ONLINE PEER GROUPS – A DESIGN-ORIENTED APPROACH TO ADDRESSING THE UNEMPLOYMENT OF PEOPLE WITH COMPLEX BARRIERS

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Abstract
Following a design-oriented methodology, we aim to support unemployed people facing complex barriers like drug addiction or poverty by designing and evaluating an online intervention that complements traditional face-to-face offline counselling with online peer groups. Our peer-group-based job counselling approach provides peer support in an intimate environment, independent of time and place. We implemented our approach at the German Federal Employment Agency with a messaging application and evaluated it in a randomised field experiment and expert interviews. Results indicate that the approach adds substantial value compared to face-to-face offline counselling, particularly with respect to job search self-efficacy, self-exploration, and environmental exploration – proven success indicators for the employment of unemployed people with complex barriers. It further demonstrates the benefits of online characteristics and how online peer groups and offline interventions can cross-fertilize in this context. Our study contributes to the literature on the societal impact of information and communication technologies and to design science research, and answers stakeholders’ call for modernisation of employment counselling in practice.

Keywords: Societal Value of IS, Online Peer Group, Unemployment, Design Science.

1 Introduction
The digital age has reached everyday life as information and communication technologies flourish. In particular, mobile phones have accelerated the “megatrend” of digital connectedness between people (Pearson et al., 2017), creating not only enormous business impact but also social value (Global e-Sustainability Initiative, 2015). Online peer groups are one promising way to connect people and create social impact. They are “formed by peers who have come together for mutual assistance in satisfying a common need, overcoming a handicap or bringing about desired social and/or personal change” (Katz and Bender, 1976, p. 278). Previous research proves peer groups’ positive effects on supporting people through peer group mechanisms, namely informational and emotional support, social identity, and social comparison (Finn, 1999; Houston et al., 2002; Coulson, 2005). The “online” setting can even foster positive effects through time- and location-independent access (van Uden-Kraan et al., 2008; Coulson, 2013), written interaction mode (Cook and Doyle, 2002; Coulson, 2005), and a layer of anonymity (Lehdonvirta and Räsänen, 2011). The enormous potential of online peer groups to support people facing problems has been proven in contexts like infertility (Malik and Coulson, 2011; Steuber and High, 2015), smoking addiction (Zhao et al., 2016; Graham et al., 2017), alcohol addiction (Cunningham et al., 2008; Lyytikäinen, 2016), caregiving (Roffeet et al., 2015; Barbabella et al.,...
Despite online peer groups’ striking societal value for people with diverse handicaps, one promising context has not yet been studied: unemployment among people facing complex barriers. In our study, we define complex barriers as diverse serious handicaps in addition to unemployment that require a substantially higher extent of effort and support to get reemployed (Purvis et al., 2006). Unemployed people with complex barriers are, for example, people with physical and mental health issues, ex-prisoners, single parents, people with a lack of school and qualified education, and people with financial problems, who have an increased risk of long-term unemployment, i.e., being out of work for more than 12 months (Klingert and Lenhart, 2017). Supporting people with complex barriers is not only relevant for individuals (Leeflang et al., 1992; Machin and Manning, 1999) but also for the cohesion of a society as a whole. Their frustration can even lead to political radicalization and crime (Aaltonen et al., 2013). The use of digital media might be a promising modern approach as socially inhibited individuals, like unemployed people with complex barriers, could benefit from these media through anonymous social interaction and support, and the support with likeminded others as peers (Barak, 2007; Feuls et al., 2014). Against this backdrop, we aim to design and evaluate a novel IT artifact to improve the chance of employment for unemployed people with complex barriers. We therefore address one of the most important social problems for the cohesion of a society. Using design science methodology (Hevner et al., 2004), we conceptualise and implement an online peer-group-based job counselling approach based on peer group mechanisms proven in peer groups. We expect unemployed people with complex barriers to benefit from online peer groups for two reasons: First, rich literature proves positive effects of online peer groups to support people with handicaps in other contexts (e.g., Steuber and High, 2015; McCaughan et al., 2017; Wang et al., 2017; Prevatt et al., 2018). Second, researchers on labour market interventions outline the positive effects of offline peer groups on employment chances of unemployed people with complex barriers (Azrin et al., 1975; Brey et al., 1983).

The research presented in this paper is based on the design science research paradigm (Hevner et al., 2004) and is structured as follows. Section 2 illustrates the problem context followed by Section 3 that provides an overview of related research. In Section 4, we propose an online peer-group-based job counselling approach as a novel IT artifact. The evaluation of the artifact in Section 5 incorporates two steps: first, we demonstrate the feasibility of the approach and second, we evaluate its success and practical utility. We critically discuss implications and limitations of our research and provide directions for further research in Section 6. Finally, we conclude with a brief summary of our results.

2 Problem Context

2.1 Basic definitions and problem context

“Design science […] creates and evaluates IT artifacts intended to solve identified organisational problems” (Hevner et al., 2004, p. 77). The problem context of this study is unemployment of people with complex barriers. The consequences of unemployment are immense – for economies and societies as a whole and for the unemployed (Machin and Manning, 1999). Research shows, for example, higher mental distress, smoking rates, alcohol consumption and frustration among unemployed people (Leino-Arjas et al., 1999). These factors may lead to severe health consequences (Leeflang et al., 1992), crime (Aaltonen et al., 2013), and to a worse position in the labour market and even incapacity for work. Unemployment of people with complex barriers in our context refers to “integration counselling of the German Social Insurance Code (SGB III)” including “people with serious agency barriers” (Göckler et al., 2014). Under this definition, about 84,000 people are unemployed with complex barriers in Germany. They are characterised by wide range problems such as a lack of school and education qualifications, a lack of digital skills, addiction, poverty, unemployment after age 55, a lack of mobility, physical and mental health issues, and family problems (Purvis et al., 2006; Göckler et al., 2014). Typical unemployed people with complex barriers are single parents, elderly people, alcohol and drug addicts, severely disabled people, mentally ill people or former prison inmates (Klingert and...
Lenhart, 2017). To support these people, the German Federal Employment Agency offers individual face-to-face offline counselling with experienced professionals. However, despite many offline interventions including interviews to increase contact density, stabilising, motivational and introducing interventions, qualification and training interventions, and direct interventions for labour market integration, these services have not been sufficiently successful in the past. In addition, most of these interventions are costly (Nunnally, 1979; Nota et al., 2014). As unemployed people often get more information and advice from information and communication technologies (Mcquaid et al., 2004), non-traditional interventions could improve people’s well-being and employability (Whelan et al., 2018) and modernise job counselling. Online peer groups might answer this call.

2.2 Requirements and research objectives

The objective of our research is to design and evaluate a novel IT artifact (Hevner et al., 2004) to improve the chances of employment for unemployed people with complex barriers. A direct influence of the IT artifact on unemployment will be hardly measurable in a first step, but unemployment is influenced indirectly through a range of success indicators. According to Gregor and Hevner (2013, p. 349) the “purpose gives the set of meta-requirements or goals for the artifact.” In our case, we purpose to impact influencing success indicators. Based on Wanberg et al. (2002) four key success indicators are particularly relevant for unemployed people with complex barriers. The first, job search self-efficacy, is the belief that one can successfully perform particular job search behaviours and obtain employment (Saks, 2006; Zikic and Saks, 2009; Koen et al., 2010; Fort et al., 2011). A second success indicator is job search clarity – the extent to which people have clear career and job search objectives (Wanberg et al., 2002; Skorikov, 2007; Koen et al., 2010). The third, self-exploration, is the examination of one’s values, skills and needs beyond personal goals and interests (Stumpf et al., 1983; Werbel, 2000; Wanberg et al., 2002). The fourth, environmental exploration, is the examination and acquisition of skills based on relevant environmental information (Prior-Wandesforde, 1978; Werbel, 2000; Wanberg et al., 2002). Literature shows that especially self-efficacy and environmental exploration might have positive effects on the employment potential of people with complex barriers (Rife, 1992; Schottenham et al., 1992; Platt, 1995; Barlow et al., 2002; Wanberg et al., 2002).

Based on the target dimensions of the artifact, i.e. the success indicators, and on the characteristics of the target group, i.e. unemployed people with complex barriers, we derive five requirements for the design of our new IT artifact. First, the artifact should provide both professional and experiential support (Azrin et al., 1975). The first is particularly relevant for job seeking as professional counsellors are able to improve the skills of the unemployed (Roy et al., 2010; Faulstich-Wieland et al., 2016), the second might help to fight the social problems of unemployed people with complex barriers (Barak et al., 2008) and the combination of the two of them might help to improve self-efficacy and job search clarity, as shown in other contexts (e.g., Hartzler and Pratt, 2011; Kingod et al., 2017). Second, the artifact should provide the possibility of sending and receiving support (Barak et al., 2008) as the latter has been proven to increase self-efficacy of people facing social problems (e.g., Barak et al., 2008; Chung and Chen, 2018). Third, unemployed people struggle with sensitive issues (Rife and Belcher, 1994; Croft, 2002), so the artifact should be instantiated in an intimate environment, which might encourage self-exploration (e.g., Creed et al., 2001). Fourth, the artifact should provide low-threshold access for participation. Often, unemployment is a self-induced problem and in combination with complex barriers associated with shame (Olejniczak, 2012) which might reduce the motivation of proactively participating in interventions (Wincup, 2009). Finally, the artifact should be easily integrable into everyday life because job searching can be time-consuming and questions can arise everywhere and at any time. This might increase self-efficacy as people are able to receive support from anywhere and at any time (e.g., Barak et al., 2008).
3 Related Work

3.1 Offline labour market interventions

To deduce the design of our new IT artifact, we first consider existing offline labour market interventions. In literature, a wide range of labour market interventions for unemployed people with complex barriers is discussed. They are defined as “intensive assistance” (Croft, 2002, p. 154) and stimulate the four success indicators depicted in Section 2.2. Labour market interventions can be distinguished between those relying on face-to-face support and those using peer support. Face-to-face assistance from professional counsellors aims to improve skills of the unemployed such as job search, personal development and entrepreneurial skills (Blundell et al., 2004; Roy et al., 2010; Faulstich-Wieland et al., 2016). Successful examples include intensive individual counselling and training (Hall et al., 1981) and on-site training (Kelly et al., 1979). Prior research on peer support interventions has found that group-assisted programmes and mutual assistance among job seekers can effectively supplement traditional job search assistance (Azrin et al., 1975; Rife and Belcher, 1994). Labour market interventions using peer support are characterised by mutual aid of people with a common handicap or common needs (Katz and Bender, 1976). Researchers see those interventions as especially promising for unemployed people with complex barriers (Azrin and Philip, 1979; Dion et al., 1999), as they often provide a more holistic approach to address success indicators (Platt et al., 1993; Creed et al., 2001). Rife (1992), for example, proposes a group-assisted programme for unemployed older women to improve their job search self-efficacy. “Job clubs” – offline peer support programmes – for unemployed older people can increase job search clarity, environmental and self-exploration (Gray, 1983).

3.2 Online peer groups

Besides literature on offline labour market interventions, research on online peer groups helps us to derive the design of our new IT artifact. Peer groups can be defined as networks of people “who have come together for mutual assistance in satisfying a common need, overcoming a handicap or bringing about desired social and/or personal change” (Katz and Bender, 1976, p. 278). Online peer groups can take the form of computer-mediated discussion forums (Houston et al., 2002; Coulson, 2013). Previous research has revealed advantages of the online setting: time- and location-independent accessibility, written interaction mode and a layer of anonymity (Cook and Doyle, 2002; Drentea and Moren-Cross, 2005; Coulson 2013). Time- and location-independent accessibility allows peer group members to send and receive support from their own homes without travelling (van Uden-Kraan et al., 2008; Coulson, 2013), which is especially helpful for less mobile people (Braithwaite et al., 1999). Asynchronous, written interaction mode (Cook and Doyle, 2002; Coulson, 2005) allows group members to spend time reflecting before they respond, which may mitigate the pressure inherent in real-time communications (Coulson, 2013), especially on sensitive topics. Finally, anonymity can facilitate self-disclosure (Coulson, 2005; Lehdonvirta and Räsänen, 2011). Research shows that these online characteristics can positively influence peer group mechanisms. Coulson (2005), for example, indicates that written interaction can provide informational support not only to active participants but also to “lurkers,” who only read messages. Online characteristics can reinforce emotional support, because members interact anonymously, which allows them to discuss sensitive issues and share opinions with less risk than in face-to-face groups (Drentea and Moren-Cross, 2005; Coulson, 2013).

Online peer groups have attracted the attention of researchers in a wide range of disciplines. To get an overview of related work and derive relevant insights to design our approach, we conducted a bibliometric analysis, which is useful when analysing large bodies of literature (Hood and Wilson, 2001; Bellis, 2009). We chose the Web of Science Core Collection as an underlying database to ensure that our analysis includes research fields in science, technology, social sciences, arts and humanities.
(Falagas et al., 2007). Our search strategy\textsuperscript{1} revealed 2,594 articles. We completed this database with additional manual literature searches on Google Scholar and IS conferences (ICIS, ECIS) not being part of the Web of Science Core Collection. Afterwards, we used bibliographic coupling to identify research fields (Schiebel, 2012), also referred to as clusters within a scientific field, that indicate directions of current research (Stelzer et al., 2015). The clustering method is based on hybrid similarities which combines a Jaccard index comparing the articles’ lists of references and a term frequency of the articles’ topics (Meyer-Brötz et al., 2017). To get an overview of the research fields, we particularly focused on the abstracts of the articles most relevant for the research field according to the page rank centrality measure (Page et al., 1999). The research fields are visualised in Figure 1 using the clustering software “Netculator” (Meyer-Brötz et al., 2017).

Figure 1. Research on online peer groups.

None of the articles identified through our bibliometric analysis addresses unemployed people with complex barriers. However, they shed light on four major insights that we expect to be relevant for online peer-group-based approaches addressing unemployed people with complex barriers. A transfer of insights from other contexts to unemployment seems reasonable to a certain extent because the keynotes of the respective peer groups are similar: people “who have come together for mutual assistance in satisfying a common need, overcoming a handicap or bringing about desired social and/or personal change” (Katz and Bender, 1976, p. 278). First, literature reveals that moderators can improve the efficacy of peer groups considerably (Hartzler and Pratt, 2011; Kingod et al., 2017). For example, in the field of online peer groups for people with cancer, Hartzler and Pratt (2011) show that the information given by a moderator is indispensable because the expertise of health professionals differs significantly from the expertise of peers, especially in subject-specific knowledge such as medical topics. In our context, moderation by a professional counsellor is analogously important for unemployment-specific knowledge to meet the requirement of both professional and experiential support. Second, research shows that online peer group members benefit from mutual peer support which allows to fulfil the requirement of sending and receiving peer support (Barak et al., 2008). It could be shown that participants feel that they are part of a group and thus the peers can reduce feelings of isolation and self-blame for individual problems because other members probably feel the same. In the context of unemployed people with complex barriers the situation is very similar: people feel alone and are ashamed of being unemployed (Olejniczak, 2012). Third, online peer groups can provide forums to discuss sensitive issues when members interact anonymously in an intimate environment (Robinson et al., 2016; Kordzadeh and Warren, 2017). This is proved, for instance, in research on online peer groups for people with diseases, informal caregivers, bullied or suicidal people (e.g., Bartlett and Coulson, 2011; Roffeet et al., 2015; Ybarra et al., 2015; Robinson et al., 2016). As unem-

\textsuperscript{1} As literature also describes peer groups as support groups, we searched for the following word strings in titles, abstracts and keywords in the Web of Science Core Collection (www.isiwebofknowledge.com): “online support group*” OR “online support communit*” OR (“online” AND “peer group*”) OR (online AND “social support”).
ployed people with complex barriers feel ashamed of their situation, complex barriers also represent sensitive issues. Fourth, the inherent online characteristics of peer groups, such as time- and location-independent accessibility, foster social connectedness between people and prevent social exclusion (Xie, 2008). This insight appears in research on online peer groups for elderly people (Goswami et al., 2010; Myhre et al., 2016). It could be shown that online peer groups can overcome barriers (e.g., impaired mobility, time-consuming obligations) and integrate social interaction into everyday life (Goswami et al., 2010). Unemployed people with complex barriers are often socially isolated and do not know anybody in a comparable situation (Sinfield, 1981) which appears a barrier to meet peers. To sum up, research of online peer groups in other contexts has already provided valuable insights that inform the design of our online peer-group-based job counselling approach for unemployment people with complex barriers. Following these insights, the requirements of allowing for professional and experiential support, sending and receiving support, an intimate environment and easy integration into everyday life can be met.

3.3 Research gap

Overall, our review of the literature reveals strong evidence that online peer groups can have profound effects on participants, especially on those with handicaps and/or social problems. The bibliometric analysis shows that online peer groups improve factors comparable to success indicators for employment of unemployed people with complex barriers, including job search self-efficacy, job search clarity, self-exploration and environmental exploration (e.g., Barak et al., 2008; Stinson et al., 2016; Wang et al., 2017). It further indicates that four of the five deduced requirements for an artifact in the context of unemployed people with complex barriers can be accomplished by online peer groups. The requirement of providing low-threshold-access for participation delineates our problem context from other contexts. We juxtapose these two sets of findings to conjecture that online peer groups may improve the chance of employment for unemployed people with complex barriers. As we observe a lack of studies on online peer groups for our target group, we design and evaluate a novel IT artifact using the advantages of such groups. We suggest contributions to the IS literature examining the power of online peer groups, to the prevention of long-term unemployment, one of society’s most pressing problems, and to establish the societal benefit of information and communication technologies, especially of online peer groups, in the context of unemployed people with complex barriers.

4 “Smart Counselling Support” – An Online Peer-group-based Job Counselling Approach

In the following, we propose a novel online peer-group-based job counselling approach that might substantially improve the chance of employment of unemployed people with complex barriers. Traditional counselling for those people is face-to-face and offline between a professional counsellor and an unemployed person. The interaction is characterised by a regular interaction mode, such as one appointment in person in an employment agency each month where customers get support on career development and objectives, job searches, applications and interviews. Further, professional counsellors may accompany their customers to employers, public authorities and drug or alcohol counselling. Our online peer-group-based job counselling approach, “Smart Counselling Support”, combines this traditional face-to-face offline counselling with an online peer group. By integrating an online peer group into counselling services, we tread a new path in IS literature on unemployed people with complex barriers. In addition to face-to-face offline counselling (1:1), the online peer group (n:n) provides peer support, a successful outcome of peer groups (Holbrey and Coulson, 2013) that arises in the form of peer group mechanisms (Brown, 1988; Finn, 1999; Coulson, 2005).

Based on literature on online peer effects and the requirements of the problem context, we derived four major design decisions. First, we implemented the online peer group with a mobile messaging application with several inherent online characteristics. Such a mobile application addresses the requirement of both spending and receiving support (Barak et al., 2008) and ensures users’ access to
support from anywhere and at any time (e.g., Goswami et al., 2010; Coulson, 2013), not only at a scheduled meeting on site. This is consistent with the spirit of the face-to-face offline counselling approach for unemployed people with complex barriers, namely a regular interaction mode, direct access to support, and the requirement of easy integration into everyday life. For instance, unemployed people with drug addiction might ask for advice just before a job interview on how to communicate the problem to the employer and get immediate support from peers. Flexibility in time is also due to the asynchronous mode of a mobile messaging application. In contrast to synchronous technology, communication is time-delayed (Hrastinski, 2008). Thereby, asynchronous technologies further foster group identity (Hrastinski, 2008; Dennis et al., 2014) as they allow more thoughtful responses to sensitive issues (Dennis et al., 2014). Further, using a mobile messaging application might promote people’s digital skills. Given the increasing importance of digital skills for organisations (van Laar et al., 2017) and given that unemployed people are more likely to lack these skills than employed people (van Deursen and van Dijk, 2011), our target group might particularly benefit from using this technology. It is not to be expected that probable financial problems might inhibit people from participating in the online group as the majority of adults in developed countries use mobile technologies on a daily basis independently of age, social status, origin, and job (Shaw et al., 2016). We further defined some basic features a concrete messaging application in our artifact should fulfil. It should facilitate the interaction and the exchange of support in the online peer group, i.e. allow users not only to write messages, but also to share links, documents and other forms of media. To address specific peers in the group, members should be able to add an “@Nickname” to the message or cite a message but all messages should be shown to all peers in the group. To facilitate sharing feelings the mobile application should offer emoticons (Hrastinski, 2008). Finally, to realize a layer of anonymity and facilitate the discussion of sensitive issues common to online peer groups (Robinson et al., 2016), the application should allow users (both unemployed and counsellors) to stay anonymous and thus provide an intimate environment. As a second major decision, we designed our online peer groups with a small number of unemployed people with complex barriers each (at most 16), inspired by the success of job clubs as an offline peer group intervention in the context of employment (Azrin et al., 1975; Gray, 1983). While the unemployed may face a range of barriers, from single parenthood to drug addiction, they all have the same target – finding employment – which may foster the development of a group identity (Barak et al., 2008) and social comparison (Brown, 1988) and defines them as peers in our study. Third, to improve the quality and credibility of information, we assigned one professional counsellor as a moderator to each online peer group to prevent the dissemination of unreliable and false information (Coulson, 2013) and mobbing under the cloak of anonymity (White and Dorman, 2001). The professional counsellor’s main tasks further include sharing labour market information such as job offers, training opportunities and job fairs; concrete job-seeking advice, such as tips for job applications and interviews; and advice on complex barriers such as how to deal with drug addiction, single parenthood and financial problems; motivating group members to support one another and answering specialized questions. This way, the moderator’s support supplements the peers’ experiential support. Fourth, to meet the requirement of a low-threshold-access for participation, we decided to integrate the online peer group into traditional counselling services. This means customers of the target group are offered participation in the online peer group in their offline counselling sessions.

**Online Peer-group-based Job Counselling Approach („Smart Counselling Support“)**

![Diagram](image_url)

Figure 2. “Smart Counselling Support”: An online peer-group-based job counselling approach.
Following these design decisions, we designed the novel IT artifact “Smart Counselling Support” (cf. Figure 2) for unemployed people with complex barriers combining the traditional face-to-face offline counselling with an online peer group. The latter is characterised by the concept of peer support, mobile and anonymous implementation and moderation through a professional counsellor.

5 Demonstration and Evaluation

The design science research process requires rigorous demonstration and evaluation of the artifact (Hevner et al., 2004; Peffers et al., 2007). In the following, we demonstrate the applicability of the online peer-group-based job counselling approach and evaluate its practical utility with a randomised field experiment and semi-structured expert interviews.

5.1 Demonstration of the practical applicability

To demonstrate the practical applicability of our artifact, we conducted a pilot study and realized the online peer-group-based job counselling approach in cooperation with the German Federal Employment Agency, the largest provider of labour market services in Germany with about 95,000 employees and a nationwide network of 156 employment agencies. Its main tasks are career counselling, paying financial benefits and placing the unemployed in employment or training. With its strategy, the agency aims to modernise its counselling services with digital technologies – especially traditional offline counselling for unemployed people with complex barriers, which is considered to be costly and insufficient (Mcquaid et al., 2004; Nota et al., 2014). Against this backdrop, the “Smart Counselling Support” attracted wide interest and was implemented in a pilot study to evaluate the possibility of a nationwide introduction. It was implemented in three employment agencies (Berlin, Cottbus and Kassel).

Six professional counsellors, two from each employment agency, volunteered to moderate the online peer groups and participated in a four-hour workshop to be introduced into their tasks in the Smart Counselling Approach. We implemented a process, including short promotional videos, for the acquisition of participants through the counsellors. After the acquisition, online peer groups consisting of voluntarily participating unemployed people with complex barriers and a professional counsellor received the licence for the mobile messaging application “Threema Work” (cf. Figure 3). This application was chosen due to its suitable basic characteristics and the option to further customize features which we used to make sure that participants could not invite people to the online peer group, synchronise Threema Work contacts with their private phone book or add personal information to their chat profiles and that they could only be identified through an anonymous identification number. This way, the final version of the adapted application fulfilled all requirements: It allowed to exchange professional and experiential support through text messages, shared documents and pictures. It further ensured an intimate environment through the provision of anonymity and a high level of data security. Third, the application did not pose any further hurdle for participation because Threema Work could easily be installed by both iOS and Android users and provided intuitive handling due to its similarity to the often used messenger application What’sApp. The professional counsellors were responsible for moderating, activating, and controlling the groups. To help the counsellors in complex moderation situations, we formed a mentoring group using the same messaging application. Over a period of two months, the peers supported one another in discussions moderated by the professional counsellors. All subjects participated actively in the groups and sent on average 7.1 messages (1.9 per group per day). Treated issues included personal employment goals, age-related problems to become reemployed, transparency with respect to health restrictions towards a potential employer, employment websites, writing and submitting applications, possibilities and plans of further education. The professional counsellors fulfilled the expected role and launched discussions, added professional recommendations to discussions, answered specific questions (e.g. number of courses for further education financed by the agency) and shared information on websites or events. Fortunately, there was no need for them to claim the rules of staying to the subject of unemployment and dealing respectfully with each other.
5.2 Evaluation

5.2.1 Case Setting

The evaluation of our approach is based on a randomised field experiment and includes the evaluation of success indicators, participants’ feedback based on open questions, and semi-structured expert interviews with counsellors. The experiment was conducted in three phases. In the first, we asked the 125 voluntary participants to complete an online pre-survey and randomly assigned them to the treatment group (62 people) using the new artifact or to the control group (63 people) only receiving support via traditional offline counselling. In the second phase (two months), participants received support according to their assignment. There were four online peer groups of varying size, but with no more than 16 participants each. In the third phase, we asked participants to complete an online post-survey representing the basis for success evaluation and participants’ feedback. No participant abandoned the project, but 60 did not complete the online post-survey, yielding a completion rate of 51%, an above-average response rate for online surveys (Shih and Fan, 2008). Further, twelve of the remaining subjects were employed at the end of the study and thus could not be evaluated with respect to the success indicators. We did, however, get feedback based on open questions from them. After excluding these subjects from the quantitative analysis, we counted 53 subjects for the analysis of success indicators (treatment group: 28, control group: 25). We further conducted semi-structured expert interviews with the six counsellors involved as moderators (incl. sick leave covers and holiday replacements). Even though the number of participants only allows for qualitative conclusions with respect to the success indicators, the evaluation as a whole allows for a thorough analysis of the approach and constitutes a proof of concept, which is supposed to be appropriate in case of a novel artifact developed with much effort (Gregor and Hevner, 2013).
5.2.2 Results of the field experiment

As a first proof of concept we compare the “Smart Counselling Support” approach to traditional face-to-face offline counselling as competing artifact (Hevner et al., 2004) with respect to success indicators predicting employment. Consistent with literature on success indicators predicting employment of unemployed people with complex barriers, we defined job search self-efficacy, job search clarity, self-exploration, and environmental exploration as evaluation variables. We measured these four success indicators using three items each following the German Federal Employment Agency’s customer survey to evaluate job counselling success. We further defined digital skills (van Deursen and van Dijk, 2011; van Laar et al., 2017) adopting self-assessment measures used by the European Union (2015) and connectedness (Vansteenkiste et al., 2005; Goswami et al., 2010) with two items as evaluation variables. We measured all evaluation variables with a six-point Likert-type scale ranging from 1 (very negative/not correct at all) to 6 (very positive/applies completely). We decided to use a scale without a neutral option to reduce social desirability bias (Garland, 1991). All scales exhibit adequate reliability with Cronbach’s alpha of greater than 0.7 (Streiner, 2003) except for self-exploration (0.604). We decided to retain self-exploration as an estimated reliability greater than 0.6 is acceptable in an initial pilot study (Streiner, 2003). To compare the success of “Smart Counselling Support” with traditional face-to-face offline counselling, we used the differences-in-differences (DID) estimator, which is frequently used to identify the impact of a specific interventions (Bertrand et al., 2004). By doing so, we compared the change of the outcomes during the pilot study between the treatment and the control group. There were no significant differences between the two groups with respect to the demographic variables age, gender, family status, graduation and preceding unemployment. Concerning the success indicators, the small sample size did not allow for significant results. However, positive tendencies could be observed: The treatment group developed better with respect to job search self-efficacy (DID = 0.31), environmental exploration (DID = 0.35), self-exploration (DID = 0.40), connectedness (DID = 0.22) and digital skills (DID = 0.22). We do not, however, find a positive DID estimate for participants’ job search clarity (DID = -0.27).

5.2.3 Evaluation of participants’ and experts’ feedback

In addition to closed questions measuring success indicators, we asked participants to provide feedback on the “Smart Counselling Support” through open questions in the post-survey. We asked them what they liked and did not like about the approach, and what they would change. The concept of peer support, mobile and anonymous implementation through a messaging application, and the moderation of groups by professional counsellors were very popular. One participant, for instance, found that exchanges with other unemployed people with complex barriers helped to “assess one’s own situation” (Participant (P) 1) and said that the exchanges “gave comfort and support” (P 1) (note: all direct quotes are translated from German). Other participants noted online advantages, such as “receiving an answer and advice for further training so fast” (P 2). Many appreciated the “openness of the [other] participants through the hope of anonymity” (P 2), the “summarizing and inviting communication” (P 3) and the moderator’s “advice” (P 3). Few suggested minor changes of the concept. One asked for a different group composition: “The [online peer] group should have been more regional. Then maybe one could have exchanged views on regional job offers” (P 4). Some wanted more “information about the [other] participants” and that “participants [represented] as numbers act as a deterrent” (P 5).

To enrich the insights with the counsellors’ perspective, we interviewed all six professional counsellors involved in the pilot study as moderators. At the end of the pilot study, the professional counsellors were asked to evaluate statements on a scale ranging from 1 (not correct at all) to 4 (applies completely) and to provide general feedback. The counsellors did not see participants’ feedback before the interviews. Table 1 shows whether the interviewed counsellors predominantly agreed (i.e. stated 1 or 2) or disagreed (i.e. stated 3 or 4) with the statements. Like the participants, the professional counsellors liked the concept of peer support, mobile and anonymous implementation through a messaging application, and the moderation of groups by professional counsellors. One counsellor, for example, reported that “feedback from peers is more accepted among unemployed people with complex barriers than feedback from professional counsellors or family” (Professional Counsellor (PC) 1). This is con-
sistent with the reactions to statement 2 (Table 1). Thus, “unemployed people with complex barriers can broaden their horizons” (PC 1) by participating in the online peer group. The inherent online characteristic of the peer groups allowed professional counsellors to “spread information and answer questions immediately” (PC 3) (see statement 4, Table 1) such as “urgent questions right before a job interview”. The counsellors appreciated the layer of anonymity, which played a “protection role” for them (PCs 1, 2 and 5). The counsellors also confirmed our expectations for their role in the group because they were responsible for “monitoring and assisting”, “answering specific questions”, “partially activating”, and “partially supporting emotionally.” Only few suggested changes. One reported that some discussions were of poor quality because participants from “different regions or job sectors have different interests and ideas such as salary requirements” (PC 4). And while they see anonymity as positive in general, some counsellors would slightly reduce anonymity for participants. One counsellor said that participants did not have enough of each other’s personal data “such as age or former profession” and another said some participants “were hampered by anonymous interactions.” Consequently, “sensitive issues continued to be part of personal counselling sessions” (see statement 7, Table 1). Overall, professional counsellors believe that online peer groups supplement the face-to-face offline counselling effectively (see statement 3, Table 1) and all six agreed that the “Smart Counselling Support” should be introduced nationwide in Germany (see statement 5, Table 1). From the professional counsellors’ point of view, the interdependency of face-to-face offline counselling and online peer-group-based job counselling is the primary reason for the approach’s success. Issues that concern participants were discussed both in personal counselling sessions and online peer groups (see statement 1, Table 1). The personal counselling sessions are therefore “more target-oriented, intense and expedient because unemployed people with complex barriers on the one hand have advanced information and more diverse ideas through the online peer groups, which can be kept up in the face-to-face offline counselling sessions and on the other hand can follow up on issues in the online peer groups which were discussed in the personal counselling sessions” (PC 5).

<table>
<thead>
<tr>
<th>Statements of experts to evaluate online peer-group-based job counselling approach</th>
<th>Prevailing assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In online peer groups, issues are discussed that are also discussed in personal counselling sessions.</td>
<td>Agree</td>
</tr>
<tr>
<td>2. The participants of the online peer groups help each other according to their needs.</td>
<td>Agree</td>
</tr>
<tr>
<td>3. The online peer groups supplement the personal counselling sessions effectively.</td>
<td>Agree</td>
</tr>
<tr>
<td>4. The online characteristics of the peer groups allow participants to access important information more quickly.</td>
<td>Agree</td>
</tr>
<tr>
<td>5. The novel approach should be introduced nationwide in Germany.</td>
<td>Agree</td>
</tr>
<tr>
<td>6. Online peer groups can be useful in serving unemployed people with complex barriers who are otherwise difficult to serve.</td>
<td>Disagree</td>
</tr>
<tr>
<td>7. Unemployed people with complex barriers discuss more sensitive issues in online peer groups than in personal counselling sessions.</td>
<td>Disagree</td>
</tr>
</tbody>
</table>

Table 1. Prevalent opinion among professional counsellors in the conducted expert interviews.

### 6 Discussion

#### 6.1 Theoretical and practical implications

Our research aimed to improve the chances of employment for unemployed people with complex barriers. We conceptualised and developed a novel IT artifact: online peer-group-based job counselling (“Smart Counselling Support”). We demonstrated and evaluated our approach in a unique field experiment at the German Federal Employment Agency. The results contribute to theory and practice in several ways.
The theoretical implications are threefold. First, our findings contribute to IS research by demonstrating the societal benefits of information and communication technologies. The main design decisions – the concept of peer support, mobile and anonymous implementation through a messaging application, and the moderation of groups by professional counsellors – were approved by the participants and counsellors. They reported that peer interaction between unemployed people with complex barriers improved the level of information, comfort, and support of the participants. This is in accordance with peer mechanisms described in literature: informational support, emotional support, and social identity (Finn, 1999; Houston et al., 2002; Coulson, 2005). Our study also underlines the benefit of inherent online characteristics of peer groups in the context of unemployed people with complex barriers. While literature shows that time- and location-independent accessibility (van Uden-Kraan et al., 2008; Coulson, 2013), written interaction mode (Cook and Doyle, 2002; Coulson, 2005), and anonymity (Barak et al., 2008; Lehdonvirta and Räsänen, 2011) reinforce peer mechanisms in online peer groups, participants and counsellors in our study especially appreciated time- and location-independent access to support. While they perceived anonymity as advantageous, they were critical of participants’ representation as numbers. This could easily be remedied with more personal forms of anonymity. Fortunately, the risk of bullying under the cloak of anonymity which can be found in online peer groups for adolescents or women seeking health services (Finn and Banach, 2000; Cho and Chung, 2012) did not emerge in our study. Despite the absence of bullying, the feedback we got from participants and counsellors indicates that moderation is a cornerstone of online peer groups in this context: moderators provided expert knowledge and helped to engage the participants. Second, our findings give a first hint that the proposed approach positively affects success indicators relevant to employment. Literature shows that unemployed people with complex barriers become increasingly frustrated while unsuccess-fully trying to find work (Marston and Mcdonald, 2008), which might lead to a downward spiral and impair the chance of employment. The positive, although not significant results of our field experiment indicate that the online peer-group-based job counselling could counteract this downward spiral: five of six success indicators – job search self-efficacy, self-exploration, environmental exploration, connectedness and digital skills – show positive DID estimates. The negative DID estimate of job search clarity, i.e., the extent to which people have clear career and job search objectives might be explained against the backdrop of unemployed people with complex barriers might be more isolated from society (Sinfield, 1981; Vansteenkiste et al., 2005) and hence receive a comparatively large share of new input through the online peer groups. This might overwhelm them at first, provoke them to re-think their objectives and reduce job search clarity. Following this logic, we would expect this effect to decline over time and maybe even turn around. Third, our findings strongly suggest that combining online peer groups and face-to-face offline counselling sessions generates valuable synergies. This is indicated by participants’ and counsellors’ feedback. Only few prior studies of the societal value of information and communication technologies focused on online peer groups in combination with offline interventions. To the best of our knowledge, our study is the first to establish synergies between online peer groups and offline interventions for unemployed people with complex barriers. Research in other contexts has shown that the combination is promising, however. Bartlett and Coulson (2011), for instance, report that membership in an online peer group often affects patients’ relationships with their health professionals. A smoking cessation study proved that a combination of online peer groups and (offline) free nicotine replacement therapy is more effective than either intervention alone (Graham et al., 2017). In our study, the synergies between online peer groups and face-to-face offline counselling are twofold: the online peer groups provided more diverse ideas for the participants, which led to a higher level of information and enabled more target-oriented face-to-face offline counselling; face-to-face offline counselling also offered space to discuss more individual and sensitive issues, deepening the insights of the participants who can in turn provide insights for peers in online groups. Aside from these theoretical implications, the proposed approach has the potential to improve counselling services in practice. Our research may be a first but important step towards modernising counselling services and addressing the call for innovative and digital forms of counselling services (Mcquauid et al., 2004). Indeed, based on our approach, labour agencies might adopt a more network-oriented counselling service fostering interaction and discussions between peers (n:n) as a supplement to face-
to-face offline counselling (1:1). Supplementing face-to-face offline counselling services with an online peer group can make sessions more effective and more target-oriented. Furthermore, and especially for unemployed people with complex barriers, the importance of digital skills is rising (van Laar et al., 2017). Using a messaging application on a regular basis in the scope of an online peer group can improve their digital skills. These findings are consistent with the target criterion of the German Federal Employment Agency that services should get more modern, more intense and individualised.

6.2 Limitations and future research

Although our findings provide interesting new insights, our study has several limitations. First, our investigation is a first step with a limited number of participants, so our findings are not significant and may not be generalisable. Second, our sample may evidence a self-selection bias: participants who chose to engage in our field experiment might have already taken proactive approaches to job-finding and been motivated to seek and give support. To address this bias, we assigned participants randomly to the treatment or control group.

We suggest that future research could address these limitations, further generalise our results and provide more detailed insights. By repeating the field experiment with a larger number of participants, researchers might confirm our analysis. A larger dataset would further allow for differentiations with respect to each participant’s group membership. Various in-depth analyses might be interesting. First, researchers might evaluate to what extent the effects of our approach are explained by online characteristics by comparing it to an analogous approach using offline instead of online peer groups. Second, the role and the effect of a moderator in such an online peer group might be analysed by comparing the effects of online peer groups with and without moderators. This approach might also allow researchers to evaluate different moderation techniques. Especially when participants have low motivation or need to discuss sensitive issues, appropriate moderation might raise the chances of success for an online peer group. Third, apart from the participants’ and counsellors’ statements on quality and efficiency of the group conversations, researchers could record the one-on-one career counselling sessions and compare the contents to the contents in online peer groups. Our pilot study revealed some interesting findings that might warrant further exploration. For example, participants and counsellors perceived anonymity as positive overall, but some suggested changes in how we achieve anonymity.

7 Conclusion

Online peer groups have been shown to positively affect people with informational and emotional support, social identity, and social comparison (Finn, 1999; Coulson, 2005). While online peer groups’ enormous potential to help people facing social difficulties has been demonstrated in a wide range of contexts, this study is the first investigating online peer groups in the context of unemployed people with complex barriers. We conceptualise and evaluate a novel online peer-group-based job counselling approach to improve their chances for employment. We complement traditional face-to-face offline counselling (1:1) with an online peer group (n:n) consisting of unemployed people with complex barriers and a professional counsellor. The latter provides peer support in an intimate environment independent of time and place. In cooperation with the German Federal Employment Agency, we conducted a randomised field experiment and semi-structured expert interviews to evaluate the approach. The results indicate that the proposed approach adds substantial value to face-to-face offline counselling and suggest that it provides benefits with respect to job search self-efficacy, self-exploration, and environmental exploration – indicators predicting employment of unemployed people with complex barriers. Our findings also suggest improvements in people’s connectedness and digital skills and demonstrates how offline intervention and online peer group can cross-fertilize in this context. Finally, this study contributes to the IS literature which examines the power of online peer groups, particularly by outlining the benefits of our main design decisions – the concept of peer support, a mobile and anonymous implementation through a messaging application, and the moderation of groups by professional counsellors. From the practitioners’ perspective, this study provides an innovative approach in the context of employment, suited to the digital age, that answers stakeholders’ call for modernisation.
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