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Prisoners' academic motivation, viewed from the perspective of self-determination theory: Evidence from a population of Norwegian prisoners

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Abstract

The study presented in this article explores prisoners' academic motivation structure from the theoretical perspective of self-determination theory, using the Academic Motivation Scale (AMS). Analysing survey responses from 529 (29 female, 500 male) prisoners with Norwegian citizenship who participated in education while being incarcerated, the authors investigate how prison students' motivation might be "reduced" or summarised using a smaller set of factors or components than extant studies. A confirmatory factor analysis suggested that a five-factor model, including intrinsic motivation, three types of extrinsic motivation (namely *identified regulation*, *introjected regulation*, and *external regulation*) and amotivation, yielded the best fit with the data provided by the prisoners. An alternative three-factor model created by collapsing the three extrinsic dimensions into a single dimension was found to fit the data poorly. The structural model revealed that younger prisoners displayed more controlled academic motivations than older ones, who displayed more autonomous motivations. Contrary to the authors' expectations, prisoners with a higher level of education did not display more autonomous academic motivations than those with a lower level.

Keywords prison education · self-determination theory · intrinsic motivation · extrinsic motivation · amotivation

Résumé

La motivation des prisonniers pour les études sous l'angle de la théorie de l'autodétermination : données recueillies auprès d'une population de détenus norvégiens – L'étude présentée dans cet article se place du point de vue la théorie de l'autodétermination, en utilisant pour cela l'échelle de motivation académique (EMA), pour se pencher sur la structure de la motivation des prisonniers pour les

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études. Les auteurs s'appuient sur l'analyse des réponses fournies à une enquête par 529 détenus (29 femmes et 500 hommes) de nationalité norvégienne ayant participé à des activités d'éducation pendant leur détention pour examiner comment « réduire » ou résumer la motivation des apprenants en prison en recourant à un ensemble plus restreint de facteurs ou d'éléments que les études existantes. Une analyse factorielle confirmatoire indique qu'un modèle s'appuyant sur cinq facteurs, la motivation intrinsèque, trois types de motivation extrinsèque (à savoir la régulation *identifiée, introjectée et externe*) et l'amotivation, s'est révélé correspondre le mieux aux informations fournies par les prisonniers – à l'inverse d'un autre modèle basé sur trois facteurs qui réduisait les trois dimensions extrinsèques à une seule. Le modèle structurel a révélé que les jeunes détenus présentaient des motivations pour les études plus contrôlées que les plus vieux qui, eux, avaient des motivations plus autonomes. Contrairement à ce qu'attendaient les auteurs, les prisonniers plus instruits n'avaient pas davantage de motivations autonomes pour les études que ceux qui avaient un niveau d'instruction plus faible.

Introduction

A considerable number of adults all over the world are incarcerated every year, and a high proportion of these prisoners have a need for further education. According to Thom Gehring (2000), prison education should be considered an important part of adult education, and students in prison generally recognise their own needs better than those in the ordinary school system. In Norway, approximately half of the prison population have only primary and lower secondary school as their highest level of education (Eikeland et al. 2016), making prison education an important arena for adult education. To improve the quality of prison education, prison educators need to be knowledgeable about the factors that influence prisoners' academic motivation.

In a previous article published in this journal, we examined prisoners' perceived barriers to participation in education (Manger et al. 2019). The study revealed that among non-participants such barriers can be classified as institutional (e.g. insufficient practical arrangements; lack of information about educational opportunities), situational (e.g. education is not considered to be of help in the current situation), or dispositional (e.g. having difficulties in reading, writing, or mathematics). In the current complementary article, which is based on the same data, we use *self-determination theory* (SDT) (Deci and Ryan 1985; Ryan and Deci 2000) as a theoretical framework to examine academic motivation among those prisoners who participate in education while imprisoned.

SDT attempts to explain human motivation in various settings, such as school, work, health, and family life. The theory posits that the fulfilment of the basic human needs for *autonomy*, *competence* and *relatedness to others* are fundamental to motivation, achievement and well-being. Autonomy refers to the ability to initiate and regulate one's own actions, competence involves the desire to develop skills and improve capacities and potentials, while relatedness involves the desire to establish secure and satisfying bonds with others, such as parents, peers and teachers. SDT

has identified several distinct types of motivation, each of which has specific consequences for the fulfilment of these basic human needs (Ryan and Deci 2000). The more autonomous a person's motivation, the more likely it is to be associated with basic human needs, whereas controlled motivation tends to detract from the satisfaction of basic needs (Vansteenkiste et al. 2007). SDT research is also concerned with social environments and their influence on autonomous and controlled motivation. Research has shown that autonomy-supportive contexts enhance autonomous motivation, whereas controlling contexts enhance controlled motivation (Deci et al. 1994; Vansteenkiste et al. 2006).

Individuals are *autonomously* motivated when they exercise choice and initiative in their behaviour and when this behaviour is personally important and accords with their values. *Intrinsic* motivation is the most autonomous form of motivation and occurs when a person engages in an activity for the satisfaction of the engagement itself. By contrast, when people feel that their behaviour is determined by external forces, they experience controlled motivation. In that case, their actions are regulated by a reward, demand or threat from external agents. *Extrinsic* motivation, which describes engagement in an activity to obtain an outcome that is separate from the activity itself, differs in quality from intrinsic motivation.

However, autonomous and controlled motivation exist on a continuum, and behaviour can be described in terms of the degree to which it is autonomous or controlled. Thus, although intrinsic motivation is characterised by choice, initiative and autonomous behaviour, extrinsic motivation can also include these qualities to varying degrees (Ryan and Deci 2000). Both SDT (Deci and Ryan 1985; Ryan and Deci 2000), and Robert Vallerand's Hierarchical Model of Extrinsic and Intrinsic motivation (Vallerand and Ratelle 2002) posit a continuum of multiple types of extrinsic motivation, varying in the degree to which they can be experienced as *autonomous* or *controlling*.

External regulation is the type of extrinsic motivation that is least autonomous. The person acts for external reasons, such as gaining rewards or avoiding punishment. Another type of extrinsic motivation is *introjected regulation*, which is a relatively controlled form of regulation, as the person engages in an activity to feel pride or to avoid guilt or disapproval. The two other forms of extrinsic motivation are described as autonomous. *Identified regulation* means that people act because they voluntarily accept the utility of a behaviour and identify with its value or importance. Students, for example, may work hard not because they are primarily intrinsically motivated, but because they perceive the behaviour to be useful and valuable for their future. Even more autonomous is *integrated regulation*, whereby people not only value the actions but also consider them to be part of their value and lifestyle pattern. According to Richard Ryan and Edward Deci (2000), *integrated regulation* is the process through which people fully transform their identified values and behaviour into the self.

SDT also suggests that people can be *amotivated*, which means they are "without any motivation", being neither intrinsically nor extrinsically motivated. Amotivation includes the interrelated elements of low ability, low effort, low value, and unappealing tasks (Reeve 2015). By contrast to autonomous motivation and controlled motivation, *amotivation* involves a lack of intentions (Gagné and Deci 2005).

Prisoners' motives for participating in education

There have been several studies of prisoners' motives for participating in education. In their Swedish study, Michael Parsons and Michael Langenbach (1993) concluded that, with some exceptions, prisoners have the same attitude to participation in education as the general public; they see education as a means of achieving a particular goal (an extrinsic motivation), or they participate for the sake of learning (an intrinsic motivation). In Ireland, Anne Costelloe (2003) found that the initial motivation of previously well-qualified prisoners was positive from the start – they used the opportunities available to them to upgrade their qualifications while in prison. They were influenced by factors such as the value of education upon release and rehabilitation in society. By contrast, previously educationally disadvantaged prisoners were motivated more by a wish to break free from prison routines than by a quest for education per se. In their Australian research, Victor Callan and John Gardner (2007) found highly motivated prisoners engaging in and completing vocational education and training programmes that developed their technical skills, self-esteem and broader sets of generic skills. A Norwegian study published elsewhere (Manger et al. 2010) found that many prisoners' motives for participating in education are formed through reflection about the future and a desire to be better able to cope with life after release. No significant difference was found in scores between prisoners with low and high levels of education for a factor named "preparing for life upon release", which reflects an external motivation, yet those with a relatively high level of education were more motivated than others to acquire knowledge and skills, reflecting an intrinsic motivation. Studies in Norway have also revealed that younger prisoners are more likely than older ones to participate in prison education for extrinsic reasons; e.g. to make it easier to get a job upon release or to avoid working while in prison (Manger et al. 2013; Manger et al. 2010).

One weakness of research into prisoners' academic motivation is the fact that too few studies have examined the quality of prisoners' motivation from a theoretical perspective. As far as we know, and based on a literature search (using ERIC, PsychINFO and Google Scholar), no other studies have examined prisoners' academic motivation from the perspective of SDT. This is a well-researched theoretical framework and has primarily involved exploring the quality of motivation among students and learners in general. According to Maarten Vansteenkiste et al. (2006), the *quality of motivation* refers to the type or kind of motivation that underlies learning behaviour and can be distinguished from the level of motivation displayed for a specific activity. According to SDT, one can assume that there are marked differences in the quality of prisoners' motivation for participating in education. For example, a person may take up education because of an interest in the subject itself, in response to pressure from others, or out of a genuine belief that it is beneficial and will help him or her upon release.

Theoretically, we have described the motivational factors derived from SDT as different units or adjacent subscales on a continuum from controlled to autonomous behaviour. However, *identified regulation* and *integrated regulation* are still considered extrinsic, because the motivation derives not from the person's interest in the activity, but rather from their understanding that the activity is

instrumentally important for personal goals and identities (e.g. education will help the person in their career orientation). Likewise, both the controlled motivations of *external regulation* and *introjected regulation* are perceived as being determined outside the self. Catherine Ratelle et al. (2007) found several correlations between academic motivational dimensions that were not in line with SDT, and they concluded that further research is necessary to understand why the continuum is supported in some contexts (e.g. some schools) and not in others. Research into prisoners' motives for participating in education indicates that much of their motivation has a similar external perceived locus of causality, namely reflections related to preparation for life after release and future jobs (Parsons and Langenbach 1993). Thus, both from a theoretical perspective and judging by empirical indications, it is of interest to test a three-factor model (*intrinsic* motivation, *extrinsic* motivation, and amotivation), and compare it with the five-factor model.

Prison education in Norway

A fundamental principle of the Norwegian prison system is that prisoners should have the same access to social services as other citizens. The prisons have adopted the so-called *import model* (Christie 1970) for delivery of services to prisoners (e.g. educational services in prison are delivered via the normal school system). Pursuant to the *Corrections Act* (MoJPS 2018), prisoners are required to participate in activities while serving their sentences, unless illness or other personal or social reasons make it impossible, and the three options offered are prison work, education, or personal management programmes (for addiction, sexual behaviour, anger, violence, etc.). Prisoners who participate in activities receive a salary (EUR 7.64 a day in 2019) while those who do not participate receive a lesser stipend (EUR 5.24). Notwithstanding the limits to their freedom as a consequence of their incarceration, prisoners enjoy the same rights to services and opportunities and the same obligations and responsibilities as the population at large. The *Education Act* (MoER 1998), guarantees prisoners the same access to education as other citizens and residents (Section 13-2a). This implies seven years of mandatory primary schooling (ages 6–13), three years of mandatory lower secondary schooling (ages 13–16), and three to five years of upper secondary schooling (ages 16–19). The last of these is not mandatory, but is a legal right, after completion of which people can apply for entry to higher education or vocational studies. Adults also have the right to supplementary basic education and/or special needs education. All Norwegian prisons currently have established educational programmes at the mandatory and upper secondary levels, and they employ formally qualified teachers. Prisoners also have access to any education beyond upper secondary level. While prison teachers do not generally have the requisite qualifications to teach and supervise at this level, the prisoners can take part in distance education, or they can be offered day release to participate in courses.

Hypotheses

The primary objective of this study was to examine prisoners' academic motivation structure from the theoretical perspective of SDT (Deci and Ryan 1985; Ryan and Deci 2000). In line with the theory, results in the normal school system, and earlier studies of prisoners' academic motives, we hypothesised (Hypothesis 1) that prison students' motivation could be "reduced" or summarised using a smaller set of factors or components, namely *intrinsic motivation*, *identified regulation*, *introjected regulation*, *external regulation* and *amotivation* (Ratelle et al. 2007). However, we were unable to exclude the possibility of a prison context revealing correlations that are atypical of research using SDT. We therefore decided to compare our hypothesised five-factor model with an alternative three-factor model by collapsing the three extrinsic dimensions (*identified regulation*, *introjected regulation* and *external regulation*) into a single dimension.

Another objective of this project was to test how each motivational profile relates to prisoners' age and educational level (educational background). In line with our previous findings that younger prisoners are more likely than older ones to start education for extrinsic reasons (Manger et al. 2010; Manger et al. 2013), we hypothesised (Hypothesis 2a) that younger prisoners display a more controlled academic motivation profile than older ones. Several findings from studies in the normal school system (e.g. Cortright et al. 2013) and in prison (Costelloe 2003; Manger et al. 2010; Parsons and Langenbach 1993) indicate that those with a higher level of education are more likely than those with a lower level of education to have an autonomous academic motivational profile. We thus hypothesised (Hypothesis 2b) that more prisoners with a higher level of education would display such an academic profile than those with a lower level of education.

In examining prisoners' motivational profiles, it may also be of interest to examine whether some profiles are more characteristic of male or female prisoners. However, in the present study female prisoners formed only a small percentage of the population, and we therefore considered the detection of reliable gender-related differences to be unlikely.

Methodology

Participants

The study was conducted over one week in October 2015 and is part of a larger study of prisoners' educational levels. During that week, all prisoners in all Norwegian prisons who held Norwegian citizenship were invited to participate in this general study. The invitation also included Norwegian prisoners in a Dutch prison (Norway signed an agreement with the Netherlands to rent prison spaces due to its own lack of space). At the time of the study, there were a total of 2,619 prisoners with Norwegian citizenship in 71 prisons or prison units. Data were collected by means of a questionnaire. Of the prisoners who participated, 1,475 completed and returned the questionnaire (two prisons did not participate). This constituted a response rate of 56.3% of the total

population of prisoners with Norwegian citizenship. Women accounted for 5.9% of the prison population and 5.4% of the study population. The average age of all respondents was 37.1. The study shows that 43% of the respondents participated in education while in prison, with 25% of them participating for over 25 hours per week, 18% for 16–25 hours, 26% for 7–15 hours and 32% for 1–6 hours.

Measures and variables

The Academic Motivation Scale

We used a Norwegian-language version of the *Academic Motivation Scale* (AMS) (Vallerand et al. 1989; Ratelle et al. 2007), adapted to a prison population, to assess prisoners' reasons for participating in education (see Table 1 for the original AMS scale and the adapted version of the scale). Conceptualised by Robert Vallerand et al. (1989), the AMS was used by Ratelle and her colleagues to examine the academic motivation of students in Canadian high schools and colleges (Ratelle et al. 2007). The instrument is assumed to measure five types of academic motivation: *intrinsic motivation*, *identified regulation*, *introjected regulation*, *external regulation* and *amotivation* (four items each). Vallerand and his colleagues excluded items that assess *integrated regulation* from scales such as the AMS, which assesses young people's academic motivation (e.g. Vallerand and Losier 1999). They argued that this form of extrinsic yet autonomous motivation is more relevant for people with already formed identities than for older adolescents and emerging adults (Ratelle et al. 2007). Thus, in the current study, items on *integrated regulation* were not added to the AMS, owing to the age of a large proportion of the prison population, and because fully *integrated regulation* may be unlikely in some groups of prisoners.

Similarly, another relevant instrument, the Academic Self-Regulation Questionnaire (ASRQ; Ryan and Connell 1989), includes only four subscales: *external regulation*, *introjected regulation*, *identified regulation*, and intrinsic motivation. *Integrated regulation* is not included because it is assumed that students in elementary and middle school are too young to have achieved a sense of integration with respect to educational activities (Deci et al. 1991).

Because the prisoners in our study were involved in various forms of education, for some items, "high school" was replaced by "education". To avoid causing emotional distress in our incarcerated respondents, we replaced the item *Because I want to have "the good life" later on* with the item *Because I want to have a better life later on*. Participants indicated on a seven-point scale (ranging from 1 = not at all to 7 = exactly) the extent to which they pursued their studies based on motivation, as reflected in the 20 items listed in Table 1. Only prisoners who participated in prison education ($n = 529$) responded to this part of the survey.

Background variables

Data were also collected on prisoners' ages (year of birth) and completed levels of education. To indicate their highest level of education, respondents had eight

Table 1 Scale variables for the present survey are shown in the left-hand column, and the original AMS questions in the right-hand column

Scale variables		
Items	Our study	AMS
AMS01	*Because I need a diploma in order to find a high-paying job later.*	*Because I need at least a high-school diploma in order to find a high-paying job later on.*
AMS02	Because I experience pleasure and satisfaction while learning new things.	Because I experience pleasure and satisfaction while learning new things.
AMS03	*Because I think that an education will help me better prepare for the career I have chosen.*	*Because I think that a high school education will help me better prepare for the career I have chosen.*
AMS04	Honestly, I don't know; I really feel that I am wasting my time in school.	Honestly, I don't know; I really feel that I am wasting my time in school.
AMS05	*To prove to myself that I am capable of completing an education.*	*To prove to myself that I am capable of completing my high school diploma.*
AMS06	In order to obtain a more prestigious job later on.	In order to obtain a more prestigious job later on.
AMS07	For the pleasure I experience when I discover new things never seen before.	For the pleasure I experience when I discover new things never seen before.
AMS08	Because eventually it will enable me to enter the job market in a field that I like.	Because eventually it will enable me to enter the job market in a field that I like.
AMS09	I once had good reasons for going to school; however, now I wonder whether I should continue.	I once had good reasons for going to school; however, now I wonder whether I should continue.
AMS10	Because of the fact that when I succeed in school I feel important.	Because of the fact that when I succeed in school I feel important.
AMS11	*Because I want to have a better life later on.*	*Because I want to have "the good life" later on.*
AMS12	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.
AMS13	Because this will help me make a better choice regarding my career orientation.	Because this will help me make a better choice regarding my career orientation.
AMS14	I can't see why I go to school and frankly, I couldn't care less.	I can't see why I go to school and frankly, I couldn't care less.
AMS15	To show myself that I am an intelligent person.	To show myself that I am an intelligent person.
AMS16	In order to have a better salary later on	In order to have a better salary later on.
AMS17	Because my studies allow me to continue to learn about many things that interest me.	Because my studies allow me to continue to learn about many things that interest me.
AMS18	*Because I believe that my education will improve my competence as a worker.*	*Because I believe that my high school education will improve my competence as a worker.*

Table 1 (continued)

Scale variables		
Items	Our study	AMS
AMS19	I don't know; I can't understand what I am doing in school.	I don't know; I can't understand what I am doing in school.
AMS20	Because I want to show myself that I can succeed in my studies.	Because I want to show myself that I can succeed in my studies.

Items *in italics* are those which were modified for the present study

Notes: Coding of subscales:

Intrinsic motivation: Items 2, 7, 12, 17;

Identified regulation: Items 3, 8, 13, 18;

Introjected regulation: Items 5, 10, 15, 20;

External regulation: Items 1, 6, 11, 16;

Amotivation: Items 4, 9, 14, 19.

options: “not completed any education”; “primary school/lower secondary school”; “one year of upper secondary school”; “two years of upper secondary school”; “completed upper secondary school”; “vocational college” (for our analyses, we included this level in “completed upper secondary school”); “individual subjects at a university or college”; and “a degree course at a university or college”. The prisoners answered this question by ticking the box that best described their educational level.

Procedure and ethical considerations

The County Governor of Hordaland (as of January 2020 the County Governor of Vestland), Department of Education, oversees Norwegian prison education, serving the Ministry of Education. The office contacted each prison governor and each headmaster in charge of prison education to outline the purpose of our study and arrange for the assessment to be carried out. A letter explaining the procedures was also sent to these people. In line with instructions from our research group, the governor of each prison or the teacher in charge of education organised the survey.

The study was approved by the Data Protection Official for Research, NSD (Norwegian Centre for Research Data), and additional approval was granted by the prison authorities and the Ministry of Justice and Public Security. The first page of the questionnaire explained the purpose and procedure and emphasised that participation was voluntary. To ensure that participants did not provide information that could be perceived as influencing their custody in prison, it was explicitly stated that the information provided would be confidential and that individual information would not be used by the prison authorities. Ethical considerations meant that the respondents were not provided with incentives, which could have put them under pressure to reply. Prisoners who had reading and writing difficulties were offered assistance by prison teachers or prison officers to read the questions and response options. The respondents were not required to write, but had to tick the appropriate boxes for their preferred answers.

Analyses

Descriptive statistics included means, standard deviations, and correlations between all study variables. We tested the validity of both the theoretically justified five-factor model and an alternative three-factor model of prisoners’ academic motivation by using *confirmatory factor analysis* (CFA) in Amos (Version 24).[1] We then ran a

[1] Confirmatory factor analysis (CFA) serves to test whether the collected data fit a hypothesised measurement model. Amos is a statistical software package.

structural path model,[2] estimating the predictive weights from age and educational level based on the final model from the subsequent CFAs. To evaluate the models' goodness of fit, we examined the indices *Root Mean Square Error Approximation* (RMSEA) and *Comparative Fit Index* (CFI).[3] Conventionally, a value of RMSEA less than 0.05 indicates a good fit, while values as high as 0.08 represent a fair fit (Browne and Cudeck 1993). A CFI above 0.90 is considered to be representative of an acceptable model (Bentler 1992).

Missing cases were treated by applying *Full Information Maximum Likelihood* (FIML) using Amos 24.0 software, whereby missing values are imputed by estimating the likelihood for each individual participant based on the variables present in the model. Methods based on maximum likelihood such as FIML have been shown to produce unbiased parameter estimates and standard errors when random data are missing (Wothke 2000).

Results

Descriptive statistics

Table 2 shows the means, standard deviations and correlations between all observed study variables.

Hypothesis testing

For Hypothesis 1 (that prison students' motivation could be "reduced" or summarised using our set of five factors or components), we postulated that the observed indicators of prison students' motivation represent five correlated underlying dimensions, namely *intrinsic motivation, identified regulation*, *introjected regulation*, *external regulation* and *amotivation*. We tested this five-factor model (Model 1) using confirmatory factor analysis in Amos (Version 24), adjusted the model by removing possible insignificant correlations between the five latent factors (Model 2), and further compared the adjusted hypothesised five-factor model with an alternative three-factor model, collapsing the three extrinsic dimensions (*identified regulation*, *introjected regulation* and *external regulation*) into one dimension (Model 3). Table 3 presents model fit statistics for all three tested models.

As Table 3 shows, the hypothesised correlated five-factor model (Model 1) showed a Just Acceptable model fit ($\chi^2(160) = 645.203$, CFI = .90 and RMSEA = .069). The model showed acceptable factor loadings in the range .54–.83. Moreover, the model revealed significant correlations between all latent factors except correlations between the factors *amotivation* and *external regulation*, and between *amotivation*

[2] A structural path model maps the causal relations between variables.

[3] Root Mean Square Error Approximation (RMSEA) assesses how far a hypothesised model is from a perfect model. Comparative Fit Index (CFI) analyses the model fit by examining the discrepancy between the actual data and the hypothesised model.

Table 2 Mean, standard deviation (SD) and correlations for study variables

	$\bar{x}$	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
1. AMS 2(INM)	5.56	1.54																						
2. AMS7(INM)	4.92	1.89	.57																					
3. AMS12(INM)	5.53	1.63	.60	.57																				
4. AMS17(INM)	5.44	1.75	.49	.56	.62																			
5. AMS1 (EXR)	5.42	1.86	.26	.22	.39	.38																		
6. AMS6(EXR)	4.65	2.22	.16	.26	.29	.33	.41																	
7. AMS11(EXR)	4.52	2.12	.20	.29	.39	.38	.44	.61																
8. AMS16(EXR)	5.55	1.76	.19	.24	.37	.44	.58	.48	.49															
9. AMS3(IDR)	4.72	2.16	.22	.29	.28	.28	.24	.44	.44	.25														
10. AMS8(IDR)	3.99	2.14	.25	.29	.36	.38	.28	.45	.50	.33	.42													
11. AMS13(IDR	3.69	2.20	.20	.29	.27	.35	.11	.28	.37	.16	.47	.54												
12. AMS18(IDR)	5.00	2.04	.27	.30	.38	.38	.24	.41	.46	.33	.62	.52	.57											
13. AMS5(INR)	4.39	2.21	.12	.09	.16	.27	.44	.55	.51	.47	.35	.36	.29	.34										
14. AMS10(INR)	4.25	2.28	.10	.17	.18	.27	.42	.51	.51	.43	.42	.46	.37	.43	.61									
15. AMS15(INR)	5.58	1.90	.20	.22	.33	.34	.38	.54	.56	.44	.36	.53	.34	.50	.48	.51								
16. AMS20(INR)	4.59	2.26	.05	.10	.19	.25	.39	.57	.53	.49	.31	.44	.42	.43	.62	.70	.53							
17. AMS4(AMO)	1.42	1.05	−.13	−.15	−.25	−.18	−.20	−.06	−.04	−.23	−.01	−.03	.04	−.04	−.06	.04	−.16	−.05						
18.AMS9(AMO)	1.94	1.55	−.14	−.07	−.15	−.14	−.14	.00	.01	−.11	.04	.06	.02	−.06	.02	.05	− 07	.03	.47					
19. AMS14(AMO)	1.38	1.08	−.17	−.10	−.23	−.16	−.19	−.11	−.06	−.19	−.03	−.08	.10	−.02	−.13	−.05	−.18	−.07	.53	.36				
20. AMS19(AMO)	1.29	0.90	−.13	−.08	−.16	−.13	−.16	−.07	−.01	−.17	−.02	−.04	.04	−.05	−.05	−.01	−.12	−.03	.51	.33	.55			
21. Age	34.9	11.3	.20	.14	.10	.03	−.08	−.20	−.16	−.10	−.13	−.09	−.08	−.06	−.23	−.33	−.14	−.29	−.05	−.02	−.03	−.08		
22. Education	4.11	1.88	.17	.09	.11	.05	.03	−.13	−.13	.05	−.21	−.05	−.06	−.09	−.11	−.10	−.03	−.11	−.06	−.14	−.05	.00	.31	

Notes: INM = *intrinsic motivation;* EXR = *external regulation;* IDR = *identified regulation;* INR = *introjected regulation;* AMO = *amotivation*

Table 3 Model fit and model comparisons for tested CFA models

Model	χ^2	DF	CFI	RMSEA	Model comparison	$\Delta\chi^2$	Δdf
Model 1	645.20	160	.90	.07			
Model 2	648.79	162	.90	.07	M2–M1	3.59	2
Model 3	1035.34	167	.82	.09	M3–M2	386.55*	5

Notes:

Model 1: Hypothesised five-factor model

Model 2: Adjusted five-factor model

Model 3: Alternative three-factor model

* $p < .001$

and *introjected regulation*. Accordingly, we re-estimated the model excluding these correlations. The adjusted five-factor model (Model 2) showed a Just Acceptable fit ($\chi^2(162) = 648.794$, CFI = .90, and RMSEA = .069). Adjusting the model did not result in a significant deterioration of fit ($\Delta\chi^2$ (Δdf) = 3.591 (2), p > .05), supporting the validity of omitting these correlations from the model.

Figure 1 presents the parameter estimates from the adjusted five-factor model. It shows that the latent factor *intrinsic motivation* relates positively to the latent factors representing the observed indicators *identified regulation*, *introjected regulation* and *external regulation* ($r = .56$, $p < .01$, $r = .55$, $p < .01$ and $r = .30$, $p < .01$ respectively). By contrast, the latent factor *amotivation* relates negatively to the two latent factors *identified regulation* ($r = –.14$, $p < .01$) and *intrinsic motivation* ($r = –.29$, $p < .01$). Finally, the model shows high to moderately high significant positive correlations between the three extrinsic motivation sub-factors. The strongest correlation is between *identified regulation* and *external regulation* ($r = .88$, $p < .01$), while we found approximately equally strong correlations between *introjected regulation* and *external regulation* ($r = .70$, $p < .01$) and between *identified regulation* and *introjected regulation* ($r = .67$, $p < .01$).

In the next step we tested the alternative three-factor model (Model 3), where the observed indicators of *identified regulation*, *introjected regulation* and *external regulation* loaded on one general latent extrinsic motivation factor. As can be seen in Table 3, this alternative three-factor model fit the data poorly ($\chi^2(df) = 1035.337$ (167), CFI = .82, and RMSEA = .091), and results from the chi-square difference test ($\Delta\chi^2$ (Δdf) = 386.55 (5), $p < .01$) indicated that the hypothesised five-factor model fit the data significantly better than the alternative three-factor model. In sum, the confirmatory factor analyses supported the validity of our hypothesised five-factor model.

The secondary aim of the present study was to examine the predictive patterns of age and educational level regarding the different motivational dimensions. In our hypotheses, we expected younger prisoners to display more controlled academic motivation profile than older ones (Hypothesis 2a). Moreover, regarding educational level, we postulated that prisoners with higher levels of education are more likely to display an autonomous motivational profile, whereas lower levels of education

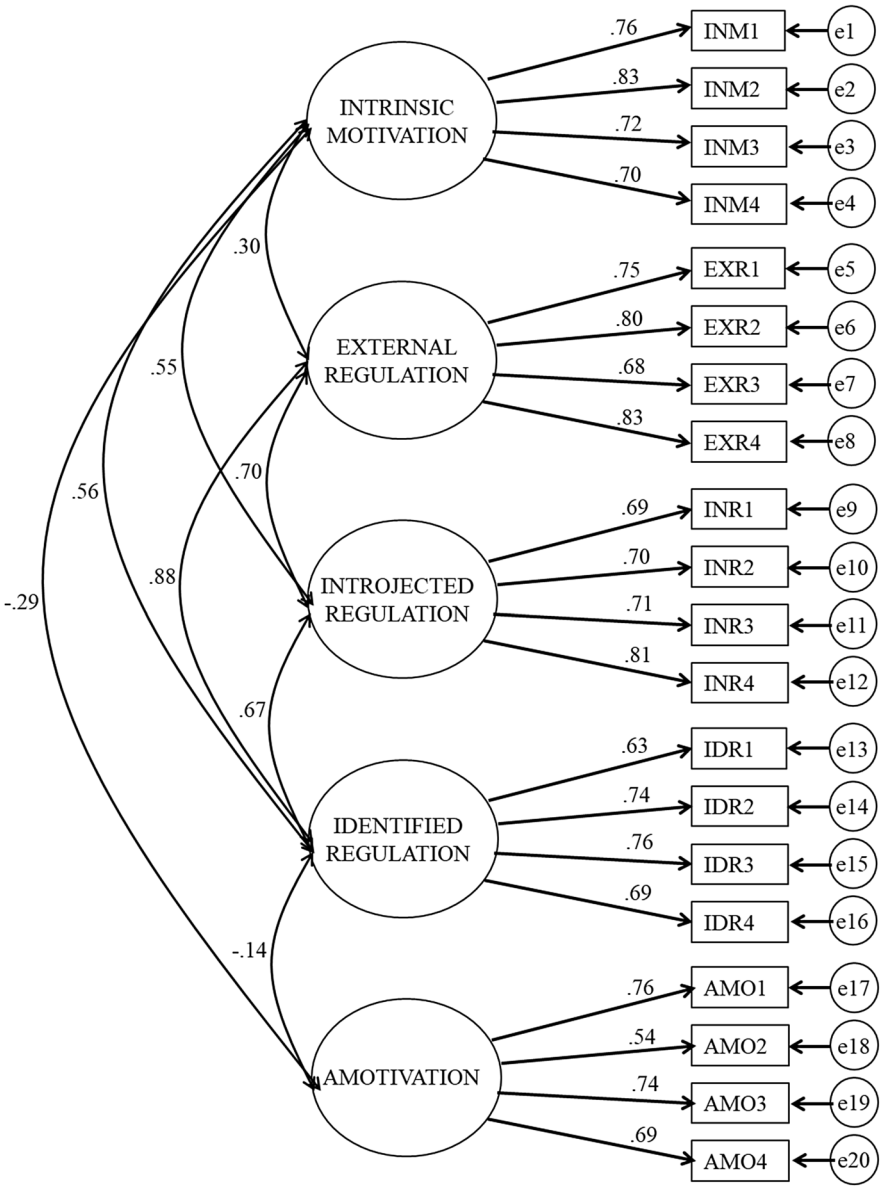

Figure 1 Hypothesised theory-based five-factor model for the Academic Motivation Scale

would predict a controlled profile or amotivation (Hypothesis 2b). Accordingly, we tested a second set of models, including age and educational level as observed variables. We first ran a measurement model, strictly estimating the correlational relationships between the observed scores of age and educational level and the five motivational dimensions. The measurement model yielded an acceptable fit

Table 4 Standardised regression weights in structural model

	Intrinsic motivation	Introjected regulation	Identified regulation	External regulation	Amotivation
Age	.15**	–.11*	–.21**	–.36**	–.03
Educational level	.05	–.04	.00	.03	–.18**

Notes: * $p < .05$; ** $p < .01$

($\chi^2(192) = 691.55$, CFI = .90, and RMSEA = .064). In this measurement model, we found significant correlations between age and all five motivational dimensions (.16, –.12, –.21, –.36, and –.10 for *intrinsic motivation, introjected regulation*, *identified regulation*, *external regulation*, and *amotivation* respectively). By contrast, the model only revealed a significant negative correlation between educational level and *amotivation* ($r = –.19$), while the remaining correlations between educational level and motivational dimensions were not significant.

Second, we tested a structural model estimating structural paths from age and educational level for all five motivational dimensions. The model showed an acceptable fit for the data ($\chi^2(191) = 691.72$, CFI = .90 and RMSEA = .064). Table 4 presents the model's estimated structural paths (standardised regression weights).

As Table 4 shows, the structural model revealed a significant positive prediction from age for *intrinsic motivation* ($\beta = .15$, $p < .01$), and significant negative predictions regarding age and *introjected regulation* ($\beta = .–11$, $p < .05$), age and *identified regulation* ($\beta = -.21$, $p < .01$), and age and *external regulation* ($\beta = -.36$, $p < .01$). Hence Hypothesis 2a was supported. However, we did not find support for the expected negative relationship between age and *amotivation* ($\beta = –.03$, n.s.).

To further test the significance of the difference in the predictive effects of age on the increasingly controlled extrinsic academic motivations, we performed a set of three additional *ad hoc* analyses. In the first analysis, we compared a model constraining the path between age and *introjected regulation* and the path between age and *identified regulation* to be equal with the structural model, freely estimating all structural paths. Constraining these paths to be equal did not result in a significant deterioration of fit ($\Delta\chi^2$ (Δdf) = 0.69 (1), n.s), indicating that the difference between the two paths was not significant. In the next analysis, we compared the model with freely estimated paths with a model constraining the paths between age and *external regulation* and age and *introjected regulation* to be equal. Constraining these two paths resulted in a significant deterioration of fit ($\Delta\chi^2$ (Δdf) = 27.15 (1), $p < .01$), indicating a significantly stronger negative correlation between age and *external regulation* than the correlation between age and *introjected regulation*. In the final analysis, we compared the model in which all paths were freely estimated with a model imposing equality constraints on the paths between age and *external regulation* and between age and *identified regulation*. This model comparison revealed that constraining the respective paths resulted in a significant worsening of fit ($\Delta\chi^2$ (Δdf) = 34.44 (1), $p<.01$), indicating that the two paths were significantly different.

In sum, the above analyses support Hypothesis 2a, which foresaw a negative relationship between age and degree of controlled academic motivation.

As seen in Table 4, the structural path model only revealed a significant negative prediction from educational level to *amotivation* ($\beta = -.18$, $p < .01$), while no other predictions from educational level for the academic motivations were significant. Hence, our results did not support Hypothesis 2b.

Discussion

The aim of the current study was to examine prisoners' motivation for participating in education while being incarcerated. In this study, we used a Norwegian-language version of the Academic Motivation Scale (Vallerand et al. 1989; Ratelle et al. 2007) to assess their reasons for participating. The confirmatory factor analysis suggested that a five-factor model yielded an acceptable fit with the data obtained from the prisoners. However, because *external regulation*, *introjected regulation* and *identified regulation* all have an external locus of control, we also wanted to test an alternative three-factor model. Since the five-factor model also showed high to moderately high significant positive correlations between the three extrinsic AMS subscales, this increased the need to test the three-factor model, in which the observed indicators of *identified regulation*, *introjected regulation* and *external regulation* loaded on one general latent extrinsic motivation factor. However, the analyses showed that the hypothesised five-factor model fit the data significantly better than the alternative three-factor model. This result is in line with predictions based on self-determination theory (Deci and Ryan 1985; Ryan and Deci 2000) and empirical evidence. In their study investigating the regular Canadian school system using AMS, Ratelle et al. (2007) found several unexpected correlations, but concluded that their study provided some support for SDT, as questions that were supposed to measure *intrinsic* motivation, the three forms of *extrinsic* motivation and *amotivation* were clustered together into five different factors.

In line with SDT and our findings, the autonomous motivation *identified regulation* is not considered to be extrinsic because of the person's interest in the activity *per se,* but rather because of its instrumental importance to her or his personal goals and identities (e.g. "Education will help me make a better choice regarding my career orientation"). By contrast, prisoners who are intrinsically motivated are not only clearly acting autonomously but are also participating in education because it is interesting or fun, while those who exhibit all three forms of extrinsic motivation are acting under a high or moderate level of external pressure. Prisoners may deviate from other students, but not to such a degree that they endorse an anti-theoretical factor structure. For prisoners, education may be closely associated with a future job – as a reward (*external regulation*), a position that makes one proud (*introjected regulation*), or something that is congruent with personal identities (*identified regulation*), – but they may also have a need to express interest and seek mastery. Although extrinsic motivation refers to the performance of an activity for

instrumental reasons, a large body of empirical evidence based on SDT suggests that both intrinsic motivation and autonomous types of extrinsic motivation are associated with successful educational outcomes (e.g. Cerasoli et al. 2014; Niemiec and Ryan 2009; Ryan et al. 1995).

Differences between groups of prisoners

We found significant negative correlations between age and the three extrinsic motivational dimensions, and found a positive correlation between age and intrinsic motivation, indicating that younger prisoners have a more controlled academic motivation than older ones. Studies assessing high school students' motivation have also revealed a systematic increase in their intrinsic motivation with age (Gillet et al. 2012). In the current study, additional *ad hoc* analyses revealed a significantly stronger correlation between age and the most controlled extrinsic motivation – *external regulation* – than between age and the other two external academic motivations. These results are in line with other findings, indicating that younger prisoners are more likely than older ones to start education in prison for extrinsic reasons (e.g. to make it easier to get a job or to avoid working in prison) (Manger et al. 2013; Manger et al. 2010).

The structural path model revealed a significant negative prediction deriving from educational level in relation to *amotivation*, indicating that prisoners who had no education or a low level of education were the most amotivated. However, no other predictions deriving from prisoners' educational level regarding academic motivation were significant; thus, this did not support Hypothesis 2b. The findings are not in line with some other findings (e.g. Manger et al. 2010), which indicate that prisoners with the highest level of education are more likely than those with a lower level of education to display a more autonomous academic motivation, such as learning for its own sake or seeing the value of education upon release from prison. By contrast, controlled motivations such as getting a job or diploma are found to be key components of academic motivation among educationally disadvantaged prisoners (Costelloe 2003; Gee 2006; Manger et al. 2010). In their study of adults in formal continuing education in Norway, Marianne Dæhlen and Odd Bjørn Ure (2009) also found that low-skilled learners were more motivated by extrinsic incentives than other learners. However, and in line with the current findings, no significant differences were found for intrinsic motivation between participants at different educational levels.

One possible explanation for the non-significant findings in the current study is that upper secondary school, in particular the vocational branch, is the most popular form of education among prisoners in Norway, and also best fits the previously educationally disadvantaged prisoners' motivation to get a job and cope with life after release (Eikeland et al. 2009, 2013; Eikeland et al. 2016). Unlike those who begin university or college education via distance education or day release, students in upper secondary school have daily access to teachers with the same formal qualifications as teachers in the ordinary school system, who also serve the local community school outside prison (see Langelid 2015 for a discussion of this). Although

all students in prison feel that their inadequate access to ICT equipment puts them at a competitive disadvantage (Eikeland et al. 2009), this inconvenience is of special importance for those prisoners whose studies are dependent on regular contact with educational institutions in the community. Thus, the differences in educational support may result in greater motivation than expected – both controlled and autonomous – for the educationally disadvantaged, and lower motivation than expected for those with a higher level of education. The instruments used in various studies can also help explain the difference between current and previous studies conducted in prisons. Previous studies have used various scales of single motives for participating in education in prison, but have not examined imprisoned people's academic motivation from a theoretical perspective such as SDT.

Limitations and implications for research

Some limitations of this study need to be considered. In the present study, we chose AMS because it is known to yield responses of a good quality, considering its application as part of a survey questionnaire. Also, we thought it likely that most of the prisoners might avoid answering a survey conducted with more comprehensive instruments, while the AMS fit our purpose. Other scales could potentially have produced a different result, and we recommend that future studies use other self-report instruments to explore other possible interpretations of the prisoners' academic motivations. However, when using self-report scales it is always possible that desirability concerns and other personal factors such as lack of interest, a low academic self-concept, drug problems, behavioural problems such as attention deficit hyperactivity disorder (ADHD) or negative attitudes may influence both participation in education and participants' scores. Further research should therefore use self-report data *combined with* responses regarding students' motivation from teachers or other significant persons in the prison – this approach should include both qualitative and quantitative data. Such research should also examine additional factors that may influence academic motivation.

The findings presented here underscore the need to study the factors underlying prisoners' academic motivation in order to adapt educational opportunities to their needs. In particular, future research should use longitudinal data to assess the stability of prisoners' academic motivation and identify factors responsible for motivational changes. For example, imprisoned students may initially take part in education because of pressure or even a threat of punishment, but after a time they may *want* to take part rather than feel that they *have to* take part. Thus, in line with SDT (Ryan and Deci 2000), we need to know which personal and environmental factors make an initial motivation embedded in controlled factors evolve into more autonomous factors, or vice versa. Also, and in line with recommendations from Ratelle et al. (2007), examining how various types of academic motivation *combine* allows us to identify different motivational profiles that can guide educators – in our case prison educators.

In their research, Ratelle et al. (2007) found that a large group of high school students displayed moderate or high levels of both autonomous and controlled

motivation. They suggest that the most adaptive profile for high school students is one characterised by high levels of both autonomous and controlled motivation. Furthermore, and in line with this finding, in their 40-year meta-analysis Christopher Cerasoli et al. (2014) concluded that incentives and intrinsic motivation are not necessarily antagonistic but can coexist, depending on the type of performance and the contingency of incentives. Identifying prisoners' motivation profiles can be important because the level of autonomy can influence how much effort they exert and how persistent they will be when facing difficulties during education. Also, there is a general need for research on how prisoners are motivated to start and complete education, and in this context the influence of prison staff, teachers, employment counselling staff and other significant persons and the interactions between them should be studied.

Finally, the total response rate in our study was 56%, which among prisoners can be considered high. However, it was not possible to obtain information on the characteristics of non-respondents, thus we do not know whether prisoners who were academically motivated were overrepresented. If possible, future research should include such information.

Practical implications

The findings from our previous study examining prisoners' perceived barriers to participation in education in prison indicate that there are numerous factors preventing them from getting involved in education (Manger et al. 2019). We found that the main obstacles were of an institutional nature, such as lack of information about educational options, inadequate practical arrangements, and inadequate access to software and the Internet. Thus, for many of these prisoners it is not a lack of motivation that prevents them from participating, but rather barriers which are largely within the control of the criminal justice system and the prison school. According to SDT, the interpersonal environment affects a person's autonomous or controlled motivation, each of which has specifiable consequences for learning and motivation (Deci et al. 1994; Vansteenkiste et al. 2006).

Although a prison is a controlling context, a fundamental principle of the Norwegian prison system is that prisoners should have the same access to social services, such as education, as other citizens. As well as the legal reasons for education and training in prison, there are humanistic reasons. These include the guarantee, through the *Education Act,* that all students should have intellectual freedom and develop knowledge, skills and attitudes "so that they can master their lives and can take part in working life and society" (MoER 1998, p. 1). Moreover, the *Education Act* stipulates that all students must have the opportunity to be creative, committed and inquisitive. Viewed from the perspective of SDT (Ryan and Deci 2000), the Prison and Probation service and schools in Norwegian prisons are therefore required to ensure that environment factors enhance and do not undermine students' motivation, learning, social functioning, and personal well-being.

Although the current study is cross-sectional and survey-based, the results provide insights into prisoners' academic motivation, and some practical

implications can cautiously be proposed. In line with SDT, it can be inferred that education which enhances both intrinsic and extrinsic motivation will improve a programme's recovery efficacy. SDT suggests that although intrinsic motivation is characterised by choice, initiatives and autonomous behaviour, extrinsic motivation may also include these qualities to varying degrees (Ryan and Deci 2000). One implication of this is that the counselling and student guidance services must be improved. The school and the criminal justice system should carry out a survey of a prisoner's educational background, requirements, preferences and competence as soon as he or she arrives in prison. This way, the prisoner can benefit from a better educational programme adapted to their individual profile.

Although intrinsic motivation provides an important basis for learning, many aspects of education are not inherently satisfying or fun for students, irrespective of whether they are imprisoned or not. Likewise, even when behaviours are extrinsically motivated there can be clear differences in the nature of the motivation. For example, prisoners can become more autonomously motivated as they internalise the expectation that education will improve their skills as a worker. According to Deci et al. (1991), students do not necessarily become more interested in an activity when the value of the activity is internalised, but they become willing to participate because of the personal value. It is therefore important for prison educators to know the nature of students' motivation, so they can provide the best support, stimulate further studies, and prevent students from dropping out.

Lisa Legault et al. (2006) found that the intention to drop out of school is predominantly a function of academic amotivation based on the devaluation of academic subjects. Therefore, tasks that students perceive to be uninteresting, uninspiring, monotonous or dull should be made more appealing by teachers. For prisoners, it is essential for their rehabilitation to maintain a high level of academic and job motivation once they have finished serving their sentence and re-enter society (Eikeland et al. 2009). Many young prisoners serve short sentences, which paradoxically become an impediment to participation in prison education, increasing the likelihood of dropout when they are released (ibid.). The finding that younger prisoners are more likely than older ones to start education in prison for extrinsic reasons makes it particularly important to draw up a plan that would motivate the younger ones to participate and continue in education after release. In general, responses from prisoners in the current study indicate that extrinsic motivational factors are related to gaining better control over the lives they hope to live after release. Former studies, using other assessments of motivation, have also revealed that many prisoners' motives for engaging in education are formed by a desire to be better able to cope with life after release (Manger et al. 2010; Roth and Manger 2014). Prison staff and prison teachers should therefore consider more closely the role of social support during the transition period, such as cooperation with various authorities in the community (including educational, labour market and social welfare authorities), and should help individual prisoners draw up and implement their plans for the future. The plan for individual prisoners should demonstrate progress and contain basic information about education and work opportunities after release from prison.

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