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CARE JOBS: An educational game on workplace innovation in chronic care settings

Ezra Dessers, Leen De Kort, Geert Van Hootegem

Abstract

CARE JOBS is a game designed for educating people working in chronic care settings on the relation between job characteristics and job quality. The game is based on Karasek's Job Demand/Control (JD/C) Model, which predicts that job quality results from the joint effects of workload (i.e. job demands) and autonomy (i.e. job control). The game is about dressing toy dolls, which represent residential care clients. Twelve, sixteen or twenty participants are divided over four tables, each representing a residential care unit. At each table, one of the job types identified by the JD/C Model is simulated. Job demands are manipulated by controlling the number of dolls. Job controls are manipulated by (lack of) strict clothing rules and (lack of) access to extra clothing in the storage. Participants are instructed to dress their residents in six minutes time. In the debriefing, participants are asked after their results and experiences. Guided by the facilitator, participants reconstruct the JD/C Model. The full game can be played in half an hour time. The game is appealing because of its simplicity, and offers starting points for exploring options for workplace innovation and their possible effects.

Keywords: Workplace innovation, educational game, job quality, chronic care

Introduction

Against the background of the economic crisis and an increased urgency for continuous innovation and sustainable growth to maintain global competitiveness of the European Union (EU), workplace innovation recently gained importance at the EU policy level (Kesselring, Blasy & Scoppetta 2014). Workplace innovation should contribute to European competitiveness, and encompasses practices that enhance employers' workability, resulting in higher productivity and improved employees' job-satisfaction and wellbeing. In other words, workplace innovation is not only aimed at increasing organizational performance, but also at simultaneously improving the quality of work of the employees (Dhondt & Hootegem 2015).

Workplace innovation is a cross-cutting policy issue, concerning all types of organizations and sectors (Kesselring, Blasy & Scoppetta 2014), including health care. Due to the rapid aging of the population and the greater longevity of people with multiple chronic conditions in many high income countries, the number of persons with chronic illness is growing at a fast rate, while the care systems were organized historically to respond rapidly and efficiently to acute illnesses and injuries (Wagner et al. 2001). Moreover, many European countries are faced with health care workforce shortages (Kroezen et al. 2015) and members of the health care workforce report widespread burnout and dissatisfaction (Bodenheimer & Sinsky 2014). These evolutions represent important intra- and inter-organizational challenges, related to task division and coordination, multidisciplinary team work and job design.

The Triple Aim (Berwick, Nolan & Whittington 2008) - enhancing patient experience, improving population health, and reducing costs - is widely accepted as a compass to optimize health system performance, also in chronic care. Bodenheimer and Sinsky (2014) recommend that the Triple Aim be expanded to a Quadruple Aim, adding the goal of improving the work life of health care providers, including clinicians and staff. Care professionals well-being is regarded as a prerequisite for the Triple Aim. Chronic care provision relies on the efforts of committed and healthy care professionals.

The Job Demand/Control Model (JD/C), developed by Karasek (1979) predicts the possible impact of job characteristics on job quality. The JD/C model is one of the most widely studied models of occupational stress (Kain & Jex 2010). Yet, people from practice, such as care professionals, tend to find this conceptual model rather abstract. CARE JOBS is a game which helps to educate care professionals, and by extension everyone working in chronic care, in the JD/C Model by letting them experience jobs with differing characteristics in a game context. The game offers starting points for exploring options for workplace innovation and their possible effects.

The JD/C Model predicts that job quality results from the joint effects of workload (i.e. job demands) and autonomy (i.e. job control). Job quality is defined as the extent to which a job fosters beneficial outcomes for the worker in terms of low risks of psychological strain and physical illness, and high levels of intrinsic motivation and learning opportunities. Karasek explains that job quality is not only determined by job demands, but also by the decision-making freedom available to the worker facing those demands. Job quality depends on the balance between job demands (implying control needs) and control capacity. Figure 1 shows that the JD/C Model describes four types of jobs that might result from different combinations of job demands and job control. The JD/C Model predicts an increasing risk of psychological strain and

physical illness following Arrow A, and increasing motivation and learning opportunities following Arrow B. 'High Strain Jobs' and 'Low Strain Jobs' represent situations where job demands and job control diverge. Workers in 'High Strain Jobs', facing high job demands combined with low job control in meeting those demands, experience great risks of psychological strain and physical illness. 'Low Strain Jobs' combine low job demands with high job control, but these control capacities do not correspond with actual control needs. 'Low Strain Jobs' do not offer the worker learning opportunities and are not likely to increase job motivation and involvement. 'Active Jobs' and 'Passive Jobs' represent situations where job demands and job control are matched. The JD/C Model speaks of 'Active Jobs' when job demands and job control are simultaneously high. 'Active Jobs' offer learning opportunities and increase motivation and involvement. In contrast, 'Passive Jobs' combine low job demands with low job control. Although both are matched, such jobs represent no challenges and tend to lead to a mind-numbing routine.

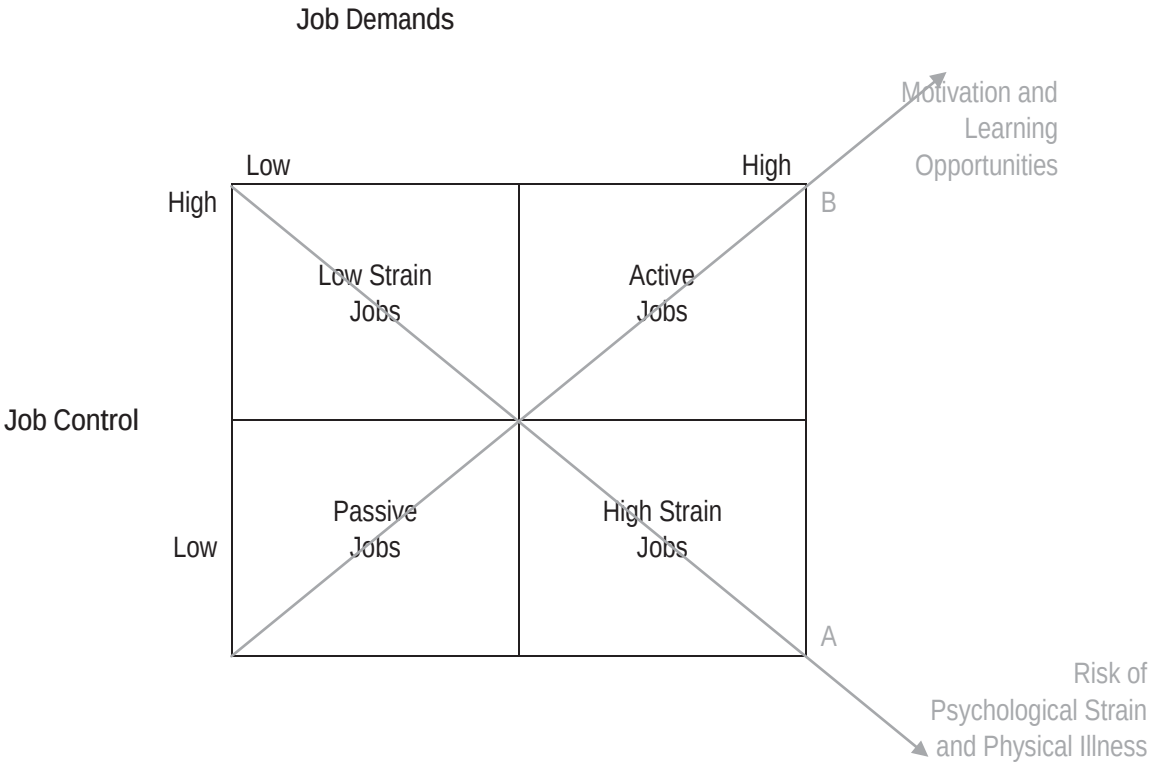

Figure 1: Job Demand / Control Model (based on: Karasek, 1979)

CARE JOBS is about dressing toy dolls, which represent residential care clients. Twelve, sixteen or twenty participants are divided over four tables, each representing a residential care unit. At each table, one of the four job types identified by the JD/C Model is simulated. Job demands are manipulated by controlling the number of dolls. Job controls are manipulated by (lack of) strict clothing rules and (lack of) access to extra clothing in the storage. In the debriefing, participants are asked after their experiences in terms of results, encountered problems, frustration, enjoyment, boredom etc. Guided by a facilitator, participants reconstruct the JD/C Model themselves, which helps them to understand the underlying principles.

Basic Data

Instructional objectives: To increase awareness of the joint effects of job demands and job control on job quality. To experience the relationship between task division and job control. To reflect upon the relation between job types and team performance.

Game objectives: To dress all toy dolls and to serve them breakfast. Photo 1 in Appendix A illustrates reaching the game objectives.

Debriefing format: Open discussion with all participants, guided by the facilitator.

Target audience: People working in chronic care (including care professionals, support staff, administration and management). By extension, every individual interested in learning more on the subject.

Playing time: 15 minutes (including introduction and briefing).

Debriefing time: 15 minutes.

Number of players required: 12, 16 or 20, divided into four groups of equal size. In case the number of possible participants does not exactly match one of these numbers, one or more participants can take the role of an observer during the playing of the game, and join in the debriefing discussion.

Computer/internet configuration: not applicable

Materials/equipment required: 70 toy dolls; 70 sets of toy doll clothing (shirt/top/body; skirt/pants; shoes); 70 pieces of toy kitchenware (e.g. plates, cups); four toy breakfast tables (e.g. the lid of a box of printing paper); five storage boxes; a countdown clock; a room with one chair per participant, five tables and a flip-over, whiteboard or blackboard; four types of instruction sheets, five copies of each type; four prints of the 'game objective' photo; two copies of five function tags for the participants; two sets of four clothing cards with permitted clothing combinations; two request forms for additional clothing items; a unique label for each of the four tables;

Facilitator's guide

In CARE JOBS, the participants take the role of care professionals working in four residential care units: 'Maple', 'Willow', 'Cypress' and 'Alder'. Figure 2 shows that the jobs in each of these units correspond with one of the job types of the JD/C Model.

Maple Low Strain Jobs	**Cypress** Active jobs
Willow Passive Jobs	**Alder** High Strain Jobs

Figure 2: CARE JOBS: Job Types and Residential Care Units

Table 1 gives an overview of the time schedule for preparing and playing the game.

	Time	**Phase**
	One-off	Acquiring materials
	In advance, 30’	Preparation
	10’	Installation
Runtime game: 30’	5’	Introduction
	4’	Instruction
	6’	Playing the game
	15’	Debriefing

Table 1: CARE JOBS Schedule

Acquiring materials

The CARE JOBS game requires a one-off investment in collecting and preparing the materials that are needed to play the game.

- The following materials can be bought off-the-shelf:
- 70 toy dolls (Barbie-style fashion dolls);
- 70 sets of toy doll clothing, each set consisting of three pieces: shirt/top/body; skirt/pants; pair of shoes;
- 70 pieces of toy kitchenware (e.g. plates, cups);
- Five storage boxes (for sorting the materials in the preparation phase);
- A countdown clock (visible for all participants during the game).
- The following materials need to be made:
- Four toy breakfast tables (e.g. the lid of a box of printing paper);
- Four different types of instruction sheets, five copies of each type (see Appendix B);
- Four prints of the ‘game objective’ photo, showing the dolls properly dressed at the breakfast table (see Appendix A, Photo 1);
- Two copies of the following function tags for participants: Sorting; Shirt/top/body; Skirt/pants; Shoes; Breakfast. A function tag can be a badge, a sticker or just a piece of cardboard, as a means of displaying the participants task for others to view;
- Two sets of four clothing cards with permitted clothing combinations. In order to make these cards, you first need to define four different clothing combinations, using the clothes you have available for the toy dolls. Each combination consists of a unique mixture of three pieces: shirt/top/body; skirt/pants; pair of shoes (for an example, see Appendix A, Photo 2);
- A stack of request forms for additional clothing items. This is the only piece of material that is not reusable. For each time the game is played, two copies of the request form are needed (for an example, see Appendix C);

- For each of the four tables, one label showing the name of the residential care unit involved: 'Maple', 'Willow', 'Cypress' and 'Alder'.

The following materials need to be provided in the room where the game is played:

- Flip-over, whiteboard or blackboard (hereafter referred to as flip-over);
- One chair per participant;
- Five tables.

Preparation

The success of the game will highly depend on a secure preparation. If, for instance, the number of clothes which are available on one of the tables would not be correct, the game will probably fail. The CARE JOBS game involves quite a large number of dolls, clothing items and kitchenware. It is therefore essential that you select and sort the necessary materials per table in advance.

- Make sure you know in advance how many participants to expect. Note that the game can only be played by 12, 16 or 20 participants;
- Take the five storage boxes, one for each residential care unit, and one for the storage room / management office;
- Fill the 'Maple' box with the following materials:
  - Two dolls per participant;
  - Clothing items, matching the number of dolls: Shirt/top/body; Skirt/pants; minus one pair of pants (to be put in the storage room);
  - Shoe pairs, matching the number of dolls;
  - Kitchenware, matching the number of dolls;
  - One toy breakfast table;
  - One copy of the 'Maple' instruction sheet per participant;
  - One print of the 'game objective' photo.
  - Fill the 'Willow' box with the following materials:
  - Five dolls per participant;
  - Clothing items, matching the number of dolls, and matching the clothing cards with permitted clothing combinations: Shirt/top/body; Skirt/pants; minus one pair of pants (to be put in the storage room);
  - Shoe pairs, matching the number of dolls, and matching the clothing cards with permitted clothing combinations;
  - Kitchenware, matching the number of dolls;
  - One toy breakfast table;
  - One copy of the 'Willow' instruction sheet per participant;
  - One print of the 'game objective' photo;
  - One set of five function tags for the participants;
  - One set of four clothing cards with permitted clothing combinations;
  - One request form for additional clothing items.
  - Fill the 'Cypress' box with the following materials:
  - Two dolls per participant;
  - Clothing items, matching the number of dolls: Shirt/top/body; Skirt/pants; minus one pair of pants (to be put in the storage room);
  - Shoe pairs, matching the number of dolls;
  - Kitchenware, matching the number of dolls;

  - One toy breakfast table;
  - One copy of the 'Cypress' instruction sheet per participant;
  - One print of the 'game objective' photo.
  - Fill the 'Alder' box with the following materials:
  - Five dolls per participant;
  - Clothing items, matching the number of dolls, and matching the clothing cards with permitted clothing combinations: Shirt/top/body; Skirt/pants; minus one pair of pants (to be put in the storage room);
  - Shoe pairs, matching the number of dolls, and matching the clothing cards with permitted clothing combinations;
  - Kitchenware, matching the number of dolls;
  - One toy breakfast table;
  - One copy of the 'Willow' instruction sheet per participant;
  - One print of the 'game objective' photo;
  - One set of five function tags for the participants;
  - One set of four clothing cards with permitted clothing combinations;
  - One request form for additional clothing items.

- Fill the 'Storage Room / Management Office' box with the following materials:
  - The four pairs of pants, taken from the other boxes. Make sure these are four identical pairs of pants.

Installation

Before the participants enter, you need to arrange the room and distribute the necessary materials.

- You need one chair per participant, and five tables;
- Spread the five tables in the room;
- Decide which table will serve as the 'Storage Room / Management Office';
- Distribute the available chairs equally among the four remaining tables;
- Label each of the four tables with the name of one of the four residential care units: 'Maple', 'Willow', 'Cypress' and 'Alder';
- Make sure the dolls have no clothes on at the start of the game;
- For each table, put the materials from the matching storage box on the table;
- The distribution of the function tags depends on the number of participants:

  - In case of 20 participants, put one function tag in front of each chair, in the following order: Sorting; Shirt/top/body; Skirt/pants; Shoes; Breakfast;
  - In case of 16 participants, put both the Sorting and the Breakfast function tag in front of the first chair, followed by putting each of the remaining functions tags in front of one of the other chairs, in the following order: Shirt/top/body; Skirt/pants; Shoes;
  - In case of 12 participants, put both the Sorting and the Breakfast function tag in front of the first chair, put the Shirt/top/body function tag in front of the next chair, and put both the Skirt/pants and Shoes function tags in front of the third chair;

- Install the countdown clock in such a way that every participant can see it, and set it to six minutes;
- Install the flip-over in such a way that every participant is able to see it;
- Invite the participants to enter the room and take a seat at one of the tables.

Introduction and instruction

- Explain the game setting and goal to the participants, based on following example:

Welcome to your new job! You each will be working as a care professional for one of our four residential care units. It is early in the morning, and the residents of your unit just woke up. As usual, the morning is a very busy time because everybody needs to get dressed and have breakfast. All of this needs to happen in six minutes time. You can find all information you need to do your work in the instruction sheets, which are on the table in front of you. You have five minutes now to read the instruction sheet and to ask me for clarifications, if necessary.

- Allow the participants five minutes for reading the instruction sheet and for getting familiar with the various materials on the table;
- Pass by every table to check whether the instructions are clearly understood;
- After the five minutes have passed, and all participants are ready, show the 'game objective' photo and remind the participants that the objective for all of them is to dress all their residents and to serve them breakfast in six minutes time.

Playing the game

- Make sure all participants are ready;
- Start the game by activating the countdown clock;
- During the game, you sit at the 'Storage Room / Management Office' table;
- When a request form is handed over to you, wait for 30 seconds before giving the requested clothing item to the applicant;
- Keep an eye on the countdown clock during the game. As soon as the countdown finishes, you put an end to the game.

Debriefing

Up to this point, most of the participants are still largely unaware of the differences between their unit and the other three units with regard to working rules and the number or residents to be cared for. In the debriefing, you will gradually reveal these differences and explain their possible consequences in the field of job quality and team performance.

Phase 1: The results

- Make sure you have everybody's attention;
- Draw four quadrants on the flip-over, and label each quadrant with the respective residential care unit name (see Figure 3);

Maple	Cypress
Willow	Alder

Figure 3: CARE JOBS. Starting the debriefing.

- Ask the participants from each residential care unit how many residents they were able to dress and to serve breakfast. Only fully dressed dolls sitting at the breakfast table with a piece of kitchenware in front of them may be counted;
- Write down these numbers in the matching quadrants;
- Point out that the four groups produced very different results in six minutes time;

Phase 2: Job Control

- Explain that the units differ with regard to the way the work is organized;
- Ask the participants from each unit to explain which rules they had to follow during their work. You should concentrate on the differences between 'Maple' and 'Cypress' versus 'Willow' and 'Alder'. Make sure that the following differences emerge from the discussion: only permitted clothing combinations versus free choice of clothing items; the obligation to use request forms for missing clothing items versus the ability to access the storage room yourself; specialized jobs with narrow tasks versus non-specialized jobs with broad tasks; task division versus team work; task-oriented versus client-oriented work; following procedures versus self-managing;
- Recapitulate that 'Maple' and 'Cypress' worked as teams, in which every participant had broad tasks and a client-oriented perspective (i.e. dressing a resident and serving him breakfast), and a high level of autonomy (i.e. free choice of clothing items, and unlimited access to the storage room);
- Recapitulate that the work at 'Willow' and 'Alder' was characterized by a strict task division based on specialization. Every participant had a very specific, narrow task. These tasks needed to be performed in a sequential way. Participants were highly dependent on the work of others, and only had

control over their limited part of the work process of dressing and serving breakfast;

- Explain that this difference can be seen as the distinction between having high and low levels of 'job control' in your work. The participants in the 'Maple' and 'Cypress' units dispose of decision-making freedom with regard to how to organize their work, which results in a high level of job control. The participants in the 'Willow' and 'Alder' units lack this level of autonomy, resulting in a low level of job control;
- Write down 'job control' at the Y-axis of the figure on the flip-over;
- Point out that a high job control seems to be associated with higher performances. The likely result after playing the game that all residents of the 'Maple' unit will be dressed and served breakfast before the countdown finishes, as will most of the residents of the 'Cypress' unit. These number can be expected to be far lower for the 'Willow' and 'Alder' units.

Phase 3: Job Demands

- Ask each team how many residents they had to take care of. Write down these numbers in the matching quadrants on the flip-over;
- Point out the differences in workload. The number of residents in the 'Maple' and 'Willow' units represents only 40% of the number of residents in the 'Cypress' and 'Alder' units;
- If the 'Cypress' unit had more residents dressed and served breakfast to than the 'Willow' unit, point out that an autonomous team with a high workload apparently was more productive than a unit with a specialized tasks with a low workload;
- Explain that the workload can be described in terms of job demands: based on the number of residents, the participants in the 'Maple' and 'Willow' units face low demands, compared to the high job demands in the 'Cypress' and 'Alder' units;
- Write down 'job demands' on the X-axis if the figure on the flip-over.

Phase 4: Job Types

- Ask the participants of each unit how the atmosphere was during their six minute working day, using questions like: Did the work go well? How did you feel? Did you like it? Were you frustrated? Were you satisfied? Was it stressful? Was it fun to do? Did you feel involved with your residents? Do you think your residents were happy with the treatment you gave them?
- Explain that the different combinations of job demands and job control result in four types of jobs, each of which matches one of the units in the game;
- Write down the name of each job type in the matching quadrant in the figure on the flip-over: Maple: 'Low Strain Jobs'; Cypress: 'Active Jobs'; Willow: 'Passive Jobs'; Alder: 'High Strain Jobs';
- Explain that these four types can be related to different levels of job quality. Clarify that job quality is defined as the extent to which a job fosters beneficial outcomes for the worker in terms of low risks of psychological

strain and physical illness, and high levels of intrinsic motivation and learning opportunities;

- Draw an arrow from the left top to the right bottom of the figure on the flip-over. Explain that, following this arrow, the risk of psychological strain and physical illness increases, as the job demands grow and job control decreases;
- Draw an arrow from the left bottom to the right top of the figure on the flip-over. Explain that, following this arrow, motivation and learning opportunities increase, as the job demands and job control increase in a balanced way. Increased job demands offers chances for learning and can be motivating, on the condition that the worker has a level of autonomy which allows him to deal with these increased job demands;
- Explain what this means for each of the four job types, based on the following text:

'High Strain Jobs' and 'Low Strain Jobs' represent situations where job demands and job control diverge.

(1) Workers in 'High Strain Jobs', facing high job demands combined with low job control in meeting those demands, experience great risks of psychological strain (e.g. burnout) and physical illness (e.g. high blood pressure).

(2) 'Low Strain Jobs' combine low job demands with high job control, but these control capacities do not correspond with actual control needs. 'Low Strain Jobs' do not offer the worker learning opportunities and are not likely to increase his job motivation and involvement. Bullying colleagues and displacement of goals are typical risks associated with situations in which you have much autonomy and free time, yet little work and few challenges.

'Active Jobs' and 'Passive Jobs' represent situations where job demands and job control are matched.

(3) We speak of 'Active Jobs' when job demands and job control are simultaneously high. 'Active Jobs' offer learning opportunities and increase motivation and involvement.

(4) In contrast, 'Passive Jobs' combine low job demands with low job control. Although both are matched, such jobs represent no challenges and tend to lead to a mind-numbing routine, with a risk for bore-out and dissatisfaction.

- Point out that the feelings which the participants experienced (in terms of frustration, satisfaction, disempowerment…) can be related to the characteristics of the job type they were in. Explain that people often think that stress and motivation are related to personal features, and possibly require interventions at the individual level. Yet, in the case of job-related stress and motivation issues, only interventions at the level of work organization and job design can be effective;
- Point out that in the domain of (chronic) care, the overall job demands are not likely to decrease. Therefore, it is imperative to (re)design care processes and organizations in such a way that also job control is increased, in order to create more 'Active Jobs' and avoid a further growth of 'High Strain Jobs'.

Phase 5: Wrap-up

Conclude by clarifying that the CARE JOBS game was evidently not intended to be a realistic simulation of actual dressing and catering procedures in residential care centers. Explain that the game was meant to experience the joint effects of job demands and job control on job quality, in terms of risks of psychological strain and physical illness, and levels of intrinsic motivation and learning opportunities.

Conclusion

Serious games have been used in a health care setting for various purposes, from education of care professionals to policy exploration by managers. In the present paper we described a short, care-related game for educating people working in chronic care settings on workplace innovation, and more specifically on the relation between job characteristics and job quality. We believe the game is appealing because of its simplicity, and it offers starting points for exploring options for workplace innovation and their possible effects. The main purpose of the game is obviously not to simulate the average health care job as realistically as possible, but to let participants experience differences between job characteristics and job quality in a setting that relates to their own field of work.

APPENDIX A

Photographs of the game

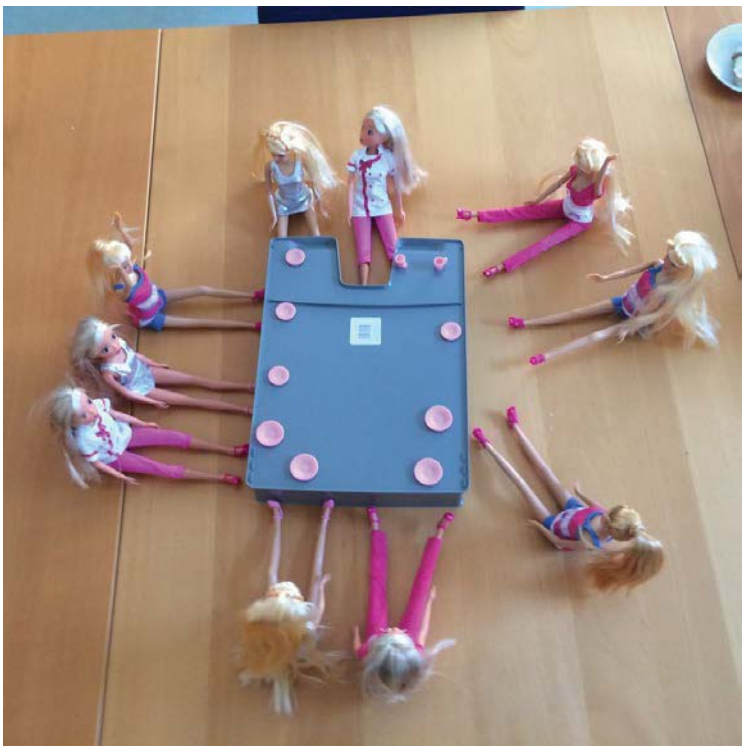

Photo 1: Example of a 'game objective' photo

Photo 2: Example of a clothing card, depicting one of the permitted clothing combinations

APPENDIX B: Instruction Sheets

Residential care units ‘Maple’ and ‘Cypress’

You are a care professional working in a residential care unit. Your unit is entrusted with the task to see to it that each of the residents is properly dressed, and is served breakfast afterwards. Please note the following rules:

- Residents have to be fully dressed before they can be seated at the breakfast table.
- Preferably, each resident will be fully dressed and seated at the breakfast table by the same care professional. However, you can call upon the help of you colleagues when needed.
- Each resident has to wear two pieces of clothing: (1) a shirt, top or body and (2) a skirt or pair of pants.
- Each resident has to wear a pair of matching shoes.
- In case of shortage of clothing items, you are allowed to go search for additional clothing items in the storage room (next to the management office).
- As soon as a resident is fully dressed, she can sit at the breakfast table, where she should be given a plate or a cup.
- Residential care unit ‘Willow’ and ‘Alder’
- You are a care professional working in a residential care unit. Your unit is entrusted with the task to see to it that each of the residents is properly dressed, and is served breakfast afterwards. Please note the following rules:
- Residents have to be fully dressed before they can be seated at the breakfast table.
- Each resident needs to wear one of the prescribed combinations of clothing and shoes, as depicted on the four clothing cards.
- In case a clothing item is missing, a request form needs to be filled out and handed over to the management (i.e. the facilitator). The management will make sure you receive the requested clothing item after a waiting time of 30 seconds.
- As soon as a resident is fully dressed, she can sit at the breakfast table, where she should be given a plate or a cup.
- You and your colleagues each have a specific task. You may only perform your task, and it is strictly forbidden to help your colleagues with their tasks.
- Your task can be found on your function tag.
- The tasks need to be performed in the prescribed sequence:

1. Sorting: preparing the prescribed combinations of shirt/top/body, skirt/pants and shoes. Filling out the request form for additional clothing items when needed.
2. Shirt/top/body: putting on the shirt, top, or body.
3. Skirt/pants: putting on the skirt or the pants.
4. Shoes: putting on the shoes.
5. Breakfast: putting the resident at the breakfast table.

APPENDIX C: Example of the request form

Request Form

Please indicate in the second column of the table below the clothing item you need. Only one clothing item can be requested per form.

Clothing items	Requested
Pants/skirts	
Pink pants, long	
Short blue pants	
Silver skirt	
Pink knee-long pants	
T-shirts/tops	
Pink and white shirt	
Pink with blue top	
Silver body	
White shirt with pink print	
Shoes	
White boots	
Dark pink shoes with flowers	
Light pink pointed shoes with point	
Dark pink shoes without flowers	

Signature:

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