People living with dementia collaborating in a joint activity

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ARTICLE INFO

Keywords:
Collaboration
Dementia
Peer learning
Scaffolding
ICT
Aging

ABSTRACT

Recent research has stressed the collaborative competences of people living with dementia, showing how they are capable of participating in a multitude of everyday activities when supported by cognitively healthy individuals. However, little is known about the collaborative work between different people living with dementia. Accordingly, this study aims to explore how people living with dementia, without the support of a cognitively healthy interlocutor, collaborate with other people living with dementia in an unfamiliar activity. The study is based on video recordings of three dyads, each comprising two individuals living with dementia, as they are using tablet computers with reminiscence and communication aiding applications. Drawing on multimodal interaction analysis, we show how the participants living with dementia treat the activities as joint endeavors and, when needed, engage in problem-solving sequences where they make their knowledge about how to progress within the activities publicly visible to their interlocutor. Our findings suggest that people living with dementia do collaborate with each other, and that the interactional labor between different people living with dementia is more symmetrical than what has been described in joint activities involving people living with dementia and cognitively healthy individuals.

1. Introduction

Over the past decade, research on how people living with dementia manage to cope with challenges, due to cognitive and communicative impairments, in everyday activities has gained increased attention. This research has emphasized the importance of collaboration between people living with dementia and cognitively healthy individuals, such as spouses and other family members providing informal care in the home environment, or formal caregivers working in residential care facilities (Gjernes & Måseide, 2019; Majlesi, Ekström, & Hydén, 2019; McCabe, Robertson, & Kelly, 2018; Samuelsson & Hydén, 2017). A main finding has been that cognitively healthy individuals take on increased interactional responsibilities in everyday activities, enabling people living with dementia to perform beyond what they could do in unassisted instances (Hydén & Forsblad, 2018). Drawing on these discoveries, this paper is concerned with an issue that has received little attention in research thus far, namely how people living with dementia collaborate with other people living with dementia, with little or no access to the guidance of a cognitively healthy interlocutor.

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https://doi.org/10.1016/j.lcsi.2022.100629
Received 22 October 2021; Received in revised form 17 January 2022; Accepted 17 April 2022
Available online 26 April 2022
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1.1. Collaboration and interactional asymmetries in activities involving people living with dementia

Collaboration, inevitably, entails two or more parties doing something together. As emphasized by Clark (1996), people working together in everyday activities, however mundane or complex the activities might be, engage in joint activities. Joint activities are usually definable by an overarching goal or purpose that the participants share, at least to some extent, and pursue in their interaction (Clark, 1996; Gambi & Pickering, 2011; Hydén, 2018). Additionally, joint activities commonly comprise numerous smaller joint projects, each with their own sub-goals (Bangerter & Clark, 2003). Joint projects are temporally bounded with an opening phase where participants initiate and engage in the joint project at hand, a main body where participants carry out the principal business of the joint project, and a closing phase where the ongoing joint project is terminated and/or a new joint project is instigated, thus achieving progression within the activity (Bangerter & Clark, 2003; Heesen, Genty, Rossano, Zubersbühler, & Bangerter, 2017). In the present study, as will be seen in the results section later, the participants are engaging in the joint activity of using multimedia reminiscence and conversation aiding applications on an iPad. Their joint activities are composed of several joint projects, such as selecting categories and media types, browsing images in slideshow view, and changing applications by accessing the home screen of the iPad.

The realization of joint activities, and any incorporated joint projects, is contingent on the ongoing and incremental coordination of the involved participants’ verbal and embodied contributions to the unfolding activity (Bangerter & Clark, 2003; Clark, 2006). That is, participants in interaction are mutually responsive to each other’s conduct, and on a turn-by-turn basis they produce their contributions in relation to what has come before, and by doing this their current contribution shapes what will follow in the activity (Clark, 1996; Sacks, Schegloff, & Jefferson, 1974). It is through these contributions that a participant can make his or her current state of understanding visible to the other participant(s) (Clark & Krych, 2004). An important matter raised by Hydén and Forsblad (2018) regards the fact that although joint activities are commonly characterized by a principal goal or purpose, the turn-by-turn organization of new contributions allows the involved participants to negotiate and revise the purpose of the unfolding activity. While joint activities indeed depend on, and progress through, the coordinated contributions of all engaged participants, participation in joint activities is rarely symmetrical. Instead, Linell (1998) claims that joint activities, or communicative projects to use Linell’s term, are “collectively accomplished, but often, indeed characteristically, with an asymmetry of participation. Therefore, actions also generate an asymmetric distribution of epistemic and practical responsibilities” (p. 221).

Asymmetries in interaction derive from a multitude of conditions between the participants engaged in joint activities. As hinted above, patterns of asymmetrically distributed interactional labor typically occur due to differences in the participants’ epistemic access (i.e., situated displays of being more/less knowledgeable), and/or their interactional entitlements and responsibilities in the joint activity at hand (Enfield, 2011; Linell, 2009; Linell & Luckmann, 1991). In joint activities, the participants’ asymmetrical division of interactional labor might occasion one participant to “dominate the interaction, locally or more globally, by taking more of initiatives and trying to steer and control the other’s responses” (Linell, 2009, p. 214). Even though most joint activities in everyday life involve some level of asymmetrical relationship between the involved participants, interactional asymmetries are perhaps most conspicuous in interactions where one participant is living with cognitive or communicative disabilities, such as dementia (Linell, 1998, 2009; Majlesi & Ekström, 2016; Wilkinson, Rae, Rasmussen, 2020).

In interactions involving people living with dementia, it is central to stress the heterogeneity of the clinical population. Importantly, dementia is not one specific disease, but a syndrome caused by a multitude of possible underlying etiologies (Whalley, 2015). Not only do different types of dementia diagnoses differ regarding the severity and characteristics of cognitive or communicative impairments, but also people living with the same dementia diagnosis might experience different symptoms as being more or less pronounced (Marcusson, Blennow, Skoog, & Wallin, 2011; Marshall, 2009). Keeping the heterogeneity in mind, there are some common cognitive and communicative symptoms of dementia that bring about the asymmetrical division of interactional labor in joint activities. Frequently reported issues relating to dementia and interaction include word-finding difficulties, problems with retrospective telling, difficulties in asserting knowledge, diminished language comprehension, and troubles with following ongoing conversational topics or suddenly introducing topical shifts (Hamilton, 2019; Hydén, 2018; Jones, 2015).

As argued by Ekström, Lindholm, Majlesi, and Samuelsson (2017), the fact that people living with dementia often face communicative difficulties has contributed to the perception of them as passive and uninvolving interlocutors. However, results from recent studies on collaboration in everyday activities between cognitively healthy participants and people living with dementia clearly dismisses this notion (for example, see Ingebrand, Samuelsson, & Hydén, 2020, 2021; Majlesi et al., 2019). A key finding regards how the performance of a participant living with dementia can be scaffolded (Wood, Bruner, & Ross, 1976) by the participant(s) without dementia (e.g., Gjernes & Måseide, 2019; Hydén, 2014). Scaffolding entails a redistribution of interactional labor, where the cognitively healthy participants take on increased responsibilities in the joint activities and thereby aiding the participants living with dementia to access the linguistic or cognitive resources needed to partake (Hydén, 2018). Hydén and Forsblad (2018) describe how cognitively healthy participants might scaffold the overall progression and framing of the activity by keeping track of what has been done so far, and what is yet to be done in the joint activity. Their responsibilities might also entail the need of reminding the participants living with dementia about the purpose of the unfolding activity. This is of importance since people living with dementia commonly experience difficulties with their prospective memory, that is remembering what they are currently doing, or what to do next (Hydén & Forsblad, 2018). Furthermore, cognitively healthy participants might scaffold the contributions of people living with dementia in the joint activity. This could, for example, be done by giving directives with embodied or verbal clues for the person living with dementia to follow (Ingebrand et al., 2020). Finally, if any problems occur in the joint activity, the cognitively healthy participant could provide scaffolding in the process of repairing the trouble (Hydén & Forsblad, 2018). In other words, the asymmetrical relationship between cognitively healthy participants and people living with dementia is what makes scaffolding practices feasible. In interactions involving people living with dementia, Hydén (2018) further claims that it is fruitful to think of joint activities, and any
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included joint projects, as built around problem-solving sequences. The participants' continuous problem-solving is not necessarily the same as the overarching goal of the activity, but rather a necessity for working out a mutual understanding on how to progress within the ongoing activity (Hydén, 2018).

In a previous study (Ingebrand et al., 2020), we showed how a woman living with dementia, who had no previous experience of using touchscreen technologies, over the course of six weeks learned how to perform basic navigational maneuvers on an iPad together with her cognitively healthy spouse. Akin to the results of other studies involving people living with dementia and cognitively healthy interlocutors (e.g., Majlesi & Ekström, 2016), there was initially a clear asymmetry in the participants' interactional labor. Seen across all observed joint projects, the cognitively healthy spouse was dominating the progression of their joint activity e.g., by being the one who initiated new joint projects through producing directives for his wife to follow. Through the embodied and verbal directives, the cognitively healthy spouse scaffolded the main body of their joint projects by guiding his wife's attention, and her subsequent conduct, towards the appropriate part of the iPad. In the same manner he was the one who instigated the closings of their joint projects. Further, the cognitively healthy spouse provided positive feedback following any appropriate conduct made by his wife. Interestingly enough, the directives and subsequent feedback from the cognitively healthy interlocutor gradually became less explicit whilst the responses from the woman living with dementia were produced in an increasingly direct fashion. That is, as the woman living with dementia became more competent in managing the iPad, less scaffolding was needed from the cognitively healthy participant and the division of their interactional labor progressively became more symmetrical. In other words, the distance between the “expert” and the “novice” became reduced. The idea of scaffolding is thus closely associated to Vygotsky's (1978) notion of the zone of proximal development, in that more competent participants might facilitate the learning of less competent participants by structuring activities in appropriate ways. Besides facilitating learning, previous studies have demonstrated how cognitively healthy individuals, through the use of scaffolding practices, can support people living dementia in preparing meals (Hydén, 2014; Majlesi & Ekström, 2016), producing autobiographical storytelling (Gjernes, 2017; Hydén, 2011, 2013) and managing personal hygiene (Jansson & Plejert, 2014).

1.2. Peer learning and knowledge displays

Indeed, there is a growing body of literature suggesting that people living with dementia, despite having significant cognitive and communicative impairments, are capable of managing a diverse range of everyday activities in collaboration with cognitively healthy interlocutors. As noted above, the use of scaffolding practices has been identified as an important resource for the progression of joint activities, facilitating the participation of people living with dementia and allowing them to perform in ways that would be difficult in unassisted instances (Hydén, 2014, 2018; Ingebrand et al., 2020). However, how people living with dementia manage and progress within activities in peer interactions, that is together with other people living with dementia, has to this date, and to our knowledge, not been explored in the existing literature. In joint activities between people living with dementia and other people living with dementia, any interactional asymmetries regarding the participants' cognitive and communicative abilities, epistemic access, or interactional responsibilities would be less overt than in interactions between cognitively participants and people living with dementia.

Returning briefly to the notion of epistemic access in joint activities, in the present study we adhere to the treatment of knowledge as an interactional phenomenon, publicly displayed and managed through the participants' verbal and embodied contributions to the ongoing activity (Goodwin, 2013; Linell, 2009; Stivers, Mondada, & Steensig, 2011). Accordingly, it is through their conduct that participants in interaction can position themselves as exhibiting certain knowledge (e.g., by conveying information or by correcting the other's conduct), additionally they can orient towards the knowledge of their interlocutors (e.g., by requesting information) (Heritage, 2012; Yu & Wu, 2021). Importantly, participants' positions as more or less knowing are not static, rather they are dynamically negotiated, contested, and demonstrated in the ongoing interaction (Melander, 2012; Mondada, 2011). Accordingly, the situated and dynamic nature of knowledge in interaction makes opportunities for peer learning possible since the involved participants operate within one another's proximal zones of development, providing appropriate scaffolding to each other on different occasions in the ongoing activity (Blum-Kulka & Dvir-Gvirisman, 2010; Cekaite, Blum-Kulka, Grover, & Teubal, 2014; Rogoff, 1990). By examining the potential epistemic positionings of the participants during an activity, their construction of what is perceived to be possible learning content(s) there-and-then, further becomes available for the analyst (Tanner & Sahlström, 2018). As much of everyday life in residential care facilities entails interactions between people living with dementia, we argue that it is of utter importance to address how joint activities are managed in peer interactions with little, or no, access to the expertise of cognitively healthy individuals.

2. Aim

From previous research on everyday activities involving people living with dementia and cognitively healthy participants, it has been demonstrated how joint activities are organized in ways that enable a participant living with dementia to perform beyond his/her individual abilities (Hydén, 2014; Majlesi & Ekström, 2016). Less is known about how people living dementia engage in joint activities with other people living with dementia. Accordingly, the aim of this study is to further understandings of how people living with dementia, together with other people living with dementia, and with limited or no access to the expertise of a cognitively healthy participant, organize their interaction to progress within the unfamiliar activity of using tablet computers. Further, our analytical interest concerns how, if at all, people living with dementia display their own knowledge of managing tablet computers in the ongoing interaction and/or orient to the knowledge of their interlocutors.
3. Methods and material

3.1. Participants

A total number of six participants living with dementia, four women and two men, were recruited for participation in this study (for characteristics, see Table 1). All participants were, at the time of their enrolment, living in residential care facilities located in two municipalities in the central part of Sweden. The participants were between 79 and 96 years of age at the time of data collection (2018–2019). Additionally, Julia and Becca, two formal caregivers volunteered to participate. The operational managers of each residential care facility assisted in the recruitment of the participants living with dementia.

All included residents were still verbal during their participation and lived with long-established and confirmed dementia diagnoses due to either Alzheimer’s disease (n = 5) or unspecified major neurocognitive disorder (n = 1). While no formal testing was done to estimate the cognitive level of the participants living with dementia (e.g., through the Mini Mental State Examination), a symptomatic overview of each resident was obtained via the Cognitive Impairment Questionnaire (Åstrand, Rolstad, & Wallin, 2010). The questionnaire is an informant-based instrument frequently used in Swedish memory clinics which provides an indication of any current neurocognitive symptoms of the person living with dementia. According to the proxy-assessments made by the formal caregivers, who met the enrolled residents on a daily basis, all participants living with dementia experienced significant memory difficulties. As we did not identify any distinct differences from the attained questionnaires on items concerning the participants’ memory, visuospatial orientation, or language comprehension, that could clearly explain any individual differences from the results section, the Cognitive Impairment Questionnaire responses will not be used as a basis for discussion in the present study. Moreover, to be included for participation the participants living with dementia needed to be unfamiliar with using touchscreen technologies.

The names of all participants and places mentioned in this study are anonymized. Ethical approval was obtained from the Regional Board for Ethical Vetting at Linköping University (2017/469–31), and the data collection was permitted by all participants through written informed consents.

3.2. Data collection

The data used in this study are drawn from a larger corpus consisting of roughly 8 h of video recorded material of people living with dementia using tablet computers as a social activity in residential care facilities together with either formal caregivers or other people living with dementia. Apart from being asked to use the tablet computers whilst being video recorded, the participants received no further instructions on how to structure their interactions. For this study, all instances where a person living with dementia is using a tablet computer together with another person living with dementia were selected for further analysis. A total number of 7 recordings from three dyads of participants living with dementia was collected. The material included 3 recordings of Kate and Simon, 2 recordings of Iris and Roger, and 2 recordings of Judi and Geri. In the recordings, the participants are using tablet computers, either on a one-to-one basis, or with a formal caregiver or the first author present in the room. The length of the included video recordings varied from approximately 14 to 34 min, with an average length of 21 min. At large the data used in the present study amount to just below 2.5 h of recorded material. Prior to their participation, all residents were provided a personal tablet computer with access to a wide selection of pre-installed applications. However, in the excerpts provided below, the participants are primarily using two web-based applications, CIRCA and CIRCUS.

Both CIRCA and CIRCUS are developed to support everyday conversations involving people living with dementia by providing the users with photos, videos, and music to browse and discuss (Astell et al., 2018). While the applications are similar to each other, they differ with regard to the included content. CIRCA contains media content drawn from a large database of generic material which is accessed through pre-defined main topics and sub-categories (Fig. 1). The content found in CIRCUS, on the other hand, is locally uploaded by the user and saved in personalized albums or folders (Fig. 2).

The timeframe of the data collection was 4 weeks, and during this time the participants were encouraged to use their tablet computers on a daily basis either by themselves or together with a formal caregiver. During each recorded occasion of the dyads, the participants were asked to use one, or several, applications best suited to their liking. The first author recorded all activities through two discrete video cameras mounted on tripods, one positioned in a front-facing angle of the participants, and one positioned from a 45-degree angle. Throughout the recordings there are no indications of the participants commenting on, or taking notice of, the video recording equipment.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Participant characteristics.</th>
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<tbody>
<tr>
<td></td>
<td>Age</td>
</tr>
<tr>
<td>Kate</td>
<td>83</td>
</tr>
<tr>
<td>Simon</td>
<td>90</td>
</tr>
<tr>
<td>Geri</td>
<td>96</td>
</tr>
<tr>
<td>Judi</td>
<td>90</td>
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<tr>
<td>Iris</td>
<td>79</td>
</tr>
<tr>
<td>Roger</td>
<td>90</td>
</tr>
</tbody>
</table>
3.3. Data analysis

Methodologically, we ground our analyses of how the participants living with dementia organize and progress within the activities, and as such display their own, or orient towards their interlocutor’s knowledge of managing tablet computers, in practices of conversation analysis and multimodal interaction analysis (Goodwin, 2018; Sidnell & Stivers, 2013).

As a first analytical step, we examined the video recordings and noted any instances in which the participants living with dementia made efforts to progress within the ongoing activity by physically engaging with the iPad (e.g., by tapping on the screen). Further, the participant living with dementia had to produce the progression effort without (a) soliciting the assistance of a cognitively healthy interlocutor or (b) responding to a directive with explicit instructions produced by a cognitively healthy interlocutor in the preceding turn (e.g., “swipe your finger across the screen”). A total number of 97 instances which fit the criteria were identified and selected for further analysis. The selected material was subsequently transcribed following multimodal conversation analytic principles by the first author (Hepburn & Bolden, 2013; Mondada, 2018; See Appendix A for transcription conventions).

Subsequently, the first author repeatedly went through the transcripts, scrutinized the video recordings, and made an initial categorization of the progression efforts made by the participants living with dementia. Following this, the second and third author
independently screened the transcriptions and the suggested categorizations. Any disagreements were collectively discussed until consensus was reached. As a last step, all excerpts presented in this study were translated from Swedish to English.

Three categories of progression efforts were established from the collection of included instances. Efforts to progress within the ongoing activity made by the participants living with dementia were either (i) accomplished without any preceding negotiations (n = 58), or the progression efforts were produced in problem-solving sequences where the participants living with dementia negotiated on what to do next, and how to do this. At times, the participants engaged in (ii) extended problem-solving sequences with multiple efforts to progress without managing to complete the joint project at hand (n = 15), however, and commonly so, the participants were able to (iii) complete the current joint project within a few turns through their negotiations (n = 24), thus enabling progression within the joint activity.

4. Results

In this section, results from the three identified categories of progression efforts are consecutively presented, and further elucidated through excerpts which we consider to be representative cases of said categories.

A quantitative overview of the participants’ progression efforts within the joint activities is presented in Table 2.

4.1. Progression accomplished without negotiation

In our analysis of progression efforts made by the participants living with dementia, efforts initiated and accomplished, without any prior negotiations on the interactional move, was the most frequently observed type. However, as is clearly seen in Table 2, there were great individual differences amongst the participants in how often they progressed within the activity through this type of progression effort.

Progression efforts accomplished without negotiations were realized without any explicit involvement of the other interlocutor(s). That is, a participant living with dementia initiated and carried out the action without first being told what to do, and further without asking for assistance on how to proceed. In doing this, the participant living with dementia made his or her knowledge of managing the tablet computer publicly visible to his or her peer and any others present in the room.

The following excerpt is from the third recording of Kate and Simon. The participants are sitting next to each other with a tablet computer placed in front of them on a table. Julia, a formal caregiver, and the first author are also present in the room, though not seated at the table. In the example, Kate and Simon are seen using the CIRCUS application, looking at an album containing photographs of their municipality and its surroundings.

In Excerpt 1, Kate clearly takes the lead in progressing within the activity by accomplishing two progression efforts (lines 2 and 22). First, after identifying a building that she recognizes and wishes to discuss (line 1), she appropriately taps on the thumbnail to get a better view of the photograph. Following a rather lengthy discussion about whether the building is currently in use, and what it was used for (lines 6–21), Kate initiates and accomplishes a second progression effort by swiping her finger across the screen to reveal a new photograph to discuss (line 22). Notably, Kate’s performance was not commented on, neither by herself nor by her interlocutors. The fact that Kate’s conduct provided no grounds for remarks or repair-work from the other participants suggests that she was treated as a competent actor, knowing what to do and how to do this (Mori & Koschmann, 2012).

While the progression efforts pertaining to the present category were initiated and carried out by a single participant, the ongoing conduct was commonly treated as a joint endeavor as will be shown in the following excerpt. Excerpt 2 is taken from the second recording of Roger and Iris as they are using the tablet computer by themselves, without any cognitively healthy individual present in the room. Just before the start of the excerpt, Roger and Iris had closed the CIRCA application by pressing on the physical home button, thus accessing the iPad home screen where the available applications are shown.

As Roger has a hard time seeing the titles of the various applications without his glasses (as is evidenced in line 7), he solicits assistance from Iris (line 1). Not only does Iris treat Roger’s turn as a request for reading the titles aloud (line 3), but also as a proposal of engaging in the joint project of selecting an application. After the absent possible uptake from Roger (line 4), Iris explicitly abandons the selection of the piano mimicking application Virtuoso by stating “no we’ll go for something else then”. In overlap with Roger’s turn (line 7), Iris makes an effort to progress within the activity by tapping on the physical home button. However, as her conduct does not lead to the expected outcome (as evidenced in Iris’s account “no it does not want to at all”, line 8), Iris abandons her current endeavor.
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and instead initiates a new progression effort by aptly tapping on the Photos application, thus effectively closing their ongoing joint project of selecting an application and opening a new joint project of viewing photographs available from the camera roll (outside the scope of this excerpt). Even though Iris undoubtedly acts as a driving and competent participant in this excerpt, able to progress within the activity without seeking assistance from Roger, Roger is by no means passive. Indeed, Roger displays a determination to progress within their activity (lines 1 and 7), is attentive towards Iris’s actions (lines 9 and 11), and in this fashion certainly treats the project as a joint endeavor.

4.2. Problem-solving sequences without accomplished progression

All dyads in the present study encountered difficulties in managing progression within their joint activities at some point, this despite engaging in negotiations on how to proceed. The occurrence of extensive problem-solving sequences, usually lasting well over 10 turns without any progress being made, were invariably observed when the dyads were sitting by themselves without any

Excerpt 1. Progression accomplished without negotiation.

Excerpt 2. Progression accomplished without negotiation.
cognitively healthy interlocutors present in the room. Characteristically, the dyads’ negotiations following an initial progression effort by a participant living with dementia lasted until assistance was provided by a cognitively healthy participant upon re-entering the room, or until their current joint project was abandoned for a new one (e.g., by closing an application with the physical home button, as was the case preceding Excerpt 2).

In Excerpt 3, Judi and Geri are sitting unaccompanied in a common space room of their residential care facility using the CIRCA application together. The excerpt is from the second recording of Judi and Geri, and it is the first time that they are using the tablet computer by themselves. Prior to the start of this excerpt, Judi and Geri selected the main topic entertainment, thus accessing a screen with a silhouette of Laurel and Hardy, and written instructions to “select between photos, videos or music, or choose another topic”. As will be seen in the excerpt, Judi and Geri are facing a problem of finding the designated on-screen buttons to select a media type, located at the bottom part of the screen, and instead attempt to progress through tapping on the words in the instructions.

The sequence is initiated by Judi as she provides a candidate understanding of what needs to be done in order to progress within the activity through “we've gotta press on something then we'll see” (line 1–2). By using the second person plural “we”, Judi

```plaintext
01 Judi: oh it- we've gotta press on i- something then we'll see
02 Geri: [what appears
03 Judi: photos videos (.). or music shall we take music then or shall we
04 Geri: [m:
06 Judi: take photos or? +now [we've had- now photographs came there?+
07 Geri: +points to the silhouette of Laurel and Hardy+
08 Judi: [I think pho-
09 Geri: photos might be best=
10 Judi: =yes s- +press+ then?
    +points at Geri+
    +presses her finger against the word "between" in the
    instructions whereupon the word is highlighted&
    +leans forwards and her gaze follows the trajectory
    of Geri’s finger+
11 Judi: you ended up on +between photos.+
    +points at the highlighted word+
12 Geri: oh bet[ween
13 Judi: [*yes*
14 Geri: well where was [it-
15 Judi: [select between videos or music or choose
16 another topic
   ((18 lines of transcript omitted, in which they discuss what
   media type they should select))
35 Judi: photos +videos should we take that?
    +points to the word "videos" in the instructions--->
36 Geri: yes
37 (0.7)+(.)+
38 -->+taps on the word "videos" in the instructions, no response
from the ipad+
38 (2.8)+(.)+
39 Judi: +taps on the word from another angle, no response from the
ipad+
39 Judi: but it doesn't work?
```

Excerpt 3. Problem-solving sequence without accomplished progression.
Excerpt 4.

Problem-solving sequence without accomplished progression.

01 Kate: what would you like to see. famous people? news headlines?
02 Simon: famous people
03 Kate: take something?+
  simon +taps on "famous people" with his fingernail first, no
  response from the iPad+
04 (3.5)+(.)+
  simon +taps on "famous people", again with his fingernail first, no
  response from the iPad+
05 +(1.8)+
  simon +turns his palm upwards and raises his eyebrows+
  fig #fig.1

06 Kate: yes. but if you do like &this&
  kate &taps her finger on "famous people"
  and the content starts loading&
07 Kate: there he +is+
  simon +taps on the main topic "people and events", thus
  canceling the ongoing loading+
08 (4.3)
09 Simon: this eh- is he outside=
10 Kate: =m:
11 (3.6)+(0.3)+
  simon +taps on the media type "photographs" twice, a window with
  sub-categories opens and closes again+
12 Simon: +you+
  +gazes towards the door and shakes his head+
13 (2.0)+(.)&
  kate &taps on the media type "photographs" twice, again opening
  and closing the window with sub-categories&
14 Kate: #there yes#
  auth &enters the room#
15 Kate: it was about how [one shou-
16 Auth: [doesn't it want to?
17 Simon: +yes well photographs+ simon +points to the media type "photographs"+
18 Auth: yes? and try one +time+
  simon +taps on "photographs" and the window with
  sub-categories opens+
19 Simon: oh=
20 Kate: =oh
21 Simon: what is- hh .mt
22 Kate: important events could be &interesting&
  kate &taps on "important events" and the
  content starts loading&
23 Auth: exactly [and then-
24 Kate: [oh it's the same [guy
25 Auth: [then it just takes some [time for it
26 Kate: [oh
27 Auth: to load the new images
28 ((the slideshow starts))
further establishes her proposal as a joint project. Geri sides with Judi’s understanding (line 3), upon which Judi pursues her initial proposal by asking what media type they should choose (lines 4 and 6). In the turns following Geri’s assertion that “photos might be best” (line 8), the dyad’s interactive work resembles what is commonly seen in interactions between people living with dementia and cognitively healthy interlocutors (Ingebrand et al., 2020, 2021). Through her verbal directive “well press then” (line 9), her subsequent monitoring and verbal feedback of Geri’s conduct (line 10–11), Judi positions herself as a knowledgeable participant capable of directing and scaffolding the unfolding activity. Notably, Geri also orients towards Judi as a knowledgeable participant. First, she first responds to Judi’s verbal feedback as noteworthy with “oh between” (line 12), an oh-prefaced repeat signaling that Judi observed something unfamiliar to Geri (Persson, 2015). Second, albeit the fact that Geri’s turn is cut-off, “well where was it” (line 14) is hearable as a request for assistance, projecting a correction from Judi in the subsequent turn. However, unlike what one would expect from an interaction involving a cognitively healthy participant, Judi offers no correction of Geri’s preceding action but instead initiates another sequence of deciding what media type they should select (line 15–16). Following their discussion (line 17–34, omitted in the transcript), Judi and Geri agree to select videos next (line 35–36). This time, Judi performs the progression effort by tapping on the word “videos” in the instructions (line 37). After a pause of 2.8 s with no response from device, Judi repairs her conduct by tapping on the word from another angle (line 38), again without results. Finally, by stating “but it doesn’t work” (line 39), Judi both displays an awareness of not meeting the expected outcome of their local joint project and moreover she holds the device accountable for not responding to her conduct (Ingebrand et al., 2021). Shortly after what is shown in Excerpt 3, Becca, a formal caregiver, enters the room and assist the dyad in selecting a media type whereupon their activity continues.

Unlike what was shown in the previous excerpt, in Excerpt 4 the dyad explicitly recruits external assistance after being unable to progress through their own attempts. The sequence is from the third recording of Kate and Simon as they are using the CIRCA application by themselves. The first author is in the hallway outside the room talking to a formal caregiver. As the excerpt begins, the dyad had selected the main topic people and events, showing a silhouette of John F. Kennedy, chosen the media type photographs, and accessed a window showing various sub-categories.

There are many similarities to be found between Excerpt 3 and Excerpt 4. Like Judi, Kate positions herself as a driving participant by initiating their joint project of selecting a sub-category of photographs and asking Simon about his preferences whilst reading possible alternatives aloud (line 1). Following Simon’s reply (line 2), she produces the verbal directive “take something” to which Simon, in overlap with Kate’s turn, responds to by tapping on the sub-category famous people. As there is no response to his initial progression effort, Simon attempts to repair his conduct (line 4). However, Simon’s self-repair is unsuccessful as he once again taps on the screen using his fingernail. Notably, Kate treats Simon’s gesture following the unsuccessful progression efforts (line 5) as a request for assistance and, unlike what was seen in the previous excerpt, Kate subsequently provides a correction by stating “yes but if you do like this” and aptly tapping on the sub-category upon which the content starts loading (line 6). By doing this, Kate takes on responsibilities for progressing their joint project and publicly displays her knowledge of how to do so. As the content is loading, the window with subcategories closes and the silhouette of John F. Kennedy is visible. In overlap with Kate’s turn “there he is” (line 7), audibly referring to the silhouette, Simon taps on the main topic people and events upon which the ongoing loading is cancelled. While Simon regulated his way of tapping following Kate’s correction, it is clear from his subsequent turn, following a long pause of 4.3 s, that his conduct did not lead to the expected outcome. By asking “is he outside” (line 9), Simon instigates the first step of soliciting external assistance. Following Kate’s affirmative response, Simon makes another progression effort (line 11). Again, even though he is tapping on the screen in the appropriate fashion, his conduct does not lead to the expected outcome which is evident in line 12 where Simon pursues his request of external assistance by gazing out into the room, shaking his head, and loudly saying “you”, thus summoning the attention of the first author who subsequently enters the room. In line 13, Kate is seen repeating what Simon just did, that is tapping on the media type twice thus opening and closing the window with alternatives. Notably, Kate treats Simon’s summoning of the first author as a joint project by being the one who initiates a problem formulation with “it was about how one shou-” (line 15), though she is cut-off by the first author who asks “doesn’t it want to” (line 16). Subsequently, Simon addresses their problem by pointing to the media type and uttering “yes well photographs” (line 17). In the following turns, Simon adequately resolves their current problem, following the provided assistance (line 18), and Kate proficiently selects a sub-category to discuss (line 22), this time being informed about the loading time (lines 25 and 27).

Excerpt 5. Problem-solving sequence with progression.

1 Roger: then we can press on it (1.1) and something will happen.
2 Iris: where should one go to then?
3 Julia: [it's ]just to press on-
4 Roger: [well &there& roger &taps on the headline, the content starts loading&]
5 Iris: [>it's just< [ah on that one now
6 Julia: [yes on the name [yes exactly=
7 Roger: [yea
8 Iris: =yea
9 ((a paused YouTube video appears))

Excerpt 5. Problem-solving sequence with progression.
Excerpt 6. Problem-solving sequence with progression.

1 Simon: what does it say here then
2 Kate: &m;&
3 kate &moves the iPad closer to Simon&
4 Simon: ((mumbles)) well tha- hh what eh:
5 Kate: well I don't know
6 (1.3)
7 Kate: what do you want?
8 (1.2)
9 Kate: &music?
10 kate &types m on keyboard&
11 (1.3)
12 Simon: &on this page?
13 kate &types u s i c--&
14 (2.8) & (1.8)
15 kate --&
16 Kate: google &search&
17 kate &taps on "music" in the search suggestions and the iPad
18 redirects them to a google search page&
19 Simon: choose b- "ahh”=
20 Kate: =there
21 Simon: eh choose be:ttween [the categories
22 Kate: [here is &björn" skifs
23 kate &points to a news article&
24 (0.8)+(3.3)+(,)+
25 simon &points to the article+taps on the article from an angle,
26 the webpage scrolls downwards+
27 Kate: m:
28 (2.6)+(,)+
29 simon: &taps on the news article again, no response from the iPad+
30 (1.2)
31 Simon: but what the hell +it [does--
32 simon &taps his finger next to the image of the news
33 article, no response from the iPad+
34 Kate: [yes press then?
35 (0.5)+
36 simon: &rests his finger on the thumbnail of the news article, no
37 response from the iPad+
38 (0.3)&(.)+
39 kate &taps her finger on the news article and the new page
40 appears&
41 (1.7)
42 Kate: one shou- &one should probably only press a bit,&
43 kate &makes a tapping gesture above the screen&
44 fig #fig.1
45 (4.8)
4.3. Problem-solving sequences with progression

In the following, two excerpts of when the participants living with dementia manage to progress within the joint activity through their collaborative efforts, without soliciting assistance from a cognitively healthy participant, are presented. Characteristically, any issues that arose in the sequences pertaining to this category were resolved within a few turns, allowing the participants to progress with their joint activity. In our data, these sequences were observed both when the participants living with dementia were sitting by themselves, and when a cognitively healthy participant was present in the room.

The next excerpt is from the first recording of Roger and Iris who are using the CIRCA application together with the formal caregiver Julia. Preceding Excerpt 5, the dyad had chosen the main topic recreation, Iris had selected the media type videos, and as the excerpt begins, they had just decided on viewing a performance by the Swedish singer Evert Taube which was listed in the window of alternatives.

With clear resemblance to the opening of Excerpt 3, this sequence is initiated by Roger who produces a candidate understanding of how to progress within the activity with “then we can press on it and something will happen” (line 1). By responding with the question “where should one go then” (line 2), Iris treats Roger’s proposal as a legitimate next action, but at the same time she displays a lack of understanding regarding where to press, and explicitly requests further information. As Iris did not orient towards a specific next speaker in her turn, both Roger and Julia, the formal caregiver, self-select to provide assistance in overlap with each other (line 3–4). Notably, Roger both verbally responds to Iris’s request of where one should go by responding “well there”, and takes on the responsibility of progressing their joint activity by tapping on the headline of the video, upon which the content starts loading. The fact that Julia abandons her ongoing turn following Roger’s conduct in line 4 indicates that she treats his response as sufficient, therefore there is no need to pursue her current response. In line 5, Iris produces a verbal formulation of Roger’s preceding turn with “ah on that one now”, thus claiming a newfound understanding of where to press. Finally, Iris’s formulation is affirmed by Julia and Roger (line 6–7), the selected video appears (line 9) and they continue with their joint activity.

In the final excerpt, taken from the second recording of Kate and Simon, the participants are using the tablet computer without any cognitively healthy participant present in the room. Prior to Excerpt 6, the participants were using the CIRCA application, however, Kate bumped her finger on the address bar at the top of the screen causing a keyboard and the google search engine to appear, and by doing this CIRCA was concealed. Approximately 8 s of silence precedes line 1.

Following the lengthy pause preceding the excerpt, during which both participants were silently gazing towards the screen, Simon (line 1) is seen instigating a problem-solving sequence with “what does it say here then”. Kate notably treats his initiative as a collaborative endeavor by placing the iPad in front of Simon (line 2), thus giving him greater access to this shared semiotic field (Goodwin, 2018). However, as is clearly seen in the subsequent turn where Simon mumbles and aborts his turn-in-progress (line 3), him being able to see the tablet computer more closely does not solve their problem. Subsequently in line 4, Kate aligns herself with Simon’s displayed lack of understanding through “well I don’t know”. With no response in line 5, the problem-solving sequence initiated by Simon is effectively abandoned without any progression efforts being made from either participant. However, the activity progresses as Kate invites Simon to a new joint project (line 6) thus positioning herself as a competent and driving participant. With there being no uptake from Simon in line 7, Kate produces the candidate suggestion “music” (line 8) and further displays her knowledge of how to manage the keyboard by typing the word (line 8–11). With “on this page” (line 10), Simon produces what could be heard as a request for clarification, however there is no uptake to his request. Instead, Kate pursues the project launched by her in line 6 and, again, displays her competence of managing the iPad by tapping on “music” in the search suggestions (line 12) and thereby leaving CIRCA for a new web page.

In lines 13 and 15, Simon is repeating the written instructions from the CIRCA application, thus he does not display an understanding of their transition to the new page. Subsequently, Kate effectively draws Simon’s attention to a news article about the Swedish singer Björn Skifs by pointing to it (line 16). By pointing to a specific part of the screen, Kate produces an environmentally coupled gesture (Goodwin, 2007) to establish a shared point of visual focus with relevance for their unfolding activity. Whilst his conduct is unsuccessful, Simon takes the initiative to press on the article that Kate pointed to (line 24), upon which it appears (line 25). Kate positions herself as a knowledgeable participant, but at the same time she is orienting to the progressivity of the activity as a joint accomplishment (otherwise there would be little use in addressing Simon). Moreover, in informing Simon about the fine details regarding how one should press on the screen, Kate constructs the specific action as a learnable object of relevance for Simon (Tanner & Sahlström, 2018). The fact that Kate mitigates her explanation with the epistemic hedging “probably” and using the pronoun “one” (rather than you) could be seen as a face-saving practice rather than a downgrading of her competences.

From the excerpts presented above, it is clear that all participants were actively engaged in the activities and treated what they were doing as a collaborative endeavor. Further, in all three identified categories of progression efforts, the participants living with dementia made their knowledge about how to manage the tablet computers, through both verbal and non-verbal means, publicly visible to their peers.
5. Discussion

Recently, a burgeoning number of studies have shown that people living with dementia, despite experiencing severe cognitive and communicative challenges, can take part in a wide range of everyday activities when provided appropriate support from others (c.f., Hydén, 2014; Ingebrand et al., 2020, 2021). By highlighting the collaborative work between people living with dementia and cognitively healthy participants, the common perception of people living with dementia as passive and uninvolved interlocutors has been challenged. Adding to this strand of research, the present study demonstrates that people living with dementia indeed are capable of organizing and progressing through joint activities, even without the support of a cognitively healthy participant by collaborating with their peers. To our knowledge this is the first study to explore collaboration between different people living with dementia, and from our results there are a number of findings we find important to raise. In the following, we will discuss (i) how the collaboration observed amongst the dyads differs from what is typically described in joint activities between people living with dementia and cognitively healthy interlocutors, (ii) how the participants living with dementia oriented towards one another in the activities, and (iii) how the tablet computers both facilitated and restricted progression within the joint activities.

First, the collaborative work observed amongst the included dyads differs from what has been described in joint activities between cognitively healthy individuals and people living with dementia. In the latter constellation, the cognitively healthy individual is typically the one who is responsible for scaffolding the overall progression of the joint activity by initiating, overseeing or performing the main body, and ultimately closing any comprising joint projects (Hydén & Forsblad, 2018). Further, cognitively healthy participants often pose known-answer questions, or recognition checks, such as “do you remember how X?” to people living with dementia (Ekström, Ferm, & Samuelsson, 2017; Schrauf, 2020; Small & Perry, 2005). The practice of asking known-answer questions is commonly seen in educational settings and activities when teachers are testing and evaluating the presupposed knowledge of their students (Mehan, 1979; Solem & Skovholt, 2019). Relating this to the present study, our findings suggest that the observed collaboration in joint activities between people living with dementia and their peers is rather symmetrical in nature as there are no pre-allocated or obvious expert participants to be found amongst the dyads as is the case in joint activities between people living with dementia and cognitively healthy individuals. Indeed, as seen in Table 2 and the included excerpts, all participants were found to both initiate and carry out progression efforts, either without preceding negotiations or as part of the problem-solving sequences. Further, unlike what one would expect from joint activities between a cognitively healthy participant and a participant living with dementia, we found no instances of known-answer questions or evaluations of the other's conduct in our material.

Second, the participants living with dementia organized their activities in a strikingly similar fashion, both seen across the included dyads, and within the identified categories of progression efforts. Throughout our data we noted how the participants involved their peer in the interactional move to come. That is, the participants living with dementia typically sought the response of the other participant before, or during, the performance of a progression effort. The way in which the participants living with dementia involved their peer varied from explicit invitations and directives (e.g., lines 1 and 3 in Excerpt 4), to candidate understandings (e.g., line 1 in Excerpt 3) and formulations of ongoing or subsequent actions (e.g., line 10 in Excerpt 2). By involving their peer, the participants living with dementia treated the ongoing activity as a joint endeavor, secured the attention of their interlocutor, and further enabled the other to make his or her understandings of the current situation public. Moreover, our analysis showed that when a participant living with dementia was unable to accomplish a progression effort at hand, this was commonly signaled by the participant him- or herself. Similar to the involvement of a peer prior to a progression effort, discussed above, insufficient understandings of how to progress within the joint activity were signaled in a multitude of ways such as explicit requests for information (e.g., line 2 in Excerpt 5), using affective expressions (e.g., line 21 in Excerpt 6), providing accounts (e.g., line 8 in Excerpt 2), and gestures (e.g., line 5 in Excerpt 4). Following any indications of insufficient understandings, the participant either tried to repair the performed conduct (e.g., line 38 in Excerpt 3), or the peer provided assistance in the subsequent turn (e.g., line 6 in Excerpt 4). The fact that the participants living with dementia made their lack of knowledge about how to progress within the activity public to their interlocutor(s), and in the same manner offered assistance when they had knowledge of how to proceed, shows that the participants were perceptive of both their own and their peer's conduct and displayed capabilities. We argue that the orientation to their peer, both in terms of soliciting and providing assistance, clearly highlights how the participants were capable of scaffolding the ongoing activity for each other and thereby creating opportunities for peer learning.

Third, apart from collaborating with each other, the included dyads unceasingly had to coordinate their actions in relation to the tablet computer. Gjernes and Måseide (2015) and Gjernes (2017) have described how the use of physical artefacts in interactions involving people living with dementia might function as material anchors (Hutchins, 2005), providing stability and support in the ongoing joint activities. As an example, they found how an individual living with dementia, who experienced severe verbal and cognitive difficulties, was able to display competences that he could not have done in other activities when he had access to a guitar. The guitar became a material anchor for the overall activity, providing guidance for his actions, and secured the attention of his cognitively healthy interlocutors (Gjernes & Måseide, 2015). In our data, the presence of the tablet computers, and the interface of the applications, undoubtedly influenced what the participants living with dementia were doing, and how they could do this. First of all, the device itself became a shared object of attention for the participants, providing stability to their joint activities as everything that they discussed and did was bound to the tablet computer and any applications currently in use. While the written on-screen instructions of the applications supported the participants in knowing what to do next (e.g., “select between photos, videos or music, or choose another topic”), there was no information about how, or where, to perform the conduct needed to progress within the activity. Further, with the exception of not responding to inadequate conduct, the tablet computers provided no feedback to the participants regarding what was wrong with their failed progression efforts. That is, it's not enough to know that you need to press on the screen in order to progress within the activity, you also need to know where to press (which was the main issue in Excerpt 3) and how to this
(neither with the fingernail first nor by double-tapping, as seen in Excerpt 4). Taken together, our results suggest that while the tablet computers did serve to anchor the attention of the included participants, and provided some general information about what to do next, the fine-grained details about how to manage the devices and the included applications were not to be found on screen but had to be elaborated through the participants' continuous verbal and non-verbal problem-solving. Further, as mentioned previously, in joint activities involving both cognitively healthy individuals and people living with dementia, the cognitively healthy interlocutor is usually responsible for the overall framing of the joint activity. This includes keeping track of the progress achieved thus far, knowing what is left to do, and if necessary, reminding the individual living with dementia about the purpose of the activity (Hydén & Forsblad, 2018). Our results indicate that while the participants living with dementia were capable of solving problems as they occurred there-and-then, they did not seem capable of framing the overall activity as pertaining to the use of CIRCA or CIRCUS. That is, unlike what one would expect from a cognitively healthy individual, the included participants were only capable of organizing their collaboration in relation to what was currently displayed on screen. This could explain why Kate and Simon did not try to return to CIRCA in Excerpt 6, but instead continued to the news article they had found on the Google search page.

To conclude, the present study suggests that people living with dementia are capable of managing novel activities in collaboration with other people living with dementia, even without the support of a cognitively healthy interlocutor. Moreover, we found how the participants oriented towards the displayed competences, or lack thereof, of their peers by soliciting or offering assistance in problem-solving sequences. Additionally, the distribution of interactional labor between people living with dementia and their peers appears to be more symmetrical than what has been described in joint activities between cognitively healthy individuals and people living with dementia. By acknowledging the collaborative competences of people living with dementia, this study shows that even when residing in residential care facilities, people living dementia are not in constant need of the support from a cognitively healthy interlocutor.

Declaration of competing interest

The Authors declare that there is no conflict of interest.

Acknowledgement

We would like to thank all participants who kindly consented to participate in this study. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Appendix A

Transcription Conventions

| [ ] | Square brackets mark overlapping speech or embodied conduct
| = | Equal signs indicate no break or gap between the lines
| (( )) | Double parentheses mark visible conduct
| (0.5) | Numbers in parentheses indicate silence in seconds
| ‘word’ | Degree signs surround quiet speech
| Word | Underlining indicates emphasis
| A | A hyphen indicates cut-off
| : | Colon indicates prolongation of the prior sound
| „,? | The punctuation marks indicate intonation. The period indicates falling intonation, the comma indicates continuing intonation, and the question mark indicates rising intonation
| “*word*” | Asterisks surround laughter
| &word& | Gesture and action descriptions are delimited between two identical symbols (one symbol per participant) and are synchronized with corresponding stretches of talk
| –&+word+ | Gesture or action described continues across subsequent lines until the symbol of said participant is reached

References


References


