

## "To Prove There Is Another Way": A Qualitative Study on Digital Tools for Education in the Storstrøm Prison of Denmark

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### Abstract

*The use of digital tools inside the prisons has been deemed quintessential in highly digitized societies, to provide to the inmates premises for a better future upon their release, and to familiarize them with the use of everyday technologies. In this endeavor the authors have conducted qualitative research and applied Participatory Design approaches in the prison of Storstrøm, Denmark. The goal is to understand the current use of digital tools inside the facility, describe them and find possible struggles of the users and ways to tackle them. Upon the collection and analysis of the qualitative material various difficulties were discovered, connected with technical issues and sociopolitical factors. Design proposals and future digital implementations are being suggested, drawing from the ideas of Participatory Design, to facilitate the process of learning and reintegration for the prison population that wishes to pursue prospects for a better life after their release.*

**Keywords:** digital tools, prison education, qualitative methods, design

### 1. Introduction

In the context of correctional systems, Information and Communication Technologies (ICT) have been employed, suggested, and studied intensively for the last 1,5 decades in multiple carceral settings (Robberechts & Beyens, 2020; McDougall & Pearson, 2020; Jewkes & Reisdorf, 2016; Barreiro-Gen & Novo-Corti, 2015; Knight, 2015; Mokiwa H. O. & Ngubane-Mokiwa S. A., 2014; Champion & Edgar, 2013; Jewkes & Johnston, 2009). The development and study of digitization in incarceration facilities has shown significant potential towards providing inmates with meaningful education and employability skills via Virtual Campuses (VC) and digital courses (Champion & Edgar, 2013), familiarizing them with services that they will need to use upon their release with deployment of e-kiosks (McDougall et Pearson, 2020), and facilitating the maintenance of family bonds, a factor that has also been shown to positively affect recidivism rates (Smith,

2012), with video conference sessions (Kerr & Wills, 2018) or even VR use (Pires et al., 2021).

The need for a more digitized education in the correctional system has been suggested as early as 2001 (Lintner et al.) in the CCSC (Consortium for Computing Sciences in College) conference in Austin, Texas, while Hammerschick (2010) in his report on European prisons' educational infrastructures mentions e-learning projects that have been carried out inside German prisons during the 90s. The current situation of ICT usage around most European countries, as well as in Denmark, appears to be similar: Most prisons provide some e-learning or/and particular intranet solutions such as the VC in the UK (Coates, 2016) and limited internet access, restricted to a small number of inmates in specific institutions, most of the time under the supervision of prison personnel (Coates, 2016; Krikorian et al., 2019). A notable instance within the European carceral context is an initiative called the Prison Cloud in Belgium, implemented in 2014 (Robberechts & Beyens, 2020; Krikorian et al., 2019). This digital platform made available a series of intranet and online services such as access to whitelisted websites, video calls to friends and family, canteen shopping, films, meditation audio, music, games and continuous learning possibilities by accessing educational information from their cell TVs (Robberechts & Beyens, 2020; Krikorian et al., 2019; Van De Steene & Knight, 2017). The most distinguishing property of the platform was the possibility for the inmates to use it and also to communicate with the outside world, even without supervision, while since 2017 selected inmates have even been working as call center agents handling issues inside the prison (Robberechts & Beyens, 2020). However, all internet access privileges to whitelisted websites have been revoked when a prisoner managed to send a message to a journalist via a job search web page, causing a significant security incident (Krikorian et al., 2019).

The present endeavor's scope of research addresses the ICT inside Denmark's carceral facilities and particularly the prison of Storstrøm. In the following chapters the authors introduce and elaborate on the specific context and topics of investigation, the

methodological approach, the results of the project and a discussion regarding the shortcomings of the project and potential future work.

## 2. Background

### 2.1 The carceral context of Denmark

The Correctional Services of Denmark (Kriminalforsorgen or KF) is the authority responsible for the function of the Danish prison system and the conditions of the facilities. According to KF (1998), some of their main goals are associated with a set of principles meant to promote security and meaningful rehabilitation in the prison system. These are the principles of normalization, which means that the conditions of the institutions should resemble the norms of everyday life outside the prison as much as possible (KF, 1998; Rentzmann, 1996); the principle of openness, which means that the confining elements of imprisonment should be minimized as much as possible (in accordance with public security mindfulness), since the character of the prison as a total institution can lead to negative outcomes (ibid.); the notion of responsibility, which refers to the idea that prisoners ought to perform everyday tasks like cooking, taking care of their personal hygiene and contacting the proper authority when they need to by themselves, something that aims to prepare them for their everyday life after they are released (ibid.); the measures of security, which should provide adequate safety for the personnel, the society and the inmates from harmful behavior among each other (ibid.). These ideas have been identified by various scholars and have been characterized as Nordic/Scandinavian Exceptionalism (Pratt, 2007; Perrin, 1999; Rentzmann, 1996), referring to the exemplary humane penitentiary system conditions and the low rates of imprisonment in the Scandinavian countries (ibid.).

In Denmark, there are open, closed and remand prisons. The facilities that are considered open prisons are physically open and are not confined by any secure perimeters such as high walls, turrets, etc. that could substantially deter escaping. Prisoners can leave the prison for work, education, or healthcare and may be allowed to spend the weekends outside the facility, with their families (Reiter et al., 2017). In an open prison inmates can have access to the internet from a PC in their cell, from a computer in the prison school room, or from a computer in a common Internet-cafe space (Smith, 2012). Remand prisons do not provide the possibility of digital means for education.

The closed facilities resemble more a conventional carceral space, as they have more or less a higher degree of physical restriction and also stricter rules about possessions, visits or calls, and leaves of absence, during which they shall be escorted by staff members (Reiter et al., 2017). Inmates serving time in a closed prison are obliged to complete 37 hours per week on either work, education, therapy/rehabilitation sessions or a mix of the above.

### 2.2 Research topics

Regrettably, academic work in the prisons of Denmark has shown that, over the past decades, the incarceration system has seen an increased decay on its premises due to the serious understaffing issues in the facilities (Damsa, 2021), the lack of a fulfillment sense by the guards regarding their duties (ibid.), and the punitive political discourses that have found rise in Denmark during the last years (Minke, 2021). Moreover, the rising trends of the imprisonment rates, which have been in 2022 the highest of the last 16 years, and in recidivism rate (both sexes), which has risen at 29% within 2 years after release, are possibly connected to the challenges the Danish prison system is currently facing.

What is important to note in the context of Denmark is that the country is following a digitization strategy, for the last 20 years and ongoing (Agency for Digitisation, 2021), that has progressively allowed technology to permeate the society on many layers, from public services usage and payment facilitation, to complete medical records storage and disease prevention technologies; therefore, the level of technological engagement and digitization of the people and the state itself is very high (Bruun et al; 2020).

Meanwhile, the availability of digital tools inside the prisons has been more and more scarce, especially since 2018 and onwards, to the point that the European Committee for Prevention of Human Degradation and Punishment (CPT) has urged the authorities to take more measures to increase the inmates' digital competences (CPT, 2020). With such a high level of digitization in today's societies, one would have significant problems to function socially and professionally without an e-mail, a smartphone or internet access (Smith, 2012). The exclusion of inmates from the use of technology can lead to a digital divide (Barreiro-Gen & Novo-Corti, 2015) between them and the rest of the members of a society, where the people that are deprived and incapable of using new technologies can fall behind to important aspects of everyday life. The digital illiteracy that ensues may even be more harmful to society upon the prisoners' release, than protective against potential security threats inside a secure environment (Jewkes & Johnston, 2009).

By taking into account the conditions mentioned above, the authors consider it purposeful to examine the current use of digital tools inside a closed prison of Denmark. This endeavor aims to investigate and provide an account of the digital affordances that are available inside the prison of Storstrøm, to present the challenges of their use and to suggest relevant ideas that could improve the digital use potential in the carceral context.

### 3. Methodological approaches

The facility chosen for the material collection is the prison of Storstrøm, located south of Copenhagen. It is a high security closed state prison with a capacity of 252 spaces, currently all occupied. The authors have chosen to approach this facility, as it has been characterized by the media and its architects (C.F. Møller, 2018) as one of the most humane prisons. It has been, for this reason, considered interesting to explore the digital resources allocated and utilized in such a carceral context. Upon reaching out to KF's stakeholders, the authors have been informed about the SKnet, an intranet system that is deployed in the closed prisons of Denmark to offer education and digital competencies to the inmates; so the particular digital tool has been the focus of this paper. Furthermore, the authors have been informed by the learning and developing consultant, as well as one of the SKnet developers of KF, Per Thrane, that Storstrøm is one of the closed institutions with the highest participation in the SKnet educational platform. Therefore, we wish to approach the inmates that have a high level of familiarity with the SKnet, alongside with the other stakeholders that are associated with the platform (prison staff, teachers, education consultants).

The project includes methods of ethnographic origins paired with a Participatory Design (Robertson & Simonsen, 2012; Blomberg & Karasti, 2013) approach to identify and provide an account for the digital tools used inside Storstrøm, and to facilitate the potential implementation of new design ideas. For this reason the authors have conducted interviews with Per Thrane, as well as the users inside the facility. First, there have been 2 interviews with the developer, followed by 2 rounds of interviews within the facility of Storstrøm with the users and then a presentation of the first findings to KF and Per Thrane, where notes have been taken by them for future implementations. Therefore, the research showcased in this paper is in the very first steps of the designing process.

The data collection stemmed from a total of 10 recorded semi-structured interviews varying from 30m to 1,5h [6 inmates, 2 prison teachers, 1 senior developer of the prison's digital platform and 1 board member of Café Exit (NGO associated with inmates' social reintegration)], ca. 45 minutes of recorded ad hoc

conversations in Storstrøm (2 prison teachers and 3 guards), on site observations and fieldnotes from the Storstrøm (ca. 15h of attendance and prison tour) and Nyborg (ca. 2h of prison tour) facilities, over the period 31/05/2022 to 26/09/2022.

The tour inside the closed state prison of Nyborg was part of a conference held by Kriminalforsorgen on 26/09/2022, where we were invited to present our findings from the prison of Storstrøm. At Nyborg, we were part of a large group of prison teachers and Kriminalforsorgen members from around Denmark. One of the prison teachers was our guide through the facility and was explaining the different areas and activities, over the course of around 2 hours. The participants are all anonymized for security and safety reasons, except for Per Thrane and Hans Andersen, board member of Café Exit.

We transcribed the interviews using the digital transcriber 'Otter', refined them by ear and then we started the coding process from the interviews' and fieldwork data by placing quotes of similar topics together (e.g. daily routines, education, leisure activities, family ties etc.) using the digital tool 'Miro'. Specifically, we created sticky notes with the quotes and placed them under the categories of similar topics. The same process was followed after the emergence of the themes. After all the quotes were accumulated in the coding process, we sorted out the ones that were showing up more regularly and we created the themes as they are presented and expounded in the Results. Based on the participants' insights, we created wireframes of potential changes of the site which we used to form the design ideas presented in the Discussion. The suggestions were designed with the use of 'Figma'.

### 4. Results

After the process of the data, 4 relevant themes emerged: *The SK network configuration*, where a detailed account of the digital platform used in the closed prisons is provided; *The practical and technical limitations*, where the authors showcase how certain problematic functions of the SKnet and how the current deficiencies of the correctional system affect the use of the technology by the inmates; *Limitations due to dateness*, where issues connected with poor maintenance of the platform are presented; and *Educational material limitations*, where the discussion turns to the platform's current available and working features and their sufficiency.

## 4.1 The SK network configuration

The intranet system that is used in both types of prisons is called SK network (or SKnet) and was first put into use in December 2010. In 2018, after the circulation of a video containing radical material in the Playstation consoles of Nyborg closed state prison, the SKnet was suspended and was restored in 2021 with much less features than before. Throughout this chapter, a general account of the SKnet's features will be introduced. The platform has the form of a web page with different options and is called Kriminalforsorgens Undervisning Portal (The Probation Services' teaching portal), or KUP. The inmates need to access the computer with their personal credentials and have also access to some offline digital tools such as image or sound editing programs, Microsoft Word, Excel, and Paint. The inmates have, among others, the possibility to read, write their assignments and send messages and homework to their teachers when they are logged in the platform. On every page there is a menu where the user can navigate to the various sites of the SKnet. Descriptively the SKnet has the following site features:

**Homepage:** This is the landing page when a user browses the SKnet. It contains the latest updates and news regarding the platform.

**About KUP:** Contains the users' FAQ and relevant answers, as well as descriptive information regarding the various uses of the SKnet features.

**About the PC-network:** Contains a list of the programs that are available in the PC and information on how to search, save files etc.

**News archive:** This option used to have local digital newspapers but it has now been suspended after the platform's restoration.

**Teaching:** Consists of the different educational levels that an inmate can follow courses on. The students can either follow theoretical or technical specialized education. The platform in Storstrøm prison offers the option of up to bachelor level academic courses.

**Remote studying:** Varies on each facility. Comprises the programs of education available on each institution and the courses of different fields. The student can select a program relevant to their level of education and they are directed to the educational material that they need to study in order to complete the program. There is also the option of live sessions but it is currently unavailable.

**Guidance:** On this part the inmates can read what kind of education or manual labor specialization would be better for them, while there is also a number they can call if they have time to use the telephone booth of the facility.

**Reading and writing support:** This page aims to provide help to dyslectic and illiterate students.

**Link compilation:** Contains a list of whitelisted sites directing the users to dictionaries, constitutional content and amendments, a NGO attorneys' page and some pages with language and math content.

**Wiki:** Includes several files that cover various topics and are created by the prison teachers. In this page the students can search by typing keywords and have also the possibility to narrow down their search based on topic of interest and file format.

**Messages:** Messages and files can be sent from inmates to teachers and vice-versa but not from inmates to other inmates.

**For teachers/My school:** This part can either have the option "For teachers" and be accessed only by teachers or "My school" and be accessed by the students. In the first instance, the page includes a support option if the teachers encounter problems with the platform or if they have inquiries about educational content and methods. The "My school" page contains updates and news written by the teachers for the students.

## 4.2 Practical and technical limitations

Before its shutdown in 2018, the SKnet had around 6000 logins, both from inmates and teachers. The platform is up and running again from 2021 in all closed prisons, and particularly in Storstrøm there has been a lot of engagement from the inmates but also a lot of significant obstacles (Ulreich, Bjorn, Aron, Lasse; inmates). The platform has mainly been used by the inmates to take exams or prepare for them. They are inclined to attend education and use the platform, motivated by different factors such as "*seeing possibilities, or just because they can sit at a computer or some of them also choose to go to school only because...they don't wanna go work*" (Anders, teacher). They want to use the platform and "*they complain if they're not allowed to use it and if they use it they complain cause...it's outdated*" (Anders, teacher).

While talking about the educational prospects inside the closed prisons of Denmark, we have been introduced to courses inside the SKnet that go beyond the level of high school, for example the online course on Business & Finance that Ulreich, one of the inmates, was trying to follow. Initially, this gave the impression that inmates who wish to attend up to bachelor level education could do it from inside the prison with the help of the online platform's courses. However, even before we met with the inmates, it was made known by the teachers that several problems obstruct the realistic potential of someone receiving an education further than high school.

"[about BSc education] *It's not gonna happen from HERE, from this prison, they're gonna do that when*

*they are in a semi open prison or open, we had very few, we had one guy from Nigeria in Nyborg studying history at the university and WE made it possible that he could finish that but it took an enormous massive [effort]"* (Anders, teacher)

In that case Anders and his colleagues in Nyborg had to share specific equipment and help the inmate by spending disproportionately long time and resources with him by their own good will, because of the zeal that this inmate had displayed for studying. Admittedly, this cannot be the norm due to the insufficient number of teachers and guards to supervise the inmates while they sit on the computers (Anders, teacher; Ulreich, inmate; Hans, NGO member), the existing ones do not have enough time for all the tasks that have to be done the whole day and the platform itself underperforms. A problem strongly underlined was the inadequate broadband capacity to render videos that are supposed to be supported by the platform.

*"...when I was signed up for that course...there is a teacher posting videos of himself speaking and then you go online and check the video... I had to transfer it from a website to the computer and I needed to convert the file and... I swear to you: We did it 2-3 times with my teacher, the video was only 20 seconds and it took...3-4 hours just to start and we do not have the time to do that."* (Ulreich, inmate).

A lot of webpages which could be used as sources' material for the students' studies, are now inaccessible. Therefore, even though the courses are allegedly available to everybody inside the closed facilities, it is practically impossible to complete them either because the time to use the computers and the resources in there are massively limited in comparison to the needs of the course or even because of specific requirements in some courses, for example in natural sciences which require lab work that can only be done from outside the prison. Moreover, the Storstrøm prison holds inmates with long sentences who, if they wish to, can finish the education up to the late secondary school within their sentence span, and by the time that happens they will not be able to go further in terms of education or professionally.

These conditions severely demotivate the inmates from trying to take any kind of course because they know that they will hit a dead end (Ulreich, Aron; inmates). Another dejecting factor is that inmates might not feel keen towards education because the benefits of it are not immediately shown and, in combination with all the previous circumstances, the lack of a rewarding behavior is very much felt, especially because the punishing behavior towards an unlawful action is immediate and more often.

[When asked if he feels like he got something in the prison that he can use when he is released] *"I hope so, but that is not our view. Now I am just telling myself that I just do this for myself...This is nice but it's also hard because you think: Why is it like this? I want to make a change. I don't say to open the door outside for me, I have to prove that I deserve it, but why have they already closed every door for me? If you do something bad you are punished, that is the main rule here. If you do something good, why is there not any reward?"* (Lasse, inmate)

On another note, an inmate with experience as an electrician, noted that such a profession is not cultivated or maintained within the prison of Storstrøm, resulting in a status of idleness and demoralization for the inmate.

*"I am inside the education of electrician but the prison cannot offer me anything on that, there is nothing...Personally I don't think that I gain anything now that I could use outside, because as I said before there is not a higher level that I can join in education...I will be worried, I will be in a gap."* (Rasmus, inmate)

Another inmate with higher education also expressed his emotion of feeling suspended because he cannot follow some meaningful education right now:

*"I am going to start education in a hospital, doing practical work. But I cannot take permission in this prison to go out for studies...So mostly here the problem is the restrictions with the education. If I could, I would like to follow higher mathematics classes, but this is not possible. Now I am on a pause because of that."* (Aron, inmate)

Educational progress, in terms of practical skills and moral, critical and problem solving thinking, alongside with social and artistic behavior development, are considered helpful factors towards prisoners' reintegration and reduction of recidivism (Vacca, 2004). To meet the needs of the society inmates should be able to receive education as close as possible to the one existing outside the prison. (Champion & Edgar, 2013). While education up to a certain level is received, it looks like the people that reach or have reached that level can, at best, hope to have an exceptional treatment by teachers or stay idle until they are transferred to an open prison, otherwise it is possible for them to just return to their previous criminal acts upon their release, due to lack of sufficient skills.

*"A lot of the work here is 'idiot labor', you get 1500 plastic bags with different kinds of plastic that you have*

*to sort, see-through or no see-through plastic blah blah, blah blah...menial work” (Anders, teacher)*

*“In...3 months, 12 months, 3y, are just thrown out at the street again and no one has ever given them an education or shown them how to start at the society again and at the end of the day it’s sad for the individual, but it is also very very sad and it is a problem for the society because it often means that the only way they can see the future is to continue being criminals.” (Hans, NGO member).*

Facing such conditions, a significant part of the prison population that wishes to take part in education and digital activities eventually refrains from doing so, which entails the possibility of elevated digital illiteracy, alienation from the digital society and higher chance of recidivism.

### 4.3 Limitations due to datedness

An additional reason, except for security, that the platform does not support features that were available prior to its shutdown, is also its outdated nature. The SKnet has run for the first time back in 2004 and *“it still hasn’t been properly updated”* (Anders, teacher). One of the reasons that the news websites are inaccessible is because the latest updates on various sites are not compatible with the SKnet system. Surely it can be argued that the general ideas of updating digital services on the outside world would be the ease of access, the comfort of the user or the possibility for the website to generate profit, while in the case of the SKnet the predominant reason to change something is security. Due to the outdated system, it is significantly difficult to add not only studying resources but also digital services that citizens of Denmark are accustomed to using in their everyday lives.

An issue of a different nature has also been brought up during our interviews, as a result of poor maintenance of the platform: When an inmate wants to print something, like a text of information, while using the SKnet, he only has the option to print on one of the two sides of the paper that will come out of the printer. In one instance, an inmate was experimenting with the options in order to manage to print both sides of the paper. While *“randomly hitting buttons”* (Anders, teacher), the inmate found himself by accident in a part of the SKnet that he was not supposed to have access to. According to Anders the inmate was not someone with an educational background in computer science or anything relevant.

### 4.4 Educational material limitations

Another issue that has been stressed, was that the inmates do not have access to the websites of the courses where professors from the outside can upload the reading material, and the professors are not aware of all these limitations because they do not know that the particular student is an inmate. So they are evaluated in the same terms as the rest of the students, despite the vast differences in resources.

*“They ,[the professors] expect us to take the course at the same level as the people outside...They judge you the same and they do not know that the submitted papers are from inmates...First week we also had a peer to peer evaluation and an introduction of ourselves but I could not do it. So you are not only restricted yourself but you make a bad impression on the other students and teachers.” (Ulreich, inmate).*

Furthermore, it was noted that the limited time that the inmate has on the computers is not enough for him to transfer handwritten homework to a Word file and also use Excel to complete the rest of the assignments, something that made it impossible for him to follow the course on equal footing with the students outside the prison.

*“When I have the opportunity to use my SKnet account, it is on Mondays and Wednesdays, 2 hours a day: That means if you have a course and you have to complete it...you need to do your homework in the hand because you don’t have the computer in the cell so when...I am on the SKnet I have to prioritize to transfer my homework to the computer which will take me at least 1 hour...then I have to calculate variables in the excel, the book of the course was advising to use the excel, so I couldn’t do my homework...so I also have to stress about that.” (Ulreich, inmate).*

On three more separate instances inmates said that they find the computer time that they have either very limited or inadequate in terms of quality features and educational possibilities beyond junior high school. They stated they were reluctant to spend time on the computers either because they were *“higher educated than the average here”* (Rasmus, Aron; inmates) or even because they find the features irrelevant to their needs.

*“[I would like] some internet. Like news or something that you can buy...I would go inside FootLocker, JD Sport, look at clothes, because when I want to have a break and I cannot go outside and smoke, [because] something is going on in the jail. I would look up some clothes, I would call my friends outside and*

they'd buy them for me. I'd be happy, you know?...But now you can't, you can only paint! PICASSO on the computer! [laughing]" (Bjorn, inmate).

## 5. Discussion

While the SKnet itself is supposed to empower the inmates, it gives the impression of an inadequate tool that does not make a huge difference in their lives. However, additional information can clarify that, despite its shortcomings, the platform is one of the many steps needed to be taken towards the direction of meaningful rehabilitation through contact with digital resources (Kerr & Willis, 2018). From April of 2018 to January of 2021, inmates inside closed prisons had absolutely no access to ICTs or digital studying material and possibilities of higher level of education. This led to deficiencies in terms of educational prospects for prison population (CPT, 2020) so the Danish government (2020) decided to respond by reinstating the SKnet platform as a resource for education, but with many more layers of security measures than before. Specifically, “these are primarily Danish websites with a focus on education” (Danish government report, 2020). Furthermore, the obligatory presence of either a guard or a teacher is now a prerequisite while the inmates are using the SKnet, as the CCTV surveillance was not deemed enough for adequate supervision. This parameter, coupled with the understaffing that plagues the prisons of Denmark and the rising prison population, renders it almost impossible for the inmates to have enough time on the platform.

In view of the various actors that disallow the prisoners to access digital resources in a way that is similar to the society’s use of technologies, it is plausible to conclude that the inmates are severely falling behind in terms of competencies that have to be used in the outside world. Digital resources for everyday activities are very closely intertwined with the lives of almost everyone in contemporary society (Oxford Internet Institute as cited in Champion & Edgar, 2013), especially when we are examining the extremely digitized society of Denmark. In this context, the complete removal of digital resources from a portion of a population can significantly raise the digital illiteracy (Jewkes & Johnston, 2009) of this population and broaden the digital divide between them and the rest of the society. To think of ICT participation as a luxury inside the prison system would be an underestimation of the profound and permeative effect that technology has in society and its revocation from a population that is expected to be a part of the society sooner or later, overlooks the significance of the issues this revocation ensues (Kerr & Willis, 2018; Jewkes & Reisdorf, 2016; Champion & Edgar, 2013; Smith, 2012).

## 5.1 Design suggestions for the SKnet

Based on the qualitative material the authors have designed an alternative layout of the SKnet, where various elements are introduced with the aim to facilitate learning and prompt motivation towards more confident use of the platform. A screenshot of the current homepage (Figure 1) and a proposed layout picture (Figure 2) are displayed as 2 sample images from the overall 15 included in the project, alongside descriptions for the suggested alterations.

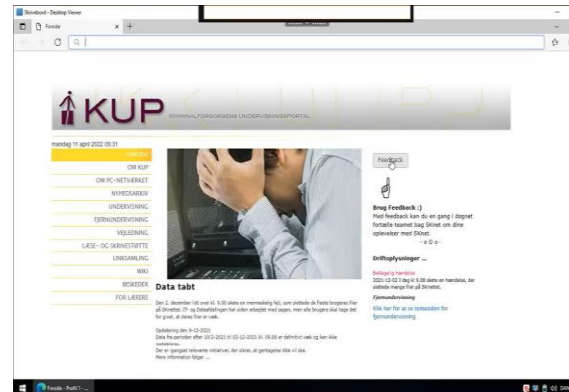


Figure 1. The SKnet landing homepage.



Figure 2. Proposed SKnet homepage with the improvement of four pain points.

1. **Picture:** Figure 1 shows the landing page of the SKnet, where the user lands on the homepage with the latest news of the platform. On the displayed image, there is a male figure in frustration, with his hands on his head, over the title 'Data lost', followed by a text mentioning the cause of several student files from the platform. In the second image, a book inside a library is displayed with the text 'Welcome to the education portal', next to a piece of text titled 'From being inmate to being appreciated'. This amendment aims to create a less stressful first contact after the log-in of the

user and motivate participation to courses by placing a text of the educational goals of the platform next to an image relevant to studying, while relevant page news can be included in the currently unused feature 'News archive'.

2. **Choice of color:** According to Baper et al. (2021) blue is one of the colors that have been found to be most fitting for a classroom and it was believed to be associated with curiosity and serenity. Blue has also been used in various spaces of the facility by the architects as it is thought to create positive emotions and decrease the feeling of institutionalization (C.F. Møller, 2018). Therefore, a color palette with various shades of blue has been chosen, so that the page resembles more a studying environment.
3. **Call to action buttons:** Eye-tracking studies have identified that the first focal points of the eyes when a user lands on a website, are the top and the bottom left corners of the page (Hernandez & Reznick, 2013). The user normally scans the page by starting from the top right side and continues downwards while skimming the page content, mostly in patterns in the shape of Z or F (ibid.). The placement of call to action buttons leading to educational content and contact with personnel, has been therefore introduced in the bottom left part of the page with a brighter color for the educational content button to promote engagement to that section of the SKnet.
4. **Menu bar:** The current page includes a fixed menu bar on the left side of each page with the titles of each feature that a user can click and navigate themselves to. The replacement of this menu with 3 menu icon buttons with titles underneath has been introduced on the top right of the page. The fixed form of the menu would be just the icons constantly top right while the user scrolls down in the page. Such a format has been chosen for two reasons: First, it leaves more space on the page for content but, most importantly, it resembles the menu format that many public services use on their website, an aspect that aims to familiarize the inmates with layouts that are also used outside the prison.

Further web pages on the SKnet have been designed by the authors to introduce two new features, not regarding educational content, but other needs that have been underlined by the inmates. First, there is the example of a page where an inmate can book a day and time for the phone booth, a particular room that inmates can use to contact friends and family. This way of booking is similar to that of a citizen outside the prison

when they have to book an appointment for public matters in their respective municipalities. Secondly, a page where a user can buy groceries or miscellaneous items through the platform has been created, to supplement the fact of inmates also having the possibility to buy their groceries from a physical location inside Storstrøm.

These implementations seek to create similar conditions to the ones that exist outside society and lessen the sense of dependency that inmates often feel when they have to constantly ask their acquaintances for favors, creating a feeling of debt towards them.

*"...when you are so many years in prison you also don't want anyone to do anything for you because you will always feel that they have forgotten you so it is difficult to ask every day "can you do this for me?" ...you feel like maybe that they don't want to or that they feel pressure, so you don't do it." (Lasse, inmate)*

## 5.2 Potential future work and implementations

In the current project, interviews with different stakeholders have been conducted regarding the digital tools associated with prison education. Upon analysis of the material, the authors have created 5 design ideas for the SK-net platform, one of them mentioned in chapter 5.1. However, the designs were not implemented or used in the form of lo-fi prototypes by the intended audience. It is, therefore, important to present them to the relevant audience in order to have feedback until the development of final design and content ideas, since Participatory Design requires iterative processes up to the point of finalization of the product.

On a different note, a major problem related to the current educational limitations has been the insufficient time the inmates have on the computers due to understaffing. Inmates can have 4 hours per week, allocated as 2 hours in 2 days, and there always should be either a guard or a teacher in the room, in addition to the CCTV surveillance from the camera. There are some software programs, though, that can allow a remote view of a computer with the same precision as that of a person who is standing in front of it. This way, guards or teachers can follow the inmates' activity from their offices via the software as complementary to the CCTV. Furthermore, the activity of the inmate on the computer can always be recorded.

Alongside the obstacles about the educational prospects of the inmates, difficulties have also been identified regarding insecurity of potential employability in the future. In multiple instances inmates referred to the obstacles towards achieving higher education and how this could disallow them from



finding a job afterwards, especially without the proper network.

Another possible solution worth considering is the potential implementation of Virtual Environments that might be appropriate for tackling professional and interpersonal obstacles that can be met in the context of imprisonment. Virtual Reality (VR) has already started being studied inside prison facilities, with promising potential regarding providing meaningful professional training to inmates (Rita Pires et al., 2021). Furthermore, VR has been implemented in 2 facilities in the USA to familiarize the inmates with the process of having a job interview (Smith et al., 2022). This implementation could potentially be complemented by webinars from HR professionals that could give feedback to inmates who wish to find a relevant job upon their release. The VR prospects could be of particular interest in Storstrøm prison, also since it could be further deployed to create virtual environments for manual labor professionals that are imprisoned, or people that wish to receive manual labor education.

### 5.3 Reflection and Shortcomings

Over the course of this project it has been extremely time consuming and cumbersome to gain access to the facilities and the data. With the help of our participants, it was rendered possible to collect qualitative data that provided fruitful insights on the current status quo of the carceral conditions in Storstrøm, even though the number of interviews cannot lead to conclusions that would be representative of the whole prison population (6 inmates out of the 252). Furthermore, the aspects of the designing processes of Participatory Design are iterative ones, which require presenting lo-fi prototypes to users, conducting usability tests and determining the final design throughout an order of events in a process that would repeat until the product optimization and delivery. In this case, the process has included a qualitative data collection regarding the users' needs, creation of wireframes on the overall structure of the various design elements and a website design, but that has not been consistently presented to and used by the intended audience. Therefore, further work is due in order to ensure a high quality final result in the process of design.

### 6. Conclusion

In this endeavor the authors have showcased how digital prison education is perceived from different stakeholders and used by the prison teachers and inmates, in an effort to prepare them for their lives after release. Education has been considered a major driver of rehabilitation but a significant number of obstacles

hinder the full potential of digital tools usage in the context of prison, and the authors have suggested potential solutions to tackle from different sides the issues that were identified. Nonetheless, further work is necessary to study the aspects and the feasibility of further digital tools development for carceral environments to effectively fight off the social sustainability issues that encompass the shortcomings of the prison system.

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