Int Rev Educ (2019) 65:711–733
https://doi.org/10.1007/s11159-018-9724-z

ORIGINAL PAPER

Why do not more prisoners participate in adult education? An analysis of barriers to education in Norwegian prisons

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Published online: 7 June 2018

Abstract From a lifelong learning perspective, education during incarceration is crucial for prisoners' rehabilitation. This article describes the authors' development of their Perceived Barriers to Prison Education Scale (PBPES) and examines what deters prisoners from participating in education during their incarceration, how their perceptions differ depending on gender, age, educational level, learning difficulties, length of prison sentence, and whether the prisoners express a desire to participate in education or not. Within a larger survey conducted in all Norwegian prisons among all prisoners with Norwegian citizenship, the authors focused on those who did not participate in education (n = 838). To reveal the underlying constructs that comprise perceived barriers, they hypothesised a three-factor model to which they applied confirmatory factor analysis (CFA). The analysis confirmed the model, which comprised *institutional* barriers (e.g. insufficient practical arrangements; lack of access to computers and to the Internet), *situational* barriers (e.g. education is not considered to be of help in the current situation) and *dispositional* barriers (e.g. having difficulties in mathematics, reading, writing and concentrating), with good fit to the data. The authors used mixed-model analyses of variance to examine differences between subgroups of prisoners. Gender, age, educational level, learning

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difficulties and length of prison sentence were found to influence perceived barriers. The authors also observed that prisoners who wished to participate in education were more likely than others to perceive institutional barriers and less likely to perceive situational barriers.

Keywords prison education · institutional barriers · situational barriers · dispositional barriers

Résumé Pourquoi les détenus ne participent-ils pas davantage à l'éducation et à la formation des adultes ? Analyse des obstacles à l'éducation dans les prisons norvégiennes – Dans une perspective d'apprentissage tout au long de la vie, l'éducation et la formation durant la détention sont indispensables à la réinsertion des détenus. Les auteurs de cet article décrivent la conception de leur schéma relatif aux obstacles à l'éducation en milieu carcéral (*Perceived Barriers to Prison Education Scale, PBPES*) et explorent divers aspects : ce qui dissuade les détenus de participer à des mesures éducatives pendant leur incarcération, dans quelle mesure leurs perceptions diffèrent en fonction du sexe, de l'âge, du niveau d'instruction, des difficultés d'apprentissage et de la durée de la peine, enfin si les détenus expriment ou non le souhait de participer à des mesures éducatives. Dans le cadre d'une vaste enquête menée dans tous les établissements pénitentiaires de Norvège auprès de tous les détenus de nationalité norvégienne, les auteurs se sont penchés sur les non-participants (n = 838). Afin de dévoiler les concepts sous-jacents dont font partie les obstacles subjectifs, ils ont pris comme hypothèse un modèle à trois facteurs auquel ils ont appliqué une analyse factorielle de confirmation. Cette analyse a confirmé avec une bonne adéquation des données les trois facteurs du modèle : les obstacles *institutionnels* (entre autres modalités pratiques insuffisantes, manque d'accès à des ordinateurs et à Internet), les obstacles *situationnels* (par exemple l'éducation n'est pas jugée utile dans la situation actuelle) et les obstacles *personnels* (difficultés en calcul, lecture, écriture ou concentration). Les auteurs ont appliqué des analyses de variance à modèle mixte pour examiner les différences entre les sous-groupes de détenus, et établi que les facteurs sexe, âge, niveau d'instruction, difficultés d'apprentissage et durée de la peine influencent les obstacles perçus. Ils ont en outre constaté que les détenus désireux de participer ressentent davantage que les autres des obstacles institutionnels et moins que les autres des obstacles situationnels.

Introduction

Prison education is an important but often neglected area of adult education, considering that numerous international conventions and recommendations (e.g. CoE 2006; UNESCO 2000; UN 2012) affirm that incarcerated adults have the same rights as other citizens to education and training. Several studies indicate, however, that many contextual and individual factors prevent prisoners from enrolling in the educational programmes made available to them (Brosens et al. 2015; Gustavsson 2013; Westrheim and Manger 2014). In Norway, all prisons offer education at primary and upper secondary levels, and prisoners can also be supported in

participating in higher education. However, although 73 per cent of prisoners express a desire to participate in education, only 43 per cent do so (Eikeland et al. 2016). Prisoners' primary motivations for engaging in education are to prepare for life after release, to make prison life easier and less boring, and/or to acquire knowledge and skills (Manger et al. 2010, 2013). In the study we present in this article, our first aim was to develop an instrument which could be used to examine perceptions of barriers to education among prisoners who do not participate in education. A second aim was to examine whether the instrument might be used to discriminate between prisoners who wish to participate in education and those who do not wish to do so, and also to investigate whether different subgroups of incarcerated adults present different profiles in terms of perceived barriers to education.

Barriers to adult education

Perceived barriers are important factors in participation decisions and choices, and have also been the subject of considerable research. In her seminal work entitled *Adults as Learners*, Patricia Cross (1981) suggests that obstacles or barriers to education can be classified under three headlines, namely *institutional*, *situational* and *dispositional* barriers.

Institutional barriers are policies, procedures or exclusion criteria that systematically disadvantage certain groups of people. These include a lack of relevant courses being offered or a lack of competent teachers. Cross (1981) groups these institutional barriers into five areas: scheduling problems, problems with location or transportation, shortage of interesting courses, procedural problems and time requirements, and lack of information about programmes and procedures.

Situational barriers are those that arise from one's situation in life at any given point, such as family life and physical environment. Examples include financial problems, lack of transportation, or responsibility for children.

Dispositional barriers are related to attitudes and perceptions about oneself as a learner. Examples include people feeling that they are too old to learn, lack of interest in learning or of confidence in their ability to learn (Cross 1981). Adults with a poor educational background will often have a low literacy level, which again may influence their beliefs about their ability to complete an educational course.

Cross has conceded that, in certain cases, assignment of items to categories may be rather arbitrary, and in her work she tries to place them in the category that seems "most direct and straightforward" (ibid., p. 100). As an example she takes *lack of information*, which can be an institutional barrier if one assumes that the institution should be responsible for making its offering known, a situational barrier if one assumes that poor people rarely receive information about adult education courses, or a dispositional barrier under the assumption that some adults will make little effort to inform themselves about educational opportunities.

Others have used the same classification as Cross (e.g. Flynn et al. 2011). Some researchers (e.g. Darkenwald and Merriam 1982) consider *informational barriers* as a distinct category because they are due to both an institutional failure to

communicate information and a failure of individuals to seek and use the information available. Dispositional barriers are also sometimes referred to as attitudinal barriers, motivational barriers and/or psychological barriers (Flynn et al. 2011; Brosens et al. 2015), and are related to negative attitudes to education, learning problems, values or the subjective interpretation of ability to achieve desired goals.

Barriers to prison education

Researchers of prison education also group barriers to education into the "traditional" categories recommended by Cross (1981); *institutional*, *situational* and *dispositional*. Dorien Brosens et al. (2015) found that prisoners in Belgium who do not participate in vocational orientation programmes are particularly confronted with situational barriers, which, according to the authors, include prisoners' recent arrival in prison or lack of certainty about when they will be released. Also, informational barriers, such as lack of awareness of the available opportunities, are revealed as barriers to participating in vocational orientation programmes. Other institutional barriers, and especially dispositional barriers, are less frequently perceived. In their Greek case study, which included 18 prisoners, Vasiliki Papaioannou et al. (2016) concluded that their sample had not met any barriers that hindered their ongoing studies, either personally or in relation to the prison. By contrast, the prisoners regarded participation in education as a second chance that they had to seize, and no barriers could stop them.

In a Nordic study, which included all prisoners in Denmark, Finland, Iceland and Norway, and a representative sample in Sweden, 20–25 per cent of prisoners who were not participating in any educational activity cited institutional reasons for their non-participation. Either their prison did not offer educational programmes, those offered were not suitable for them, or they did not receive information about educational opportunities (Eikeland et al. 2009). The study also revealed that various institutional circumstances created problems for prisoners who were already taking part in educational activities. One such circumstance was apparent: a large number stated that inadequate access to computers was a serious problem in relation to their educational activities. It is likely that such a problem may prevent some prisoners from participating in education.

Anna-Lena Eriksson Gustavsson (2013) found that foreign prisoners in Sweden had difficulties understanding the process by which education programmes and courses on offer were "selected" and how prisoners could apply and register for studies. Another problem that emerged clearly in a study of foreigners incarcerated in Nordic prisons relates to information, interpreting and written materials for the prisoners (Westrheim and Manger 2014). These prisoners have legal rights to education, but often lack knowledge of these rights, which are often not clearly stated and are implemented differently in different countries. Although prisoners, like others, may fail to seek out information and use it, lack of information primarily indicates an institution's failure to inform learners about their rights to education and the opportunities available (Westrheim and Manger 2014).

A large number of prisoners suffer from learning difficulties, attention deficit and hyperactivity disorder (ADHD) or similar problems (Asbjørnsen et al. 2015; Eikeland et al. 2009; Rasmussen et al. 2001; Samuelsson et al. 2000). However, studies show that having learning difficulties can, in fact, lead to participation in prison education as well as a desire to participate (Jones et al. 2013; Manger et al. 2006). This may indicate that being in prison motivates prisoners with learning difficulties to return to the classroom when this opportunity is offered. On the other hand, one-third of the Norwegian prisoners studied who did not participate in education cited reading and writing difficulties (a little, some, or major difficulties) as reasons for not participating (Manger et al. 2016). Likewise, gender, age, educational level and duration of sentence can also influence participation in prison education (Eikeland et al. 2009; Manger et al. 2013), and perceptions of barriers may depend on these variables.

Prison education in Norway

In Norway, prisons are understood to be an integral part of the welfare state, and the ideas of rehabilitation and resocialisation in prison are in line with the ideals of the welfare system (Gröning 2014; Ugelvik 2016). From this, it follows that prisoners should have the same access to social services as other citizens, and thus education is offered in every prison. According to section 3 of the Norwegian Criminal Enforcement Law (NMJPS 2002), prisoners are required to participate in activities while serving their sentences, and training and education are among the activities covered by this obligation. Convicts have, within the limitations that accompany incarceration, the same rights, obligations and responsibilities in relation to educational services as the population at large. The correctional services should, as far as possible, allow the responsible authorities to provide such services to prisoners.

The prison system of Norway practices an *import model* (e.g. Christie 1970; Langelid 2017) for the distribution of services to prisoners. This model encourages "importing" services such as medical care, library materials and education from external providers situated in the community beyond the prison compound. Accordingly, the general education system is tasked with providing education in prison. Given the general interpretation of the Norwegian Education Act (NMER 1998), prisoners have access to education in the same way as other citizens and residents. This implies their being offered a second chance at completing seven years of mandatory primary school (ages 6–13), three years of mandatory lower secondary school (ages 13–16), and three years of upper secondary school (ages 16–19). The latter is not mandatory, but is a legal right; students can opt for general or vocational studies. Adults also have the right to a "second chance" or supplementary basic education, and/or special needs education.

Design and research problems

The first aim of our study was to examine the *psychometric* properties[1] of a questionnaire investigating perceived barriers to prison education by analysing the factor structure and the internal consistency of the questionnaire. A second aim was to investigate whether the questionnaire could reveal different profiles of perceptions of barriers among prisoners who had expressed a wish to participate in education, compared to those who had stated they did not wish to do so. According to Kjell Rubenson and Richard Desjardins (2009), there are structural design differences affecting how subpopulations are asked about barriers to adult education. In line with one design, questions on barriers are only directed at non-participants who wish to participate. Although such a design has certain benefits, it may concentrate on situational and institutional barriers and pay little attention to dispositional barriers. In our own study, we included all prisoners who did not participate in education, of whom 73 per cent wished to participate and 27 per cent did not. We also included dispositional barriers, such as health problems and learning problems, in our research.

Our third aim was to examine whether there were differences in perceived barriers inhibiting education participation between groups of non-participants with respect to gender, age, level of education, perceived learning difficulties, and length of prison sentence, variables that we have already shown elsewhere to influence participation in prison education (e.g. Eikeland et al. 2009; Manger et al. 2013, 2016), and which thus may also influence perceived barriers to participation.

Methods

Participants

We carried out our study over one week in October 2015 as part of a larger survey of prisoners' educational competence (Eikeland et al. 2016). All prisoners with Norwegian citizenship in every Norwegian prison were invited to participate in this general study. According to Statistics Norway (2016), 68 per cent of prisoners in Norway are Norwegian citizens. The invitation also included Norwegian prisoners in the Netherlands.[2] In the larger survey (and thus also in the study we are presenting here), we excluded foreign prisoners in Norwegian prisons due to the high number of languages which would have needed to be translated. But we did conduct a separate study in the native languages of all prisoners from three of the largest national groups (Albanians, Lithuanians and Polish people) in Norwegian prisons (Eikeland et al. 2017). At the time of the study, there were a total of 2,619

[1] Psychometric properties refer to the reliability (consistency) and validity (the results' accuracy) of the instrument (questionnaire).

[2] Norway has an agreement with the Netherlands to rent prison places, primarily, but not exclusively, for non-Norwegian prisoners, in order to deal with a temporary lack of space. Their sentence is served in line with Norwegian Criminal Enforcement Law, and a small number of Norwegian staff supplement the Dutch staff.

prisoners with Norwegian citizenship incarcerated in Norway and the Netherlands. Data were collected by means of a questionnaire. Of the prisoners, 1,475 completed and returned the questionnaire (including 8 Norwegian prisoners in the Netherlands). This constituted a response rate of 56.3 per cent of the total study population. Women accounted for 5.9 per cent of the prison population and 5.4 per cent of the study population. The average age of the respondents was 37 years. The study revealed that 43 per cent of the respondents participated in education while incarcerated.

The questionnaire

Of particular interest for the study we are presenting here was a section of the larger questionnaire which consisted of 21 items or statements assessing perceived barriers to prison education, which was answered only by prisoners who did not participate in education (n = 838).

A sample of 13 statements gathered in an earlier survey to explore reasons for not participating in education during incarceration had been used to develop the items (Manger et al. 2013). These statements were based on a focus group discussion with 12 prisoners and a discussion with a panel of experts from the Norwegian Ministry of Education and Research, the Norwegian Ministry of Justice and Public Security, Skills Norway (the Norwegian Agency for Lifelong Learning), and the County Governor of Hordaland (Norway is divided into 18 administrative regions, called counties, and the Norwegian Ministry of Education assigns principal responsibility for prison education to the County Governor of Hordaland).

For the questionnaire distributed in 2015, the items had first been extended from 13 to approximately 40, which were then divided into the three categories used by Cross (1981). A new panel of experts, comprising representatives of the Ministry of Justice and Public Security, the County Governor of Hordaland and the researchers (ourselves), further discussed the items, removing some and supplementing others. Based on the discussion and the recommendations it yielded, and following additional review of the literature (e.g. Brosens et al. 2015; Cross 1981), we selected 21 items for the prototypical version of the questionnaire, which was used in the larger survey and also formed the basis for the study we are presenting here.

Of the perceived barriers to prison education, five items were considered institutional barriers (e.g. “The education I am interested in is not offered here”), seven situational barriers (e.g. “I will be released before the education is completed”), and nine dispositional barriers (e.g. “I have major difficulties in reading and writing”). Participants indicated, on a 4-point Likert scale (1 = strongly disagree, 2 = agree somewhat, 3 = agree, and 4 = strongly agree) the extent to which they agreed with the statement.

Data were collected on gender, age, educational level, length of prison sentence, and perceived difficulties in reading, writing and mathematics. For level of education, eight options were provided: “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”, “individual subjects at a university or university college”, and “a degree

course at a university or university college". Perceived learning difficulties in reading, writing and mathematics were indicated on a four-point scale (1 = no, not at all; 2 = yes, but just a little; 3 = yes, to some extent; and 4 = yes, to a great extent). Thirteen options were given for length of prison sentence: "three months or less"; "three to six months"; "six to twelve months"; "one to two years"; "two to three years"; and onwards to "more than ten years".

An important aim of the survey design was that the questionnaire should be easy to fill in. With one exception (year of birth), the prisoners answered the questions or statements by ticking box(es) that best described their situation.

Procedure and ethical considerations

To initiate the study, one representative of the County Governor of Hordaland approached each prison governor and prison school principal, and informed them of the study's objectives and procedures. In addition, this information was printed on the front page of the questionnaire. As instructed by the research group, the prison governor or school principal administered the data collection.

The study was approved by the Data Protection Official for Research, the Norwegian Centre for Research Data (NSD), the prison authorities and the Ministry of Justice and Public Security. At the time of the survey, the prisoners were given written information about the study. Assurance was given of voluntary participation, anonymity and confidentiality, and of the right to withdraw from the study at any time without consequences. The printed information also emphasised that participation or withdrawal would have no effect on the conditions of their incarceration, nor on opportunities available in the prison. However, in line with the aim of the study to benefit the Norwegian Ministry of Education's further development of prison education programmes, we informed respondents that a high response rate would help to ensure that future programmes better accommodate the needs of prisoners. In line with ethical recommendations, prisoners were not given incentives, as this would have placed pressure on them to reply to the questionnaires.

The prison personnel were available to assist prisoners in reading the questionnaire. The questionnaires were returned without names or numbers linked to names, but were marked with a prison number.

Analyses

To verify whether the barrier components to participation in prison education which we expected based on the theory were identified in our envisaged data evaluation model, we used a *principal component analysis* (PCA).[3] We further assessed our

[3] In a nutshell, a principal component analysis (PCA) serves to structure, simplify and illustrate large datasets by approximating numerous statistical variables with a smaller number of highly meaningful linear combinations (the "principal components").

model by using *confirmatory factor analysis* (CFA) in AMOS.[4] We used a *mixed-model ANOVA*[5] to examine differences in perceptions of barriers between non-participants who wished to participate in prison education and those who did not wish to do so. We used similar methods of analysis to examine groups of prisoners who did not participate in education with respect to variables of gender, age, educational level, reading difficulties, writing difficulties, mathematics difficulties and length of prison sentence. Significant effects involving more than two means were followed up with Tukey's HSD (honest significant difference) post hoc test (Tukey 1949).[6] Partial eta squared (η_p^2) measures were used to provide an indication of the magnitude of differences between groups on the distinct types of barriers. The general guideline proposed by Jacob Cohen (1988) was applied, i.e. that an eta squared of .01 is a *small* effect, .06 is a *moderate* effect, and .14 is a *large* effect. All statistical calculations were performed using SPSS Statistics software, version 23.

Results

Table 1 shows the mean scores of the 21 possible perceived barriers, identified by the pre-test of the questionnaire among prisoners and the panel of professionals (see Methods), to prison education on a scale from 1 (strongly disagree that it is a barrier) to 4 (strongly agree that it is a barrier).

We analysed the responses to the 21 possible barriers listed in Table 1 with a principal component analysis (PCA) using varimax rotation and Kaiser normalisation. The theory prescribes three clusters of barriers, and a three-factor solution was forced on the analysis. The model that was achieved explained 39.3 per cent of the variance, with eigenvalues of 1.66 ("institutional barriers"), 1.51 ("situational barriers"), and 1.30 ("dispositional barriers") after rotation. However, several items were loading on more than one component, and several items yielded relatively low factor loadings.

We tested the model with a confirmatory factor analysis (CFA) using AMOS. To allow for calculation of modification indices, we adjusted the model for missing data in the matrix substituting with the mean score. The model obtained a $\chi^2/df = 5.74$, confirmatory fit index (CFI) = .72, and the root mean square error of approximation (RMSEA) = .075. Several items yielded both low factor loadings and also a low explained variance. Following inspection of the modification indices, we removed items with factor loadings below .50, and also items with cross loadings with more than one factor. According to Joseph Hair et al. (1995), factor loadings of 0.5 or greater are considered practically significant. Thus we arrived at a model with three items for each factor.

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

[5] A mixed-model Analysis Of Variance (ANOVA) involves two types of variables and serves to test differences between two or more independent groups.

[6] Tukey's honest significant difference (HSD) post hoc test serves to find means that are significantly different from each other.

Table 1 Perceived barriers to education for prisoners not participating in education

	Items	*n*	Mean	St. dev.
1.	I am waiting for a place	709	1.50	0.99
2.	The education I am interested in is not offered here	698	2.16	1.21
3.	I have not been given enough information about education	702	2.12	1.17
4.	I do not understand the information provided	697	1.46	0.85
5.	I prefer working	711	2.48	1.24
6.	I have enough education	706	1.97	1.16
7.	I feel that I am too old	711	1.63	0.96
8.	It is difficult to combine education and work	697	1.87	1.08
9.	The practical arrangements are insufficient	692	1.97	1.12
10.	I will be released before the education is completed	698	2.30	1.26
11.	I am not interested	703	1.81	1.15
12.	Prison staff have recommended that I should not participate	696	1.26	0.73
13.	Transfer during sentence makes it difficult to participate	691	1.64	1.00
14.	I have major difficulties in reading and writing	702	1.65	1.00
15.	It is difficult to concentrate in prison	700	2.10	1.10
16.	It is not worth the effort	695	1.38	0.82
17.	I have major difficulties in calculation and mathematics	703	1.82	1.07
18.	There is inadequate access to software and the Internet	689	2.64	1.24
19.	Other prisoners have recommended that I should not participate	694	1.13	0.49
20.	I am too ill to participate in education	699	1.33	0.76
21.	Education will not help me after release	696	1.67	1.07

Note Mean and standard deviation for single items (1 = strongly disagree, 2 = agree somewhat, 3 = agree, and 4 = strongly agree)

This model achieved a $\chi^2/df = 5.18$, CFI of .93, and RMSEA of .071 representing a better fit. χ^2 was reduced from 1068.4 to 124.2, representing a significantly better model ($\Delta\chi^2_{(162)} = 944.2$, $p < .005$). We conducted a new PCA, including only the nine items from the CFA and with the number of factors to extract fixed to three. It returned a solution explaining 62.7 per cent of the variance, with eigenvalues of 2.0 ("institutional barriers"), 1.9 ("situational barriers") and 1.8 ("dispositional barriers"). Figure 1 shows the model.

We labelled the three factors *institutional barriers*, *situational barriers* and *dispositional barriers*, respectively. The Chi square value of the model may be regarded as an unacceptably high value. However, this indicator can be disregarded if the sample size exceeds 200 and other indicators signify that the model is acceptable. For the current model, the CFI is acceptable, and the RMSEA is also indicative of acceptable model fit. Cronbach's alpha for the full nine-item barrier scale was .63, and the three barrier indices were .66, .72 and .69 respectively for the institutional barriers, situational barriers and dispositional barriers. This is acceptable with only three items per component.

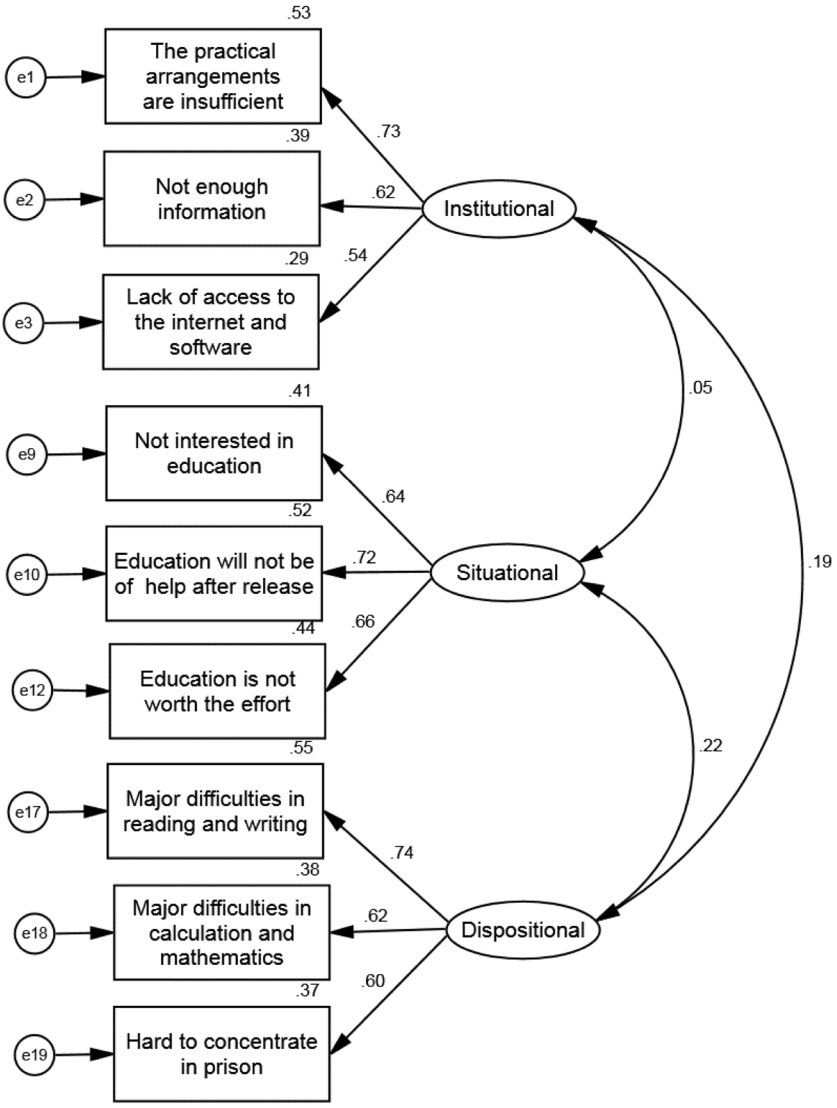

Figure 1 PCA analysis of perceived barriers to education for prisoners not participating in education. On the left, each barrier indicator is conventionally represented as being influenced also by an error term (e1–e19). These error variables are analogous to unique factors in factor analysis in that they represent that part of each indicator not accounted for by the common factors. The small numbers on the far right represent correlations between the factors, the numbers in the middle represent the factor loadings, and those to the left (over the boxes) the variance of each variable included in the model. $n = 838$

In order to study differences between groups of prisoners, we used the nine-item scale and named it the Perceived Barriers to Prison Education Scale (PBPES). Three indices were computed by adding prisoners' scores on the three items that loaded significantly high on each of the factors, divided by the number (3) of items

included in each factor. This gave an average score of between 1 ("strongly disagree") and 4 ("strongly agree"), equivalent to the original given values.

Wish to participate/not to participate in education

To compare the scores of non-participants who wished to participate in education in prison (n = 382) and those who did not want to participate (n = 291), we analysed the data using a 2 × 3 mixed-model ANOVA, which is also known as a *split-plot factorial design* (Kirk 1982).[7] The groups were treated as a between-groups factor with two levels (participants and non-participants), and the dependent measures were treated as repeated measures within subjects with three levels according to the three subscales identified. To perform the analysis, we used the repeated measurement ANOVA procedure in the SPSS. The analysis revealed a significant main effect of groups, $F_{(1,671)} = 6.13$, $p < .01$, $\eta_p^2 = 0.01$, as respondents who wished to participate in education scored lower in relation to perceived barrier components than respondents who did not wish to participate. The interaction effect was significant, $F_{(2,1342)} = 102.10$, $p < .001$, $\eta_p^2 = 0.13$, as non-participants who wished to participate perceived institutional barriers but not situational barriers, compared to those who did not want to participate. The two groups had almost equal perceptions of dispositional barriers. Non-participants who did not wish to participate in education had almost equal scores in relation to the three barrier components. Control for potential violation of the sphericity assumption with Greenhouse–Geisser correction of degrees of freedom (Greenhouse and Geisser 1959) had no influence on the significance of the F-score. Figure 2 illustrates the differences.

Differences in barrier perception depending on gender

We also used a 2 × 3 mixed-model ANOVA to analyse for gender differences in perceived barriers. The analysis revealed a significant main effect of groups, as males (n = 643) scored overall higher for barriers compared to females (n = 33), $F_{(1,\ 674)} = 10.58$, $< .001$, $\eta_p^2 = 0.02$ (see Fig. 3). The interaction effect was also significant, $F_{(2,\ 1348)} = 6.59$, $p < .01$, $\eta_p^2 = 0.01$, as males were more likely than females to perceive institutional and dispositional barriers. Greenhouse–Geisser correction of degrees of freedom had no influence on the significance of the F-score.

Differences in barrier perception depending on age

Age was recorded into four groups: 18–24 years (n = 89), 25–34 years (n = 210), 35–44 years (n = 172), and 45 years or more (n = 194). A 4 × 3 mixed-model ANOVA with age as the between-group factor yielded no main effect of age groups in perceptions of barriers to education, as assessed with the PBPES. However, we found a significant interaction effect between age and categories of barriers,

[7] Due to deletion of missing data for single items, the numbers do not add up to 838, which is the number of prisoners who did not participate in education.

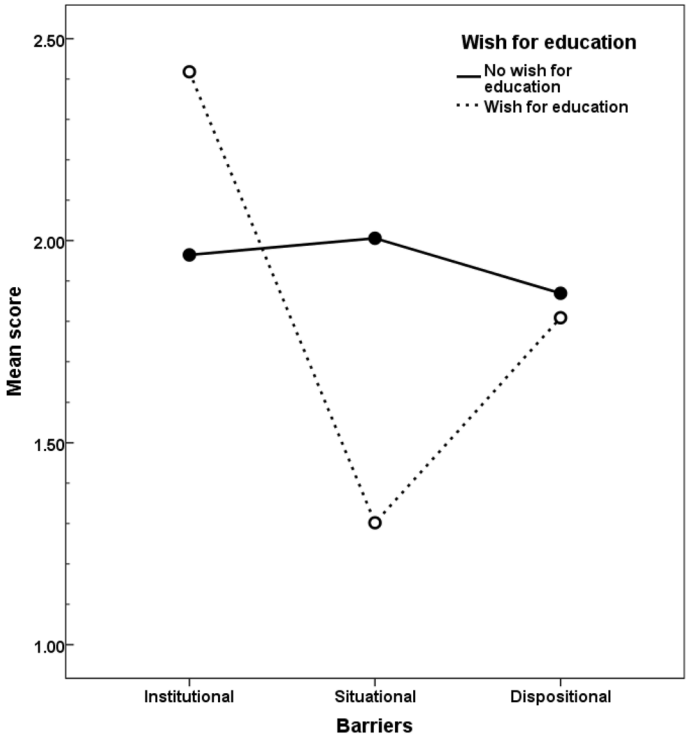

Figure 2 Difference scores on barriers to education between non-participants who wished to participate in education and those who did not wish to participate. $n = 673$

$F_{(6,\ 1322)} = 5.33$, $p < .001$, $\eta_p^2 = 0.02$. Follow-up on the significant interaction with one-way ANOVA for each of the three barrier clusters revealed a significant effect for dispositional barriers only, $F_{(3,\ 683)} = 9.54$, $p < .001$, $\eta_p^2 = 0.04$. Tukey HSD test showed that this barrier score was significantly lower for the oldest age group (mean = 1.60) compared to the other age groups; but also the youngest group scored higher (mean = 2.11) compared to the two other groups (means = 1.87 and 1.93, respectively).

Differences in barrier perception depending on educational level

Educational level was recorded into four levels: no completed education ($n = 60$), completed primary school/lower secondary school ($n = 295$), completed upper secondary school (vocational school included) ($n = 234$), and individual subjects at a university or college or a degree course at a university or college ($n = 81$). A separate 4 × 3 mixed-model ANOVA was used to analyse the relationship between educational level and barriers to participation in education. The analysis revealed a main effect of groups, $F_{(3,\ 666)} = 10.49$, $p < .001$, $\eta_p^2 = 0.05$, as prisoners who had not completed formal education perceived more barriers overall than the other

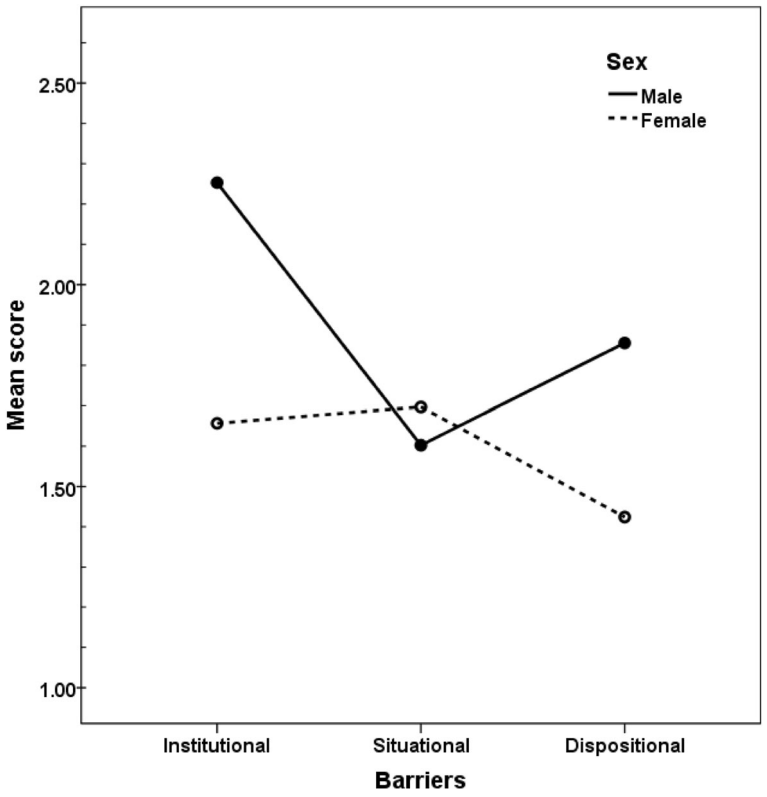

Figure 3 Difference scores on barriers to education between female and male prisoners. $n = 676$

groups, and prisoners who had completed secondary education or had some higher education perceived fewer barriers.

The interaction effect between group and barrier category was also significant, $F_{(6,\ 1332)} = 9.92$, $p < .001$, $\eta_p^2 = 0.05$, as all responders perceived the institutional barriers to be relatively high, but prisoners who had not completed education perceived in addition more situational and dispositional barriers than the other groups.

By contrast, non-participants with university or college education or upper secondary education perceived the fewest of such barriers. A control for violation of the sphericity assumption using Greenhouse–Geisser correction of the degrees of freedom had no influence on the significance of the *F*-score, and Tukey's HSD test as post hoc test did confirm the differences between the groups.

Differences in barrier perception depending on perceived learning difficulties

We conducted our analyses of perceived learning difficulties with the original categories: no difficulties at all ($n = 390$, 358 and 242 for reading, writing and

mathematics, respectively); just a few difficulties (n = 122, 129 and 137); difficulties to some extent (n = 119, 131 and 181), and difficulties to a great extent (n = 38, 50 and 107). Several 4 × 3 mixed-model ANOVA analyses of difficulties in reading, writing and mathematics yielded similar results. Thus, an index was created for prisoners' difficulties in the three subjects. A 4 × 3 mixed-model ANOVA, with learning difficulties as the factor between groups and the three barrier components (PBPES) as repeated measures within subjects, revealed a main effect of groups, $F_{(1,3)} = 45.18$, $p < .001$, $\eta_p^2 = 0.17$, as prisoners with learning difficulties on average perceived barriers to a greater extent than did others.

The interaction effect of groups by barrier components was also significant, $F_{(6,1326)} = 38.34$, $p < .001$, $\eta_p^2 = 0.15$, as respondents who self-reported difficulties perceived institutional barriers to the same degree as those with fewer or no problems, but the more problems they reported, the more likely they were to perceive situational and especially dispositional barriers.

By contrast, prisoners who self-reported no difficulties perceived institutional barriers more often than other barriers (Fig. 4). Greenhouse–Geisser control for violation of the sphericity assumption did not influence the significance of the F-score, and Tukey's HSD post hoc test did confirm the differences between the groups.

Differences in barrier perception depending on length of prison sentence

Finally, length of prison sentence was recorded into four groups: three months or less (n = 122); three to twelve months (n = 194); one to five years (n = 209); and more than five years (n = 57). A 4 × 3 mixed-model ANOVA, with length of sentence as the factor between groups and the three categories of barriers to education as repeated measures within subject, revealed no significant main effect for length of sentence. However, a significant interaction effect between length of sentence and perceived barriers was found, $F_{(6,1140)} = 2.72$, $p < .01$, $\eta_p^2 = 0.01$. Following up on this significant interaction, Tukey's test for unequal n using a pooled error term from the within and between effect (MSE = 0.71, df = 1675.4), revealed that the group with a sentence of more than five years had a higher score for institutional barriers (mean = 2.3) compared to the group with three months or less (mean 2.0), but a lower score for situational barriers (means = 1.7 and 1.4, respectively).

Discussion

One goal of this study was to examine an instrument developed to assess prisoners' perceptions of barriers to prison education to determine the underlying constructs that comprise such barriers. Our analysis showed that the achieved three-factor model fitted the data well and provided a theoretically consistent framework for further analyses. In the factor solution, twelve items did not have any particular impact. The analysis revealed that items describing the more obvious barriers to education seemed to be most important.

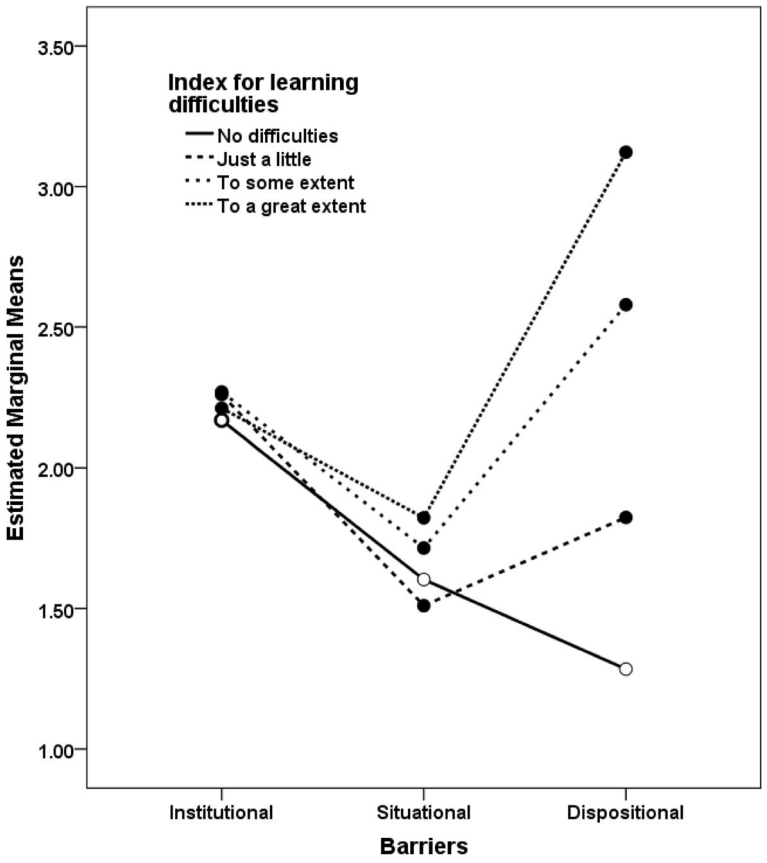

Figure 4 Difference scores on barriers to education between groups of prisoners with various extents of learning difficulties. $n = 667$

Barriers such as lack of information about educational opportunities, inadequate practical arrangements, and inadequate access to software and the Internet, constituted a main factor, which we termed *institutional barriers*.

A second factor of barriers included three variables: lack of interest in what is offered, a perception that education is not worth the trouble, and a perception that education will not make any difference after release. It can be argued that this constitutes a dispositional or psychological barrier, because it refers to perceptions that there is little to be gained by educational activity, or a negative attitude to participation (Brosens et al. 2015; Rubenson and Desjardins 2009). However, it is also plausible that the answers reflect an assessment of the individual's general situation or environment (Rezabek 1999); education is not worth the effort in the present situation or will not lead to a better life following release. Such an interpretation can be compared to the discussion of situational barriers in adult education in general, where various family- and job-related situational barriers obstruct participation (Cross 1981). Thus, these items are consistent with the

concept of *situational barriers,* therefore we used this descriptive term for the second factor.

A third factor was also revealed, which results from the individual's reading and writing difficulties, mathematics difficulties, and the perception that it is hard to concentrate in a prison. While the first two reasons are clearly dispositional, it can be argued that the third reason results from the situation but also involves the failure of the individual prisoner to concentrate on schoolwork in the prison context. However, as this item was included in a factor more obviously representing dispositions for learning, the participants may have interpreted the substance of this item more in line with attention deficits, and thus also representing an individual trait, not a situational description. In this case, we named the factor containing the three items a *dispositional barrier*.

Although assignments to institutional, situational, and dispositional categories of barriers to adult education sometimes have been rather arbitrary (Cross 1981), the model illustrates the importance of the three components and items that reflect these components.

The fact that 12 of the 21 items did not load satisfactorily on any of the three factors can be explained by our conservative approach. To achieve a better fit between the model and the data, we removed factor loadings below .50, in line with the guidelines of Hair et al. (1995). In addition, we removed items with cross loadings of more than one factor. Finally, we inspected the modification indices obtained through the CFA, and removed variables that negatively influenced a good fit. We termed our empirically derived 9-item scale the Perceived Barriers to Prison Education Scale (PBPES) and used it to analyse differences between subgroups of prisoners.

Some surveys investigating educational barriers only include people who failed to take courses or educational programmes they had expressed interest in (Rubenson and Desjardins 2009). Those who are not interested in participating in education tend not to be asked about barriers, and past studies have therefore focused on institutional and situational barriers and paid little attention to dispositional barriers. In other approaches, both those who wish to participate and those who have no particular need to participate have been asked about barriers. The present study, which used a similarly broad approach, consequently included dispositional items as well as institutional and situational ones, and used a mixed-model analysis of variance to compare the scores of non-participants who wished to participate in education with those who did not. Although the effect size was *small*, the result revealed that those who wished to participate were more likely than the other group to perceive institutional barriers, but less likely to perceive situational barriers. There was, however, no difference between the groups regarding the perception of dispositional barriers.

One explanation may lie in the issue of *social desirability* (Cross 1981); it is more acceptable to say that education is not worth the effort or will not be of help, than to admit that one has learning difficulties. Moreover, those who did not wish to participate in education recorded roughly equal scores on the three barrier components. While the design and the results of the various studies conducted on barriers to prison education are not comparable, institutional and dispositional

barriers appear to be more visible in this study than in other studies of perceived barriers (Brosens et al. 2015; Papaioannou et al. 2016), which indicates the importance of including items reflecting such barriers in all instruments of perceived barriers to prison education. While Cross (1981) emphasises the importance of including dispositional barriers, she also claims that survey methods probably underestimate the importance of dispositional barriers in adult education.

We conducted several mixed-model analyses of variance to examine other differences in perceptions of barriers to education among prisoners who did not participate in prison education, and our nine-item Perceived Barriers to Prison Education Scale (PBPES) was able to discriminate between several subgroups of incarcerated adults. Males were more likely than females to perceive both institutional and dispositional barriers, accompanied by a *small* effect size, but not situational barriers. The gender difference in perception of institutional barriers is not in line with studies that indicate that such factors restrict women's participation in prison education (Case and Fasenfest 2004; Rose 2004). While the finding need not, however, indicate that there are more institutional barriers to education for males than for females, it may indicate that females have lower expectations regarding options. Generally in society, males are more likely than females to have dispositional problems, such as reading problems (e.g. Rutter et al. 2004). However, male prisoners do not self-report more reading problems or other learning problems than females (Eikeland et al. 2009), which may be due to incarcerated females generally having major problems in addition to their criminal activity, and males underreporting their problems or being more likely than females to perceive their problems as obstacles to education.

With regard to age, younger prisoners were more likely to perceive dispositional barriers compared to other groups and especially compared to those over the age of 44, and the accompanying effect size was *moderate*. An explanation for this may be that young prisoners have more recent experiences of failure in school, which influences their perceptions. Similarly, prisoners who did not complete any level of education perceived more dispositional and situational barriers than the other groups, and a *moderate* effect size was revealed. The perception of dispositional barriers may partly indicate that previous lack of or failure in education was caused by learning difficulties. By contrast, non-participants with university, college or upper secondary education perceived the fewest of such barriers.

The high prevalence rates of reading, writing and mathematics difficulties among prisoners suggest that such difficulties may be the most important dispositional barriers to study. Nordic prisoners' self-rating of their own skills indicate that between one-third and a quarter have reading and writing difficulties, and almost half have difficulties in mathematics (Eikeland et al. 2009). The present study revealed that prisoners who self-reported difficulties in reading, writing and mathematics also perceived such difficulties as barriers to participation in education, and we found a *large* effect size. Other studies (Jones et al. 2013; Manger et al. 2006) have found that learning difficulties can actually prompt participation in prison education or intention to participate.

These findings need not be interpreted as contradicting each other. A relatively large group of previously educationally disadvantaged prisoners may see new

opportunities to finally get an education, which may not have been possible on the outside, due to factors such as lack of interest, low academic self-image, behavioural problems, drug abuse, dropout and negative social comparison. Behind bars, these prisoners are also likely to find other standards of comparison than on the outside, sharing their confinement with numerous other prisoners with learning difficulties. On the other hand, another relatively large group of non-participants see their learning difficulties and other problems as obstacles to starting an education.

Finally, prisoners serving a sentence of more than five years scored higher for institutional barriers compared to those serving three months or less, but scored lower for situational barriers. One may assume that those serving longer sentences have been informed about educational opportunities, but that they may be more likely to perceive the practical arrangements and lack of software and Internet as obstacles to participating in education.

Limitations and implications for research

Although our study was conducted among all prisoners with Norwegian citizenship who did not participate in education in prison, it has some limitations. First, the three categories and the nine variables included in our PBPES do not represent all barriers to prison education. Further research is therefore needed, both to validate our findings and to identify additional or alternative variables and constructs that can account for a greater proportion of the variance. For example, important dispositional barriers may have been excluded. Such barriers are sometimes referred to as *motivational* barriers (Flynn et al. 2011; Brosens et al. 2015), and future research should also study the relationship between barriers to education in prison and prisoners' internal and external motivations for education. However, due to the low educational level of the prison population, most of the prisoners are likely to resist responding to comprehensive instruments. Thus, we needed to develop a user-friendly Likert scale for our study, with a limited number of core variables and values. Although a large number of variables should be avoided, more pilot testing and research can be conducted to identify the most important barriers.

A second limitation is that possible barriers in the prisoners' past or barriers related to their family or social network were not included. These variables represent sensitive issues among prisoners, but future research may use methods that can provide more insight into such barriers.

A third limitation is that our findings are based on a single Norwegian prison population (which includes 8 Norwegian prisoners in the Netherlands), and it is not known whether they are representative of prison populations in less liberal societies or societies with harsher sentencing.

Finally, there is the problem of social desirability with survey methods, whether by questionnaire or interview. Respondents will always feel subject to the judgment of others and therefore try to "look good". According to Cross (1981), the survey method is highly useful in identifying different barriers to education for various subgroups of the adult population, but she highlights the problem of social desirability as a response bias, which may underestimate the importance of

dispositional barriers. Thus, Cross argues, researchers should also use other approaches in their adult education studies, such as experimental methods, which have the advantage of studying what individuals actually do rather than what they say they might do.

Practical implications

Notwithstanding the above limitations, the PBPES provides useful insights into prisoners' perceived barriers to education and has important practical implications. Although Norway and the other Nordic countries have a history of supporting prison education, a range of different types of barriers to this form of adult education must be overcome, and it is important that instruments assessing prisoners' own perceptions of these barriers are available.

The *institutional* barriers we identified in the present study, such as lack of information about educational opportunities, inadequate practical arrangements, and inadequate access to software and the Internet, ought to be anticipated by prison authorities. The criminal justice system and the schools also need to publish comprehensive information about the educational opportunities available in prison. To avoid uncertainty regarding rights and opportunities, it is important that the practical arrangements are embedded in both the criminal justice system and the school system. Compared to individuals studying in the community, prisoners are inherently disadvantaged by reduced access to computers and the Internet. Thus, the conflict between essential prison security routines and the prisoners' need to use computer equipment in their studies needs to be resolved.

Overcoming *situational* barriers, such as prisoners' lack of interest in education, may be more difficult, as these barriers are largely outside the control of the criminal justice system and the schools. However, tasks that students perceive as uninteresting, uninspiring, monotonous or dull can be made more appealing by the prison staff and the teachers. The staff should therefore also consider more closely the role of social support.

Finally, *dispositional* barriers, resulting from learning difficulties and lack of concentration, should also be addressed by prisons. Research indicates that reading difficulties among prisoners are often primarily based on environment and experience (Samuelsson et al. 2000), but low skills development may also be related to impaired attention and not to a specific learning disorder such as dyslexia. As dispositional barriers include skills in reading and mathematics in addition to finding it hard to concentrate in prison, concentration issues may be part of an imbedded attention problem. This highlights the importance of prisons offering help with these problems, as well as good library services and access to literature. Although many prisoners show symptoms of ADHD (Asbjørnsen et al. 2015), lack of concentration may also be related to, or exacerbated by, environmental factors in the prison.

Acknowledgements The study was initiated and supported by the County Governor of Hordaland, which is the organisation in charge of Norwegian prison education, serving the Ministry of Education. We would

like to thank the staff at the County Governor's office, the headmasters of the prison schools, and the prison governors, who organised the data collection. Most importantly, we owe our gratitude to the prisoners who participated.

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