Change readiness research
A qualitative study of variations in participation

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Abstract. The Change readiness research method (CRR) has become a well-known method in Denmark to identify issues needed to be discussed on a hospital ward before implementation of a new IT-system and to start a dialogue. A precondition for a constructive dialogue, however, is a high degree of participation. The latest experiences of the CRR method were gained from its use in eight wards in the Danish Gepka project during 2003-4 (The Gepka project was established by The Danish Ministry of the Interior and Health, The National Board of Health, the County Council Society and H:S. Its purpose is to validate the “Basic Structure for The Electronic Health Record” (B-EHR) using prototypes. http://medinfo.dk/epi/proj/gepka/). In the Gepka project the participation varied from 33.3% to 78.9%. The objective of this study is to set out themes by which this variation can be studied. A qualitative explorative research design has been applied, where four instructions from the “Instruction for use” (Instructions for using the CRR method. Can be downloaded the Internet: (http://www.epi-observatoriet.dk/publikationer/forandringsparathed.pdf)) have been studied as themes. The methods used have been telephone interviews and direct observations. The results showed that the seven wards (one was excluded) followed the “Instructions for use” to different degrees. It was found that one instruction, in particular, seems to be especially important to follow to motivate the employees on a ward to participate in the CRR; the management of the ward must be engaged/actively involved in the project, as they are key figures when it comes to motivating the other ward employees. The aim of this study is not to prove a causal relationship between the degree to which the “Instructions for use” are followed and the degree of participation – it is to suggest a qualitative relationship between the two. Neither does this study try to generalize the results, as further research on more wards would be needed to do so. This study does, however, set out themes that can be a useful tool in future CRR projects in order to maximize the degree of participation. In a modified way, these themes can probably be used as a tool in other studies of human – machine interactions.

Keywords: Organizational issues, Change readiness, Electronic Health Record.

1. Introduction

The current national strategy for IT in the Danish Healthcare sector has established the goal of implementing an EHR in all Danish hospitals within the next few years (1). However, research both in Denmark and abroad has shown that not all EHR implementations are successful, and that one of the most significant reasons is that only limited resources have been applied to preparing the employees for the changes, e.g. in discussing new systems prior to implementation in order to balance clinical needs and the expectations for the new systems (2-8). During recent years we have, at Aalborg University, been developing a method that can be used to assess change readiness among hospital employees and to assist in starting a dialogue among employees and between employees and management prior to the implementation of new IT systems; the “Change readiness research method” (CRR) (8) the expectations for the new systems (2-8). During recent years we have, at Aalborg University, been developing a
method that can be used to assess change readiness among hospital employees and to assist in starting a dialogue among employees and between employees and management prior to the implementation of new IT systems; the “Change readiness research method” (CRR) (8).

The present coverage of EHR in the Danish counties and hospitals varies widely. Therefore, the national IT-strategy also contains initiatives striving to attain a coordinated development and implementation of EHR in the Danish healthcare sector (9). A precondition for this, however, is the development of a model that sets out both a common structure and a common application of concepts for the EHR, in order to make it possible to utilize information across organizations in the Healthcare sector independent of system suppliers. The National Board of Health in Denmark has developed such a model; the “Basic Structure for Electronic Health Records” (B-EHR) (10). During the past two years, prototypes of the B-EHR have been evaluated on selected hospital wards in the “GEPKA project, where one of the areas of focus has been studied using the CRR method.

2. Conceptual framework

The Danish CRR method is based on an organisational theory developed by the American researchers Nancy M. Lorenzi and Robert T. Riley. Through intensive studies within the American healthcare sector they identified the three key components that must be addressed when implementing new IT-systems: Hardware, Software and Peopleware. Peopleware refers to the organizational or “human” aspects of implementing, e.g. EHR (3). Based on their findings Lorenzi and Riley developed a research method designed as a questionnaire for examining change readiness. At Aalborg University we have, during the past few years, adapted the American method to Danish conditions by using the method on several Danish hospital wards. A significant difference between the American and the Danish methods is that the questionnaire forms only part of the Danish method, as we have found that it does no more than provide indications as to the kind of problems associated with implementation of a new IT-system. Hence, in Denmark the questionnaire is regarded as a tool for providing information about factors causing resistance to new IT-systems and as a catalyst for starting a dialogue among employees and between employees and management prior to implementation. The questionnaire must, therefore, be followed by interviews through which it is possible to probe further into problems shown by the results of the questionnaire and to start/continue a dialogue. The main reason for the contrasting approaches is that the hospital systems in USA and Denmark have very different natures, with one of the factors characterizing the Danish health care sector being a tradition for involving staff members when assessing new tasks. The differences between the American and the Danish methods reflect the fact that they have different objectives, and these objectives have moved even further apart during the period in which the method has been used in Denmark. In the USA the method can be seen as a managerial tool to promote a change that has already been decided upon by the management, while in Denmark it can be seen as a participatory tool to identify the concerns of the employees - hereby starting a dialogue among employees and between employees and management.
3. Introduction and Objective:

The most recent experience with the CRR method is from its use in the Gepka project during 2003-4, where the degree of participation of the eight participating wards turned out to be very different. It has been of great interest for us (“Us” and “we” refer to members of The EHR-Observatory that was established in 1998 of the Danish Ministry of the Interior and Health to monitor the development of EHR in Denmark: http://epi-observatoriet.dk) to set out themes by which this variation can be studied. Such themes can be a useful tool in future CRR projects in order to maximize the degree of participation.

4. Methods and material:

A qualitative explorative research design has been applied. Four instructions from the “Instruction for use” - all directly related to the degree of participation - have been studied as themes:

- Appointment of an interdisciplinary steering committee
- Adaptation of the questionnaire by an interdisciplinary team from the ward
- Informing the employees about the CRR
- Support for the CRR by the management – all the way up

Direct observation has been the main method but, due to the fact that we have not been involved to the same extent in all the wards, it has been necessary - subsequently to completion of the Gepka studies - to hold telephone interviews with some of the wards to clarify different conditions. The wards involved in this study are the same wards participating in the Gepka project (table 1).

Table 1: Questionnaires handed out/in and degree of participation in the Gepka-CRR study.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Ward</th>
<th>Handed out*</th>
<th>Handed in*</th>
<th>Participation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gentofte R</td>
<td>Cardio-thoracic Surgery ward R</td>
<td>152</td>
<td>84</td>
<td>55.3</td>
</tr>
<tr>
<td>2. Gentofte P</td>
<td>Cardiac ward P</td>
<td>208</td>
<td>78</td>
<td>37.5</td>
</tr>
<tr>
<td>3. Glostrup</td>
<td>Cardiac ward M</td>
<td>57</td>
<td>45</td>
<td>78.9</td>
</tr>
<tr>
<td>4. Herlev</td>
<td>Cardiac ward S</td>
<td>93</td>
<td>31</td>
<td>33.3</td>
</tr>
<tr>
<td>5. Amager</td>
<td>The Cardiac Clinic</td>
<td>97</td>
<td>52</td>
<td>53.6</td>
</tr>
<tr>
<td>6. Århus</td>
<td>Medical ward M</td>
<td>143</td>
<td>93</td>
<td>65.0</td>
</tr>
<tr>
<td>7. Ringkøbing</td>
<td>The Mother-Child Center</td>
<td>77</td>
<td>55</td>
<td>71.4</td>
</tr>
<tr>
<td>8. Ribe</td>
<td>Section P10/E3, R3, BU amb.</td>
<td>81</td>
<td>40</td>
<td>49.4</td>
</tr>
</tbody>
</table>

*Questionnaires
5. Results

Wards 1-4: Wards 1-4 all belong to the county of Copenhagen, where a shared steering committee, (the GEPKA steering committee), was established to take care of the CRR. The members of this committee were all employees of the county’s IT-department. The steering committee worked in cooperation with the managers of the wards, who participated to differing degrees in carrying out the CRR. Because of a lack of time, the questionnaire used in the CRR was adapted for use by the steering committee with our help. The ward employees were not involved. On wards 1, 2 and 4 the employees were informed about the CRR at meetings with the shared steering committee. Attendance was compulsory and not many participated. On ward 3, the management of the ward took care of informing the employees and almost everybody was present. The managements of the hospitals have not been involved in the CRR in any way.

Wards 5-6: On wards 5 and 6 the managing doctor and nurse along with other employees from the ward were members of the steering committees. IT-managers were also members on ward 5. The members of both steering committees had a thorough knowledge of the Gepka project. On both wards the questionnaire was adapted for use by the steering committees with our help. The IT-members of the steering committee informed the employees about the CRR on ward 5, with only limited assistance from the members who were ward employees, while the management of the ward did this job on ward 6. The managements of the two hospitals were not visible during the project.

Ward 7: The managing doctor of the ward was member of the steering committee together with other employees from the ward, and they were responsible for carrying through the CRR. The steering committee modified the questionnaire and the committee itself informed the employees about the CRR. The hospital management was not involved.

Ward 8: No observations or interviews were made in respect of ward 8. This ward is therefore excluded from this study.

6. Discussion

Appointment of an interdisciplinary steering committee: This instruction was not followed in the case of wards 1-4, where the shared steering committee had no members from the wards. However, the steering committee did cooperate with the management of each ward. The explanation for why ward 3 - despite not following the above instruction - had the highest response rate of all the participating wards might be that the manager of this ward was actively engaged in carrying out the CRR, because he was very enthusiastic about the project. The managers of the other three wards, on the other hand, found that the timing was bad, because they had too many other activities at the time etc. They felt it was an extra burden having to participate in the CRR and did not try to motivate the employees on the wards to take part. The rather low response rate for ward 5 could be explained by the “clinical” members of the
steering committee not having been very visible throughout the process, as it was the IT-members of the committee who took care of conducting the CRR. This contrasts with the high response rates on wards 6 and 7 where the ward managers were very active, visible and engaged.

Adaptation of the questionnaire by an interdisciplinary team from the ward: This instruction was not followed by wards 1-4, as the steering committee, which included no employees from the wards, itself took care of adapting the questionnaire. As already mentioned, the employees from the wards were not involved in the adjustment process due to time pressures. The response rates were low for three of the wards, whereas ward 3 had the highest rate of all participating wards. On wards 5 to 7 the instruction was followed, but high response rates were only attained for wards 6 and 7.

Informing the employees about the CRR: On wards 1, 2 and 4, representatives from the shared steering committee held information meetings. The managers of the wards were not active at these meetings and some were not even present. Attendance at the meetings was not compulsory and not many employees participated. The manager/management of the ward explained the CRR to the ward 3 employees, most of whom were present. On ward 5, information was provided by the IT-members of the steering committee, whilst on wards 6 and 7 the management performed this function. The response rates were high for wards 3, 6 and 7, where the management of the wards provided the information. An explanation for this can be that the managers of these wards can all be described as “fiery souls”, who have all been very active in the EHR debate – some for and some against. They have all found it important to encourage a debate about EHR in their respective wards and have found the CRR a useful tool for this purpose. Their personal engagement is the most likely explanation for the high participation of the employees from their wards in the CRR.

Support for the CRR by the management – all the way up: None of the hospital managements have been visible during the CRR process. This is despite the fact that the decision to participate in the Gepka project - and with this the CRR – was taken by the counties and the hospital managements. It appears that, after having taken this decision, the hospital managements have simply handed over the responsibility either to their IT-departments or to the ward managers. Arguments and motivation from IT departments do not, however, have the same impact on clinicians as they do if they come from hospital or ward managers. Furthermore, before delegating responsibility to the managements of the wards, hospital managements have to ensure that they both consider the project to be important and want their wards to participate. It is unlikely that the members of the ward management will be able to motivate the other employees on their ward to participate if they are not motivated themselves.

The participating wards have followed the four selected “Instructions for use” to different degrees. It seems like one instruction, in particular, seems to be especially important to follow; the management of the ward must be engaged/actively involved in the project, as they are key figures when it comes to motivating the other ward employees. In order to achieve this, the hospital management must visibly motivate and
support the management of the ward throughout the process.

It is important to emphasize that it is not the aim of this study to prove a causal relationship between the degree to which the “Instructions for use” are followed and the degree of participation. This study only suggests a qualitative relationship between the two. Neither does this study try to generalize the results, as further research on more wards would be needed to do so.

7. Conclusion

Using the four instructions as themes for studying the variation in participation in the Gepka CRR study gives a good understanding of the different reasons - of a human and organisational nature - for the variation seen. It appears that it is important for the four themes to be considered in an organization before carrying out a CRR in order to motivate the employees to participate. The themes can, therefore, be a very useful tool in future CRR studies as they can lead to a higher degree of participation. They can probably also be used in a modified way in other studies of human – machine interactions.

References

(3) N.M.Lorenzi, Riley RT. Organizational Aspects of Health Informatics. 1995. Springer Verlag.