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UNDERSTANDING BUSINESS EMPLOYEES' CONDITIONS FOR PARTICIPATING IN PUBLIC E-SERVICE DEVELOPMENT

Jesper Holgersson
University of Skövde

Fredrik Karlsson
Örebro University

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Holgersson, Jesper, University of Skövde, Informatics Research Centre, SE-541 28 Skövde, Sweden, jesper.holgersson@his.se

Karlsson, Fredrik, Örebro University, Informatics, SE-701 82 Örebro, Sweden, fredrik.karlsson@oru.se

Abstract

Today there is an increased interest in user participation in development of public e-services, since it is expected to bring similar value as it has done in other types of systems development. Existing research, however, has shown that introducing user participation to public e-service development is associated with a number of challenges. In this paper we have explored three user participation schools, Participatory Design, User Centered Design and User Innovation, with regard to two challenges: a) businesses employees' current mandate and willingness to participate in public e-service development and b) business employees' ability to participate in public e-service development. Our interview results show that businesses employees do have mandate to participate and also want to do so. Moreover, business employees' ability to participate is high with respect to ICT knowledge but rather low with respect to knowledge regarding public authorities' business processes. In addition, their knowledge about laws and regulations that affect public authorities is limited. Altogether, this limits the possibilities to apply user participation schools, such as User Innovation, which rely on a high degree of user-responsibility in identifying problems and solutions.

Keywords: E-services, E-government, E-service development, User participation

1 Introduction

An increased interest for user-centeredness of public electronic services (public e-services for short) can be found in both governmental strategic documents (e.g. Commission of the European Communities, 2006; Office of Management and Budget, 2002) and recent research (e.g. Axelsson, Melin and Lindgren, 2010; Jones, Hackney and Irani, 2007). It has been argued that increased knowledge, about citizens' and businesses' needs, is important for successful deployment of public e-services (Melin, Axelsson and Lundsten, 2008). Hence, user participation in public e-service development is imperative. Such arguments are not surprising given earlier experiences made in systems development (Cavaye, 1995) where user participation is believed to have many benefits. But it is a silver-bullet and the conclusions found in existing systems development research can be described as inconclusive at best (Kujala, 2003).

User participation comes in many different flavours, and it is possible to discuss it in terms of different schools. Although, there is a discourse about user participation in electronic government research it does not discuss such schools at length, and whether or not they are applicable in a public e-service development context when addressing external users. Karlsson et al. (In press) and Holgersson et al. (2010), being notable exceptions, analyse challenges related to the goals of three user participation schools, Participatory Design (PD) (Schuler and Namioka, 1993), User Centered Design (UCD) (Norman, 1986) and User Innovation (UI) (Hippel, 1986). In doing so Holgersson et al. (2010) identified four challenges: 1) identifying the user target segment, 2) identifying the individual user within each segment, 3) getting users to participate, and 4) lacking adequate skills. These challenges can be divided into two groups based on the problems that need to be addressed. The first group concerns the possibilities to identify target users and includes (1) and (2) in the list above. While this is a complex task, and not to be underestimated, methods for user identification do exist (e.g. Kujala and Kauppinen, 2004). The second group focuses on the users' willingness, mandate (3) and ability (4) to participate. In other words, it is related to users' characteristics and their possibilities to meet the goals of the user participation school if used in a public e-service development project.

Being a valuable contribution Karlsson et al. (In press) and Holgersson et al. (2010) are based on literature reviews. It means that the identified challenges, concerning willingness, mandate, and ability, are more of potential challenges, and might not be actual ones. Holgersson & Karlsson (2011) have advanced these findings further by showing that two of these challenges exist in practice; citizens are reluctant to participate on the premises set out in UI and to some extent in UCD. In addition, they seem to lack the ability to work according to UI. Given these results it is of interest to see whether or not the same results are found when it comes to business employees. The results would provide valuable information on what user participation school to recommend in a public e-service development setting.

The aim of this paper is to explore to what extent businesses employees can fulfil the goals related to (3) and (4) of the three user participation schools: PD, UCD and UI in a public e-service development context. We have chosen to address the same user participation schools as in Karlsson et al. (In press) and Holgersson & Karlsson (2011), making it possible to (a) base our study on earlier identified goals with user participation, and (b) advance the body of existing research about user participation schools and public e-service development.

The paper is structured as follows. In the next section we take a closer look at existing user participation research in the area of public e-service development. In the third section we outline the research design. In the fourth section we analyse our empirical data in relation to the design goals found in each user participation school. Finally, the paper ends with a discussion of our findings and conclusions concerning the challenges identified from business employees' point of view. In addition, we also reflect on future research.

2 User participation research and public e-service development

User participation is not a new concept in information systems research – it has long been recognized as a best practice for systems development (e.g. Baroudi, Olson and Ives, 1986; Hirschheim, 1985; Mumford, 1981). While user participation has been covered extensively in systems development literature (Cavaye, 1995) there are a limited number of studies discussing user participation in e-government development and even fewer with a focus on public e-services.

A number of studies can be found that discuss the need for and the value of user participation. Jones et al. (2007) stated that the 'key to the success of any e-government deployment is the citizen'. They propose a citizen engagement research agenda to better understand the approaches to customer engagement. Folkerd & Spinelli (2009) added to this discussion by pointing towards problems with user exclusion in the requirements engineering stage of e-government development. Jansen (2006) concluded that the user concept has been broadened in e-government projects during recent years. Nowadays it includes external users, such as citizens and external organizations. In other words, systems developers now target users outside the public authority, such as business employees, instead of only working with in-house users, which were common when implementing e-administration. This wider definition of the user concept is not found in early research on e-government development (e.g. Følstad, Jørgensen and Krogstie, 2004; Oostveen and van den Besselaar, 2004), where 'users' did not include external users. In addition, Jansen (2006) has argued for studying consequences of various user participation schools in e-government projects, which also is an important argument for our study.

Axelsson et al. (2010), Karlsson et al. (In press) and Holgersson et al. (2010) are critical reviews of user participation and public e-service development. Axelsson et al. (2010) identified three challenges to succeed with user participation in the public e-service context: (1) that e-services should target 'all of us', (2) citizens do need incentives to participate in the development process and (3) that more active forms of participation are also more demanding for the organization. However, Axelsson et al. (2010) have refrained deliberately from discussing how these challenges relate to different user participation schools and they do not answer Jansen's (2006) call. Moreover, they do not provide answers to the businesses employees' mandate, willingness and ability to participate in public e-services development.

Gulliksen & Eriksson (2006) have identified additional challenges when investigating the attitudes to user participation in the development processes at a public authority. Some of the problems they identified were unseen users and lack of time. It is not possible to tell, from their presentation, whether or not the user concept included external users – that is to say if they used the broader user concept, discussed by Jansen (2006). Therefore, these results are somewhat difficult to relate to the challenges about user participation schools that were discussed in the Introduction.

To summarize, we find little guidance in existing research whether or not businesses employees have the mandate, the willingness and the ability to fulfil the user related goals of the three user participation schools, when applied in a public e-service development context. As a result, this lack of guidance complicates practitioners' possibilities to mitigate these concerns in future public e-service projects.

3 Research Design

We chose to view user participation schools from (1) a systems development method perspective and (2) a design perspective. Each school represents a design theory and is the result of a goal-oriented design activity (Friedman, 2003), where certain design goals were set out. These goals show what a method user can expect from using a specific method. But a method also has to fit the current context. Our interest is whether business employees have the mandate, the willingness and the ability to fulfil

the user related goals in these schools or not. To achieve this end we modified the method rationale framework laid out in Ågerfalk and Wistrand (2003), which was used by Karlsson et al. (In press) and Holgersson et al. (2010) in their analysis user participation schools.

The modified framework is illustrated in Figure 1 as a Unified Modelling Language-class diagram. It consists of three classes: method fragment, goal and business employee, and four associations between these classes. The first two classes, method fragment and goal, are found in the original framework. The third class, business employee, is an extension made to facilitate analysis of business employees' possibilities and interest to fulfil the user related goals of the user participation schools.

The concept of method fragment refers to a description of a systems development method, or any coherent part thereof (Harmsen, 1997). A method fragment can be studied at five different levels: method, stage, model, diagram, and concept. During the analysis we view a user participation school as a stage method fragment. In other words, a school is viewed as section of a systems development method, which focuses on requirements, analysis and design. Each method fragment is associated with one or more goals reflecting the method's perspective (Brinkkemper, 1996). A set of goals reflects the method designer's intentions with a particular method fragment, and, as stated above, what a method user can expect to achieve by using it. A complete method can have several goals, which can either support or contradict each other. This is illustrated as goal achievement and goal contradiction associations in Figure 1.

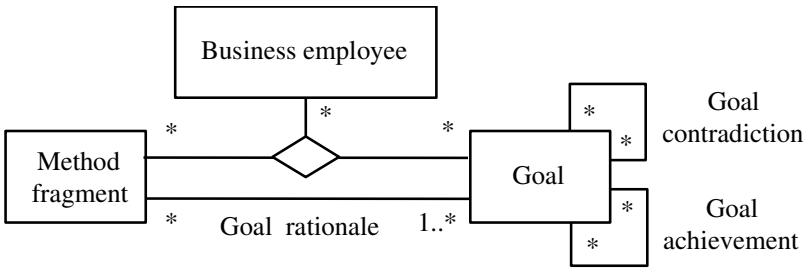

Figure 1. Modified method rationale framework

Whether a goal of a user participation school can be reached or not depends on how it matches the method user's intentions and ability. Hence, in our case that means the businesses employees' mandate, willingness and abilities to fulfil the user-related goals of the user participation schools, in a public e-service development context. In our case we are interested in the goals Karlsson et al. (In press) elicited in relation to the three user participation schools (method fragments) PD, UCD and UI. To capture these circumstances we added the business employee concept to the framework, together with an association between method fragment, goal and business employee.

The data collection was based on semi-structured interviews using the goal analysis of Karlsson et al. (In press) as an interview guide (Patton, 1990). When constructing the interview guide we elicited a subset of these goals related to a) business employees' current mandate and willingness to participate and b) business employees' ability to participate, in public e-service development. This way we made the interviews more focused. We interviewed 21 business administrators at 19 Swedish companies. The respondents were selected based on their regular use of e-services at the Swedish Tax Office's public e-services. The respondents had to have a similar understanding of what an e-service is, and therefore we selected e-services that are commonly used by Swedish companies of any size. The respondents were selected from an existing network of controllers that includes medium to large size companies. However, given the network's focus on larger companies, we complemented with respondents from small companies. The interviews were carried out either face to face or by telephone and took about 30 minutes. The primary goal of the interviews was to obtain quality and depth in each interview rather than a large number of interviews. We applied the empirical saturation principle

(Strauss and Corbin, 1998) during data collection, where we added interviews until no additional information was discovered.

The analysis was conducted row by row, from the transcribed interviews. For each row we questioned: a) what does this say about the employees' mandate to fulfil the user-related goals? b) what does this say about the employees' willingness to fulfil the user-related goals?, and c) what does this say about the employees' ability to achieve the user-related goals? This step was iterated for the identified user-related goals of all user participation schools, in order to cover the three method fragments. Both authors first carried out the coding individually and in a second stage we compared our classifications to identify any differences, which were reclassified together. The results from the analysis are presented in Section 4.

4 Analysis of business employees' mandate, willingness, and ability

The analysis of business employees' mandate, willingness, and ability to participate in public e-service development is based on the goals presented in Karlsson et al. (Accepted). These goals can be divided into two groups depending on which type of actor they address: the user or the developer. Since we are interested in external users (business employees) we will only include the former goals in the analysis. We provide a short summary of these goals below and we choose to reuse the short names provided in Karlsson et al. (Accepted) to keep traceability.

4.1 User Centered Design

User Centered Design (UCD) was introduced in the late 1970's and the early 1980's (Norman, 1982), as a part of the human computer interaction research field. The basic idea of UCD is that user needs shall dominate the interface design (UCD-G2) (Norman, 1982) but other information system aspects, such as functionality and behaviour, also receive attention (Iivari and Iivari, 2011; Norman, 1986). In UCD, users and developers are not seen as equal partners. Developers are the designers whereas the users are seen as passive advisors (UCD-G7) (Gould and Lewis, 1985; Kling, 1977). Recently, however, the role of the user has been slightly modified by involving the user more directly in the decision process (UCD-G9) (Marti and Bannon, 2009). However, in both cases users participate in the decision process (UCD-G8) (Gulliksen, Göransson, Boivie, Blomkvist, Persson and Cajander, 2003), although the designer responsibility remains with the systems developers.

In order to fulfil UCD-G2, the user must have a basic ICT knowledge and competence in order to determine its own needs regarding interface issues. As can be seen in Table 1, all respondents fulfil this design goal. Many of the respondents use ICT and e-services in their everyday life, both at work and at home. Other respondents use ICT and e-services in their everyday work, but rather sparsely outside the office. As Table 1 shows, all respondents except three fulfil the design goal of being interested to participate in the development process (UCD-G8). All respondents stated that they have their employees mandate to participate, especially if the outcome of participating will generate a positive outcome for the employer. The interviews reveal that employees seldom get extra time for participation; hence they have to participate on top of their ordinary duties. As a result three respondents expressed an unwillingness to participate in development activities, but also because the respondents did not feel any need for changes in the e-services discussed. Respondent 13 stated "*I am happy as it is right know, I don't feel the need for something else"*. However, all the other eighteen respondents expressed a willingness to contribute in e-service development in order to improve the e-services they used. Respondent 12 illustrated this willingness: "*You cannot just complain without also being prepared to contribute*". Moreover, nine of the respondents were interested to participate as passive advisors (UCD-G7) whereas the remaining nine respondents were interested in participating as more active representatives (UCD-G9). Those respondents favouring a more passive way of partici-

Table 1. A summary of fulfilled design goals

Respondents.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
UCD-G2: The need of the user should dominate the design of the interface	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UCD-G8: Users participate in the decision process	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	
UCD-G7: Users as advisors		X		X		X	X							X	X		X		X	X	X
UCD-G9: Users as representatives	X		X		X				X	X	X	X				X		X			
PD-G11: Users must participate in decision making	X		X		X				X	X	X	X				X		X			
PD-G6: Users as advisors	X		X								X	X				X		X			
PD-G7: Users as representatives					X					X											
PD-G8: Consensus among users																					
PD-G5: Users need knowledge of possible technological options	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PD-G10: Users must have the possibility to take an independent position	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PD-G9: Users must have access to relevant information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UI-G3: Lead users identify the solution																					
UI-G2: Lead users identify the problems	X	X	X	X	X		X		X	X	X	X		X	X	X		X			
UI-G6: Lead users are responsible for problems and solutions					X																
UI-G5: Collaboration between users and developers					X					X	X							X			

pation liked to share their experienced problems concerning the e-services. They want to do this once in the beginning of the development process and after that it is up to the government authority to improve their e-services. Respondents 12 and 20 exemplify this view: *"You have to assume that they [the government authority] know what they are doing"* and *"do what you want as long as it works"*. The respondents favouring a more active way of participating expressed a willingness to participate during a larger part of the development process, but at the same time not taking any initiatives besides reacting to the initiatives taken by the developing authority. This is exemplified by Respondent 17: "*The ideal would be to describe the problems I experience, just as I am doing now in this interview, in the beginning of the work and thereafter pop in in the middle of the process in order to not be lost in the end of the process*".

4.2 Participatory Design

The main objective of Participatory Design (PD) is to ensure a better fit between technology and the way people (want to) perform their work (Kensing and Blomberg, 1998). PD builds upon a principle that users and systems developers must commit themselves to cooperate in the development process (Schuler and Namioka, 1993) in a mutual dialogue (Carmel, Whitaker and George, 1993; Olphert and Damodaran, 2007). In order for this to take place users must participate in decision making (PD-G11) (Kensing and Blomberg, 1998). Participation in decision making can be done in three ways (Mumford, 1983): 1) users participate on a consultative level as advisors in specific design decisions (PD-G6), 2) users participate as representatives meaning that users, representative for a larger number of users, are selected to participate in the design process, not only in specific design decisions but at a more general level (PD-G7) and, 3) users participate on a consensus level meaning that an agreement from all users affected by design decision is made (PD-G8). Moreover, in order to participate in a cooperative manner, users need knowledge of possible technological options (PD-G5) (Kensing and Blomberg, 1998), and hence users must have access to relevant information (PD-G9) as well as have the possibility to take an independent position (PD-G10).

As stated in Section 4.1, all employers gave their employees mandate to participate, but extra time for participating was usually not granted. Still, eight of the respondents did favour the principles of PD (PD-G11). These respondents expressed a willingness to participate on a more interactive level than UCD prescribes. This is illustrated by Respondents 5 and 11: "*In my opinion the best way to good development is to participate in a proactive manner in the development process"* and "*I think it is hard to get a message across at a few single moments and then do not having a clue what is happening until it's time to test something, which is almost complete. You have then come a too long way into the development process making it very hard to reverse*". As can be seen in Table 1, a majority of the respondents favouring PD want to participate as advisors (PD-G6) in those areas where the respondents normally work, and where the outcome of the development process would influence the everyday work. Respondent 1 stated: "*You must have knowledge and understanding as well as concrete experience of the problems you are working with. Only participation on a general basis in meaningless and only takes time"*. Two respondents favoured the more general representation alternative (PD-G7) whereas the consensus alternative was favoured by none of the respondents (PD-G8).

As can be seen in Table 1, all respondents claim to have necessary knowledge of possible technological options (PD-G5). All respondents do use (or in one case, has used) the public e-services of interest in their everyday work (PD-G9). No respondents indicated that other aspects of the normal work would be affected by their opinion regarding aspects of the usage of public e-services. Hence, the respondents felt the possibility to take an independent position (PD-G10).

4.3 User Innovation

The overall goal of User Innovation (UI) is to provide innovative systems functionality (von Hippel, 1986) building upon the idea of the user as the primary source for information and design (Kujala and Kauppinen, 2004; von Hippel, 1986). In practice this means that the user is the one identifying problems (UI-G2) as well as the one designing the solutions (UI-G3). There are several variants of UI, such as end user development (Taylor, Moynihan and Wood-Harper, 1998) or user lead systems development (Dodd and Carr, 1994; Lawrence and Low, 1993). Common for these variants is that users' ideas are captured through a prototype built by the users and then transformed into a full-blown solution in collaboration between users and developers (UI-G5). The design process is an intertwined part of the users' daily work, where products and services are designed and created upon requirements needing to be satisfied. Hence, the user is responsible for problems as well as solutions (UI-G6) (von Hippel, 2005).

As can be seen in Table 1 the majority of the respondents could identify problems with the public e-services they used (UI-G2). Some respondents experienced a general sense of ineffectiveness. One example is Respondent 3: "*At the moment I cannot give any specific example but I often feel that a lot of work is unnecessary complicated and I often think why things cannot be done in a simpler way*". Other respondents were more specific, such as Respondent 4: "*We still hand in our tax declarations on paper, but we want to do it electronically. At the moment, we cannot meet the expected requirements from the Swedish tax agency since the e-service itself is based on the fact that the person creating the declaration is the same person handing it in. In our organisation this is not the case*".

As Table 1 shows, none of the respondents fulfil the goal of identifying design solutions (UI-G3). Several respondents presented possible solutions to problems experienced. However, these solutions are, from the public authority's point of view, based on an external perspective. It means not taking into account internal business rules, laws, and regulations that are important parts of a design solution. Respondents 11 and 16 are representative examples: "*I have many comments regarding the tax declaration e-service, but I do not know why things are as they are in the first place*" and "*I often wonder how the tax declaration office works. I can question how they work but I have no clue why they do as they do*".

Only one respondent expressed willingness to take responsibility for both identifying problems and solutions (UI-G6). All other respondents declined to do so and the answers received regarding this issue are unanimous; neither the employees nor the employers want to invest the time needed: "*There must be a reasonable timescale for participation*" (Respondent 16)", "*I think it would be interesting but I do not prioritize the time for doing it*" (Respondent 2).

As stated in UI-G5, collaboration between users and developers is a necessity. As shown in Sections 4.1 and 4.2, no employer refused participating, still, only four of the respondents expressed a willingness to work based on these conditions. Among these respondents we found the following concerns regarding collaboration between users and developers: "*It is very important that the government authority do listen in the way which is intended from the beginning. If the government then just move along with what they think is important, then everything is wasted*" (Respondent 11), "*I see a great challenge for government authorities to change and not being like –this cannot be done due to this law and this law, in those cases we would be lost*" (Respondent 14). In other words, the developing authorities' attitude and willingness towards the business employees are important issues for the UI design school.

5 Discussing challenges

Business employees in general (18 of 21) are willing to participate to various extents. The main reason to participate is the possibility to improve the everyday work: "*Of course you want some kind of feedback to your own work when you participate*" (Respondent 12). In addition, the results show that

none of the respondents experienced that their employer would decline participation. One respondent stated that the employer has a general policy concerning participation: "*We usually try to give input to these types of initiatives. It is hard to complain about things when you have got the chance to make a difference*" (Respondent 10). Most common is that the employee participates without getting any extra work time for this activity. However, in some cases, especially those where there is an obvious possibility for a positive outcome for the employer, extra time is granted for the employee: "*If we participate we want something back. If our work can be eased participation is interesting, we need some kind of incitement in order to participate*" (Respondent 6) and "*My employer is relatively selective when engaging in things which do not give us a direct value back*" (Respondent 2). An interesting observation is that none of the nineteen companies interviewed had any previous experience of government authorities directly engaging them as participants in a development situation. Some collaboration had been done but not in that sense that the government authority used companies as participants in the development process.

Eight of the twenty-one respondents favoured PD. These eight respondents fulfilled the design goals of UCD, but they still preferred a more interactive way of participating. All of the respondents favouring PD had identified possible improvements of the Swedish Tax Office's e-services. The interviews revealed a relationship between personal interest, perceived frustration due to e-services not behaving as desired, and the respondents' willingness to make commitment to the development process. Moreover, in comparison to those respondents favouring UCD only, there was a less sense of sufficient knowledge regarding e-service development per se. When analysing the interviews further we found that those respondents favouring PD dis, to a large extent, have previous experiences from various systems development initiatives at work. These respondents felt that they *"know what it takes"*, or as Respondent 10 put it: "*I prefer to be a part of a bigger piece of the development process and to have a continuous dialogue with the government if interest*". One interesting question, however, is to what extent employees realise what effort their participation may require. For example, there is no guarantee that an employee understands what it takes to participate, and s/he may therefore not realise the amount of effort required.

Respondents favouring UCD and PD stressed the importance that public authorities use techniques and procedures that are efficient and less time consuming with respect to the businesses employees. For example, Respondent 10 stated: "*Participating must be simple and cannot take too much time each time. It is important to find effective ways of interaction which do not cause traveling and such; this takes way too much time*". Hence, these findings support the challenges found by both Axelsson et al. (2010) and Karlsson et al. (In press) that more active participation can become to demanding. This is also in line with the findings of Gulliksen & Eriksson (2006), who conclude that users lack time.

One respondent favoured the UI approach. This respondent identified problems within the existing e-services, and expressed ideas on how to solve these problems. Although these ideas are expressed from an external actor's point of view, none of the other respondents expressed a potential solution in such detail. Respondent 3 exemplified this dilemma by stating: "*I think it is often a lot of rules and regulations which must be taken into consideration and I do not know much about these. This will probably result in that I can come up with a number of suggestions which cannot be implemented*". Our findings showed that only the above mentioned respondent showed interest in being responsible for driving the process of identifying problems and solutions. In addition, just four respondents expressed a clear interest in working in close collaboration with developers as prescribed by UI.

As can be seen in Table 1, none of the respondents fulfilled the UI goal concerning identification of design solutions. Several respondents did present possible solutions to problems experienced. However, these solutions were, from the public authority point of view, based on an external perspective. It means not taking into account internal business rules, laws, and regulations that have to be found in future solution. Respondents 11 and 16 are representative: "*I have many comments regarding the tax declaration e-service, but I do not know why things are as they are in the first place*" and "*I often wonder how the tax declaration office works. I can question how they work but I have no clue why they do as they do*".

In summary, our findings corroborate the results found about citizens' willingness and ability to participate in public e-services development (Holgersson and Karlsson, 2011), with one exception; citizens in general favoured PD before UCD. Our assumption is that at work, most respondents tend to better accept tortuous working procedures whereas they do not have the same patience when it comes to cumbersome procedures during their spare time. Hence, citizens seem more eager to participate since better public e-services will ease their everyday life, not just at work. In those cases where the respondents did feel a personal commitment to said e-services, were granted extra time, and had experiences from previous systems development projects in general, PD was the favoured approach.

6 Conclusion

The aim of this paper was to explore to what extent businesses employees can fulfil the goals of three user participation schools: Participatory Design (PD), User Centered Design (UCD) and User Innovation (UI), in a public e-service development context. In particular we were interested in goals related to a) business employees' current mandate and willingness to participate and b) business employees' ability to participate in public e-service development. Our results show that business employees want to participate in public e-service development and that they are allowed to do so by their employers. Business employees prefer UCD before PD mainly due to lack of time, since participation, mostly, must be combined with the employees' normal work. Hence, this finding is a contrast to citizens' preferences, who prefer PD (Holgersson and Karlsson, 2011). However, we also found that many business employees wish to devote more time to the development work, which may be a contradiction in terms. Another reason for preferring UCD is, in many cases, a perceived lack of knowledge regarding systems development per se in combination with a basic level of satisfaction from using the e-services of interest. The business employees assessed their ICT knowledge as high. However, they assessed their knowledge about public authorities as rather limited when it came to laws, regulations and internal processes. This means that business employees' ability to fulfil goals of more user driven participation schools, such as UI, is limited. We can conclude these findings corroborate earlier findings (Holgersson and Karlsson, 2011) on citizens' abilities to fulfil the competence related goals and that Holgersson et al.'s (2010) challenge number four, the lack of adequate skills, is an actual challenge. For that reason, user participation schools where the business employees act as advisors (UCD) or design together with system developers (PD) seem better suited for public e-service development.

This study has been carried out on three user participation schools. This strict categorization filled the purpose of structuring the analysis. However, this clear-cut distinction is otherwise not found in practice nor in contemporary literature on user participation (Marti and Bannon, 2009). Furthermore, this study has been carried out in Sweden using a rather small non-randomized sample, and the conclusions are therefore difficult to generalize. Business employees are likely affected by user participation traditions, such as business employees having the possibility to take an independent position (Kensing and Blomberg, 1998), which do vary between countries and organisations. Hence, there is ample opportunity for more research to explore how these aspects limit different user participation schools in the context of public e-service development.

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