American Journal of Alzheimer's Disease & Other Dementias® Volume 22 Number 1 February/March 2007 27-36

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Resident-Assisted Montessori Programming (RAMPTM): Use of a Small Group Reading Activity Run by Persons With Dementia in Adult Day Health Care and Long-Term Care Settings

Michael J. Skrajner, MA, and Cameron J. Camp, PhD

Six persons in the early to middle stages of dementia ("leaders") were trained in Resident-Assisted Montessori Programming (RAMP™) to lead a reading activity for 22 persons with more advanced dementia ("participants") in an adult day health center (ADHC) and a special care unit (SCU) in a skilled nursing facility. Researchers assessed the leaders' abilities to learn and follow the procedures of leading a group, as well as their satisfaction with their roles. In addition, participants' engagement and affect were measured, both during standard

activities programming and during client-led activities. Results of this study suggest that persons with dementia can indeed successfully lead small group activities, if several important prerequisites are met. Furthermore, the engagement and affect of participants was more positive in client-led activities than in standard activities programming.

Keywords: early stage dementia; social roles; engagement; procedural memory

he need to provide meaningful activities for persons with dementia is an important challenge to caregivers in a variety of settings. This has become especially salient in long-term care, where recent regulations from the Centers for Medicaid and Medicare Services have begun to strongly emphasize the need to provide such activities to residents.¹

From the Myers Research Institute of the Menorah Park Center for Senior Living, 27100 Cedar Road, Beachwood, Ohio; e-mail: ccamp@myersri.com.

Address correspondence to: Cameron J. Camp, PhD, Director, Myers Research Institute, 27100 Cedar Road, Beachwood, OH 44122.

This project was supported by Grant 2001-397 from the Retirement Research Foundation, Cameron Camp, Principal Investigator.

The authors wish to thank Gregg Gorzelle for his assistance in reviewing this manuscript and in data gathering for the project. We also thank Adena McGowan, Noemi Lazlo, Sheila Scullion, Sarah Taub, Stacey Rokoff, Amanda Nudelman, Rachel Kelly, Pam Nicholson, Miriam Rose, and Nelly Gertsburg and for their assistance in creation of materials and for data gathering assistance. Finally, we wish to express our sincerest thanks to the staff and residents of Menorah Park Center for Senior Living for their assistance, cooperation, and inspiration.

Provision of meaningful, age-appropriate, and engaging activities is increasingly being equated with provision of quality care for persons with dementia. In addition, the ability to offer to persons with dementia social roles that are challenging and yet can be successfully filled has become a focus for caregivers and regulatory agencies. Providing social engagement also is being emphasized because doing so can reduce agitation, depression, wandering, and the use of chemical restraints.^{2,3} With regard to the Dementia Care Practice Recommendations of the Alzheimer's Association, the following statements from their section on Social Engagement and Involvement in Meaningful Activities emphasize similar points and give guidelines for activity provision⁴:

Residents have the opportunity to maintain and enhance their sense of dignity and self-esteem by engaging in meaningful social interactions throughout the day, every day.

A plan for social engagement and meaningful activity is a critical part of the care plan.

The outcome of an activity or social interaction is not as important as the process of engaging the residents.

Leader	Residence	Location of QAR Sessions	Gender	Age	MMSE	Type of Dementia
L1	Adult Day Health Center	Adult Day Health Center	Male	93	16	Probable AD
L2	Adult Day Health Center	Adult Day Health Center	Female	84	21	Probable AD
L3	Adult Day Health Center	Adult Day Health Center	Female	75	17	Probable Alzheimer's
L4	Nursing Home-SCU	Nursing Home-SCU	Female	86	13	Probable AD
L5	Nursing Home-SCU	Nursing Home-SCU	Female	88	19	Probable Vascular Dementia
L6	Assisted Living Facility	Nursing Home-SCU	Female	83	19	Possible Alzheimer's With
		_				Depression

Table 1. Leaders' Demographics

Note: MMSE, Mini Mental State Examination; QAR, Question Asking Reading; SCU, special care unit; AD, Alzheimer's Disease.

Appropriately trained staff and volunteers can facilitate group activities.

Ideal group sizes range from four to 10, depending on the activity and abilities of the residents.

The Myers Research Institute has a history of developing interventions to address these needs. ⁵⁻¹¹ In particular, we have worked extensively to translate the Montessori method of education for children into a method for providing meaningful and engaging activities for persons with dementia. Based on principles from the work of Maria Montessori, ¹²⁻¹⁴ Montessori-Based Dementia Programming® (MBDP) is a method of creating and presenting activities developed using models of rehabilitation and learning.

Although much of our work has focused on training professionals to implement MBDP, we have recently developed a program in which persons with dementia are trained to lead small group activities for persons with more advanced dementia. $^{15,\ 16}$ This program is called Resident-Assisted Montessori Programming (RAMPTM). This article will discuss findings from a research project involving the use of RAMPTM at an adult day health center (ADHC) and long-term care facility.

Materials and Methods

Subjects

Leaders

One assisted living resident, 2 nursing home special care unit (SCU) residents, and 3 clients from an ADHC were trained to lead a Montessori-Based Reading Activity called Question Asking Reading (QAR; described in detail below). These "leaders" were nominated by activity coordinators who identified persons meeting the following criteria: (1) aged

65 and older; (2) diagnosis of dementia and/or a score of 23 or below on the Mini Mental State Examination (MMSE);¹⁷ (3) capable of reading large-print text; (4) capable of following simple two- or three-step instructions; and (5) have strong social skills. Five of the 6 leaders were female. Ages ranged from 75 to 93 (Mean = 84.8, SD = 6.0). MMSE scores indicate that most leaders were in the early to middle stages of dementia (Mean = 17.5, SD = 2.8). Detailed information about leaders can be found in Table 1.

Participants

A total of 22 participants took part in QAR sessions led by the leaders described in the previous section. Six participants attended QAR sessions at the ADHC (Site #1), and the remaining 16 participants attended sessions at the SCU (Site #2). Activity coordinators identified participants meeting the following criteria: (1) aged 60 and older and (2) diagnosis of dementia and/or a score of 23 or below on the MMSE. Participants unable to read large font could still take part in the OAR sessions by listening to the stories and/or taking part in discussions. Almost all of the participants were women (21 out of 22). On average, participants scored 2 points lower than leaders on the MMSE (Mean = 15.73, SD = 6.8); some participants had moderate to advanced dementia. Detailed information about participants can be found in Table 2.

Information regarding the daily living activities of the 16 participants residing in the SCU was available from their MDS scores. These scores gave a relatively consistent profile. All of these participants were independent (required no supervision or assistance) when eating meals, whereas 81% were independent with transfer, walking in their rooms or in corridors. In addition, 75% were independent with bed mobility and locomotion on their unit. However,

						Type of Dementia			
Description	n	Gender	Age Mean (SD)	MMSE Mean (SD)	AD	Other Than AD	No Specific Diagnosis	Other	
QAR at Adult Day Health Center	6	0 Male 6 Female	75 (8.4)	15.3 (6.1)	1	0	3	2	
QAR on SCU	16	1 Male 15 Female	89 (6.0)	15.9 (7.3)	5	3	0	8	

 Table 2.
 Participants' Demographics

Note: MMSE, Mini Mental State Examination; QAR, Question Asking Reading; SCU, special care unit; AD, Alzheimer's Disease.

75% needed supervision or assistance for dressing and locomotion off their unit, and 100% needed supervision or assistance with bathing.

Procedures for obtaining consent were approved by the Menorah Park Institutional Review Board. For research subjects with a designated Power of Attorney (POA), a consent form was reviewed and signed by the POA and an assent form was signed by the subject. The assent form was a condensed version of the consent form, with dementia-friendly language (eg, short sentences) and large-print font. Full written consent was obtained directly from subjects who were legally able to do so. Separate consent forms were used for participants and leaders, since involvement in the study was slightly different for participants and leaders. In addition, assent was obtained from each leader and participant before taking part in each RAMP™ session.

Procedures/Materials

Question Asking Reading*

In QAR, the group leader hands out a copy of a story to each participant. Stories are age-appropriate and often relate to interests shared by many taking part in the activity (eg, "Gene Kelly" and "The History of Frozen Pizza"). Thirty-two point bold Arial font, or larger, is typically used. At the bottom of each page is a box which says, "Next Reader Please." The group

leader reads the first page of the story aloud, while the participants follow along, reading silently to themselves. Participants each then take turns reading aloud 1 page of the story at a time, with those not reading aloud following along on their own copies of the story.

After the story is read, the group leader hands out a different color card to each participant. Each card is placed face-down. On each card is an interesting fact and/or discussion question (eg, "What are some of your favorite pizza toppings? Pepperoni? Mushroom? Something else?"). The leader initiates discussion by asking, "Who has the blue card?" The participant with the blue card is instructed to turn it over and read the statement out loud to begin the discussion. When discussion related to the blue card ends, the person with the red, yellow, orange, or purple card is asked to read his or her card aloud, and so on.

This procedure remains the same every time the activity takes place, but the content of the stories changes, giving the participants both the structure that they need and the variety they enjoy. Interestingly, after participating in the group several times, the participants know to turn the cards over and read aloud without being prompted.

Training Procedures for Leaders

Before the project began, we subjected the role of QAR leader to a task analysis, and translated the sequence of activities involved with leading a QAR session into a checklist (described below). Initial training for leaders involved providing them with demonstrations of the QAR activity, as well as the duties of leaders, in a controlled setting. Thus, during the first leader training session, research and activity staff members role-played the parts of both leaders and participants. Our leader trainees sat next to the staff member leading the QAR session. In all

^{*}Since the completion of the project, a new and improved version of Question Asking Reading has been developed by the Myers Research Institute. The activity is now called Reading Roundtable®. In this new version, the discussion questions are included in the booklets in the pages following the story. This eliminates the need for separate discussion cards, thereby making the activity much easier to lead. See www.myersresearch.org for more information about Reading Roundtable®.

later sessions, trainees assumed the role of leader, with a staff member providing prompts and other assistance as needed. After each of these later training sessions, trainees were asked if they would feel comfortable leading a QAR session with older participants. Once trainees expressed their confidence in leading such a session, and had demonstrated their understanding of the need to hand out stories and prompt participants to go to the next page of the story (the 2 most important elements of leading a QAR session), leaders were paired with groups of older participants. Some leaders required as few as 2 training sessions, whereas others needed as many as 8. This variation was caused by many factors, including the leader's mental status and the leader's availability for training sessions. (Some leaders were available just once per week.)

Once leaders began to lead the QAR activity with participants enrolled in the study, assistance was provided by staff when necessary. Staff members then slowly "pulled away" from their role in assisting the leader, to a point where the leader was, for the most part, conducting the activity on his or her own. During sessions conducted when leaders were on their own, data were taken on the leaders' performance using the "Question Asking Reading Leader Assessment Form" (described below), which allowed us to determine how well the leaders filled their roles.

Participants' Involvement in the Study

While leaders were being trained to lead QAR, researchers observed participants taking part in regularly-scheduled, non-Montessori-based (*Standard*), group activities (eg, bingo, cooking, current events, discussion group, exercise, art, sing-a-long, etc). During these activity sessions, led by activity coordinators, researchers used the Menorah Park Engagement Scale (MPES; described below) to see whether and to what extent participants were displaying positive engagement and affect. Observations of participants taken at this time are referred to as *Baseline 1* observations.

After *Baseline 1* observations of participants were completed, but while the leaders were still being trained to lead QAR, participants took part in 2 or 3 QAR sessions led by activity staff members. The purpose of scheduling these sessions was to familiarize participants with the activity before the leaders were invited to lead the activity. Researchers did not record MPES data during these activity sessions.

During the treatment phase of the study, MPES observations were taken on participants taking part in

QAR sessions led by leaders (*Treatment* observations) and on participants taking part in regularly-scheduled, non-Montessori-based activities (eg, bingo, cooking, current events, discussion group, exercise, art, sing-along, etc) led by activities staff (*Baseline* 2 observations). *Baseline* 2 observations allowed us to examine if effects observed during the QAR sessions generalized to other activities.

Measures

QAR Leader Assessment Form

Drawing upon Montessori's emphasis on task breakdown, the QAR Leader Assessment Form tracks whether leaders complete key, discrete components (or procedures) involved with leading the activity. Examples of key procedures include asking a participant to read the next page and passing out cue cards after a story is read. For each procedure, there are the following 3 possibilities: (1) The leader completed the task in every possible instance (full adherence); (2) the leader completed task, but not in every possible instance (partial adherence); or (3) the leader did not complete the task at all (non-adherence). A full list of items included on the QAR Leader Assessment Form is shown in the appendix.

The Menorah Park Engagement Scale

The MPES, an observational tool with 11 items (6 key items are analyzed in this paper), was developed by the Myers Research Institute, and divides engagement into 4 distinct types: Constructive Engagement (CE), Passive Engagement (PE), Non-Engagement (NE), and Other Engagement (OE). CE is defined as any motor or verbal behavior exhibited in response to the target activity, eg, turning the pages of a booklet, responding to a question posed by the leader, etc. PE is defined as listening and/or looking in response to the target activity, eg, listening to a discussion, watching someone pointing to a picture in a book, etc. NE is defined as staring off into space, keeping one's eyes closed, or sleeping during the activity. OE is defined as either self-engagement (engagement with one's own body, clothes, or personal affects, such as biting one's nails or fidgeting with one's shirt while ignoring the activity) or engagement unrelated to the target activity (such as watching a nurse dispense pills to a client in an adjacent room, chatting with a friend while ignoring the activity, etc). Each type of engagement is assessed with a specific item.

The MPES also includes items derived from the affect rating scale (ARS) involving pleasure and anxiety/sadness.¹⁸ MPES items are scored as "0" (never seen), "1" (seen up to half the activity time), or "2" (seen more than half the activity time). Five-minute observation windows are used to gather MPES data.

The 5 items from the MPES not analyzed in this paper involve a general item on whether or not a person participated in the activity, if the person tried to leave, and if the person actually left the activity. In addition, we had an item on whether inappropriate behaviors (aggression, disruptive behavior) occurred, or if the person attempted to help another participant during the activity. Taking part in the activity was of such high frequency and observation of the other items' behaviors of such low frequency that these data were not amenable to statistical analyses' and are thus not discussed further.

Inter-rater reliability among researcher staff taking MPES observational data for this study had been established previous to this study, as the observers had been using the MPES in a number of other research projects before the start of the RAMP™ project. In this study, 8 observers experienced with the use of the MPES recorded data. Initial inter-rater reliability had been established for all observers over the course of thirty 5-minute observation sessions during activities programming for persons with dementia on special care units using a criterion of 80% or greater agreement for each of the 11 MPES items. Inter-rater reliabilities for these observers were generally in the 90%-95% range for all items. Periodic comparisons of ratings by different staff were conducted in this study to ensure that rater "drift" did not take place, and when questions arose regarding scoring of a specific item, it was determined by consensus.

During this project, each participant was observed in each of 6 sessions at baseline, in 6 sessions during regularly scheduled unit activities, and in 6 to 10 sessions during RAMPTM activities. Each participant was observed individually for 5 minutes during each session. Researchers took 1 observation on a single participant at a time for 5 minutes, recorded his/her engagement and affect during this time period, and then moved on to the next resident. We were able to take observations on multiple residents during an activity session for 2 main reasons. First, several research staff members were present during the sessions. Second, observations lasted only 5 minutes, while the activity sessions typically lasted for approximately 25-40 minutes; therefore, each staff member

had sufficient time to record several observations during each session. Observations were recorded with paper and pencil.

Satisfaction Surveys

After the last QAR session, leaders were administered, in a structured interview format, brief satisfaction surveys to assess their opinions regarding the value of the activity and their recommendations for improving it.

Results

Participants

MPES data were the key outcomes. For the most part, statistically significant differences between the 2 sites (the ADHC and SCU) were not detected. However, group differences *were* found for Passive Engagement, so the analyses below consist of combined data from the 2 sites, with the exception of Passive Engagement.

For each MPES item, we conducted repeated measures analyses of variance for *Type of Session* factor (*Baseline 1*, *Baseline 2*, and *Treatment*), using a priori simple contrasts—ie, *Baseline 1* versus *Treatment* and *Baseline 2* versus *Treatment*. This enabled us to determine if RAMPTM activities produced differences in engagement from standard activities programming observed before (*Baseline 1*) and after (*Baseline 2*) the advent of RAMPTM.

As seen in Table 3, participants taking part in RAMP™ generally exhibited significantly more Constructive Engagement and Pleasure, and a decreased amount of Other and Non-Engagement, during *Treatment* (RAMP™) activities as compared to both *Baseline 1* and *Baseline 2* activities. F values associated with these contrasts are shown in Table 4.

For Passive Engagement, there was no significant main effect for the Site factor. In addition, there was no significant effect for the *Baseline 1* versus *Treatment* (RAMPTM) contrast, and this factor also did not significantly interact with Site. A statistically significant *Group x Type of Session* contrast was detected for the *Baseline 2* versus *Treatment* contrast, F (1,20) = 4.95; P < .04. The ADHC participants' scores dropped from 1.47 at *Baseline 2* to 1.22 at *Treatment*, indicating that when RAMPTM activities were taking place, these participants showed more Passive Engagement during standard activities than during RAMPTM. However, SCU participants' scores increased from 0.90 at *Baseline 2* to 1.26 at *Treatment*. This indicated that

Means for MPES Engagement and Table 3. Affect Items (N = 22)

	Treatment Condition					
MPES Item	Baseline 1	Baseline 2	Treatment			
Constructive Engagement	1.09**	$0.91^{\Delta\Delta\Delta}$	1.51			
Passive Engagement Other	1.22	1.05	1.25			
Engagement	0.70***	$0.59^{\Delta\Delta}$	0.27			
Non-Engagement	0.36*	$0.61^{\Delta\Delta}$	0.09			
Pleasure	0.27**	0.23^{Δ}	0.45			

Note: Baseline 1 = observations of standard activity programming prior to the initiation of RAMPTM; Baseline 2 = observations of standard activity programming after the initiation of RAMP™; Treatment = observations of QAR programming led by leaders. MPES, Menorah Park Engagement Scale; RAMP™, Resident-Assisted Montessori Programming; QAR, Question Asking Reading.

* = P< .05 for comparison of outcome of Baseline 1 versus Treatment; ** = P < .01 for comparison of outcome of Baseline 1 versus Treatment; *** = P < .001 for comparison of outcome of Baseline 1 versus Treatment; $\Delta = P < .05$ for comparison of outcome of Baseline 2 versus Treatment; $\Delta\Delta = P < .01$ for comparison of outcome of Baseline 2 versus Treatment; $\Delta\Delta\Delta = P < .001$ for comparison of outcome of Baseline 2 versus Treatment.

For MPES items, 0 = never occurred; 1 = was observed duringup to half of the 5-minute observation period; 2 = was observed during more than half of the 5-minute observation period.

Table 4. F Values for Contrasts Between Baselines and Treatment for MPES Engagement and Affect Items

	F values; $df = (1,20)$					
MPES Item	Baseline 1 vs Treatment (RAMP™)	Baseline 2 vs Treatment (RAMP™)				
Constructive Engagement	16.1	28.8				
Other Engagement	27.2	12.8				
Non-Engagement	7.6	13.8				
Pleasure	8.6	6.0				

Note: Baseline 1 = observations of standard activity programming prior to the initiation of RAMPTM; Baseline 2 = observations of standard activity programming after the initiation of RAMP $^{\text{TM}}$; Treatment = observations of OAR programming led by participant. MPES, Menorah Park Engagement Scale; RAMP™, Resident-Assisted Montessori Programming; QAR, Question Asking Reading.

these residents showed more Passive Engagement during RAMPTM than during standard activities programming.

To further illustrate these patterns, Table 5 presents the percentage of observation sessions at each MPES item level by treatment condition for MPES items. Notice that MPES patterns found to be statistically significant for analysis of the means are also illustrated by the patterns shown in Table 5.

Leaders

Analysis of the OAR Leader Assessment Form reveals that leaders consistently followed procedures involved with running the activity. We will focus our discussion on 3 key procedures: (1) pass out the stories; (2) ask someone to read the next section; and (3) initiate discussion. Our hope was that leaders would demonstrate partial adherence to these procedures at 80% of activity sessions.

Regarding passing out the stories, all 6 of the leaders demonstrated partial adherence in 100% of activity sessions. In fact, all but one leader demonstrated full adherence in at least 80% of the sessions. Regarding asking someone to read the next section, again, all 6 leaders demonstrated partial adherence in 100% of activity sessions. Two of the 6 leaders demonstrated full adherence in at least 80% of the sessions. Finally, regarding initiating discussion, 5 of the 6 leaders demonstrated partial adherence in 80% of activity sessions. Three of the 6 leaders demonstrated full adherence in at least 80% of the sessions.

In addition to leading the activity effectively, RAMPTM leaders expressed high satisfaction with their roles. When interviewed after leading their final RAMPTM session, they made many positive statements, including the following:

"Anybody who takes part gets something out of it." "I like to be active helping."

"We are making friends...It is very satisfying to give them their ideas and help them grow. It's wonderful to have something to learn."

Discussion

The results of this study suggest that persons in the early to middle stages of dementia can indeed successfully lead small group activities. However, there are several prerequisites for making a client-led activity successful:

- 1. Materials must be clear and easy to follow.
- 2. The environment must be controlled and comfortable.

	MPES Item Level									
	Not at All Treatment Condition			Up to Half Treatment Condition			More Than Half Treatment Condition			
MPES Item	Baseline 1	Baseline 2	Treatment	Baseline 1	Baseline 2	Treatment	Baseline 1	Baseline 2	Treatment	
Constructive Engagement	21.97	36.36	4.55	46.21	36.36	40.15	31.82	27.27	55.30	
Passive Engagement	15.15	28.79	10.61	47.73	37.12	53.79	37.12	34.09	35.61	
Other Engagement	38.64	46.21	73.33	53.03	48.48	25.91	8.33	5.30	0.76	
Non-Engagement	75.00	59.09	91.67	13.64	20.45	7.58	11.36	20.45	0.76	
Pleasure	72.73	76.52	56.36	27.27^*	23.48	42.12	0	0	1.52	

Table 5. Percentage of Observation Sessions at Each MPES Item Level by Treatment Condition for Engagement and Affect Items (N = 22)

Baseline 1 = observations of standard activity programming prior to the initiation of RAMP™; Baseline 2 = observations of standard activity programming after the initiation of RAMP™; Treatment = observations of QAR programming led by leaders.

MPES, Menorah Park Engagement Scale; RAMP™, Resident-Assisted Montessori Programming; QAR, Question Asking Reading.

- 3. Procedures for running the activity must be simplified as much as possible.
- 4. Training must occur in a real life environment that is, having the leader practice the procedures involved with leading the activity is much more important than *explaining* or even *showing* how to run the activity.

In addition, not only were our leaders successful in fulfilling their roles, but participants' observed engagement and affect were more positive in RAMP™ activities than in regular activities programming. RAMP™ provides persons with dementia with the opportunity to successfully fill social roles that are meaningful and enjoyable to themselves and to others with more advanced dementia.

Limitations of the study include the relatively small samples of both leaders and participants. Outcomes should be replicated in a larger-scale study, across multiple sites. In addition, training was provided by researchers. For RAMPTM to become a

viable method of providing meaningful volunteer roles for long-term care residents with dementia, it must be implemented by staff of long-term care facilities. Therefore, RAMP™ leaders' training must be simplified and more standardized. The ability of non-researchers to produce effects similar to those found in the current study should be assessed.

Future research will address the limitations just described. We have conducted a pilot train-the-train project with staff of the Cleveland chapter of the Alzheimer's Association, who then trained a client of the chapter with early stage dementia living in the community to serve successfully as a small group activity leader for participants with dementia residing in an assisted living facility. We also will begin training long-term care residents and community-dwelling volunteers to serve as group leaders. One of the benefits of designing materials and training processes that can be used successfully by persons with dementia is that these approaches also can be implemented for persons without dementia.

Appendix Project 48: Enhancing Montessori Activities Programming

	R	eading Roun	dtable TM L	eader Assessm	ent
Date: / / ID# of Person Filling Out Form:	QAR		# of Players:	Session #: Activity Staff: _	y Location:
Reading the Story					
Procedure	Did carry out procedure-in every possible instance	Did carry out procedure-not in every possible instance	Did not carry out procedure	Staff Member Redirected or Cued Leader	Comments
 Pass out one copy of the QAR story to each participant. Start reading the first section of the QAR story. Ask someone else to read the next section. (Continue this step for each new section.) After the story has been read, ask the participants to pass in the stories. 					
Discussing the Story					
Procedure	Did carry out procedure-in every possible instance	Did carry out procedure-not in every possible instance	Did not carry out procedure	Staff Member Redirected or Cued Leader	Comments
 5) Pass out the cue cards to the players. 6) Open the QAR booklet to the relevant page. 7) Say, "Who has the [insert the relevant color] card"? 8) If necessary—that is, if a participant does not automatically read the card—say, "Please read it." 					

Appendix. (continued)

Procedure	Did carry out procedure-in every possible instance	Did carry out procedure-not in every possible instance	Did not carry out procedure	Staff Member Redirected or Cued Leader	Comments
9) Allow a participant to read and respond to the card. 10) Attempt to initiate discussion by reading information/ questions in the QAR booklet or by other means (eg, by improvising, telling jokes, etc).					
Ending the Game an	d Cleaning Up				
Procedure	Did carry out procedure-in every possible instance	Did carry out procedure-not in every possible instance	Did not carry out procedure	Staff Member Redirected or Cued Leader	Comments
11) Ask the participants to pass in the cue cards. 12) Thank the participants for reading along and for discussing the story and ask them whether they would like to do this again.					

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