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.

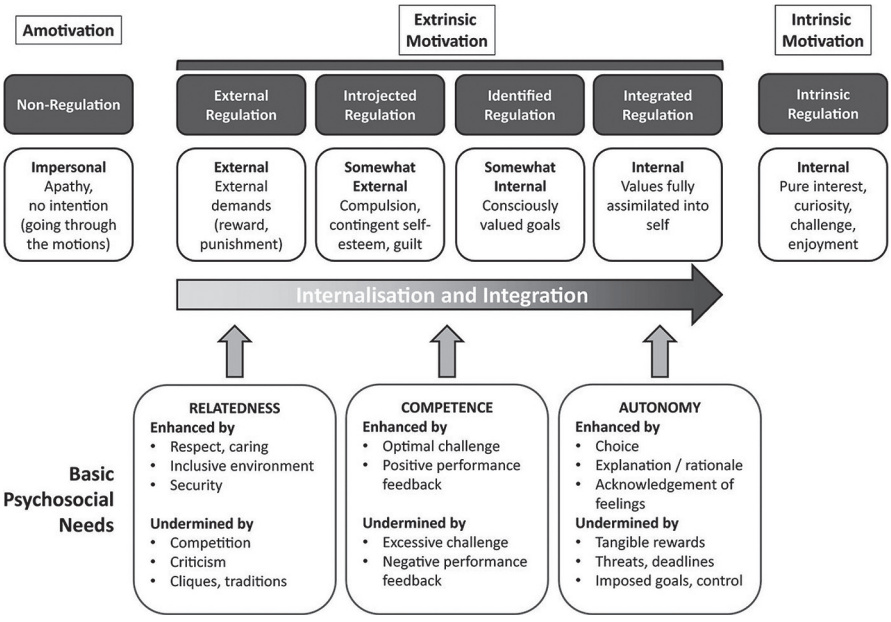
Notably, however, neither of these models can supply hypotheses on *how* rewards are related to behaviour change. Due to their descriptive and practice-oriented nature, these correctional rehabilitation models only describe *what* works in correctional programming (Ward & Durrant, 2021). They do so in 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

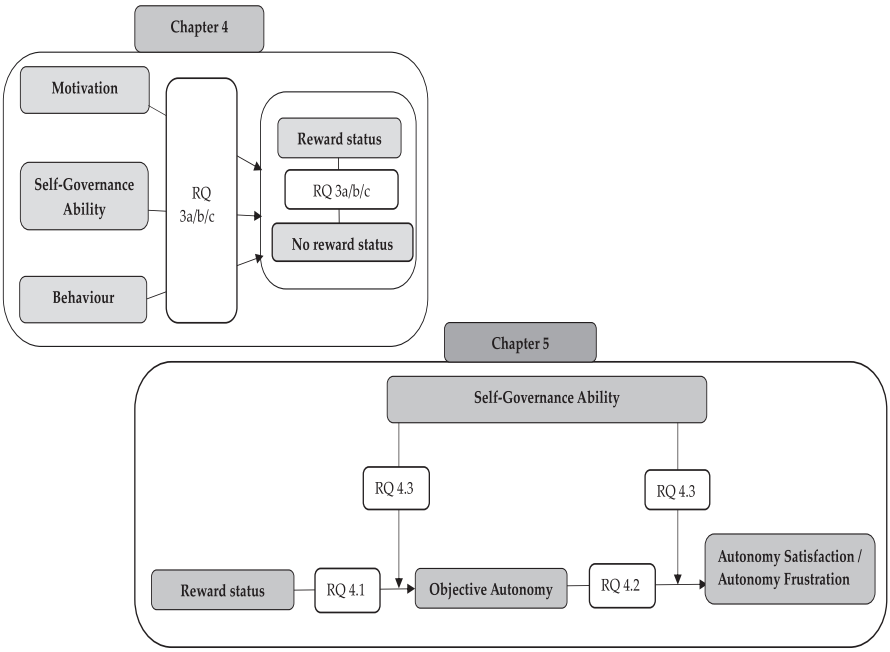


Table 1.2
Study outline

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	-	-	-