



Digital Participation in Prison – A Public Discourse Analysis of the Use of ICT by Inmates

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Digital participation has become an important issue in modern societies, typically focusing on groups prone to marginalization. From this perspective, less attention has yet been paid to imprisoned persons. Many penitentiary systems are formally characterized by the basic requirement of resocialization. Accordingly, life in prison should be largely adapted to conditions outside and to fundamental social changes, which must be considered in designing the framework for prison systems. Still, the digital opening of the prison is debated controversially, not least due to anticipated security issues. Hence, to raise awareness about challenges for digital participation of prisoners, we conducted a knowledge-sociological analysis (SKAD) of the public discourse on the use of ICT by prison inmates in Germany. We thereby seek to advance knowledge and insights from social and organizational practice arising from the use of ICT in context of total institutions and create the basis for action from a socio-informatics perspective.

CCS Concepts: • **Social and professional topics** → **Adult education** • Human-centered computing → Empirical studies in accessibility • Computing methodologies → Online learning settings

KEYWORDS

Digital Participation; prisoners; HCI for development; qualitative methods; discourse analysis; critical HCI.

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1 INTRODUCTION

Digital progress and the spread of Internet use increased significantly over the past years: modern technologies are continuously reshaping socio-cultural living conditions on a personal and professional level and this progress does not stop at prison walls. As every modern nation has its

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own patterns of punishment, there is currently no definitive global model of a criminal justice system [75, 76]. Systems differ formally from a purely punitive function to such explicitly characterized by the basic prerequisite of resocialization. The latter refers to the explicit goal of imprisonment, to enable the prisoner to lead a socially responsible life without crime and to help him to reintegrate into life in freedom. In this context, the law further specifies that life in prison should be adapted as far as possible to the general living conditions according to the statutory provisions. This also implies that fundamental social changes associated with the processes of technological development, the use of innovative information and communication technology (ICT) and the way towards digital societies must be considered in constructing and designing modern prison programs. Nonetheless, digital participation of detainees is still prohibited in almost all prison systems around the world [48]. Understandably, this challenges the desire for resocialization drastically. With regard to digital participation possibilities, inmates are therefore dependent on the willingness of the institution to shape their future. In view of rapid technological progress and the mediatization of all areas of life, after years of online abstinence inmates run the risk of losing touch as ‘digital illiterates’ and becoming socially detached. In addition to the social exclusion that prisoners already experience physically in closed prison, this remarkable digital inequality can be felt as a “distinctive pain of (late) modern imprisonment” [43]. Therefore, exclusion of ICT and digital media can have counterproductive effects on the implementation goal of resocialization: reintegration into society, participation in social life and orientation in important areas of life are made considerably more difficult, as are opportunities on the labor market [79]. In view of these constantly recurring problems, it is precisely the time of release that proves to be risky. Many ex-prisoners have debts or were drug addicts, have no job and problems on the housing market. This view can be supported by statistics which underscore the difficulties ex-convicts face during the resocialization process: according to a nationwide and combined recidivism investigation commissioned by the Federal Ministry of Justice and Consumer Protection [40] for the observation period 2004 to 2013, about one in three delinquents are convicted again. Within nine years, the recidivism rate is 48 percent, with the highest rates being recorded for serious forms of theft. The vast majority of recidivism occurs within the first three years, half even within the first year after conviction or release.

As a result, prisoners can be regarded as a marginalized group in terms of ICT accessibility. Their use of ICT is strongly contextualized and determined by several factors, and we do not know much yet about the determinants and the resulting needs of detainees as well as prison personnel in this regard. Thus, this paper explores the issue of digital participation of inmates in the spatial and social contexts of total institutions. The latter term was coined by Goffman [33] and describes a place of residence and work where a large number of like-situated individuals, cut off from society for a considerable period of time, live a closed, formally administered life together. In a closer definition of the institutional setting and the object of research, the focus is on prison as a specific form of total institution and on the closed prison system in the Federal Republic of Germany.

The starting point for this research is the initially open question of whether and to what extent the penitentiary system in Germany opens up or in principle denies its inmates opportunities to participate in the use of ICT and digital media. Little attention has been paid to the topic so far and in view of its specific representation in public discourse, it therefore seems relevant and necessary to approach the research field and subject matter as exploratively as possible. The first task to make the field accessible for solution finding is to understand the lines of argumentation and contextual factors. This paper hence examines the interests of the various actors in the discourse

in order to identify the risks, challenges and potentials of digital participation in prisons as perceived by the media, politicians and practitioners. For this purpose, we conducted a knowledge-sociological analysis concerning the public discourse on the use of ICT by prison inmates in Germany following The Sociology of Knowledge Approach to Discourse (SKAD) by Keller [46]. This approach to social science discourse analysis aims to understand social realities, social relations and associated politics of knowledge.

In this paper we present our results from a discourse analysis of various media reports and artifacts on the issue of a possible digital opening of the prison system in Germany in order to trace the emergence and course of the discourse in our own narrative. In doing so, it is also important to understand the barriers to the integration of technology in prisons and to illustrate how to remediate such challenges. We focus on the prison system in Germany because it can be described as a total institution [25] determining the entire daily routine of its prisoners, but is nevertheless a good example of a system claiming to promote a resocialization approach [72]. In doing so, we highlight how total institutions shape the experience of technologies for inmates. Moreover, we sensitize research on ICT to the possibilities of contributing to the discussion weighing interests of inmates, the penitentiary system and the public to look out for suitable solutions. Thus, we want to push the discussion about the potential and unique challenges of penal institutions and criminal justice contexts in terms of digital opening – defined as the process by which and how imprisoned persons gain access to digital and online resources. Our study combines research fields and findings from sociology, social work, law and socio-informatics in an interdisciplinary way and shows a clear connection to media and communication studies. Our key contributions thus are the

- enlightenment of an area of society that is insufficiently developed and underexplored from a ICT perspective, but permeated with certain prejudices, myths and half-knowledge
- raising of awareness for this social problem and the creation of a basis for future research
- highlighting of the interests of existing actors from politics, society, law, media and prison authorities and identifying relevant determinants by classifying conflicting lines of argumentation (such as safety concerns of prison staff, politicians against the formal designation for resocialization, the weak lobby of inmates)
- assessing from a discourse-analytical perspective whether and to what extent there are opportunities for prisoners to participate in the use of ICT and digital media in order to better meet the challenge of rehabilitation in prisons

2 RESEARCH BACKGROUND AND RELATED WORK

In this section, we identify the closed prison system in Germany from a sociological point of view as a form of a total institution and outline in more detail the attitude of the penal system towards social rehabilitation as well as the current legal situation in Germany on this subject. We also shed light on the significance and impact of the social, historical and local context in which the discourse on the use of ICT by prisoners can be located, by presenting the theme of the digital knowledge society as the relevant background story of a discursive negotiation on the social problem of prisoners' use of ICT. Finally, we briefly refer to current research on the topic of the digital opening of the penitentiary system.

2.1 Prison as a Total Institution

For most countries these days, prisons can be described as closed institutions that detain people for a certain amount of time, based on their sentence. From a sociological perspective, prisons can be understood as a form of “total institutions”. Goffman [33] defines a total institution as “a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life”. In total institutions such as prison, inmates are forced to organize their strictly regulated daily routine under the restrictions imposed by the institution as an authoritarian system on them and their fellow inmates. Their all-embracing (‘total’) character is depicted by restrictions on social communication with the outside world and freedom of movement [33]. Goffman describes prisons as an institution which by systematic deprivation of personal possessions, including personal identifying characteristics and attributes, bring about a deliberate lessening of self [76]. Total institutions are subject to a hierarchical balance of power, characterized by coercion, deprivation of liberty and oppression through the enforcement of goals and the exercise of power, leaving ‘traces’ on the inmates – in this respect Goffman calls total institutions greenhouses in which our society tries to change the character of people [33]. That is also in line with Michel Foucault’s work who had dealt with the historical formation of prisons [27]: turning from traditional forms of punishment with the total exclusion of delinquents (exile, torture or killing) to reestablish order, prisons became “disciplinary institutions” during the 19th century, based on “technologies of power”, external control over the inmates that by time is transformed into internalized self-control and disciplined bodies, subjects.

Detainees perceive restrictions regarding the maintenance of ‘own’ (external) contacts as degrading. This fact promotes their loss of self-worth and self-esteem, which often is taken from their roles in families, amongst friends and other social groups influence [75]. Imprisonment in a total institution means radical restriction of freedom and often leads to a break in contact with the ‘outside world’. Moreover, in the penal system, the inmates lose their privacy and independence by institutional design, and are further endangered of losing their creativity, personal security and sense of reality as everyday life in prison is perceived as intellectually and cognitively non-fulfilling. In this connection, Goffman also emphasizes the absence of possibilities to acquire new or maintain existing skills in the institution that could later be of value in life. Serving a sentence thus typically represents a biographical break, so that imprisonment is often perceived as a dead time by inmates [33]. Additionally, the uncertainty of the prisoners’ future after their release further diminishes autonomy, and fosters feelings of helplessness [55]. Goffman describes this phenomenon, which stems from the combined effects of loss of autonomy and strongly standardized living environments and social roles, as ‘disculturation’ [33]. Corresponding attempts and measures of reintegration, which are to prepare for an autonomous life after imprisonment, thus become more difficult.

With reference to recent sociological works such as Ziemann [81], inmates can also be described as the “included excluded” as the delinquents are *excluded* for their prison term particularly from their social context and society in general (which covers their personal freedom, control over their individual time and preferences as stated above), but at the same time, they are also *included* in a different form of community inside the prison with its own rules of conduct, distribution of power etc. This involves specific forms of communication and collaboration that might result in new opportunities of participation, in some cases also the (mostly illegal) possession and usage of ICT devices. In his theory of social association, one of the classics of criminology, Edwin Sutherland, had already underlined the importance of interaction inside the

prison in order to learn the relevant knowledge and insight from other inmates to conduct further criminal behavior later on [73].

The laid out characteristics of total institutions are considered to be drivers of self-perpetuating problems within prisons. At the same time, they lead to social isolation of prisoners by diminishing efforts of resocialization. The latter will be described in the following.

2.2 Institutional Goals and Mandate for Resocialization

Goffman [33] already emphasizes in his definition of that group of total institutions that the well-being of persons thus separated is not an immediate purpose. How a country treats its prisoners depends heavily on what the public, the government and ultimately the authorities think the detention is for. In this context, Dostoevsky famously wrote: “The degree of civilization in a society can be judged by entering its prison” [18]; and there are actually huge differences in the treatment of prisoners around the world. Rehabilitation and resocialization are e.g. favored in the Scandinavian countries. Here the closed execution is seen as a last resort and the loss of freedom already as sufficient punishment. Norwegian prisoners come into contact with everyday structures, media and IT artefacts during their sentence and are less likely to be locked up in closed institutions to better prepare them for release [57]. In the US, the penalty is in turn very much enforced with retribution, so that arrests occur more frequently and it is the structures within the prisons that actually intensify violence and disillusion [56]. As laid out by e.g. Subramanian and Shames [72] there are several lessons learned from German prisons for the US system.

The closed prison system in Germany differs formally from a purely punitive function: the primary goal of imprisonment is the resocialization of the inmates, which is also expressly laid down by law. Resocialization thus describes the ability of the prison system and other control organizations to let the prisoners live conflict-free after their release [29] and is a criminal policy goal and program that can be derived directly from human dignity, the right to free personality development, as well as the principle of the welfare state [16]. In Germany, the right to resocialization and thus the opportunity for ex-offenders to re-enter society has existed since the 1970s. In view of the questions of legal positioning and actual practice in dealing with the ‘social problem’ of digital exclusion of prisoners from the use of ICT, the following can be noted: since the federalism reform of 2006, the penal system in the Federal Republic of Germany has been a matter for the states and is handled differently in that each state can decide for itself whether to grant access to ICT and the Internet. In principle, however, the use of the Internet in German prisons is neither permitted nor planned, so that in no federal state is free Internet available to prisoners in closed prison institutions.

In this context, it remains to be noted that the jurisprudence in no way deals with the subject exhaustively and lacks a fundamental discussion of the advantages and disadvantages for the penal system arising from the use of the Internet and ICT [48]. Contacts with the outside world are always to be established through the institution; free Internet access that cannot be controlled by the institution would contradict this [33]. Thus, with regard to the fundamental right of freedom of information, the following applies to the penal system with regard to the use of the Internet and digital media: online newspapers and journals are to be subsumed under the regulations on newspapers and magazines. The regulations on radio and television are relevant for Internet radio and television programs broadcast on the Internet. There is no legal basis for surfing the WWW in the national laws. However, the Internet has become an integral part of institutional

life, e.g. with regard to the purpose of the vocational training of inmates. Thus, some prisons have set up special computer courses which allow limited, controlled access to the Internet and to certain Internet-based learning platforms. The technical realization of these courses usually takes place in such a way that certain parts of the Internet are ‘mirrored’ on a server in the institution, but there is no connection to the ‘outside’ from this server. Finally, it should be noted here that the case law has still not dealt intensively with the topic of the digital opening of the penal system and the problem of Internet access has so far only been addressed in isolated cases.

The above-mentioned aspects lead to the conclusion that refraining detainees of digital participation leads to a ‘digital gap’ which diminishes re-socialization processes. The importance of having the abilities to adequately re-integrate into the ‘digital knowledge society’ will thus be discussed in the following.

2.3 The Digital Knowledge Society

A large number of the actors involved in the discourse emphasize that an exclusion of digital participation can have a counterproductive effect on the implementation goal of social rehabilitation in various ways. For example, the reintegration into society, participation in social life and orientation in important areas of life are made considerably more difficult for prisoners by prohibiting or refusing the use of ICT and digital media in the execution of punishment. Last but not least, these demands are inevitably followed up by the question of which form or idea of society the detainees in German prisons are now specifically excluded and left behind?

In his study [7], Bell predicted a structural change of Western industrialized countries from classical industrial societies to modern service societies, in which theoretical knowledge as the basic basis of innovation and technology plays a dominant role for social success. In the 1990s, the concept of the knowledge society was again taken up by various authors and increasingly established itself in the political and media discourse on the ideas of the future development of society. Thus, the increased importance of knowledge as a resource for economic and social innovation and value creation, the significant expansion of public and private research activities, an increasing proportion of highly qualified workers, the enormous increase in the general level of education and a considerable increase in social distribution, circulation and access to knowledge can be identified as genuine characteristics of post-industrial knowledge societies.

As the main motor of the described, multifactorial and profound social transformation to a post-industrial society, first of all general technical progress can be mentioned [63]. It had increasingly released labor in industrial production, which then became available for other activities such as services. Moreover, further development factors and an increasing demand for services can be observed. In view of technological progress in the ICT sector and the spread of Internet use, the knowledge society described and proclaimed here is obviously a technology-based – in other words, a digital society: companies are transforming their business models and digitizing their production processes and services. Jobs will be made more flexible, information processes accelerated and communication activities enormously increased [11]. In this context, the expansion around the new ICT and in the media sector is also the most obvious manifestation of this development towards the information and knowledge society.

Thus, there is already agreement in politics and in parts of the scientific literature that this social development is characterized by the comprehensive use of new ICT. The Internet, digital media and the interaction with IT-artifacts become a part of individual and common life. Accordingly, this development has effects on almost all areas of life, on work and leisure, on

learning and entertainment and changes society in a sustainable manner not only in its technological, but also in its economic and cultural structures. Under the conditions just outlined, the independent acquisition of knowledge and also communication increasingly takes place via the use of modern ICT. Finally, the digital knowledge society should be defined as one in which knowledge as a basic basis and resource for social innovation and value creation is of central importance. Above all, this means that both access to and participation in it increasingly takes place exclusively through the use of new digital media. The background story of the digital knowledge society can be understood as the primary theme for the discussion on the digital opening of the prison system and the participation of prisoners on modern ICT and the Internet.

Considering the rapid technological development and the fact that digital media are increasingly embedded in everyday life, this sparse ICT usage in prisons seems hopelessly outdated and continues to promote dramatically increasing inequality. In the next section, we describe and further clarify that HCI for prison sentences is an issue of growing importance for society in general and our research community in particular, if we do not want to run the risk of leaving ex-inmates behind as digital illiterates.

2.4 HCI for Imprisonment

There exists a huge corpus of HCI studies focusing around digital participation of marginalized or oppressed populations [1, 35], communities [52], digital civics or civic engagement [15], democracy [74], crime [51, 62], as well as studies that examine, for example, how individuals, according to their experiences in other overall institutions – such in this case the military [65] – try to reintegrate themselves into stable society. Nevertheless, the context of prison life is under-explored from a HCI perspective and existing research around the criminal justice system as well as information about actual everyday life in prison is sparse and scarcely available [76], with the majority of existing literature discussing the prisoner's dilemma or prison simulations [12, 31], investigating the use of ICT to improve access to health information, communication, leisure and self-development [37], referring mainly to prison architecture from a design perspective [23], and only a handful of publications actually working in this context [9,14].

In their study, Jewkes & Johnston [43] provide a historical overview of prison and emphasize the prevention of communication as a disciplinary strategy. They set this in relation to current strategies in European prison, where restricted access makes prisoners appear as second-class citizens in the age of information technology or how the prisoners perceive: as 'cavemen in an era of speed-of-light technology'. However, they also highlight projects which tried to introduce ICT to inmates focusing on communication with family and friends (e.g. using Skype to participate in family gatherings).

Another big topic in research with prisoners is the educational aspect [4, 5, 54]. In European prisons, detainees can take advantage of general education, vocational education and training and non-formal learning opportunities. However, as more and more educational institutions switch to e-learning and provide online access to learning materials, they exclude prisoners with restricted and monitored access to ICT and the Internet, which is, in addition, a barrier to the teaching of digital literacy skills [54]. Both education and digital literacy are fundamental prerequisites not only for finding a decent workplace after imprisonment [21], but also for facilitating reintegration into society [68]. As Pérez & Sarrate [66] point out, digital illiteracy has a negative impact on equal opportunities and creates a cultural divide, not only

economically but also socially. To this end, the publication of Coates [13] provides further impetus for improved digital competence among prisoners. In her review of the educational systems in prisons she recommends that “[t]he security arrangements that currently underpin the use of ICT in the prison estate should be reviewed. Governors should be allowed to develop an approach that allows suitably risk-assessed prison learners to have controlled access to the internet to support their studies and enable applications for jobs on release”.

By pursuing the current approach in prison, which offers no or very limited access to digital instruments and the Internet, a new level of disconnection between prison and society is created [42]. In her publication [49], Victoria Knight also gives inmates a voice on how technology withdrawal can change relationships with others. Younger prisoners in particular are struggling to adapt to this ‘new’ lifestyle, which does not provide permanent access to the Internet in general and to social media in particular. Digital technologies have revolutionized modern societies and for many “it is one of the principal means of contact with the world” (49).

On the basis of their analysis, Barreiro-Gen et al. propose to develop guidelines for the use of new technologies among the prison population based on the positive attitude of inmates [5]. Many prisoners perceive the almost complete absence of computers and Internet access as a form of censorship that reduces them to second-class citizens in the Information Age [44]. In this context, participants of the study by Jewkes & Reisdorf [42] reported that the ubiquitous presence of digital and new media “constantly reinforced feelings of stupidity, difference and marginalization from the ‘normal’ world and even within their own families, reflecting broader anxieties of non-user”. While various other studies underpin these statements by stating that the deprivation of ICT is considered as less important than social deprivation (e.g. low income, unemployment, low education), they are underestimating the pace, depth and scale of technological change [38].

In recent articles, more and more researchers argue for a digital transformation in and for prisons and even demand to involve inmates during this process [69]. The main argument preventing new technological infrastructures in prison systems, however, is the fear and opinion of the public, that can be invalidated by providing counter examples. The authors conclude that digital services for prisoners can “boost modes of surveillance (through data capture and analytics), assist with rehabilitation (through therapy such as gaming and virtual reality) and monitoring academic and vocational progress (through e-learning)” [69].

Considering the relevance of the topics of digital participation, marginalized or oppressed populations and inclusive media education in current discussions and literature, it is all the more surprising that the subject of digital inclusion of prison inmates in Germany has so far received little attention in specialist literature of other academic fields and disciplines. In Germany, the subject of the Internet in prison is dealt with in detail in the field of law, but here too there are only a few publications. In his publication [48], the criminal lawyer Florian Knauer systematically addresses the legal problems of prisoners using electronic communication media from a legal point of view. The German lawyer and politician Halina Wawzyniak examines in an article [79] the question whether the denial of Internet access in the prison system is legal. It should also be noted, however, that the legal literature contains a large number of annotated depictions of state prison laws in which both the legal basis and the legal situation of the possible use of digital media by prison inmates are presented and discussed.

Under the premise of living in the ‘new social reality’ of a digital knowledge society, the interactively use of ICT, Internet, digital media and related services is embedded more in more in everyday and social life and daily routines. Digitization processes lead to profound social

changes, often leaving populations behind which are already marginalized or oppressed in terms of ICT accessibility. Therefore, we argue that the sparse ICT usage in prisons continues to promote dramatically increasing inequality, since the absence of ICT makes the re-integration into society much more complex for prisoners. We emphasize that the context of incarceration in terms of understanding self-awareness and resocialization has been under-researched, highlighting these contexts as key areas for research on digital technologies and related IT-artifacts. Gaining access to information and reaching interview partners in this sensitive context is, understandably, very difficult. We therefore take a step back analytically and to look at the social discourse in order to understand and work out both its social roots and its specific requirements. In order to contribute to our research gap, we conducted a knowledge-sociological analysis of the public discourse on the use of ICT by prison inmates in Germany. We thereby seek to advance knowledge and insights from the social and organizational practice that arise from the use of ICT in the context of total institutions and then contextualize these insights into those from literature. We are aware that our research, both thematically and in terms of its theoretical and methodological approach, is breaking new ground and thus addressing a research gap in HCI. With regard to this, we are confident that our analysis of the often morally-charged and scandalously discourse-driven negotiations on the potential use of ICT by prison inmates represents a fruitful contribution to the research field of HCI by

- *promoting a better understanding* of the discursive context of this social problem
- *identifying potentials, barriers and concerns* faced by public and prison personnel
- *attempting to derive first implications* for follow-up empirical research in this sensitive field
- *providing a basis for developing and testing recommendations for action* based on a further requirement analysis

3 METHODOLOGY

Discourse analysis is usually based on the assumption that the construction and treatment of social problems takes place within discourses [45, 46, 47]. Thus, with their guidance, social life is examined through analysis of language. Put differently, it investigates what is considered worthy of attention in public conversations and answers questions such as ‘What is social life like?’ and ‘What are the implications for individuals or wider society?’ [67]. Discursive negotiations undoubtedly play a vital role in academia and thus in ICT research. Roedl et al. [60] e.g. analytically presents how discourses shape HCI as a field, with negotiations still ongoing today. In ICT research, discourse analysis has hence been used before in several contexts [39, 34, 17, 77] to systematically analyze rhetoric of discursive structures.

Stating this, we use the SKAD; a specific approach which originated within social science discourse analysis and that goes back to Keller [45, 46, 47]. In general, SKAD aim is to examine and analyze social knowledge relationships and policies from an extended perspective. The theoretical starting point of the SKAD is the sociology of knowledge of Berger and Luckmann [8] whose work is dedicated to the processes of the social construction of everyday knowledge. However, the SKAD includes another perspective by taking into account the respective social and historical context [47]. Thus, it examines the social construction of reality, especially at the level of collective actors, organizations, or institutional fields of society, which are involved in symbolic struggles for the implementation of their interpretations of the world.

Our investigation is based on the assumption that the construction and treatment of social problems takes place within discourses and that the quality of a public discourse is therefore ultimately only donated through its representation in the media. Since the media provide social actors with a public space with its own mechanisms for discursive conflict resolution and are therefore considered an appropriate arena for public discourse [45], we have conducted a SKAD considering public discourses in the German media landscape (figure 1). The texts produced by ‘media workers’ can be understood as contributions to the construction of social reality, and the structure of media discourse hence certainly has effects on the perceptions of societal actors. The mass media are thus arenas in which the (public) significance of ‘messages’ is decided. Most of the analyzed texts follow the inherent functional logic of media articles which prefer simplified pro/contra contrasts, high news values or professional agenda building, and are integrated into special organizational constraints and aim at public resonance processes. This fact proves to be advantageous for our analysis, as the content of these written texts (usually) does not change any more and they can be analyzed efficiently with regard to their length and complexity. Therefore, we are primarily interested in digital and printed content from journalists, politicians and/or political parties as well as other representatives and experts. For further analysis, we then collected various newspaper and magazine articles, reports, brochures, newsletters, interviews and proposals, all dealing with the social problem of ICT in prison. As a result, we have omitted the discourse on forums, groups and social media platforms and focus on the way professional stakeholders shape the discourse on ICT use in the German prison system.

3.1 Conceptual Tool and Analytical Approach

The public debate on digital participation in the prison system is fundamentally embedded in a specific social context. This includes the institutional-organizational field it appears in, the specific situation of its appearance, other discourses with which it competes or against which it is directed. In order to foreground related issues, reconstruct and thus understand its social significance, it is therefore imperative to take into account its social and historical environment [45, 46, 47]. This applies equally to the treatment of contextual knowledge as well as to the inclusion of relevant literature on the subject matter and the related theoretical references. Discourse analysis thus enables us to identify what has been said about the use of ICT in German prisons, which ultimately forms public perception of this social problem. By determining the relevant dimensions of investigation, we derive a multitude of possible questions, that encompass different dimensions and elements of discourse and can be located at the micro and macro levels. According to Keller, these are questions which can be answered by the SKAD [47] and which have been adapted to our own research interests, by an inductive analysis of the literature and texts. The following questions structure and guide our empirical analysis:

- *Temporal dimension*: How did the discourse on digital participation in the penal system develop and (how) does it change over time? Is the discourse already disappearing or fading away?
- *Events*: Which decisive events play a role in the development of the discourse? How are they integrated and processed in the discourse?
- *Patterns of interpretation and story lines*: What are the central structuring frameworks of the discourses? Which manifest and/or latent contents are offered and transported in the format of cognitive perceptual schemes and/or moral and aesthetic evaluations?

- *Symbolic and linguistic elements*: How are they articulated? Which linguistic-rhetorical means are used and how?
- *Actors*: Which actors act as speakers?
- *Links*: Which links with other discourses emerge? What relationship can be determined with other discourses that may be in competition or in a kinship relationship?
- *Context*: How does the social, historical and local context affect the discourse?

3.2 Data Collection and Analysis

According to the SKAD's research design, these questions are to be answered by means of background information – filtered from the data corpus of media reports, technical reports and documentations, applications and newsletters – and by a detailed analysis of a selection of texts. Empirical data was collected and evaluated in an open, circular process [70]. This means that data collection, evaluation and the formation of theoretical types and their links run in parallel [71]; insofar the analysis also directed the sampling of the data. Since it is difficult to gain an overview of the entire field of discourse to be investigated at the beginning of the research process and since new detailed questions can always arise from the initial results, data collection and evaluation took place in several steps and have been continued until no new results were added when evaluating new data [32]. Accordingly, only material was included that deals with the use of ICT and Internet applications in German prisons in the broadest sense. Material that, for example, concentrates solely on certain aspects of education in prison or does not specifically deal with the German prison system was excluded, as are contributions that double in their argumentation and do not provide new insights [32].

To perform the SKAD, we collected various text materials in a data corpus [47] in the first step to ensure that all patterns of interpretation and actors occurring in the discourse, but also the relevant events and background references were taken into account. In our analysis, the primary data material for the empirical analysis consists of texts in online and print media. Those publications are regarded as ways of access to discourses that are involved in the public discussion about the 'correct' treatment of prisoners with regard to their digital inclusion or exclusion. Furthermore, this type of access ensures that the publicly relevant political spectrum of opinions is represented. Before and while collecting data from various sources, it was essential to inform ourselves about the field, the subject matter in general and also the state of discussion on the targeted question.

On the one hand, a broad spectrum of documents of important actors was compiled – including, among others, legal texts, expert opinions, brochures, advertising materials and stakeholder magazines. In these documents, collective actors formulate their most important arguments and positions. On the other hand, we received scientific works from and about the field of research. We included these sources in the analysis for the purpose of field development and information retrieval as context information.

In order to compile the general data corpus, we carried out a general Internet search first, in the context of which we have searched for different topic-related terms in various combinations and using logical links (AND, OR, AND NOT, NEAR, AS A PHRASE).

Year	Title	Source	Type
2001	<i>You can escape somewhere else!</i>	Telepolis	news
2002	<i>A little hole in the wall: Prisoners study online</i>	Taz; SPIEGEL ONLINE	news
2004	<i>Study behind bars – cell research unplugged</i>	SPIEGEL ONLINE	news
2006	<i>Multiple murderer with perfect scores</i>	WELT	news
2009	<i>Going online!</i>	taz	news
2011	<i>The Internet – no everyday object in German prisons</i> <i>Learning in prisons</i> <i>Digital media and internet in prison</i>	der lichtblick WELT Institut für Bildung in der Informationsgesellschaft e.V.	article news report
2012	<i>Equal rights for everyone! Free access to the internet as human right in prison</i> <i>When do I get the first email from prison?</i>	Arbeitskreis kritischer Strafvollzug e.V. Bündnis 90/Die Grünen	interim report brochure
2013	<i>That's how inmates are prepared for their life after release</i> <i>No net in the tank</i> <i>Life behind bars – and without net</i> <i>Inmates are offline</i> <i>Internet and e-learning in custody</i>	FOCUS ONLINE taz taz Zeit Online Prison Security (PriSec)	news news news news newsletter
2014	<i>Net for jailbirds</i> <i>E-learning: media competences in the prison</i>	taz Das Netz	news interview
2015	<i>Skype in custody: View from the screen to the world outside</i> <i>Missed digital change inside the prison cell</i> <i>Lecture hall behind bars</i> <i>More connection (net) in the prison</i>	LZ Süddeutsche FAZ Stuttgarter Nachrichten	news news news news
2016	<i>Return to a digitalized world</i> <i>Restricted to telephone</i> <i>Some connection (net) inside prison</i> <i>Berlin is going to provide controlled net access for inmates</i> <i>Prisoners in Berlin will get internet access in the future</i> <i>Berlin's prisoners will get internet access</i> <i>Berlin plans resocialization through digitalization</i> <i>Pilot project „Resocialization through digitalization“ in Berlin prisons</i> <i>Sad record: 1.426 illegal smartphones in Berlin prisons in 2015</i>	Politik Digital MZ SPIEGEL ONLINE heise online Berliner Morgenpost WIRED Halina Wawzyniak SPD/CDU Prison Security (PriSec)	news news news news news news blog proposal newsletter
2017	<i>Internet inside prison: no human right</i> <i>Decision: Prisons do not have to provide general internet access for inmates</i> <i>Resocialization through digitalization?</i>	Frankfurter Rundschau heise online WELT	news news news

Figure 1. Overview of the data corpus, including information on year, title, source and type of publication (the original German titles have been translated for international readers).

In their various combinations, the search terms prison, penal system, rehabilitation, media and Internet, among others, prove to be practicable here. This was followed by in-depth

research which operates via a ‘snowball system’ and thus includes above all quoted, similar and proposed articles. Furthermore, we searched engines for general literature and scientific documents, research and specialist portals, specialist journals and electronic libraries together with their catalogues. In a final step, we once again carried out targeted research in news archives of well-known German general-interest newspapers and magazines using keywords and their thematic links. The archives of DER SPIEGEL, Die Welt, taz, Frankfurter Rundschau, DIE ZEIT, Süddeutsche Zeitung and FAZ (daily and/or weekly publication) have been searched and relevant articles from daily local newspapers (print and digital) – such as the Lippische Landeszeitung, Stuttgarter Nachrichten, Märkische Allgemeine and Berliner Morgenpost – as well as contributions from the online news portals Politik Digital, heise online and WIRED are included in the corpus.

We divided up and evaluated the collected data material according to two criteria: on the one hand, in material that provides background information on the field and subject of investigation and is thus useful for the reconstruction of discussion and regulation processes and as a possible correction instance for media analysis. On the other hand, a selection of these texts was used as material for the detailed analysis, on the basis of which the structures of public discourse are to be worked out and reconstructed [47]. The data corpus for this in-depth analysis thus consists of a total of 33 online and print texts from different media types and representatives (figure 1).

When collecting background information, we read, evaluated and incorporated all compiled texts into the analysis. The texts for the detailed analysis, on the other hand, were analyzed using Keller’s proposal for a pragmatic variant of interpretative-hermeneutic text analysis [45, 70]. We divided material into encoded sequences using software for qualitative analysis. First, we read the articles carefully and then add brief descriptions of the respective contents. In a third step, we ‘disassembled’ the texts: We identified a number of empirical codes, which in turn were used to encode relevant data excerpts across the entire body of empirical data. Thus, we compiled an overview of the text structure, the topics and actors addressed, individual arguments, the symbolic-rhetorical means used and the problem structure constructed in the texts, in order to finally reconstruct the problem structures that can be generalized across texts. We were doing this by forming more general categories for individual sections up to the entire text in the sense of a sequence-analytical procedure. Hence, the data was coded inductively and summarized with short codes, which were then grouped into larger candidate themes. In terms of text analysis, all researchers were involved in the process and in order to maximize reliability of the results, we pursued a triangulation strategy: the initial analysis was conducted by the first author while his results were then discussed with the other authors which resurfaced and sharpened the themes.

4 FINDINGS

This section presents the main findings of the analysis, which are presented under the three themes *Digital Participation in Prison as a “Luxury”*, *Digital Participation in Prison as a Security Risk* and *Resocialization through Digitization*. The theoretical prerequisites and assumptions worked out in the preceding sections – both with regard to the legal framework conditions of the penal system and with regard to ‘under-living’ in total institutions – serve in this context as theoretical previous knowledge and flow into the analysis in connection with the interest in knowledge. The collected background information as well as the related statements in the sample are combined into an own narration. The fundamental course of the discourse on inmate

Internet use, together with the important discursive events and their role in the development of the discourse are analyzed and the dominant patterns of interpretation and their interrelationships are presented here. Thus, the emergence and development of the public discourse on digital participation in prison is followed on the basis of questions about the temporal dimension, decisive events, relevant actors, competing and related other discourses and discursive patterns of interpretation.

4.1 Emergence and Development of the Public Discourse on Digital Participation in Prison

The special discourse on the digital opening of the prison system first appeared in with the media project 'Planet Tegel' at the Tegel correctional facility in Berlin in 1998. This is probably the best documented project in the prison system so far. Its conceptual starting point was the idea of connecting the Internet, perceived as infinite and free in its structure and possibilities, with the world of the prison, surrounded by walls and unfree. The project was initiated with the intention of breaking the silence and isolation of the prisoners and thus placing the prison system and its (living) conditions in the wider focus of the public. For the first time it was possible for the inmates to speak openly and directly about everyday life in prison – also about the consequences of incarceration in the form of detention damages, which are expressed in narratives about suicidal thoughts and drug problems among other things. The opening of the website received a lot of attention and a corresponding nationwide media response; the institution now allowed the prisoners involved in the project to send project-related emails and thus to contact the outside world – albeit in a limited and controlled manner – for the first time.

Following this, pilot projects of the distance learning university 'FernUniversität Hagen' (a state-funded distance education university in Germany) in cooperation with the JVA Tegel and the e-learning platform EliS were developed almost simultaneously. The teaching of computer skills and the use of PCs and learning software for training and further education purposes also had a permanent place in many German prisons at this time. Actual access to the Internet – albeit under the watchful eye and control of staff – is allegedly avoided due to unclear security regulations until today, even though there are now technical means of softening this restriction in the form of mirrored websites or tunnel access via VPN. Despite these rigid conditions, the inmates are committed to their website; as are those who are eligible to study in prison on the basis of their level of education, take up the offer of the 'FernUniversität Hagen' or participate in the EliS project – even though many of them have to serve up to 25 years. In terms of motivation, most inmates are primarily concerned with "not being deserted mentally, keeping fit up there" [24] and with a meaningful distraction from everyday life in prison. Under the pressure of the conversion on the part of the FernUniversität Hagen to exclusively virtual operation, e.g. the possibility is opened to the students among the inmates to use the study offer available online and to get in contact via email communication and under occasional use of video conferences, especially during examinations with supervisors and fellow students. However, other connections to the Internet are cut.

In the years 2003 to 2009, the discourse on the use of ICT and digital media in the penal system ebbed away in the press discourse to such an extent that it could almost be assumed that it would disappear. Through the publication of Knauer [48] in 2006, the subject matter was brought back into the perception of the specialist discourse; the public press discourse, however, showed astonishingly little interest in the subject. In this way, only isolated discourse contributions can be identified, which, however, thematically follow the previous ones almost seamlessly and contain

little new information. However, this fits in with ‘practice’ in that neither anything changed in the (prison) conditions regarding access to digital media nor a discursive solution to the problem was in sight during this period. At the same time, the achieved status quo of “limited Internet use” was maintained, so to speak, which has little in common with an actual digital opening of the prison system, but from an educational point of view initially presented itself as at least sufficient and “comfortable”. In 2011, the report on the symposium “Digital Media and Internet Applications in Prisons” of the Institute for Education in the Information Society is included in the professional discourse. In this publication experts and teachers from more than 50 prisons in Germany examine the opportunities and risks arising from the use of digital technologies by prisoners.

The discourse on the digital participation of prisoners experienced both a renewed upswing and a turnaround in 2016: The proposal for the pilot project ‘Resocialization through Digitization’ was submitted to the Berlin Legal Affairs Committee. According to the report, the Social Democratic Party of Germany (SPD)/ Christian Democratic Union (CDU) party coalition in Berlin is planning a pilot project to grant prison inmates access to selected websites. The plan provides that some prisoners may surf in compliance with the special security requirements of the prison system – quasi in the sense of a whitelist solution – on appropriately equipped computers, on previously selected pages classified as safe. However, this only refers to websites and portals that are particularly conducive to social rehabilitation. According to the report, these include offers from training institutions, employment agency pages, housing portals, news sites and the Internet dictionary Wikipedia. Access to social networks, however, is not envisaged. The contents are to be made accessible to the inmates on prison servers with a slight delay. The inmates are let to the computers individually and their use is always monitored by an official. The Internet connection can also be interrupted immediately if there is the slightest danger. For this purpose, a network infrastructure was set up, configured hardware procured and user services programmed. The aim of the project is to enable prisoners to participate better in public life outside the prison walls and to increase their chances of social rehabilitation. At the same time, it should be tested “whether detained persons may use Internet telephony and send e-mails to previously checked recipients” [36]. In order to do justice to the aspects of security and order, the institutions should be allowed to monitor and store the communication of the inmates and to exclude prisoners from participating in the project. This project is intended to do justice to both aspects – social rehabilitation as well as security and order.

4.2 Digital Participation in Prison as a “Luxury”

In view of the punitive tendencies in the public sphere, the various actors within the discourse are fighting a battle for and against the idea of a ‘4-star prison’. When it comes to the already existing PC equipment in prisons, the responsible institutions prefer to be cautious when it comes to such devices, because “people don’t like to boast about good PC equipment in order not to nourish the comprehensive prejudice of the luxury prison and to stir up the ubiquitous social envy” [64]. In the progress of the discourse, the pattern of interpretation *Internet as Luxury* experiences a perfidious charge: this pattern of interpretation is indirectly linked to the question of whether these people ‘deserve’ such a ‘luxury’ at all or if they have not forfeited their right to digital participation through their offence. In addition, this pattern further discusses why, for example, long-term inmates need access to the Internet and education at all if they are no longer returned to society anyway.

In 2009, the taz published an article peppered with the rhetorical and linguistic means of irony and cynicism. It reports on the case of a prisoner who had himself gained access to the Internet by rebuilding a computer provided for study purposes with hardware components stolen from prison and smuggled in. This incident and its integration into the discourse must be viewed critically: one can assume that this is an absolute exception, which is exaggerated and scandalized. Finally, the implementation of such a plan requires a high level of technical expertise and the availability and accessibility of these numerous components. In addition, the need to adapt enforcement to general living conditions and reintegration into the digital world is presented as a ‘joke’. This story is further exaggerated by satirically claiming that Internet access is sufficient to become a full member of the digital society. Furthermore, the prisoner's motives for action are ‘luxury’ and ‘boredom’.

At this point, the discursive field of tension shifts and intensifies again – both along the interpretation pattern *Internet as Luxury* and along the pattern *Resocialization through Digitalization*. According to this, supporters of a hard line in the penal system see an undesirable weakening of the penal system. CDU politician and legal expert Danny Eichbaum is quoted here: “I support limited Internet access for training and qualification purposes, but a prison must not become a luxury hotel”. While the proponents of Internet access argue to facilitate resocialization from the other side: “IT use, Internet and email are cultural techniques of our time. A prisoner who does not control this is disadvantaged in freedom and will find it more difficult to reintegrate” [28]. For some policy makers, the interactivity and ‘freedom’ of the Internet seems to conflict with everyday ideas about detention as a time of isolation, loneliness and penance, as well as retaliation, material hardship and suffering. Towards the end of the discursive investigation period, however, the interpretation pattern *Internet as Luxury* seems to have survived itself and been excluded from participation in the discourse; it is therefore no longer used in the public discourse on digital participation in the penal system.

4.3 Digital Participation in Prison as a Security Risk

In their documentaries, the public media convey the image that ICT and digital media are used first and foremost and exclusively for criminal purposes and not beyond these purposes by inmates. Whether intended or not, such narratives serve above all to further stigmatize a social group that is already on the margins and rarely has a right to an answer. Justifications put forward for denying prisoners access to the Internet for security reasons are often based on and supported by more emotional objections. It was precisely the communicative and interactive elements of Planet Tegel and the other projects that shed a different, supposedly frightening light on the discourse on the ICT use of inmates: for the first time, uncontrolled, Internet-based communication between prisoners and the outside world was presented as a danger to the security and order of the institution, which had to be effectively suppressed. And this, although there was in fact no free access to the network and will not be in the near future.

In this context, another milestone in the discourse on the use of ICT by prisoners is an article [30], published in the Märkische Allgemeine Zeitung on April 14, 2016. This article impressively demonstrates how emotionally charged the issue is, how sensitively public opinion can react to the issue of digital media in the penal system and what power the public, victims’ associations and the political opposition have to nip such innovative advances in the area of closed prison in the bud. The pilot project of the Left Party (Die LINKE) politician Helmuth Markov to equip three prisons with multimedia boxes caused indignation and led to sharp criticism from victim associations and the political opposition. With these multimedia boxes it is technically possible not

only to receive television and radio, but also to make telephone calls and access the Internet. After the aforementioned criticism of the plan to install the multimedia boxes in the detention rooms, they quickly rowed back and asserted that they were initially only intended for telephoning and that a decision still had to be made on the possibility of activating the Internet as well. Although the prison cells are equipped with these media boxes, the Internet function is blocked. Again, Danny Eichelbaum (CDU) comments on the ‘incident’ by stating that the CDU “will continue to reject such left-wing prison fantasies in the future” [30]. Victim associations such as the ‘White Ring’ had also warned against this plan – with the reference that there is a great danger that victims will once again become victims because they are pressured or harassed via the Internet: “Internet access for prisoners is a security risk, the commission of criminal offences from the prison cannot be ruled out” [30].

Out of fear for the safety and order of the institution, there are sometimes paranoid-looking situations: For example, a correctional facility dismantled its computers because the prison management suspected that prisoners could extract explosive files from the Internet, even though the computers had no Internet connection at all. This also refers to a certain ‘technical fear’ and to a less pronounced understanding of technology on the part of staff and management.

Although the topics of crime and the prison system have always been undisputedly regarded as explosive topics of public discussion, the special discourse on the digital opening of enforcement described here has given the discourse a different orientation and further intensification. Prison and the use of ICT and digital media seem diametrically opposed to each other: maximum control and lack of freedom on the one hand, unlimited freedom on the other. And according to a broad consensus among the population, punishment must still be imposed first and foremost in prison. Especially at the beginning of the discourse, the combination of ‘murderer’ and ‘student/study’ is remarkably often used in the press texts. This suggests subliminal danger and ‘exploitation’ of the digital prison system by the inmates. Thus, massive fears of security are articulated in the discourse, which first manifest themselves in the interpretation pattern *Internet as a Security Risk* as the alleged dangers of uncontrollable communication for planning illicit business, hacking and downloading institutional logos and their misuse. Even in guarded computer rooms a residual risk is feared, which makes the responsible politicians hesitate to relax the regulations. In 2013, the justice senator’s spokeswoman was quoted as follows: “The Internet offers almost endless possibilities for abuse and it is our task to ensure that no crimes are committed in the penal system, and certainly not with our help. For example, if child pornography is loaded or sent via the management of a prison, popular anger is likely to boil up” [28].

4.4 Resocialization through Digitization

At the same time, the social problem of the use of new media by prisoners is stylized – initially from a professional point of view – but also as a symbol for a modern prison system. It seems paradoxical that the “goal of the German penal system is the reintegration of perpetrators into society, but an important means of opening up new perspectives in freedom is abolished through the back door” [6]. Thus, the discourse now inevitably moves into the tension that has already been revealed and is now also reflected on a discursive level: what is meant here is the compatibility between the fundamental openness of ICT from the point of view of social and institutional security on the one hand and a claim to rehabilitation, which must adapt to social changes on the other. For the first time, the problem of the exclusion of prisoners from media participation largely leaves both the ‘luxury’ discourse and the primary framework of

interpretation of education and is located in the field of tension of a discourse on social rehabilitation, security, punishment and economic efficiency with regard to the electronic communication of prisoners.

In autumn 2012, the association ‘Arbeitskreis Kritischer Strafvollzug e.V.’ launched a campaign calling for “equal rights for all” and thus “free access to the Internet as a human right – also in prison”. The working group states that free access to information is a human right and for successful social rehabilitation it is almost necessary to allow access to the Internet. In the same year, the working group also publishes the corresponding interim report, which consists of letters and statements from prisoners on the subject of digital participation and the prison system. However, the further trace of this campaign seems to have been lost insofar as no final report can be found to date. Nonetheless, it can be noted that an attempt was made here to establish the interpretation pattern *Internet as a fundamental right / human right* in the discourse – albeit unsuccessfully. In 2013, however, the discourse experienced an immense upswing, which can probably be traced back to the actual establishment of digital media in everyday life in Germany – and in particular those social media such as Facebook, Wikipedia and Google. “In the age of global networking, ten years are an eternity: in 2003 half of Germans were still offline, the telephone software Skype was completely new and Facebook did not follow until a year later” [28]. However, little has changed in the status quo of the digital opening of the penal system as a result of this increasing establishment of these digital innovations: “It is 2013, and many prison laws do not even comment on the permissibility of the Internet in the penal system” [28]. As much as the Internet seemed to be an omnipresent everyday object at the time, German prison walls have rarely penetrated it.

In 2015, the Lippische Landes-Zeitung reports about a model trial of the Detmold correctional facility with a well-known system for Internet video telephony limited to one year [22]. This makes it possible for the inmates to contact relatives via video telephony under the exclusive visual observation of a correctional officer. The use of video telephony is seen as important step, even if “the right visit from person to person cannot be replaced” [28] The connection is terminated as soon as someone “who does not belong there” appears on the screen. Internet telephony is carried out under strict regulations and security precautions: In setting up the site, care was also taken to ensure that the computer is not a threat to data security in the correctional facility. It is believed that “more contact with the girlfriend, wife, the children outside take pressure off the boiler inside and is good for the climate” [22]. This article appears as a discursive ‘milestone’ in that, for the first time, only the possibilities of digital communication are underlined – in the form of the pattern of interpretation *the Internet as an Opportunity for Communicative Participation*.

Even if the idea of treatment and resocialization formally takes precedence over the mere deprivation of liberty for prisoners, this idea is not generally recognized either by the executive organs or by the persons working in them; the central idea of security and order often dominates the work of prison personnel. In this respect, it can be noted that there is an inherent conflict of objectives between the reintegration of the offender and the carrying out of the task of securing; help and control appear here to be almost contradictory elements. Concerns and the fundamental rejection of the project “Resocialization through Digitization”, for example, finally come from the law enforcement authorities, as it is argued that security measures to prevent abuse could be circumvented by the prisoners. Moreover, the staff could not adequately supervise the project and could not sufficiently monitor Internet use due to a lack of staff. At this point it is interesting to observe how the supporters react to this argument of the prison officials by saying that abuse, e.g.

by visiting pornographic sites, can definitely be excluded and convicted sex offenders or Internet fraudsters would be excluded from participating in the project anyway. This advance is interesting from a discourse-analytical perspective inasmuch as the interpretative patterns *Resocialization through Digitization*, *Internet as a Prerequisite and Opportunity for Participation* have been able to assert themselves discursively alongside the pattern *Internet as Security Risk*.

5 DISCUSSION

In this section, the results of the analysis are linked to the theoretical assumptions and the results are critically reflected and discussed. Doing so, we want to push forward the discussion on the potential and unique challenges of prisons and criminal contexts with regard to the possibility of the digital opening of total institutions.

5.1 Digital Participation and Prison – From a Security Risk to a Fundamental Right?

As our analysis underlines, the discourse on the use of ICT by prisoners is not detached from social developments and the political context. Rather, in the form of a special discourse, it more or less ties in with existing discursive negotiations. It is especially important to raise the concerns of the public: the discursive debate on the possible use of ICT by prison inmates is initially embedded in a more general discourse on the media use of prisoners; just as this is partially located in higher-level discourses on resocialization, security and order, punishment and economic efficiency.

Here, both the supposed ‘correct’ custody and treatment of offenders and the ‘appropriate’ social treatment of ‘dissenters’ are negotiated at regular intervals. Furthermore, the media use of inmates at the beginning was still discursively embedded in a general media discourse that revolved around the use and provision of unidirectional media such as magazines and newspapers, television and radio and was framed and guided by various actors in public discourse mostly with the interpretative pattern of the alleged ‘luxury in prison’. Here, the disputes could rather be attributed to a criminal discourse in which the alleged ‘privileges’ of prisoners were discussed. Nevertheless, the complete refusal of access to the Internet lacks a legal basis and cannot be derived from concerns about the security and order of the institution. While, for example, television sets are now common in prisons and newspapers and magazines can be purchased – and communication with the “outside world” via telephone, correspondence and visits is guaranteed – prisoners are largely excluded from participation in the Internet and ICT. In this context, it can be stated that the public discourse almost unanimously assumes that the communication of prisoners with the outside world via the Internet poses a threat to the security and order of the institution, which must be effectively prevented. Therefore, opinions often differ only on the question of what measures are necessary to avert this threat.

As a result of this public discourse, although reintegration into a stable society after imprisonment is a clear goal, its realization repeatedly encounters institutional barriers and discursive resistance from the public. It can be concluded that public opinion and attitudes to punishment and the penal system are very different from both the legal basis and scientific findings. With a few exceptions, the media coverage is relatively positive over time. To what extent this agreeing tendency is still valid even after abuse by inmates remains open. In such a case, sympathy for the interesting combination of the closed prison system with the boundlessness

of the Internet could quickly turn into rejection. Already now, for example, victim protection organizations and law enforcement officials have reservations about Internet use by prisoners.

Political justifications are based on the perception of the insecurity inherent in technology. In particular, official resistance to Internet access in prisons focuses primarily on the possibility of being used by prisoners to see pornography, contact victims and intimidate witnesses. These security fears are not new and have been articulated in the past with regard to the possession and use of television sets and telephones. But it is precisely the interactive element of the Internet that fuels new security concerns. Finally, it should not be forgotten in this context that the constant pursuit of security can lead to a higher level of perceived and real insecurity, as denial of Internet access and the use of ICT in prisons creates new forms of social exclusion that will sooner or later be felt again in society.

5.2 Alleviate the Distinctive Pain of Late Modern Imprisonment

Modern and successful social rehabilitation requires a certain amount of technical and professional know-how and basic knowledge on the part of the occupants in order to be able to achieve social integration and to lead an appropriate life with social responsibility and without committing crimes. Solid knowledge of modern ICT is one of the basic qualifications. In addition, ICT and the Internet offer an opportunity to counteract the exclusion in all areas of life that a stay in a total institution brings with it and to mitigate the damage caused by imprisonment. At this point, a society must ask itself what is really in the public security interest: more safety technology or modern rehabilitation. The prison system cannot, in any case, permanently close itself off from the possibilities of new ICT and the Internet, and there is no reason to do so. It could be pointed out that a large part of the (discursive) disputes actually revolves around the question: how much preventive detention must be enforced and how much risky treatment should be carried out? It also became clear that the penal system is directly involved in political processes and is a morally highly charged and sensitive subject whose discursive negotiation often involves strong contrasts and scandalizations. At the same time, the social focus shifts to the aspects of security and order, while the idea of social rehabilitation runs the risk of fading into the background.

Moreover, the digital participation of prisoners is usually only discussed within the framework of formal educational offers. In addition, it becomes apparent that enforcement practice and representatives of the responsible administrative authorities still rate the dangers that threaten the prison system through the use of ICT higher than the resulting opportunities for social rehabilitation. Furthermore, it can be stated that almost all projects and initiatives deal exclusively with the aspects of education and work. None of the projects specifically address aspects of communication or the free provision of information in order to counteract possible damage caused by imprisonment. For prisoners, every kind of life support from the WWW remains so unreachable, not to mention social contacts. Questions about informal educational processes, free procurement of information and especially communication are also lost from view. In the discussion about the potentials and challenges of ICT and digital media in the prison context, the topics of digital competence, rehabilitative potential (access to services, e-learning, maintaining social contacts), direct and fast communication and boredom management are often discursively ignored.

Our knowledge sociological analysis of the public discourse on the digital opening of the closed prison system in Germany has shown us how detailed and visceral the restrictions of everyday life are experienced by prisoners in general and especially with a view to their exclusion from ICT and

digital media. The limitations associated with imprisonment and encountered by prisoners in maintaining their own contacts are perceived as degrading and promote their loss of self-esteem and self-esteem, and may therefore be associated with health risks. Furthermore, we became aware of how even basic sociality, everyday awareness and possibilities of simple solidarity with the outside world are significantly disturbed by imprisonment in a closed prison. All these phenomena are vividly addressed in our analysis and clearly show the limitations that inmates face beyond the loss of freedom of movement. Our findings should encourage a deeper reflection on what freedoms are actually lost in detention and how the use of ICT and digital media can improve both under-living in an isolated detention situation and preparation for release from prison, as well as counteract possible harm from detention.

Furthermore, our analysis also raises awareness of the profound impact on detainees if they are denied access to modern technology. Based on the presented social self-description and discursive background history of the 'Digital Knowledge Society', it becomes clear again how comprehensively mediatized and digitized the private, public and professional life of many of us is in technologically driven societies. As our current experience of friendship, intimacy, commitment and identity is linked to the use of technology, all of these digital resources for self-esteem and wellbeing can be denied to the inmates, mostly relying solely on the aspect of security. Dealing with the discourse on the digital opening of closed prison has led us to regard the legitimacy of this forced technological exclusion as a specific form of punishment and to call it into question. Prisoners should be 'equipped' for a life in that freedom after 'serving' their prison sentence for the purpose of reintegration into a stable society. Likewise, however, the conditions of imprisonment in closed prison should be brought into line with general living conditions outside the prison walls as far as possible. However, long-term prisoners also have the right to maintain social contacts in prison, to further their education and to distract themselves from everyday prison life.

5.3 Implications and Future Work

Due to the fact that innovative ICT and new media are per se based on participation, a fruitful reconstruction of the issue of digital participation of prison inmates as a social problem could take place. There is countless evidence that crime can be leveraged by technology but also numerous examples where HCI research successfully countered such trends [52, 62]. This leaves the impression that it has to be indeed possible to design 'secure' systems that can be used by prisoners. It is tempting to assume that the process of participatory design (PD) could be an appropriate solution, as it takes into account the problems and concerns of the various interest groups. However, we are aware that the challenges of PD in general [78] are challenged at least as much when working with marginalized groups [20] and when considering digital empowerment [10, 53] and citizen trust [35] in this sensitive research context; not least with regard to the difficulties of field access. Nevertheless, we hope that the provision of a hitherto non-existent overview of the multitude of interest groups involved, their problems, and their concerns will draw attention to the challenges facing inmates and prison staff in the design process and lead to a more empathetic perspective on it.

Based on the findings of our analysis, it becomes clear that initiatives for the digital opening of the German prison system are generally triggered from outside and that not all relevant stakeholders are taken into account in the conception and design process of these projects. In this context, we want to extend our methodological framework for future research on this subject so that the research process takes place in an open design process [26] with support of long-term cooperation, co-design and in-situ exploration [61]: for instance by means of various ethnographic methods – such as (participant) observation, (expert) semi-structured interviews and design workshops – the implicit and poorly specifiable requirements are made observable and can be used for the construction of deep contextual understanding of the user contexts and their needs, so to inform the design and deployment of socio-technical systems and to assess their appropriation [80]. Therefore, based on this preliminary discourse analysis, several case studies can be conducted in different prisons. Through regular visits to the institutions and interviews with (former) prisoners, staff and the prison administration, real-contextual data can be collected that can be compared with the results of the discourse analysis and thus included both in the requirements analysis and in the design process of IT-artefacts.

In the context of a subsequent and extended knowledge sociological discourse analysis on the subject, the statements and opinions to be found in the comment columns of the respective press articles, e.g., could be included. This would make the analysis more ‘public’ in the sense that ‘ordinary citizens’ and Internet users would also have their say. The same applies to discussions in forums, blogs and social media platforms. Furthermore, the analysis applied here could be extended to other international examples so that, for example, the penal system and public discourse in other countries could be traced and compared. Here, a comparison between Germany, Norway and the USA would be almost appropriate due to the contrary orientation of the prison system in each case.

Last but not least, the framework developed in this publication could be used to compare various total institutions, such as closed psychiatric institutions or nursing homes for the elderly, with regard to digital participation possibilities and restrictions.

5.4 Limitations

Our study is based on the qualitative research paradigm and consequently does not allow generalization, especially because of the small sample size and the very specific characteristics of the research context. At this point, it is important to consider and acknowledge the limitations of SKAD for our research purposes: with a few exceptions [3], discourse analysis has hardly been used in the field of HCI and we are fully aware that SKAD alone cannot be sufficient to fully understand the situation. What is reported in media publications is often only slightly related to what is actually happening in the field. Nevertheless, these reports contribute to the construction of social reality by providing a quick introduction and overview of how a social problem is thought and discussed and by providing opinions, argumentation structures and general patterns of interpretation. We acknowledge the limitations of using a SKAD for provoking design; nevertheless, the results of our SKAD show implications for the design of research studies and of research programs [19] by providing more context for researchers who want to enter a field of research, and which is always a social setting determined by specific factors and internal rules.

Yet, we believe that a SKAD can be useful before entering a field, and can serve as a ‘pre-study of the pre-study’, so that researchers have a clearer picture of the factors that shape the setting, especially in such under-researched and sensitive fields as the one of the paper at hand.

However, we are confident that our findings provide a perspicuous example that raises awareness of this social problem of marginalization of prisoners with regard to the use of ICT. Our implications can also form a profound basis for developing and testing recommendations for action, further requirement analyses and design case studies.

7 CONCLUSION

In our public discourse analysis on the use of ICT by prison inmates in Germany, we focused an area of society that is insufficiently developed, under-explored from an ICT perspective and permeated with certain prejudices. We pushed forward the discussion on the potential and unique challenges of prisons and criminal contexts with regard to the possibility of a digital opening of prisons as total institutions and structurally highlighted the interests of existing actors by classifying conflicting lines of argumentation and patterns of interpretation. Moreover, we assessed from a discourse-analytical perspective whether and to what extent there are opportunities for prisoners to participate in the use of ICT and digital media in order to better meet the challenge of resocialization in closed prison systems. Furthermore, this study provides an important addition to the state of research and methodology with a social constructivist and discursive theoretical component that can become beneficial to other researchers and ICT designers that are concerned with supporting group work.

REFERENCES

- [1] Antonio Díaz Andrade, Bill Doolin. 2016. Information and Communication Technology and the Social Inclusion of Refugees. *MIS Quarterly*, 40, 2 (Feb. 2016), 405–416. DOI: <https://doi.org/10/gfv4hk>
- [2] Mirko Bagaric, Nick Fischer, Dan Hunter. 2017. The Hardship That is Internet Deprivation and What it Means for Sentencing: Development of the Internet Sanction and Connectivity for Prisoners. *Akron Law Review* 51, 2, 261–322. Retrieved February 28, 2019 from <https://ideaexchange.uakron.edu/akronlawreview/vol51/iss2/2>
- [3] Jeffrey Bardzell and Shaowen Bardzell. 2016. Humanistic HCI. *Interactions* 23, 2, 20–29. DOI: <https://doi.org/10.1145/2888576>
- [4] Maria Barreiro-Gen et al. 2013. e-Prisons and New Technologies: ICT as a Mechanism of Social Inclusion of Prisoners. *International Journal of Knowledge Society Research*, 4, 3, 1–10. <https://doi.org/10.4018/ijksr.2013070101>.
- [5] Maria Barreiro-Gen and Isabel Novo-Corti. 2015. Collaborative learning in environments with restricted access to the internet: Policies to bridge the digital divide and exclusion in prisons through the development of the skills of inmates. *Computers in Human Behavior* 5, 1172–1176. DOI: <https://doi.org/10.1016/j.chb.2015.01.076>
- [6] Steffen Becker. 2004. *Studium hinter Gittern. Zellforschung unplugged*. Retrieved February 28, 2019 from <http://spiegel.de/lebenundlernen/uni/studium-hinter-gittern-zellforschung-unplugged-a-269624.html>
- [7] Daniel Bell. 2001. The Coming of Post-Industrial Society. *Social stratification. Class, race, and gender in sociological perspective*, 805–817. Boulder: Westview Press.
- [8] Peter Berger and Thomas Luckmann. 1990. The social construction of reality. A treatise in the sociology of knowledge. New York: Anchor Books.
- [9] Russel W. Belk. 1988. Possessions and the extended self. *Journal of consumer research*, 15(2), 139–168.
- [10] Erling Björgvinsson, Pelle Ehn, Per-Anders Hillgren. 2010. Participatory Design and “Democratizing Innovation.” *Proceedings of the 11th Biennial Participatory Design Conference* (New York, NY, USA, 2010), 41–50. DOI: 10.1145/1900441.1900448
- [11] Bundesministerium für Bildung und Forschung. 2016. *Bildungsoffensive für die digitale Wissensgesellschaft. Strategie des Bundesministeriums für Bildung und Forschung*. Retrieved February 28, 2019 from https://www.bmbf.de/files/Bildungsoffensive_fuer_die_digitale_Wissensgesellschaft.pdf
- [12] Carl Cattermole. 2015. *HMP A Survival Guide*. London: Ditto Press.
- [13] Sally Coates. 2016. *Unlocking Potential: A review of education in prison*. Ministry of Justice. <http://www.gov.uk/moj>
- [14] Lizzie Coles-Kemp, Alice Angus, and Freya Stang. 2013. Letting go: working with the rhythm of participants. *CHI'13 Extended Abstracts on Human Factors in Computing Systems*. ACM, 373–378.

<https://doi.org/10.1145/2468356.2468422>

Eric Corbett. 2018. Trust and Community Engagement in Digital Civics: Exploring Opportunities for Design. *Proceedings of the 2018 ACM Conference Companion Publication on Designing Interactive Systems* (New York, NY, USA, 2018), 367–370.

- [15] Heinz Cornel. 2015. Resozialisierungsgesetz. *Handbuch Jugendstrafvollzug*, 582–598. Weinheim: Beltz Juventa.
- [16] Carl DiSalvo, Phoebe Sengers, Hrönn Brynjarsdóttir. 2010. Mapping the landscape of sustainable HCI. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI'10). ACM, New York, DOI: 10.1145/1753326.1753625
- [17] Fyodor Dostoevsky. 1985. *The House of the Dead*. London: Penguin Classics.
- [18] Paul Dourish. 2007. Responsibilities and implications: further thoughts on ethnography and design. *Proceedings of the 2007 conference on Designing for User eXperiences* (DUX '07). ACM, New York, NY, USA, Article 25, 15 pages. DOI: <https://doi.org/10.1145/1389908.1389941>
- [19] Pelle Ehn. 2008. Participation in Design Things. *Proceedings of the Tenth Anniversary Conference on Participatory Design 2008* (Indianapolis, IN, USA, 2008), 92–101.
- [20] Horst Entorf. 2009. Crime and the Labour Market: Evidence from a Survey of Inmates. *Jahrbücher für Nationalökonomie und Statistik*. 229, 2–3. DOI: <https://doi.org/10.1515/jbnst-2009-2-311>.
- [21] Thorsten Engelhardt. 2015. *Skype im Knast: Bildschirm-Blick nach draußen*. Retrieved February 28, 2019 from http://lz.de/lippe/detmold/20335367_Skype-im-Knast-Bildschirm-Blick-nach-draussen.html
- [22] Leslie Fairweather and Seán McConville. 2000. *Prison architecture: policy, design, and experience*. Routledge.
- [23] Jochen Fengler, Elmer Lenzen. 2002. Ein kleines Loch in der Mauer. *taz, die tageszeitung*, 6728, 14. Retrieved February 28, 2019 from <http://taz.de/Archiv-Suche!/1114753&s=gef%E4ngnis+UND+inter>
- [24] Marius Fiedler, Susan Vogel. 2016. § 5 Freizeit, Medien, Sport. Jugendstrafvollzugsrecht. Kommentierende Darstellung der einzelnen Jugendstrafvollzugsgesetze, 311–387. Baden-Baden: Nomos.
- [25] Asbjørn Følstad, Petter Bae Brandtzæg, Jan Gulliksen Mikael Börjeson, Pirjo Näkki. 2009. Towards a Manifesto for Living Lab Co-creation. *Human-Computer Interaction – INTERACT 2009* (2009), 979–980.
- [26] Michel Foucault. 1995. *Discipline and Punish. The Birth of the Prison*. New York: Vintage Books (Random House), Original 1975.
- [27] Alissa Frommeyer, Tobias Schulze. 2013. *Internet für Häftlinge. Leben hinter Gittern – und ohne Netz*. Retrieved February 28, 2019 from <http://taz.de/15073011>
- [28] Werner Fuchs-Heinritz. 1994. *Lexikon zur Soziologie*. Opladen: Westdeutscher Verlag.
- [29] Torsten Gellner. 2016. *Erst mal nur Telefon. Nach Kritik: Doch kein Internet im Gefängnis*. Retrieved February 28, 2019 from <http://maz-online.de/Nachrichten/Politik/Nach-Kritik-Doch-kein-Internet-im-Gefangnis>
- [30] Mary Gibson. 2011. Global Perspectives on the Birth of the Prison. *The American Historical Review*, 116(4), 1040–1063. <https://doi.org/10.1086/ahr.116.4.1040>
- [31] Georg Glasze, Shadia Hussein, Jörg Mose. 2009. Kodierende Verfahren in der Diskursforschung. *Handbuch Diskurs und Raum. Theorien und Methoden für die Humangeographie sowie die sozial- und kulturwissenschaftliche Raumforschung*, 293–314. Bielefeld: transcript-Verlag.
- [32] Erving Goffman. 1990. *Asylums. Essays on the social situation of mental patients and other inmates*. New York: Anchor Books.
- [33] Elizabeth Goodman. 2009. Three environmental discourses in human-computer interaction. *CHI'09 Extended Abstracts on Human Factors in Computing Systems* (CHI EA'09). DOI: 10.1145/1520340.1520358
- [34] Mike Harding, Bran Knowles, Nigel Davies, Mark Rouncefield. 2015. HCI, Civic Engagement & Trust. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (New York, NY, USA, 2015), 2833–2842. DOI: 10.1145/2702123.2702255
- [35] HEISE ONLINE (06.03.2016): *Berlin will Strafgefangenen kontrollierten Internetzugang gewähren*. Retrieved February 28, 2019 from www.heise.de/newsticker/meldung/Berlin-will-Strafgefangenen-kontrollierten-Internetzugang-gewaehren-3129335.html
- [36] Peter Hinssen and Misha Chellam. 2010. The New Normal: Explore the limits of the digital world. Mach media.
- [37] Ellen Johanna Helsper and Rebecca Eynon. 2013. Distinct skill pathways to digital engagement. *European Journal of Communication*, 28, 6, 696–713. DOI: <https://doi.org/10.1177/0267323113499113>.
- [38] Netta Iivari. 2004. Exploring the Rhetoric on Representing the User: Discourses on User Involvement in Software Development. *ICIS 2004 Proceedings*.
- [39] Jörg-Martin Jehle, Hans-Jörg Albrecht, Sabine Hohmann-Fricke, and Carina Tetel. 2016. *Legalbewährung nach strafrechtlichen Sanktionen: eine bundesweite Rückfalluntersuchung 2010 bis 2013 und 2004 bis 2013*. 1. Aufl. Recht. Mönchengladbach: Forum Verlag Godesberg GmbH.

- [40] Yvonne Jewkes. 2009. The role of the Internet in the twenty-first century prison: insecure technologies in secure spaces. *Technologies of InSecurity. The surveillance of everyday life*, 169–188. New York: Routledge-Cavendish.
- [41] Yvonne Jewkes and Bianca Reisdorf. 2016. A brave new world: The problems and opportunities presented by new media technologies in prisons. *Criminology & Criminal Justice*, 16, 5, 534–551. DOI: <https://doi.org/10.1177/1748895816654953>.
- [42] Yvonne Jewkes, Helen Johnston. 2009. ‘Cavemen in an Era of Speed-of-Light Technology’: Historical and Contemporary Perspectives on Communication within Prisons. *The Howard Journal of Criminal Justice*, 48, 2 (May 2009), 132–143. DOI: <https://doi.org/10.1111/j.1468-2311.2009.00559.x>.
- [43] Robert Johnson. 2005. Brave new prisons: The growing social isolation of modern penal institutions. The effects of imprisonment. 255–284.
- [44] Reiner Keller. 2009. Müll – die gesellschaftliche Konstruktion des Wertvollen. Die öffentliche Diskussion über Abfall in Deutschland und Frankreich. Wiesbaden: VS Verlag für Sozialwissenschaften.
- [45] Reiner Keller. 2011. The Sociology of Knowledge Approach to Discourse (SKAD). *Hum Stud* 34, 1, 43–65. DOI: <https://doi.org/10.1007/s10746-011-9175-z>
- [46] Reiner Keller. 2013. Doing discourse research. An introduction for social scientists. London: SAGE Publications.
- [47] Florian Knauer. 2006. Strafvollzug und Internet. Rechtsprobleme der Nutzung elektronischer Kommunikationsmedien durch Strafgefangene. Berlin: BWV Berliner Wiss.-Verl.
- [48] Victoria Knight. 2017. Remote control: television in prison.
- [49] Klaus Laubenthal. 2015. *Strafvollzug*. Berlin, Heidelberg: Springer Verlag.
- [50] Sheena Lewis. 2012. Examining and Designing Community Crime Prevention Technology. *CHI '12 Extended Abstracts on Human Factors in Computing Systems* (New York, NY, USA, 2012), 939–942. DOI: 10.1145/2212776.2212870
- [51] Sheena Lewis, Dan A. Lewis. 2012. Examining Technology That Supports Community Policing. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (New York, NY, USA, 2012), 1371–1380. DOI: 10.1145/2207676.2208595
- [52] Maarit Mäkinen. 2006. Digital Empowerment as a Process for Enhancing Citizens’ Participation. *E-Learning and Digital Media*. 3, 3 (Sep. 2006), 381–395. DOI: <https://doi.org/10/dpj5pk>.
- [53] Angélica Monteiro, Rita Barros and Carlinda Leite. 2015. Lifelong learning through e-learning in european prisons: rethinking digital and social inclusion. *INTED2015 Proceedings*, 1038–1046.
- [54] Isabel Novo-Corti and Maria Barreiro-Gen. 2017. Additional Barriers to Access to Labour Market for Prisoners Due to Digital Isolation. *Media and Metamedia Management* 503, 391–396. Cham: Springer International Publishing.
- [55] Michelle S. Phelps. 2011. Rehabilitation in the Punitive Era: The Gap between Rhetoric and Reality in U.S. Prison Programs. *Law & society review*. 45, 1 (Mar. 2011), 33–68. DOI: <https://doi.org/10/fgdf28>
- [56] John Pratt, Anna Eriksson. 2011. ‘Mr. Larsson is walking out again’. The origins and development of Scandinavian prison systems. *Australian & New Zealand Journal of Criminology*. 44, 1 (Apr. 2011), 7–23. DOI: <https://doi.org/10/bcjsw4>
- [57] Bianca C. Reisdorf and Yvonne Jewkes. 2016. (B)Locked sites: cases of Internet use in three British prisons. *Information, Communication & Society* 19, 6, 771–786. DOI: <https://doi.org/10.1080/1369118X.2016.1153124>
- [58] Bianca C. Reisdorf and R. V. Rikard. 2018. Digital Rehabilitation: A Model of Reentry Into the Digital Age. *American Behavioral Scientist* 62, 9, 1273–1290. DOI: <https://doi.org/10.1177/0002764218773817>.
- [59] David Roedl, Shaowen Bardzell, Jeffrey Bardzell. 2015. Sustainable Making? Balancing Optimism and Criticism in HCI Discourse. *ACM Trans. Comput.-Hum. Interact.* 22, 3 (Jun. 2015), 15:1–15:27. DOI: [dx.doi.org/10.1145/2699742](https://doi.org/10.1145/2699742)
- [60] Markus Rohde, Peter Brödner, Gunnar Stevens, Matthias Betz, Volker Wulf. 2017. Grounded Design - a praxeological IS research perspective. *Journal of Information Technology*. 32, 2 (Jun. 2017), 163–179. DOI: <https://doi.org/10/gfv58b>.
- [61] Christine Satchell, Marcus Foth. 2011. Welcome to the Jungle: HCI After Dark. *CHI '11 Extended Abstracts on Human Factors in Computing Systems* (New York, NY, USA, 2011), 753–762. DOI: 10.1145/1979742.1979630
- [62] Uwe Schimank. 2012. Sozialer Wandel. Wohin geht die Entwicklung? *Deutsche Verhältnisse. Eine Sozialkunde*, 17–40. Bonn: Bundeszentrale für Politische Bildung.
- [63] Katja Seefeldt. 2001. *Abhauen können Sie woanders*. Retrieved February 28, 2019 from <http://heise.de/tp/features/Abhauen-koennen-Sie-woanders-3449085.html>

- [64] Bryan Semaan, Lauren M. Britton, Bryan Dosono. 2016. Transition resilience with ICTs: 'Identity awareness' in veteran re-integration. *CHI 2016 – Proceedings, 34th Annual CHI Conference on Human Factors in Computing Systems*. Association for Computing Machinery, pp. 2882–2894. DOI:10.1145/2858036.2858109
- [65] Gloria Perez Serrano and Sarrate Capdevila. 2011. Information and communication technologies that promote social inclusion. *Revista Española de Pedagogía*. 69, 249, 237–253.
- [66] Sara E. Shaw, Julia Bailey. 2009. Discourse analysis: what is it and why is it relevant to family practice? *Family Practice* 26, 5 (Oct. 2009), 413–419. DOI: <https://doi.org/10/fqvxmj>
- [67] K. Smerotkina. 2010. Education as a Prerequisite for Inclusion of Prisoners in Society. *ACEP/SINEX*, 55.
- [68] Steven Van De Steene Victoria Knight. 2017. Digital transformation for prisons: Developing a needs-based strategy. *Probation Journal*, 64, 3, 256–268. DOI: <https://doi.org/10.1177/0264550517723722>.
- [69] Anselm Strauss, Juliet Corbin. 2015. Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 4th ed. Los Angeles/London: Sage.
- [70] Jörg Strübing. 2010. Grounded Theory. Zur sozialtheoretischen und epistemologischen Fundierung des Verfahrens der empirisch begründeten Theoriebildung. Wiesbaden: VS Verlag für Sozialwissenschaften.
- [71] Ram Subramanian, Alison Shames. 2013. *Sentencing and Prison Practices in Germany and the Netherlands: Implications for the United States*. New York: Vera Institute of Justice. Retrieved February 28, 2019 from <http://www.prisonstudies.org/sites/default/files/resources/downloads/european-american-prison-report.pdf>
- [72] Edwin Sutherland. 1939. *Principles of Criminology*. Chicago: J.B. Lippincott Company.
- [73] Nick Taylor, Justin Marshall, Alicia Blum-Ross, John Mills, Jon Rogers, Paul Egglestone, David M. Frohlich, Peter Wright, Patrick Olivier. 2012. Viewpoint: Empowering Communities with Situated Voting Devices. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (New York, NY, USA, 2012), 1361–1370. DOI: 10.1145/2207676.2208594
- [74] Sanne Verbaan and John Bowers. 2018. Building A Better Bumphone. *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18*, 1–10. New York: ACM Press. DOI: <https://doi.org/10.1145/3170427.3188402>
- [75] Sanne Verbaan, Clair Aldington, Roisin McNaney and Jayne Wallace. 2018. Potentials of HCI for Prisons and Incarcerated Individuals. *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18*, 1–4. New York: ACM Press. DOI: <https://doi.org/10.1145/3170427.3185367>
- [76] John Vines, Gary Pritchard, Peter Wright, Patrick Olivier, Katie Brittain. 2015. An Age-Old Problem: Examining the Discourses of Ageing in HCI and Strategies for Future Research. *ACM Trans. Comput.-Hum. Interact.* 22, 1 (Feb. 2015), 2:1–2:27. DOI: <https://doi.org/10/gfv4m3>
- [77] Ina Wagner. 2018. Critical Reflections on Participation in Design, in Wulf, V.; Schmidt, K.; Randall, D. (eds): *Designing Socially Embedded Technologies in the Real-World*. London: Springer, 243–277.
- [78] Halina Wawzyniak. 2012. Ist die Verweigerung eines Internetzugangs im Strafvollzug rechtmäßig? *Kritische Vierteljahresschrift für Gesetzgebung und Rechtsprechung*, 2, 198–208. Retrieved February 28, 2019 from <http://blog.wawzyniak.de/wp-content/uploads/2012/10/Artikel-KritV-2-2012Verweigerung-Internetzugang-im-Knast.pdf>
- [79] Volker Wulf, Kjelt Schmidt, David Randall. 2015. *Designing Socially Embedded Technologies in the Real-World*. Springer-Verlag. DOI: 10.1007/978-1-4471-6720-4
- [80] Andreas Ziemann. 1998. The Included Excluded. About the Problem of Functional Total Inclusion in the Context of German Prison Act. *Social Systems. Journal of Sociological Theory* 4, 1, 31–57.

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