution of Self-Determination Theory

Even though models for effective correctional interventions stress the importance of both extrinsic and intrinsic motivation in behaviour change, they do not explain *how* extrinsic and intrinsic motives to change behaviour relate to one another in a prison context (Ward, 2019). Therefore, this study adopted the framework of the Self-Determination Theory (Ryan & Deci,

2017) to answer research questions on the relationship between rewards (extrinsic source of motivation) and subjective autonomy (intrinsic source of motivation) (Chapter 5). Although this theory is seldomly used in prison research (for exceptions see Petrich, 2020; Van-der-Kaap-Deeder et al., 2017; 2019), it purports to be universal and can thus be applied to prison settings (Ryan & Deci, 2017). According to this theory, intrinsic motivation can be promoted when the basic psychosocial human needs of autonomy, competence and connectedness are satisfied. In addition, the theory argues that the satisfaction of basic psychosocial human needs, and thus intrinsic motivation, can be frustrated by extrinsic sources of motivation, such as rewards, punishments, and deadlines (Deci et al., 1999; Ryan & Deci, 2000a). It was hypothesised, therefore, that the system of Promotion and Demotion would frustrate the satisfaction of incarcerated individuals' need for autonomy.

The current study did not confirm the hypothesis that anxiety of reward loss frustrates subjective autonomy of incarcerated individuals. Instead, incarcerated individuals who reported more rewards also reported an increase in autonomy satisfaction and a decrease in autonomy frustration (Chapter 5). Rewards, as used in the Dutch system, thus seem to be able to contribute to incarcerated individuals' subjective autonomy. Several explanations for this finding were provided in Chapter 5. In addition to those explanations, it must be noted that demotions to the Basic programme are not frequent (IJV, 2018; RSJ, 2019). This could affect the extent to which incarcerated individuals experience anxiety. When demotion would be more frequent, anxiety could be greater and, in turn, its potential mediating effect on the relationship between rewards and subjective autonomy too. The provided explanations all require further research.

In conclusion, the Self-Determination Theory was able to provide hypotheses on the relationship between rewards, basic psychosocial human need satisfaction and behaviour, which dominant rehabilitation models could not. Therefore, future research on reward systems in prison is advised to keep consulting explanatory theories of behaviour change of incarcerated individuals, instead of abstract theories. One such theory could be Self-Determination Theory, which presents an adequate multidisciplinary framework to categorise and explain relationships between typologies of motives for compliance in (reward systems in) prison (Bottoms, 2002; 2012; Crewe, 2013; 2022; Crewe & Ievins, 2020; Khan, 2022; Liebling et al., 1997; Sparks et al., 1996; Sykes, 1958).

6.3.2 Refining the Programme Theory

As the Dutch reward system in prison lacked a clear programme theory, we started by reconstructing an initial rough programme theory (see Figure 2.2). After conducting this dissertational study, this model can now be refined. The refined model (1) incorporates the theoretical and empirical support for the most prominent causal assumptions, and (2) contains

additional variables that could affect the program's mechanisms. In Figure 6.1[1], it is indicated which causal assumptions of policymakers are well-supported by empirical research and theory (green arrows), which hypotheses require additional theoretical and/or empirical support (orange arrows), and which causal assumptions are not supported or are found to be ineffective (red arrow). We discuss three important advancements compared to the initial rough programme theory.

First, we found that extrinsic motivation (i.e., coercion and anxiety) was unrelated to compliance, yet predicted increases in misconduct (arrow 9; see Chapter 4). This result echoes prior findings suggesting that psychological pressure to comply can lead to resistance (Liebling et al., 1997), but not in all individuals (Crewe, 2011b; 2022; Crewe & Ievins, 2020). Finding that experiences of coercion and anxiety predict non-compliance and misconduct can be explained by Self-Determination Theory (Ryan & Deci, 2000a). This theory posits that feeling externally pressured to comply diminishes intrinsic motivation to comply, through suppressing basic psychosocial human needs.

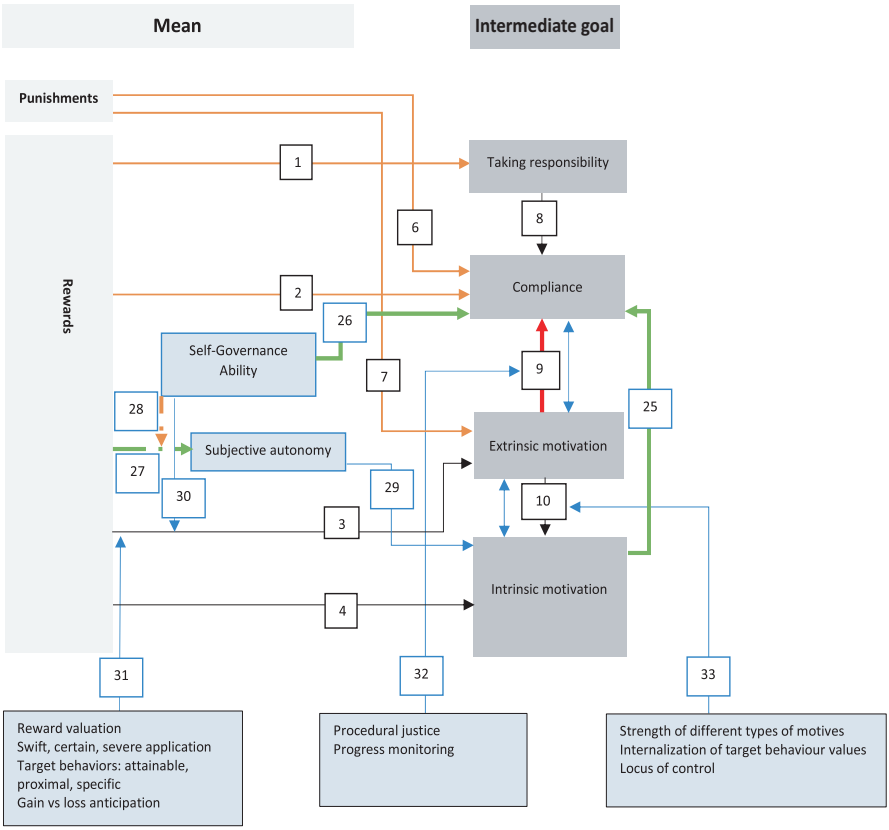
Second, it was hypothesised based on Self-Determination Theory that incarcerated individuals' experience of autonomy underlies the assumed relationship between rewards and intrinsic motivation (Ryan & Deci, 2000a; 2017). This hypothesis was not part of the initial rough programme theory. Findings from the impact evaluation illustrated that, indeed, rewards can contribute to incarcerated individuals' subjective autonomy (Chapter 5). In turn, autonomy satisfaction and frustration were found to predict intrinsic motivation in additional, unreported analyses. This is in line with theorising of the Good Lives Model (Purvis et al., 2011) and research based on Self-Determination Theory in non-prison populations, repeatedly finding a strong relationship between autonomy and intrinsic motivation (Ryan & Deci, 2017).

Third, it was hypothesised that incarcerated individuals require certain skills to be able to meet behavioural demands and rationally outweigh rewards and costs. This hypothesis was based on prior research on incarcerated individuals with an intellectual disability in Dutch and English prisons (Kaal et al., 2011; Talbot, 2010), social (cognitive) learning theories (Bandura, 1977; 1986), descriptive principles of effective correctional interventions (Risk-Need-Responsivity (RNR); Good Lives Model (GLM)), and indications from prior research (Crewe, 2011b; Hutton, 2017). Therefore, the refined model of the programme theory of the Dutch reward system additionally included self-governance ability of incarcerated individuals. This hypothesis was confirmed in Chapter 4, as greater self-governance ability was found to be related to greater compliance and less misconduct. This finding underscores the importance of responsivity: matching correctional interventions and target groups. Mixed findings from prior studies on

1 Figure 6.1 does not include the complete rough programme theory presented in Figure 2.2 in Chapter 2. This refined model of the programme theory only includes tested hypothesised assumptions and newly emerged hypotheses.

reward systems in prison (see Chapter 2) already suggested that differential system effects could be caused in part by target group heterogeneity (e.g., Liebling et al., 1997).

Figure 6.1
Refined programme theory



However, studying how personal characteristics influence system outcomes was largely uncharted territory (Gendreau et al., 2014).

Finally, over the course of this dissertation, new hypotheses on variables that could hypothetically mediate, or moderate causal assumptions also emerged (blue arrows 25-33). These new hypotheses are by no means exhaustive and call for empirical validation. For instance, it is hypothesised based on Self-Determination Theory that extrinsic motivation can evolve into intrinsic motivation, by internalising the norms and values inherent to the behaviour which is demanded of incarcerated individuals (Ryan & Deci, 2000a; 2017). When incarcerated individuals begin to understand that compliance with behavioural demands is in their best interest, they might develop intrinsic motives to comply. This is, however, not a mind game. Understanding that compliance is in one's interest also entails reshaping

behavioural demands in such a way that they truly are (also see Paragraph 6.5.3). How extrinsic and intrinsic motivation in the prison context exactly relate, is a topic for future inquiry.

In conclusion, by refining the programme theory, it was aimed to primarily contribute to theorising about the *Dutch* reward system in prison. Additionally, this effort aimed to inspire developing and testing programme theories of reward systems in prison in other jurisdictions. This is meaningful, as previous accounts of (re)constructing and testing programme theories on reward systems in prison in other jurisdictions are extremely scarce (Liebling et al., 1997). The benefit of this contribution hopefully also extends to prison policy. Policymakers may use the hypothesised working mechanisms of the Dutch reward system in prison to develop a theory of change for their own system – whilst accounting for differences in context, system elements, and intended target group. The very construction of a programme theory can potentially help policymakers to a priori become aware of and differentiate between causes of non-compliance. These insights, in turn, can help to navigate policy decisions towards addressing and facilitating modifiable causes of behaviour change, and set priorities for the allocation of financial resources (Mears, 2016; Sampson, 2013). For instance, policymakers can decide to screen for motivation and lack of self-governance ability, starting with non-compliant incarcerated individuals. Next, practitioners could tailor approaches to the identified sources of non-compliance, such as identifying what *would* motivate change or directing incarcerated individuals to courses aimed at enhancing their self-governance ability.

6.3.3 Conceptual Analysis of Self-Governance Ability

A final theoretical contribution of this dissertation is developing the concept of self-governance ability. Self-governance ability can be understood as all personal skills required to initiate, manage, and monitor behaviour. It was relevant to operationalise and analyse this concept because a large proportion of the (Dutch) prison population experiences difficulties in self-governing their behaviour (Den Bak et al., 2018; García-Largo et al., 2020; Kaal, 2016) and a reward system in prison demands of incarcerated individuals to self-regulate their conduct (Crewe, 2022). It is therefore plausible that self-governance ability plays a role in the effectiveness of reward systems in prison. This hypothesis is seemingly in line with rehabilitation models that prescribe that interventions should match personal characteristics of incarcerated individuals ('specific responsivity' (Andrews & Bonta, 2010, p. 507); 'internal capacity' (Purvis et al., 2011, p. 8)). Yet these latent constructs are general: it is not possible to infer from them for whom and how an intervention should be adapted (Ward & Durrant, 2021). Unsurprisingly then, customising interventions to the characteristics of individual offenders is perceived as difficult by practitioners (Viglione, 2018). In a sense, self-governance ability could be seen as a specification of these constructs.

To operationalise self-governance ability, the Leiden Self-Governance Ability Scale (LSGAS) was developed specifically for this study. The face validity of this instrument is good, as it is rooted in theory on cognition, intelligence, definitions of mild intellectual disability and self-governance ability, and existing instruments used to measure cognition and social adaptive ability, among others (Chapter 4). The added value of the LSGAS over existing instruments is that this scale is suitable for large-scale survey research among incarcerated individuals. The scale is compact (14 items) and reliable ($\alpha = .81$). Moreover, the scale proved suitable for incarcerated individuals who experience difficulty with self-governance ability. As such, the LSGAS can potentially be a valuable tool for prison researchers. Further psychometric research is needed, however, to better assess the scale's validity and applicability in other prison contexts.

Conceptualising, measuring and addressing the role of self-governance ability in prison is timely, as one of the urgent issues in correctional rehabilitation is to identify what works *for whom* and individualise treatment (Sampson et al., 2013). Failing to address the role of self-governance ability in prison policy '[…] can be extraordinarily demoralizing for those who come to believe that no matter how hard they try, ultimately their efforts will have little bearing on their progress through the system' (Ward et al., 2022, p. 116).

6.4 Limitations and Future Research

6.4.1 Limitations

This study has generated important new insights in how reward systems in prison operate, by closely examining a Dutch reward system in prison. Nevertheless, this study has several limitations, three of which are outlined below.

First, a cross-sectional research design was used for studies reported in Chapters 4 and 5. The choice for this design was motivated by the exploratory nature of the studies, the targeted sample size, available financial resources, and practical feasibility in the aftermath of the Covid-19 pandemic. Despite being the most prevalent design in criminology (Weisburd & Piquero, 2008), cross-sectional research designs have inherent limitations. The most important one is that no temporal (and thus causal) inferences can be drawn from data collected at the same time. The extent to which, for instance, compliance was truly *caused* by extrinsic and/or intrinsic motives (Chapter 4) is therefore difficult to assess. This common methodological limitation is important to note here because relationships between personal characteristics and attitudes on the one hand, and behaviour on the other, are theorised to be reciprocal (Bandura, 1986). For example, extrinsic motives for compliance can in theory be replaced by intrinsic motives (Frey, 1997), intrinsic motives can frustrate and be replaced by extrinsic motives

(Ryan & Deci, 2017), or extrinsic motives can co-exist with and even spur intrinsic motives (Woolley & Fisbach, 2018; Fisbach & Woolley, 2022). Those attitudinal changes can be spurred by behaviour. For instance, performing compliant behaviour could function as a facilitator of getting acquainted with the norms that underly such behaviour, coming to terms with them (identification), and perhaps even accepting them (integration) (Ryan & Deci, 2017; also see Bottoms, 2002).

Second, the degree to which the results of the current study can be generalised to different target groups and prison contexts can be questioned. First of all, on the upside, the large sample (N = 1011) mentioned in Chapters 4 and 5 is likely to be representative of all incarcerated individuals housed on general Dutch prison units to a large extent. Contributing to this, is that the prisons selected for these studies were diverse in size (small, medium, large) and geographical location (six Dutch provinces). On the downside, the average time served of this sample was, however, much longer than the average prison sentence. This limits the generalisability of findings towards short-sentenced incarcerated individuals. Moreover, this sample did not include female incarcerated individuals. From the studies included in our systematic review, there is no clear indication that there were differential effects for male and female offenders (Chapter 3). However, those studies were small-scale, methodologically flawed, and only few included female offenders. Moreover, there is some reason to believe that the causal mechanisms that underly reward systems in prison, however, might work out different for male and female offenders (e.g., rewards are extrinsically motivating). There is some empirical evidence from small-scale, qualitative probation studies that male offenders are motivated relatively more by extrinsic motives, whilst female offenders more frequently report intrinsic (normative) reasons to comply with probationary rules (Gelsthorpe, 2013). Whether this difference would also emerge among offenders participating in reward systems *in prison*, however, is unclear.

Another possible limitation on generality relates to context. For instance, our systematic literature review found that some empirical studies suggest that the degree to which incarcerated individuals comply and successfully obtain a reward status, could be influenced by procedural legitimacy (see Chapter 3). Arbitrary system application (Liebling, 2008; Liebling et al., 1997) could severely frustrate incarcerated individuals' perception of staff legitimacy, which could frustrate normative motives to comply (Bottoms, 2001; Tyler, 2006). Simultaneously, not receiving anticipated rewards (of which we found glimpses in Chapter 4) could frustrate incarcerated individuals that comply out of instrumental motives. This suggests that when prison staff deviate from the policy guidelines, which has also previously been found regarding the Dutch reward system in prison (IJV, 2018; RSJ, 2019), this could frustrate the systems' working mechanisms by affecting motives to comply.

This reservation on generality also extends to the seemingly similar *Incentives and Earned Privileges scheme*, operational in England and Wales.

The Dutch system and the Incentives and Earned Privileges (IEP) scheme use seemingly similar rewards, but there are important contextual differences. We turn back to the example of legitimacy. Staff-incarcerated individual relationships in England have been characterised by being unresponsive, detached, and inclined to punish, whilst prison staff in the Netherlands have been characterised by incarcerated individuals as fair, helpful, informal, and less authoritarian (Dirkzwager & Kruttschnitt, 2012). Such differences might in part relate to the partial privatisation of prisons in the United Kingdom, which is unknown to the Netherlands. Such relational differences are likely to be associated with differences in incarcerated individuals' perceptions of staff legitimacy, which boil down to respect, neutrality, voice and trustworthiness (Tyler, 1990; 1997). In turn, lack of perceived legitimacy has been found to frustrate compliance in Australian prisons (Barkworth, 2018), whilst perceived legitimacy was found to reduce resistance of incarcerated individuals, disengagement and game-playing (Barkworth & Murphy, 2019). These studies did not concern a reward system in prison. However, lack of perceived legitimacy was one of the explanations opted to explain increases in misconduct and lack of increases in compliance upon introduction of the IEP scheme (Liebling, 2008; Liebling et al., 1997).

Third, data used to answer research questions 3 and 4 were quantitative. The answers to those research questions, however, also call for qualitative follow-up research. Here, I consider the two questions relating to reward system application and the relationship between self-governance ability and compliance. We started off holding the presumption that, overall, incarcerated individuals who had obtained a reward status were also, in fact, provided rewards they have the right to receive. However, as reported in Chapter 5, it was found that incarcerated individuals with and without a reward status reported only few differences in the number of rewards they were provided. We can think of multiple reasons to explain this finding. For instance, incarcerated individuals could be ill-informed about their reward status or about how to access certain rewards, prison staff could (un)intentionally differentiate in allocation of specific rewards, or some incarcerated individuals might obstruct other incarcerated individuals in employing their rewards, among other hypotheses.

Furthermore, we can draw on theory and prior empirical studies to try to explain why self-governance ability was predictive of compliance (Chapter 4). For instance, drawing on prior qualitative research in Dutch prisons, we could hypothesise that incarcerated individuals low on self-governance ability have a greater tendency to withdraw from social situations because they distrust prison staff and are generally hesitant to tell them about their needs (Kaal et al., 2016). Withdrawal, in turn, could make it even more difficult for prison staff to notice and reward incarcerated individuals' possibly compliant yet covert behaviour – as was mentioned in interviews with 16 male incarcerated individuals participating in the IEP scheme (Khan, 2022). These hypotheses call for future empirical research.

6.4.2 Future Research

Future research could overcome the limitations in multiple ways. Limitations inherent to cross-sectional research designs can be addressed by using randomised controlled trials (RCTs). Measuring change within persons over time could allow for more robust conclusions on the degree to which, for instance, compliance is *caused* by extrinsic and/or intrinsic motives, and how those motives relate (Chapter 4). Such an empirical test is advised, as the relationship between motives to comply and compliance is likely to be more intricate than the cross-sectional data collected for this dissertation is able capture. For instance, due to a lack of pre-measurement, we were unable to measure baseline levels of intrinsic and extrinsic motivation.

Furthermore, such a comprehensive research design could also account for frequency, timing and reasons for promotions and demotions, therewith mapping how formal decisions affect changes in motives. On a practical note, it will be difficult to establish neutral motivation baselines. A pre-measurement of motivation would have to be conducted before incarcerated individuals are allocated to a regular prison unit (i.e., following arrest or in pre-trial detention). However, the days after an arrest are usually characterised by uncertainty and stress, which can influence motivation baseline levels. Moreover, incarcerated individuals in pre-trial detention are not sentenced (yet), but when they are, their behaviour determines whether they start off on a regular unit with or without a reward status. It is clear, then, that such a baseline level is not neutral, and that using pre-trial detention incarcerated individuals as a comparison group has unique challenges.

To address limits on generalisation, future research could replicate the current study in other jurisdictions. It is advised to account for differences in system, target group and context during sampling and analysing. Similarities and differences in reward system design (e.g., immediacy of rewarding, type of reward, legitimate application), characteristics of the target groups (e.g., sex, ability to self-govern behaviour), and important contextual factors (e.g., staff-incarcerated individual relationships) should, therefore, be mapped. This is important, not only because different system designs might draw upon different social, cognitive and behavioural mechanisms (e.g., punishment versus reward), but also because individual and contextual factors can interfere with the activation of such mechanisms (Pawson & Tilley, 1997).

Future qualitative research could advance the current dissertation by mapping explanations for finding that (i) some rewards appear to be granted to incarcerated individuals only marginally, and (ii) incarcerated individuals with a reward status only receive some rewards significantly more often than incarcerated individuals without a reward status (Chapter 5). One question to explore is the degree to which the current system is doable. A good programme theory should be plausible, testable, and doable (Connell & Kubisch, 1998). Doable refers to allocating sufficient economic, technical, political, institutional, and human resources to the programme to

carry it out according to plan. The degree to which the system of Promotion and Demotion is currently doable can be questioned. National reports have indicated that staff shortages and lack of staff training are highly prevalent in Dutch prisons, contributing to a lack of supervision, observation and adequate reporting on behaviour of incarcerated individuals (IJV, 2018; RSJ, 2019).

The current study also found indications that prison staff deviate from policy (see (i) and (ii)). Moreover, unreported analyses show large differences between prisons, and even units, in how rewards are distributed among incarcerated individuals with and without a reward status. This suggests that local, institutional context could play a role in programme delivery. The degree to which this difference is directly related to in shortages in time, staff, and training, is unclear. Future qualitative research could examine how previously indicated institutional challenges (shortages in time, staff, and training) affect programme application, 'activation' of mechanisms, and outcomes (see Figure 6.1). Also, alternative explanations for deviations should be examined. For instance, perhaps policy is bent or broken by prison staff to build rapport and maintain 'good' staff-incarcerated individual relationships, or to prevent incarcerated individuals low on self-governance ability to be disadvantaged even more then they currently are.

6.5 Implications for Policy and Practice

6.5.1 Increase System Responsivity

Above all, this dissertation indicates that motivation alone is insufficient to change behaviour and to succeed in a reward system in prison. Illustrative of this is finding that self-governance ability predicts compliance, misconduct and reward status (Chapter 4). This means that incarcerated individuals who experience difficulty reading and planning, and other personal skills necessary to self-govern behaviour, are less likely to obtain rewards. The concerns scholars in the recent past have voiced about the Dutch system being ill-suited for incarcerated individuals low on self-governance ability thus seem to be valid (Boone, 2012; 2013; Van Ginneken, 2018). If low self-governance ability is truly contributing to non-compliance, then it is unlikely that punishing their non-compliance enables these individuals to learn how to act instead. In fact, their problems can even be exacerbated, as experiences of repeated goal attainment failure can demoralise (Schunk, 1990; Ward et al., 2022) and decrease self-efficacy (Bandura, 1989; Ryan & Deci, 2017). Recommendations should therefore also focus on altering the system to match the self-governance ability of incarcerated individuals. Three possible ways to achieve this is by experimenting with reducing the number of stressors, tailor behavioural demands and reward procedures, and adequately train staff to focus on motivation and ability rather than behaviour.

Only few studies examined what works in treating incarcerated individuals low on self-governance ability, none of which explicitly concerned reward systems in prison (Snoyman et al., 2019). However, there are some specific vantage points to improve reward systems in prison for this target group, such as alleviating stress, as stress can lead to conflict and non-compliance (Kaal et al., 2011). Reducing stress in reward systems in prison can generally be achieved by increasing predictability and legitimacy of decisions on reward allocation (Crewe, 2009; 2011; Gendreau et al., 2014; Shammas, 2014; 2018), and by (unconditionally) promoting autonomy (Vollaard et al., 2019). As incarcerated individuals low on self-governance ability are likely to be clustered in the Basic programme (Chapter 4), and incarcerated individuals in that programme report higher levels of stress (Zaalberg et al., 2020), reducing stress in that programme is a suitable and effective starting point.

Moreover, tailoring behavioural demands to characteristics of incarcerated individuals should be piloted. The degree to which demands are currently tailored to personal characteristics of incarcerated individuals, for instance in individual sentence planning, is unclear. Specifically for incarcerated individuals low on self-governance ability, however, the number of behavioural demands should be small and comprehensible (Marlowe, 2006). Behavioural demands should also be formulated specific, simple and factual, as complex wording may create uncertainty and frustrate participants (Crewe, 2011b; Liebling, 2008; Schunk, 1990), especially for incarcerated individuals low on self-governance ability (Gonçalves et al., 2014). Tailoring behavioural demands to personal characteristics should also aim to contribute to setting attainable goals, which can in turn minimise experiencing failure and demoralisation (Ward, 2022), and increase self-efficacy (Bandura, 1989; Ryan & Deci, 2017; Schunk, 1990). Accordingly, reward procedures are advised to be adjusted. Pilots could experiment with deviating from general behavioural demands in case of low self-governance ability. This could mean that behavioural thresholds for these incarcerated individuals could be lowered, but still rewarded. To build self-efficacy and prevent unequal treatment of incarcerated individuals, those rewards could be verbal, such as compliments and praise (Plaisier & Van Ditzhuijzen, 2009). By doing so, the focus will constantly lie on rewarding desirable behaviour, instead of punishing undesirable behaviour. This proposal hints at reinstating an orange behaviour category (see Paragraph 1.3), but with even more flexibility in tailoring goals to personal characteristics of incarcerated individuals. By doing so, incarcerated individuals can incrementally learn which behaviour is expected of them (Meijer, 2020).

Finally, it is recommended that prison officers receive additional training in interpreting behaviour and examine its underlying causes. Looking beyond observable behaviour is detrimental in effectively distributing means that support durable behaviour change of incarcerated individuals, as (non-) compliance can obscure motivation and self-governance abilities – both prerequisites of long-term behavioural change (Andrews

& Bonta, 2010; Bandura, 1986; Schunk & Zimmerman, 2012; Ward et al., 2007). This perspective broadening begins with successfully identifying the level of self-governance ability of incarcerated individuals – which is being advocated by researchers for over a decade (e.g., Kaal, 2010; 2013; Kaal et al., 2011; Kaal et al., 2016), and for which manuals (Vrij & Kaal, 2015) and screening instruments have been developed (Nijman et al., 2016). Recognising differences in self-governance ability levels, however, does not suffice. Staff should also be trained in understanding how to treat incarcerated individuals low on self-governance ability. Such treatment includes repeatedly explaining rules and consequences in a very clear and consistent way, check whether incarcerated individuals have understood what staff has said, supporting these individuals in planning, and helping them fill out forms, to name a few examples (Vrij & Kaal, 2015).

It will be clear by now that assessing behavioural change by looking beyond *behavioural* compliance can be demanding of prison staff, in terms of time and skills. Currently, part of the prison staff is insufficiently trained in supporting incarcerated individuals low on self-governance ability (IJV, 2018; RSJ, 2019; 2020; Molleman, 2021). Therefore, enhancing system responsivity is not an easy task. Still, doing so can be worthwhile. Not least because it presents an opportunity to contribute to minimising the – relatively high – risk of incarcerated individuals low on self-governance ability to reoffend post-release (Teeuwen et al., 2020).

6.5.2 Limit External Pressures to Comply

As has become clear from Chapters 2 and 3, both the theoretical and empirical evidence in favour of reward systems in prison is limited and mixed. Next, chapter 4 illustrated that extrinsic motivation is associated with a decrease in compliance and an increase in misconduct, whilst the opposite was found for intrinsic motivation. Approaches that aim at promoting intrinsic motivation to change behaviour in prison populations, however, show promising effects on compliance and rehabilitation. It is therefore warranted to experiment with facilitating intrinsic motivation to change to a greater extent. To that end, it is recommended to reduce external pressures to comply by limiting and focusing the use of behavioural demands. In other words, as the current reward system is plagued by application issues and has aversive effects for individuals low on self-governance ability, its large impact on the lives of incarcerated individuals is not warranted. Following the empirical cycle, the design and application of the current system should be optimized and empirically tested on a small-scale.

Reducing external pressures to comply can be expected to be effective in promoting compliance to a certain degree. Prior small-scaled qualitative studies in Dutch prisons indicated that feelings of coercion and anxiety of reward loss can be a reason to comply (De Jong et al., 2015; 2016; Farahi & Van de Rijt, 2016). This dissertation found that external pressure to comply

is associated with an increase in misconduct in a large sample of incarcerated individuals (see Chapter 4). This is in line with prior findings from studies on the IEP scheme, which indicated that some incarcerated individuals resisted the system, in part due to feeling coerced (Crewe, 2009; Liebling et al., 1997). Moreover, anxiety of reward loss was also found to limit effectiveness of rehabilitation courses in Dutch prisons, by restricting openness, self-reflection, and commitment to rehabilitation courses (Barendregt & Wits, 2014; Ljujic et al., 2021). Limiting the use of behavioural demands by untying rewards that promote basic psychosocial human needs available to all incarcerated individuals from the reward system in prison, could retain the beneficial effect subjective autonomy is theorised to have on intrinsic motivation (Ryan & Deci, 2017), whilst mitigating external pressures. An example of such a limitation, is opening up participation in rehabilitation courses to all incarcerated individuals, regardless of their behaviour.

Additionally, perceptions of external pressure could be mitigated by truly acting in the best interest of incarcerated individuals. By exchanging *imposed* goals of compliance by goals that contribute to *personal* life goals, a new promising balance between extrinsic and intrinsic motivation can be struck (Prescott & Willis, 2022). As Day and his colleagues (2004, p. 264) state: 'only when clients believe that the treatment is not likely to fulfil personal goals, and when they perceive external pressure to attend that feelings of coercion become an issue'. However, 'reframing' imposed goals as personal goals, an instrumental way to maintain current policy, is not what is implied here. Goals to be rewarded will need to be in line with incarcerated individuals' personal goals as much as possible and incarcerated individuals should be supported in adopting that believe.

To be able to explain to incarcerated individuals that compliance supports their personal life goals, the link between behavioural demands and their goals should be substantiated and clearly communicated. Unfortunately, the connection between current – general – behavioural demands and incarcerated individuals' interest is largely unclear (see Table 1.1; Van Ginneken, 2018). This has been found to contribute to feelings of paternalism, degradation and resistance (Beckmann, 2016; Crewe, 2009). One way of minimising resistance and increasing the link between compliance and personal goals of incarcerated individuals, is to limit behavioural demands to those demands that target dynamic criminogenic needs (Andrews & Bonta, 2010). Translated to practice, this recommendation would mean not rewarding (nor punishing) personal hygiene maintenance, but rather pursuing meaningful employment.

Next, explaining to incarcerated individuals how tackling criminogenic needs supports their personal life goals could be put to practice by enriching prison intakes and sentence planning by identifying incarcerated individuals' personal life goals and obstacles that stand in their way by using Good Lives Plans (Ward et al., 2007). Such plans aim to identify personal goals, obstacles in their way (e.g., criminogenic needs), and internal and

external capacities required to reach those goals in legal ways (Ward et al., 2012). In turn, capacities need to be strengthened by tailoring interventions to build incarcerated individuals' internal and external capacities to change. For instance, assigning an individual to welding classes can teach him or her patience and concentration, simultaneously countering impulsive decision-making, which is considered a criminogenic need (Andrews & Bonta, 2010).

6.5.3 Facilitate Intrinsic Motivation

Even an optimal reward system in prison, however, is not believed to have durable effects on the behaviour of incarcerated individuals. Policymakers are therefore advised to promote intrinsic instead of extrinsic motives to change, by applying procedural justice and autonomy support. First, it is advised to promote positive perceptions by incarcerated individuals of staff legitimacy. Procedural justice theory (Tyler, 1990; 2006) proposes that the degree to which individuals comply with legal rules is predominantly dependent on how much legitimacy they accredit to the authorities enforcing those rules, rather than the outcome of that enforcement (distributive justice). Procedural justice is focused on providing voice, respect, neutrality, and trust to subordinates. Subordinates need to be provided opportunities to state their perspective (voice) and need to feel that their perspective is taken seriously (respect). Authorities such as prison staff should act neutral, consistent and transparent in how they reach decisions (neutrality), and act trusted, sincere and caring (trust) (Tyler, 1990; 2006). Prior studies have shown that procedurally fair treatment can increase compliance and decrease misconduct in the Dutch prison population (Beijersbergen et al., 2015). Contrarily, lack of staff legitimacy was coined to be a mediator of reward system in prison effectiveness in Chapter 2 (see Liebling, 2008; Liebling et al., 1997).

A possible causal mechanism of procedural justice is emphasising shared group membership, essentially expressing that the individual matters to the authorities and is considered an integral part of the social group (Tyler & Lind, 1992). Such an approach might work well in a prison setting, where it is simply impossible to align all rules with incarcerated individuals' personal goals. Some rules serve other purposes, such as order and safety. To enable prison staff to act according to the principles of procedural justice, it is required that they are approachable and able to make consistent and transparent decisions. Current application and design issues such as staff shortages, general definitions of behavioural demands and, in its slipstream, inconsistent decisions on reward status (Beckmann, 2016; IJV, 2018; RSJ, 2019; 2020), can thus hamper the application of procedural justice principles in prisons.

Third, it is advised to provide incarcerated individuals with autonomy support. Although procedural justice and autonomy support are conceptu-

ally 'closely linked' (Ryan & Deci, 2017, p. 596), they are likely to activate different mechanisms of change and have different effects. Complying with behavioural demands to gain social approval, as procedural justice proposes, is – in self-determination terms – still largely external (i.e., introjective regulation, see Figure 1.1). Other examples of introjective regulation in relation to compliance with behavioural demands in reward systems in prisons are feelings of guilt and shame (Crewe, 2023). Autonomy support, at the other hand, facilitates intrinsic motivation to a greater extent. It is aimed at identification with the values underlying behavioural demands (i.e., introjective regulation, see Figure 1.1), promoting personal endorsement of those values and behaviours (Van Petegem et al., 2021).

Autonomy support is a concept derived from Self-Determination Theory (Ryan & Deci, 2017), and refers to a communication style directed at promoting individuals' subjective autonomy through offering meaningful choices, explaining the goals and values of those choices, and respect incarcerated individuals' choices. As both procedural justice and autonomy support focus on interpersonal communication, they are argued to be congruent (Van Petegem et al., 2021). Although the evidence base is small, autonomy support has been found to promote both intrinsic motivation to change behaviour and compliance with prison rules in a prior Belgian study (Van der Kaap-Deeder et al., 2019). In accordance, subjective autonomy was also found to contribute to intrinsic motives to change behaviour in complementary (yet unreported) analyses of survey data used in Chapters 4 and 5. Autonomy support has also been found to work well with persons low on self-governance ability, as long as professionals are responsive to their needs (Carey et al., 2022; Frielink et al., 2018).

6.5.4 Reconsider Criteria for External Freedoms

A concluding remark can be made on the use of behavioural compliance as a criterium to grant external freedoms. As has become clear from this dissertation's findings and adjoining literature, behaviour *can* be an inadequate reflection of substantive and long-term change. For some incarcerated individuals, compliant behaviour will reflect a genuine and substantive commitment to desistance from crime. Others 'play the game' and their 'desirable' behaviour can at best be fa reliable indication of successfully going on leave and conditional release (Bottoms, 2002; Bottoms & Tankebe, 2012; Crewe, 2011b; Crewe & Ievins, 2020; Liebling et al., 1997; Sparks et al., 1996). Based on behavioural assessments, prison staff will not be able to distinguish between those two types of incarcerated individuals. Therefore, intermediate outcomes that focus on explanations of behaviour, such as motivation and self-governance ability, might prove better predictors of successfully coping with external freedoms (e.g., Maguire et al., 2019). Even then, however, it should be noted that motivation to change is ambivalent and likely to fluctuate over time (Boone, 2012; Ryan & Deci, 2017; Weaver, 2019).

To conclude, this dissertation has started to fill a void in the literature on the effectiveness of reward systems in prison, by focusing on the Dutch reward system in prison – which had not previously been evaluated in its ten-year existence (RSJ, 2020). Findings largely support the critiques scholars have voiced for years regarding the Dutch reward system in prison. First of all, causal mechanisms were only partially supported by theory and research. Second, incarcerated individuals reported that system application deviates from policy guidelines, further jeopardizing its possibly already limited effectiveness. Finally, incarcerated individuals low on self-governance ability have been found to be disadvantaged by this system. Therefore, important recommendations were made to improve the system, and move beyond it. Even though this dissertation can be considered a step towards better understanding the mechanisms of reward systems in prison, much work is still to be conducted to advance reward systems in prison, by criminologists, policymakers, and prison staff. Hopefully, this work will be conducted collaboratively, therewith strengthening ties between academia, policy, and practice.

Samenvatting (Summary in Dutch)

Reward Systems in Prison

In de afgelopen decennia is het gedrag van gedetineerde personen leidend geworden voor de invulling en het verloop van hun detentie (Ministerie van Justitie, 2009). Dit past binnen de neoliberale tijdsgeest (Schinkel & Van Houdt, 2010). Waar voorheen allerlei activiteiten voor de meeste gedetineerde personen beschikbaar waren, zijn deze steeds vaker gereserveerd voor gedetineerde personen die zich volgens de regels gedroegen (Boone, 2021; Boone & Van Hattum, 2014; Franke, 1990). In 2014 culmineerde die ontwikkeling met de introductie van het systeem van Promoveren en Degraderen in alle Nederlandse gevangenissen: een beloningssysteem waarbij gewenst gedrag beloond en ongewenst gedrag bestraft wordt (RSPOG, 2014). Gedetineerde personen die zich conform de gedragscriteria gedragen, kunnen promoveren naar het Plusprogramma, waar zij bepaalde beloningen ontvangen. Gedetineerden die zich *niet* gewenst gedragen, blijven achter in het Basisprogramma, waar alleen activiteiten worden aangeboden die volgens de wet verplicht zijn (Penitentiaire Beginselenwet, art. 49). De beloningen van het Plusprogramma variëren van deelname aan onderwijs en rehabilitatiecursussen, tot meer bezoekmogelijkheden. Beleidsmakers verwachtten dat die beloningen gedetineerde personen zouden motiveren om zich blijvend gewenst te gedragen, hetgeen het werk- en leefklimaat in detentie ten goede zou komen (Van Gent, 2013).

De introductie van dit beloningssysteem verontrustte niet alleen gedetineerde personen zelf, maar ook wetenschappers. Ten eerste waren criminologen en strafrechtswetenschappers sceptisch over de mate waarin de gehanteerde beloningen gedetineerde personen kunnen motiveren om hun gedrag blijvend te veranderen. Een beloningssysteem zou volgens hen beperkte effecten hebben op het uiteindelijke gedrag van gedetineerde personen. De literatuur laat immers zien dat gedragsverandering gepaard gaat met vallen en opstaan, en dat het afstraffen van vallen niet zou bijdragen aan motivatie om weer op te staan (Boone, 2012; 2013; Van Ginneken, 2018).

Ten tweede illustreren onderzoeksrapporten van inspecties en adviesorganen dat de toepassing van het systeem niet correspondeert met het beleid zoals het op papier staat. Zo zou gevangenispersoneel moeite hebben met het interpreteren van het gedrag van gedetineerde personen, met het adequaat onderbouwen en administreren van beslissingen omtrent promoveren en degraderen, geneigd zijn om gedetineerden die zich niet gewenst gedragen te laten promoveren om papierwerk te voorkomen en zou er te weinig personeel beschikbaar zijn om van grondige gedragsobservatie te kunnen spreken (Inspectie Justitie en Veiligheid (IJV), 2019; Raad voor de

Strafrechtstoepassing en Jeugdbescherming (RSJ), 2019; 2020). Ook is het onduidelijk in hoeverre de beloningen überhaupt worden toegekend, op welke gronden dat gebeurd en of zij positieve effecten sorteren, zoals op de beleving van autonomie van gedetineerde personen. Het is niet eerder onderzocht welke impact voornoemde afwijkingen van het beleid op de uitkomsten van het systeem hebben. In theorie kunnen ervaringen van inconsistente en willekeurige beslissingen ten aanzien van promotie of degradatie bijdragen aan regel*overtredend* gedrag, en zo de effectiviteit van een beloningssysteem in detentie ondermijnen (Liebling et al., 1997; Crewe, 2011; Gendreau et al., 2014).

Ten derde suggereren eerdere kwalitatieve studies naar beloningssystemen in detentie dat zelfredzaamheid samenhangt met het kunnen verdienen van beloningen. Zo zouden personen die verminderd zelfredzaam zijn meer moeite hebben om zelfstandig gedragscriteria na te leven, en dus om beloningen te verdienen (Crewe, 2013; Hutton, 2017). Als die bevinding ook in de Nederlandse detentiecontext opgaat, dan zou dat zeer problematisch zijn. Een groot deel van de Nederlandse detentiepopulatie is te kwalificeren als verminderd zelfredzaam, zoals personen in detentie die kampen met licht verstandelijke beperkingen (tot 45%, Kaal, 2016; Den Bak et al., 2018). Het niet voldoen aan de gedragscriteria betekent dat deze groep minder toegang heeft tot interventies die bij kunnen dragen aan gedragsverandering. En dat terwijl zij een hoog recidiverisico hebben (Teeuwen et al., 2020). Formeel is alleen gedrag leidend bij toekenning van beloningen, maar mogelijk speelt dus ook zelfredzaamheid indirect mee. In hoeverre deze zorgen terecht zijn, is onduidelijk. Noch de beleidstheorie, noch de praktische toepassing van het systeem, noch de effecten ervan op het gedrag en de attitudes van gedetineerde personen is ooit grondig geëvalueerd (RSJ, 2020). Om een begin te maken met het opvullen van die kennislacune was het doel van deze dissertatie om het systeem van Promoveren en Degraderen aan een grootschalige evaluatie te onderwerpen. Daarin stonden vier onderzoeksvragen centraal:

1. Wat is de beleidstheorie van het systeem van Promoveren en Degraderen, zoals dat in 2014 is geïmplementeerd?
2. Wat is er bekend over de effecten van beloningssystemen in detentie op het gedrag en de attitudes van gedetineerde personen?
3. In hoeverre wordt een verblijf in het Plusprogramma voorspeld door (a) gedrag, (b) zelfredzaamheid, en (c) motivatie?
4. 1. In hoeverre ontvangen gedetineerde personen in het Plusprogramma ook meer beloningen (objectieve autonomie)?
   2. In hoeverre dragen beloningen bij aan de subjectieve autonomie van gedetineerde personen (meer bevrediging en minder frustratie van hun autonomiebehoefte)?
   3. In hoeverre zijn de relaties in onderzoeksvragen 4.1 en 4.2 afhankelijk van de zelfredzaamheid van gedetineerde personen?

Samenvatting per hoofdstuk

Hoofdstuk 2: De beleidstheorie

De eerste onderzoeksvraag was: *Wat is de beleidstheorie van het systeem van Promoveren en Degraderen, zoals dat in 2014 is geïmplementeerd?* Deze vraag is beantwoord door beleidsdocumenten (N = 12) over het systeem van Promoveren en Degraderen te analyseren. Uit die analyse volgde een overzicht van veronderstellingen van beleidsmakers ten aanzien van de beoogde doelgroep van het systeem, de middelen, de doelen en de middel-doelrelaties (causale veronderstellingen). Door literatuuronderzoek (N = 86) zijn de veronderstelde middel-doel relaties tussen getoetst op wetenschappelijke ondersteuning. Uit de uitkomsten van deze eerste deelstudie blijkt dat de beleidstheorie drie middelen, tien doelen en 24 middel-doel relaties verondersteld. Op enkele punten bleek de beleidstheorie gebrekkig empirisch onderbouwd. Het betreft onder meer de aanname dat de gehanteerde beloningen gedetineerde personen kunnen motiveren tot regelnaleving. Bovendien blijkt er beperkt aandacht voor de rol van de zelfredzaamheid van gedetineerde personen. Andere causale veronderstellingen konden als potentieel effectief worden beschouwd. Zij zijn in lijn zijn met theorieën over gedragsverandering, maar konden te beperkt worden ondersteund door empirisch onderzoek. Een voorbeeld is de veronderstelling dat motiverende bejegening bijdraagt aan intrinsieke motivatie voor regelnaleving. Er is dus behoefte aan zowel een verfijndere, wetenschappelijk meer verankerde beleidstheorie, als aan een overzicht van empirisch onderzoek naar de effecten van beloningssystemen in detentie.

Hoofdstuk 3: Effecten van beloningssystemen in detentie

Dat bracht ons tot de tweede onderzoeksvraag: *Wat is er bekend over de effecten van beloningssystemen in detentie op het gedrag en de attitudes van gedetineerde personen?* Deze vraag is beantwoord met een grondig systematisch literatuuronderzoek. Er is in vijf multidisciplinaire academische databases met relevante zoektermen gezocht naar eerdere studies naar beloningssystemen in detentie. De 2415 zoekresultaten zijn zorgvuldig gefilterd op relevantie, wat resulteerde in 21 studies, waaronder enkele kwalitatieve studies. De kwantitatieve studies bleken zeer gedateerd, gericht op kleine en zeer specifieke steekproeven, en waren vaak methodologisch beperkt. Hierdoor is het lastig om betrouwbare lessen te trekken over de effecten van beloningssystemen op het gedrag en de attitudes van gedetineerde personen. De kwalitatieve studies impliceerden dat een aantal individuele en contextuele factoren van invloed kan zijn op de effectiviteit van beloningssystemen in detentie: zelfredzaamheid, procedurele rechtvaardigheid, en de waarde die gedetineerde personen hechten aan beloningen. Hoewel deze

kwalitatieve studies methodologisch betrouwbaarder waren, konden de uitkomsten daarvan niet worden gegeneraliseerd wegens kleine steekproeven. De belangrijkste conclusie van deze tweede deelstudie is dat eerdere studies naar beloningssystemen in detentie beperkt zijn in kwantiteit en kwaliteit, wat de noodzaak van empirisch onderzoek naar deze systemen benadrukt.

Hoofdstuk 4: Voorspellers van het Plusprogramma

Vandaar dat onderzoeksvragen drie en vier juist ingaan op de unieke empirische data die voor deze dissertatie zijn verzameld over de werking van het Nederlandse beloningssysteem. De derde onderzoeksvraag was: *In hoeverre wordt een verblijf in het Plusprogramma voorspeld door (a) gedrag, (b) zelfredzaamheid, en (c) motivatie?* Deze vraag is beantwoord aan de hand van grootschalige survey data. In negen Nederlandse gevangenissen zijn, in het kader van de *Life in Custody* studie (Van Ginneken et al., 2018), vragenlijsten onder mannelijke gedetineerde personen afgenomen. Aan een gevalideerde vragenlijst (*Prison Climate Questionnaire*, zie Bosma et al., 2020b) zijn vragen over het beloningssysteem, motivatie voor regelnaleving, autonomie en een aantal relevante controlevariabelen toegevoegd. Ook bevatte de vragenlijst een speciaal voor deze deelstudie ontwikkeld instrument dat zelfredzaamheid van gedetineerden beoogd te meten (de *Leiden Self-Governance Ability Scale*). Die schaal van 14 items beoogde executief, conceptueel en sociaalpraktisch functioneren te meten, en bleek betrouwbaar in gebruik. Omdat het systeem van Promoveren en Degraderen formeel alleen actief is op reguliere gevangenisafdelingen, kon alleen de data gebruikt worden van gedetineerde personen die op die afdelingen verbleven (N = 1011).

De uitkomsten lieten zien dat wangedrag de voornaamste voorspeller is van het verblijf in het Basisprogramma. Bovendien bleek ook dat gedetineerden die minder zelfredzaamheid rapporteerden, vaker in een Basisprogramma verbleven, minder vaak de regels naleefden, en vaker wangedrag vertoonden. Deze deelstudie toont dus ook aan zelfredzaamheid op een indirecte manier van groot belang is voor het succesvol naleven van de regels in detentie, zoals de uitkomsten van het systematische literatuuronderzoek al suggereerden (Onderzoeksvraag 2). Ten slotte bleek intrinsieke motivatie voor regelnaleving een significante voorspeller van zowel regelnaleving als minder wangedrag. Dat suggereert dat er ook gedetineerde personen zijn die de regels naleven om andere redenen dan formele beloningen. Ook intrinsieke overwegingen zijn belangrijk om mee te nemen in beleid over regelnaleving. Daar komt nog bij dat extrinsieke motivatie voor regelnaleving significant bijdraagt aan wangedrag. Uit deze derde deelstudie kan dus allereerst worden geconcludeerd dat een focus op extrinsieke motivatie ook negatieve effecten op regelnaleving kan hebben.

Hoofdstuk 5: Over de relatie tussen beloningen, autonomie en zelfredzaamheid

Als laatste is een (drieledige) vierde onderzoeksvraag beantwoord, met dezelfde survey data als hierboven beschreven (N = 1011). Uit deze vierde deelstudie blijkt dat slechts drie van zeven gemeten beloningen vaker worden gerapporteerd door personen in het Plusprogramma (Deelvraag 4.1). Het gaat om zelfstandigheid in onderwijs, vrij bewegen tussen activiteiten door, en avondprogrammering. De eerste deelvraag kan dus maar deels bevestigend beantwoord worden. Een aantal beloningen lijken dus niet vaak aangeboden te worden op het Plusprogramma, terwijl er ook beloningen aangeboden lijken te worden aan gedetineerde personen in het Basisprogramma. Dat is niet conform het beleid op papier. Gedetineerde personen – ongeacht programma – die de drie eerdergenoemde beloningen rapporteerden, rapporteerden wel meer subjectieve autonomie (Deelvraag 4.2). Specifiek rapporteerden zij in grotere mate dat zij zelfgekozen beslissingen kunnen nemen (autonomie*bevrediging*), en in mindere mate dat er iets aan die behoeftebevrediging in de weg staat (autonomie*frustratie*). Ale uitkomsten bleken niet afhankelijk van de zelfredzaamheid die gedetineerde personen rapporteerden (Deelvraag 4.3).

De uitkomsten van deze vierde deelstudie suggereren dat de toepassing van het systeem van Promoveren en Degraderen – of de beleving daarvan – afwijkt van de beleidsvoorschriften. Beleid schrijft immers voor dat beloningen uitsluitend en systematisch zijn voorbehouden aan personen in een Plusprogramma. Hoe dergelijke afwijkingen tot stand komen en of zij verdedigbaar zijn (bijv. maatwerkoplossingen), is onduidelijk. Op grond van theorie kon verwacht worden dat beloningen in sommige gevallen ook subjectieve autonomie kunnen frustreren, omdat zij kunnen aanvoelen als een vorm van externe controle (i.e. niet zelfgekozen). Maar daar geven de uitkomsten geen blijk van: de drie beloningen die significant vaker voorkomen in het Plusprogramma kunnen wel degelijk bijdragen aan een gevoel van autonomie in detentie. Dat geldt zowel voor personen die meer als personen die minder zelfredzaamheid rapporteerden. Ook dat was tegen de verwachting in, omdat het uitoefenen van specifieke beloningen misschien ook een bepaalde zelfredzaamheid vraagt. Daarvan bleek – voor deze drie beloningen – geen sprake. Hoewel gedetineerde personen die verminderd zelfredzaam zijn minder vaak in het Plusprogramma terecht komen (Onderzoeksvraag 3), beleven ook zij meer autonomie als hen meer beloningen worden toegekend. Het systeem lijkt, op dat punt, niet ongeschikt voor gedetineerde personen die verminderd zelfredzaam zijn.

Suggesties voor toekomstig onderzoek

Dit proefschrift heeft op een grondige manier het Nederlandse beloningssysteem *Promoveren en Degraderen* geëvalueerd. Dat is in het tienjarig bestaan van dit ingrijpende systeem niet eerder gebeurd (RSJ, 2019). De toegevoegde waarde van dit proefschrift is het bijdragen aan het inzichtelijk maken en het empirisch toetsen van de beleidsveronderstellingen die leven ten aanzien van het systeem, evenals de uitvoering van het systeem. Naast nodige antwoorden, roepen de resultaten van dit proefschrift ook een aantal nieuwe vragen op die met toekomstig onderzoek beantwoord kunnen worden.

Allereerst wordt geadviseerd om gerandomiseerde experimenten uit te voeren om de inherente beperkingen van cross-sectioneel onderzoek te overkomen. In deelstudies drie en vier is er bijvoorbeeld geen voormeting van motivatie opgenomen, wat mogelijk een selectie-effect faciliteert. Het meten van veranderingen in-persoon en over de tijd zou er aan bij kunnen dragen om te onderzoeken in hoeverre regelnaleving wordt *veroorzaakt* door extrinsieke en intrinsieke motieven, en hoe die motieven zich – al dan niet in wisselwerking – ontwikkelen. Het onderzoeken van de ontwikkeling in motieven voor regelnaleving, rekening houdend met de motivatiebaselines, zou meer theoretisch inzicht opleveren in de veranderbaarheid en ontwikkelingen van een kernconcept in de criminologie: motivatie voor gedrag en de verandering daarvan.

Daarnaast kan toekomstig onderzoek naar de effecten van beloningen op het gedrag van gedetineerde personen ook in toenemende mate rekening houden met de uitvoeringspraktijk. Voorbeelden zijn de frequentie van, timing van en de beweegredenen van personeel voor besluiten tot promotie en degradatie. Zodoende kan de invloed van formele procesbesluiten op de ontwikkeling van motivatie voor regelnaleving beter in kaart gebracht worden. Daarbij kan ook aandacht zijn voor de (on)voorspelbaarheid en (on)zekerheid die dergelijke besluiten teweeg kunnen brengen. Dat is relevant, omdat uit eerder Engels kwalitatief onderzoek naar een Engels beloningssysteem in detentie (*Incentives and Earned Privileges scheme*) bleek dat besluiten en handelingen van gevangenispersoneel die als willekeurig werden bestempeld, voor sommige personen die aan dat beloningssysteem deelnamen aanleiding vormde voor oppositioneel en regel*overtredend* gedrag (Liebling et al., 1997; Crewe, 2011). Door de uitvoering een nadrukkelijkere rol te geven in de bestudering van effecten van beloningssystemen, kan ook duidelijk worden in hoeverre tegenvallende of neveneffecten kunnen worden toegeschreven aan problemen in de uitvoering.

Tot slot heeft dit proefschrift een methodologisch kwantitatief accent, terwijl de bevindingen ook vragen doen rijzen die bij uitstek geschikt zijn om met kwalitatief onderzoek te onderzoeken. Zo zou met observaties en interviews onderzocht kunnen worden waarom sommige beloningen slechts marginaal toegekend lijken te worden (op beide programma's), en waarom gedetineerde personen in het Plusprogramma slechts enkele belo-

ningen significant vaker ontvangen dan personen in het Basisprogramma (zie Hoofdstukken 4 en 5). In die zoektocht naar verklaringen is het ook aan te bevelen om aandacht te hebben voor de effecten van organisatorische randvoorwaarden op de uitvoering van het systeem, zoals de aanwezigheid van voldoende personeel op de afdeling, de werkdruk en deskundigheid van personeel en de praktische haalbaarheid van het maken van onderscheid tussen personen in het Basis- en het Plusprogramma bij de toekenning van beloningen.

Aanbevelingen voor beleid en praktijk

De uitkomsten van dit proefschrift zijn aanleiding voor een aantal aanbevelingen. Ten eerste wordt beleidsmakers geadviseerd om de responsiviteit van het systeem te verhogen. Het systeem van Promoveren en Degraderen stelt regelnaleving centraal, maar omdat motivatie en zelfredzaamheid noodzakelijke ingrediënten zijn voor regelnaleving, worden gedetineerde personen indirect ook op die factoren afgerekend. Om systemische benadeling van verminderd zelfredzame personen op te heffen, zal het systeem aangepast moeten worden zodat het beter aansluit bij het niveau van zelfredzaamheid van gedetineerde personen. Dat kan onder meer door drie zaken beter in te regelen. Allereerst door het aantal stressoren te verlagen en zo de situationele factoren die bij kunnen dragen aan regelovertreding te minimaliseren. Personen die verminderd zelfredzaam zijn en in detentie verblijven kunnen regels overtreden en in conflict met anderen komen, wanneer zij veel stress ervaren (Kaal et al., 2011). Onder meer onvoorspelbaarheid en willekeurige besluiten over promotie en degradatie kunnen bronnen van stress zijn en (Crewe, 2009; 2011; Gendreau et al., 2014; Shammas, 2014; 2018). Het systeem zal daarom zo consistent en voorspelbaar mogelijk moeten worden toegepast, hetgeen nu nog voor verbetering vatbaar lijkt (IJV, 2018; RSJ, 2019; 2020). Daarnaast kunnen de gedragscriteria worden aangepast. Er kan geëxperimenteerd worden met het versimpelen en verhelderen van de bewoordingen van gedragscriteria. De gedragscriteria moeten ook haalbaar zijn. Daarnaast zou ook gedrag dat bij benadering 'goed' is, beloond kunnen worden. Bijvoorbeeld met verbale complimenten, om geen aanvullende materiële ongelijkheden tussen gedetineerde personen te creëren. Tot slot zal gevangenispersoneel zich ervan bewust moeten zijn dat gedrag een uiting is van onderliggende psychologische en sociale processen, waaronder ook motivatieproblemen en verminderde zelfredzaamheid. Het kunnen doorgronden van gedrag vergt extra training. In die training moet ook aandacht zijn voor de manier waarop gedetineerde personen die verminderd zelfredzaam zijn extra ondersteund kunnen worden, zoals bij het invullen van formulieren.

Ten tweede is het beleidsmakers aan te bevelen om externe druk op regelnaleving te beperken. Dit proefschrift vond een relatie tussen angst voor het verlies van beloningen en zelfgerapporteerd wangedrag, in lijn

met eerder Engels onderzoek (Liebling et al., 1997; Crewe, 2009). Die angst maakt ook dat sommige personen zich niet geheel openstellen voor cognitieve verandering tijdens bijvoorbeeld re-integratieactiviteiten (Barendregt & Wits, 2014; Ljujic et al., 2021). Het ligt daarom in de rede om te adviseren om deelname aan die specifieke activiteiten niet langer als beloning te hanteren, maar zonder instapeisen beschikbaar te maken. Daarnaast kunnen ook gedragscriteria bijdragen aan externe druk. Daarom is het aan te bevelen dat deze gedragscriteria een duidelijk verband hebben met de persoonlijke doelen van gedetineerde personen. Zo kunnen gevoelens van paternalisme, vernedering en verzet tegen worden gegaan (Beckmann, 2016; Crewe, 2009). Dat kan deels door uitsluitend dynamische risicofactoren (Andrews & Bonta, 2010) in gedragscriteria op te nemen. In gesprek met gedetineerde personen zal moeten worden toegelicht hoe het werken aan dergelijke factoren (bijv. het hebben van kwalitatief zinvol werk) relateert aan hun persoonlijke doelen. Een goed instrument daartoe kan een 'Good Lives Plan' zijn (Ward et al., 2007). Dat instrument maakt ook inzichtelijk wat er nog nodig is aan interne capaciteiten en externe ondersteuning om die doelen te verwezenlijken.

Ten derde wordt beleidsmakers en gevangenispersoneel geadviseerd om in detentiebeleid meer nadruk te leggen op het faciliteren van intrinsieke motivatie voor regelnaleving, en gedragsverandering in meer algemene zin. Zelfs het best werkende beloningssysteem in detentie zal in theorie hoogstens gedragseffecten op de korte termijn kunnen produceren, als deze geen cognitieve veranderingen bewerkstelligt (Gendreau et al., 2014). Een minder grote nadruk op het gebruik van beloningen, en een grotere nadruk op het stimuleren van intrinsieke motivatie voor gedragsverandering, ligt daardoor voor de hand. Tenminste, voor zover het doel van detentiebeleid ook daadwerkelijk langdurige gedragsverandering behelst; wat wel zo blijkt te zijn (zie de gereconstrueerde beleidstheorie in Hoofdstuk 2). Eén van de bronnen van intrinsieke motivatie voor regelnaleving en gedragsverandering op zowel korte als lange termijn die in dit proefschrift onderbelicht is gebleven is procedurele rechtvaardigheid (Tyler 1990; 2006; zie vooral ook Bottoms, 2001). Het faciliteren van deze potentiële mediator van de effectiviteit van beloningssystemen in detentie (Hoofdstuk 3) zou (ook) bij kunnen dragen aan lange termijn gedragseffecten. Tegelijkertijd zou ook de subjectieve autonomie van gedetineerde personen in sterkere mate bevorderd kunnen worden. Dat kan door hen betekenisvolle keuzeopties aan te bieden, de doelen en waarden van die opties aan gedetineerde personen uit te leggen, en hun keuzes te respecteren (Ryan & Deci, 2017). Om te kunnen constateren of er sprake is van 'betekenisvolle' keuzeopties, zal in gesprek met deze personen moeten worden uitgevraagd wat voor hen betekenisvolle activiteiten zijn.

Ten vierde is het beleidsmakers aan te bevelen om de criteria voor externe vrijheden te heroverwegen. Zoals uit dit proefschrift blijkt, is gedrag van gedetineerde personen het resultaat van complexe onderliggende processen. Personen kunnen bijvoorbeeld de regels in detentie naleven zonder

cognitieve disposities te veranderen. Dat maakt regelnaleving – net als regel*overtreding* – tijdens detentie niet per definitie een betrouwbare indicator voor succes als het gaat om regelnaleving in de toekomst, zoals ook tijdens verlof en voorwaardelijke invrijheidstelling. Met de inwerkingtreding van de Wet Straffen en Beschermen in 2021 is die koppeling tussen gedrag tijdens detentie en de toekenning van externe vrijheden wel expliciet gelegd door beleidsmakers. Een beleidsmatige focus op motivatie, zelfredzaamheid en andere 'zachte' indicatoren van gedragsverandering zouden zich beter lenen voor een beredeneerd oordeel over de toekenning van externe vrijheden (zie Maguire et al., 2019).

In conclusie heeft dit proefschrift een start gemaakt met het opvullen van een leemte in de literatuur over de effectiviteit en toepassing van systematische beloning in detentie. Daarbij heeft het zich expliciet gericht op het Nederlandse systeem van Promoveren en Degraderen, dat in zijn tienjarig bestaan niet eerder is geëvalueerd (RSJ, 2020). De bevindingen roepen vervolgvragen op, maar sporen ook aan tot aanpassingen van het huidige beleid. Onder meer om zo de systemische benadeling van gedetineerde personen die verminderd zelfredzaam zijn een halt toe te roepen en ook hen perspectief te bieden. Daarmee is dit proefschrift relevant voor zowel wetenschappers die de werkende mechanismen van beloningssystemen in detentie en daarmee ook motivatie voor gedragsverandering in detentiecontext in brede zin beter willen doorgronden, als voor beleidsmakers en gevangenismedewerkers die op zoek zijn naar manieren om, naast het waarborgen van een veilig werk- en leefklimaat in detentie, ook het gedrag van personen die in detentie terecht komen te verbeteren, teneinde dat zij na vrijlating weer een volwaardige plek kunnen innemen in onze maatschappij.

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Nawoord

Compliance
We just need your compliance
You will feel no pain anymore
And no more defiance

We just need your compliance
We just need your compliance
We won't let you feel lost anymore
No more self-reliance

Muse, 2022

Veel mensen hebben bijgedragen aan dit proefschrift. Speciale dank gaat uit naar mijn veelkleurige team van promotoren – ook ik sta op de schouders van reuzen. Esther, het was een voorrecht om door jou begeleid te worden. Bedankt dat je mijn professionele groei altijd voorop hebt gesteld. Je daagde me uit, gaf me ruimte om mijn eigen stijl te ontwikkelen, en je bent inhoudelijk echt een kei. Ik hoop nog veel van je te leren en samen te werken. Paul, bedankt dat je me leerde om mijn teksten (en gedachten) beter te structureren, en hoe ik pragmatische maar verantwoorde keuzes kan maken in data-analyse en -rapportage. Ook als daar een middagje gezamenlijk pijlenschema's tekenen voor nodig was. Je behulpzaamheid en eerlijkheid heb ik altijd erg gewaardeerd. Miranda, bedankt dat je me inspireerde door aandacht te richten op de maatschappelijke relevantie van mijn promotieonderzoek. Van je constructief-kritische houding heb ik vier jaar lang geprofiteerd, en dat doe ik nog steeds. Hanneke, bedankt dat je me allerlei waardevolle lessen hebt geleerd. Van proces- en datamanagement, tot leidinggeven en methodologische afwegingen. Je bent een voorbeeld op veel van die vlakken. Ik zal vast nog regelmatig op je deur kloppen voor advies.

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Jan Maarten Elbers
Maart 2024

Curriculum Vitae

Jan Maarten Elbers was born on February 3rd in Zwolle, the Netherlands. In 2014, he obtained his bachelor's degree in Criminology at Leiden University. In 2015 and 2016 he obtained a master's degree in both Criminology and Security Policy, and Criminal Justice, at Leiden University. After graduation, Jan Maarten worked for two years at the Dutch Research Institute for Public Safety in Arnhem, where he was involved in various applied research projects on crisis management, environmental safety, and firefighting. In 2019, Jan Maarten received a Meijers grant to fund his dissertational study. From 2019 to 2023, he conducted this study within the Life in Custody study research group, at the Department of Criminology at Leiden Law school of Leiden University. His dissertation examines the programme theory, application, and outcomes of a reward system applied in Dutch prisons (*Promoveren en Degraderen*). Currently, Jan Maarten works at the Department of Criminology of Leiden University, as an Assistant Professor in Criminology.

In the range of books published by the Meijers Research Institute and Graduate School of Leiden Law School, Leiden University, the following titles were published in 2023 and 2023

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