

# STRUCTURING JOINT ACTION ROUTINES: A STRATEGY FOR FACILITATING COMMUNICATION AND LANGUAGE DEVELOPMENT IN THE CLASSROOM

*Lee K. Snyder-McLean, Ph.D.,  
Barbara Solomonson, M.A.,  
James E. McLean, Ph.D., and  
Sara Sack, M.A.*

*Bureau of Child Research, University of Kansas, Par-  
sons Research Center, Parsons, Kansas.*

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Reprint requests: Dr. Snyder-McLean, Bu-  
reau of Child Research, University of Kansas,  
Parsons Research Center, Parsons, KS 67357.

The study of early child language has produced a wealth of new data and concomitant theories over the past decade, and these new perspectives offer important implications to those of us engaged in clinical practice. We have noted elsewhere that this current literature on early child language has specific implications for designing appropriate targets, contexts, and procedures for language therapy (McLean and Snyder-McLean, 1978; McLean, Snyder-McLean, and Sack, 1983). In this article, we will concentrate on these two latter areas: contexts and procedures for language intervention and, more specifically, on the combination of these elements in the form of structured joint action routines.

## RITUALS AND ROUTINES IN NATURAL LANGUAGE ACQUISITION

Generally, those who have attempted to describe the natural processes that characterize the earliest stages of communication and language acquisition have at least alluded to the prominence, and apparent importance, of rituals or routines in the interactions between caregivers and very young children. Perhaps the most notable in this regard have been the observations of Bruner and his colleagues (Bruner, 1975; Bruner and Sherwood, 1976; Ratner and Bruner, 1978), who stressed the central function of joint action routines as the very framework within which communication and, ultimately, language is acquired. Specifically, Ratner and Bruner (1978) have speculated that formulated (rule-governed) play routines may serve to facilitate language acquisition for several reasons: such routines provide a limited and highly familiar set of semantic meanings and utterances; such play routines, while variable, are highly sequential, with predictable positions for the insertion of appropriate responses; and such routines provide roles that are at the same time clearly delineated and reversible. Although Ratner and Bruner were considering the functions of play

routines for very young preverbal infants, we will argue that these same facilitating features of joint action routines can obtain with older children and clients at prelanguage and emerging language levels.

Bruner has addressed the phenomenon of joint action routines most directly, but several other developmental theories also suggest, directly or indirectly, the importance of the child's opportunity to experience repeatedly some set of entities and events that thus come to be "known" to the child. For example, MacNamara's (1972) widely cited account of the early development of language comprehension suggests the importance of consistent routines in which the child can experience the entities and events known to him or her from past experience, in co-occurrence with the specific linguistic forms used in that child's culture to "map" those entities and events. Supporting this theory, Allen and Shatz (1983) recently reported results of research suggesting that established conversational routines between very young children and their mothers serve an important facilitating role for those children in learning appropriate responding to *what* questions. This general theme, that new information and new language forms are most readily acquired by the young child in the context of already known and established routines, is also evident in Piaget's (1952) constructs of assimilation and accommodation. Finally, of course, we also recognize this theme in the oft-cited maxim, "children first use new forms to express old functions, and use old forms to express new functions" (Slobin, 1973; Werner and Kaplan, 1963).

Before moving on to clinical considerations, let us make one more observation about the nature and function of routines in normal child development. In addition to providing an established structure within which the child can gradually extend his own response repertoire, these routines also provide the reciprocal interaction patterns now recognized as central to and characteristic of the process of communication and language development. The pragmat-

ics movement of recent years has emphasized that language production is an act and is usually performed in a social context (Bates, 1976; Searle, 1969). We generally learn action responses through direct experience and practice, not from passive observation. Certainly, this is so for very young children. If they are to master the pragmatic aspects of human language, they must experience its dynamic properties, the give-and-take alternation of conversation, and the process of affecting and being affected by the behaviors and communicative acts of another person. Again, the literature on early communication and first language acquisition in normally developing children suggests that these critical experiences are provided through the context of shared or joint action routines (Bruner, 1975; Lewis and Freedle, 1972; Mahoney, 1975) in which behavior is mediated through both verbal and nonverbal communication and established response expectancies.

#### JOINT ACTION ROUTINES DEFINED

We can describe routines quite broadly as providing the "frameworks for chains of joint action or joint attention" (Hart, in press), a construct closely related to the notion of "scripts" found in the current cognitive psychology literature (Bower, Black, and Turner, 1979). Alternatively, routine has also been defined quite narrowly to refer specifically to a "set of utterances varying little in form and matched rather tightly with particular types of conversations, social situations, functions or promptings" (Allen and Shatz, 1983, p. 322).

For purposes of this article, we shall adopt the term "joint action routine" and define it as follows: a ritualized interaction pattern, involving joint action, unified by a specific theme or goal, which follows a logical sequence, including a clear beginning point, and in which each participant plays a recognized role, with specific response expectancies, that is essential to the successful completion of that sequence. We

will discuss the critical elements of this definition in more detail later.

#### JOINT ACTION ROUTINES AS LANGUAGE FACILITATION STRATEGIES

It seems that in all cultures there are some characteristic types of joint action routine engaged in by more mature members of the culture with very young children, and that these routines serve an important facilitating function in the language acquisition process. McLean (1983) has noted that we have generally failed to incorporate these powerful natural interaction contexts, so universally characteristic of the language-learning process, in the design of our past clinical models for language intervention. If consistent and familiar routines provide the framework that supports new response acquisition for normally developing children, surely such routines will benefit those children and youth in language and communication programs. Furthermore, the structure of such routines provides a "scaffold" (Bruner, 1975) that allows the handicapped child to respond appropriately within this context when that child's limited response repertoire might not allow him to respond appropriately in other contexts.

There are at least two additional considerations that argue for the incorporation of joint action routines in our language therapy model. One is the observation offered by Owens (1982) that mutual engagement of clinician and client in such a joint action routine assures that the clinician will "get into the child's world," an oft-heard maxim these days, which frequently seems difficult to operationalize. We might add that such routines also accomplish the reverse effect, that is, they assure that the client can enter into the adult clinician's world, at least for the duration of the routine.

A second consideration relates to our service delivery model for children and youth with language delays or deficiencies.

Due largely to our improved understanding of the need for language learning to occur in meaningful communicative contexts, and also in consideration of growing case loads, school programs are moving increasingly to a consultant model for the delivery of language and communication therapy services. This move means that most of the actual communication-language treatment for a child will be provided in the classroom. The use of joint action routines, which allow individualization within small group activities, is ideally suited to such a service delivery model.

In this article, we will describe a set of strategies for designing and implementing joint action routines in classroom settings. Certainly, such routines are also of great value in home-based therapy programs, where the basic elements of joint action routines occur quite naturally. In such cases, the task is to train family members to optimize the facilitating potential of their daily routines—procedures for which are described elsewhere in this issue of *Seminars*. Furthermore, such routines are also appropriate to clinical settings, although such settings may need considerable structuring to provide the necessary physical and interpersonal support for effective joint action routines (see DeMaio in this issue of *Seminars*).

Our focus on classroom settings reflects the work we have done on two projects over the past 5 years. In the first of these, we designed and implemented joint action routines within the context of a secondary classroom program for severely mentally retarded, nonverbal adolescents. In the second project, we used joint action routines in a preschool classroom to facilitate language development in children who presented a wide range of handicapping conditions and severity. Following a discussion of the general principles and procedures that we have found, through these projects, to be important in designing effective joint action routines, we will briefly describe these two specific applications and their effects.

## STRUCTURING JOINT ACTION ROUTINES FOR LANGUAGE INTERVENTION

### CHARACTERISTICS OF EFFECTIVE JOINT ACTIVITY ROUTINES

To this point, we have described joint action routines generally, as well as their function in the natural language acquisition process. If we are to be able to incorporate this type of routine as a formal clinical strategy, we must define the characteristics of such routines more specifically. Based on our experience of the past 5 years, we can identify a number of critical elements that characterize effective joint action routines, and also identify several different types of joint action routine.

#### *Critical Elements of Effective Joint Action Routines*

Over the years, we have designed and implemented many different joint action routines for use in both preschool and secondary special education classrooms. Some of these routines have been very successful, but others were resounding failures! In making this statement, we are reflecting two basic criteria for a "successful" routine. First, the routine should work as a vehicle for facilitating communication and language development. Second, and critically, the routine should work in terms of effectively engaging the interest and participation of or clients, so that, ultimately, participation in and completion of the routines become motivating in their own right. (In our preschool program, such success could be judged by whether or not our structured joint action routine would emerge in the children's own peer-directed free play.) A retrospective analysis has shown that those routines that have been most successful have been those possessing the following eight critical elements.

*Obvious Unifying Theme or Purpose.* Basically, a joint action routine is defined in terms of its organizing theme or purpose, such as a snack preparation routine, a fire-

man routine, or a greeting routine. In fact, the nature of this underlying theme or purpose differentiates three major types of joint action routine, as we will explain in the following section. For now, the critical point is that, whatever its nature, this theme must be meaningful and recognizable to all participants, and it must provide an overriding logic and direction to the entire routine. A very vaguely defined or highly variable activity, such as "playtime," will not function effectively as a joint action routine.

*Requirement for Joint Focus and Interaction.* The unifying theme or purpose of a joint action routine does assure that the actions of different individuals engaged in the routine will be related in some manner, but it does not necessarily assure that there will be actual interaction among the individuals. For example, the routines associated with snack time or painting time, as they are implemented in many classrooms, often involve parallel but not interactive participation of two or more students. It is only through establishing the need for interaction and some negotiation among participants in the routine that we provide a context in which our clients will be required to use the communication and/or language responses that are the objectives of our programming. It is surprising how many of the routines we observe in special education classrooms do not require (or even allow) communication among students!

*Limited Number of Clearly Delineated Roles.* Again, the nature of the unifying theme will determine what type and number of different roles are involved in the joint action routine. To work as a language facilitation activity, a routine should require the interaction of at least two different, and easily differentiated, roles, for example, a snack routine may require the interaction of a "cook" and a consumer; or a story routine, such as *The Three Billy Goats Gruff*, will require interaction of the roles assigned to each of the principal characters in the story. Each of these roles must be definable and predictable. That is, there must be a consistent set of expectations about the responses or actions performed

in that role. If a role meets this criterion, students involved in the joint action routine will be able to recognize whether the person assigned to a particular role is performing the role correctly or incorrectly and will protest when the role is performed the wrong way. Finally, experience has taught us that the number of different roles must be limited if students are to be able to become familiar with the expectancies for each role. Depending on the ages and levels of the students, probably between two and five different roles should be incorporated into the routine. Note that it is possible to involve more students in the routine than there are roles by assigning two or three students to the same role, such as two "customers" in a restaurant routine.

*Exchangeable Roles.* Another characteristic of successful joint action routines is that the roles are exchangeable or reversible. In other words, we can arbitrarily assign individuals to roles one day, and assign those same individuals to different roles in the same routine on the following day. Mary may be the ringmaster the first time we play *Circus*, the ticket-taker the next time we play, and the clown the third time. The response expectations, in terms of both receptive and expressive communication, associated with each role will differ. Thus, by assuring that students can learn and assume all of the different roles involved in a particular routine, we maximize the number of different learning opportunities for each student within the same routine. We should point out that the therapist or teacher will also be a participant in these routines, at least initially, and will frequently need to model the communication and other behaviors associated with each different role. It is important, then, that these roles be exchangeable so that the students can assume the roles initially modeled by the adult or adults. Finally, we have speculated that such role exchange may serve to facilitate the child's development of two pragmatic skills: register-variation, or "code-switching," through the experience of actually assuming the register associated with different roles within the same routine;

and presupposition, through the repeated opportunity to actually experience the same communicative exchange from the vantage point of both the "speaker" and the "listener."

*Logical, Nonarbitrary Sequence.* Perhaps one of the most critical and defining characteristics of an effective joint action routine is its sequential nature. In our traditional therapy procedures, the sequential progression from trial 1 to trial 2 to trial 3 is arbitrary and even intentionally random, so that the client cannot know from past experience what response will be called for next. Conversely, in joint action routines, the sequence is both predictable and logical, that is, it is determined by the nature of the unifying theme of the routine. For example, in a vocational training routine, the requesting and distribution of component parts must be completed before assembly can begin; and, in a pretend fire routine, the fire must be observed and reported before the firepersons can rush to the rescue. This predictability provides the "scaffold" that allows the language-handicapped student to acquire and practice communication responses in a naturally sequenced discourse context, as opposed to the more rote types of responding evoked in our traditional therapy procedures, which often fail to generalize to the real world of social discourse. In addition to having an inherently logical progression, these sequences should also have clearly marked beginnings and endings that provide the student with cues as to when the role expectations associated with a particular routine are in effect.

*Structure for Turn-Taking in Predictable Sequence.* This feature really represents simply the combination of our planned interaction among routine participants and our predictable sequence. Specifically, it is important that the interactions we plan within a joint action routine take the form of my turn, your turn, Susie's turn, and so on, with clear and predictable expectations as to when students are supposed to wait and when they are supposed to take their turn. Of course, as already noted, the na-

ture of the response that is appropriate for the turn should also be known to each participant through past experience with the routine. Any routine that requires that participants remain in a passive role—waiting for a turn—for more than four or five consecutive turns is probably doomed to failure. Joint action routines work because they provide the opportunity to learn through active participation and actual practice of a target response in an interactive context. We might caution that limiting the number of roles in a routine does not necessarily assure a high density of response opportunities for each participant unless we also design a sequence in which turns will rotate among all the roles fairly equally.

*Planned Repetition.* Inherent in the very notion of a routine is the feature of repetition. We use repetition in the therapeutic joint action routine in three ways. First, of course, is repetition over time of the routine. In order for the routine to acquire the facilitating characteristics of role expectancy and sequence predictability already discussed, it must be repeated in its entirety several times—the more developmentally young the clients, the more often the routine must be repeated before it will be known. As a very general rule of thumb, we would suggest that a routine should be run on a daily basis for at least 2 weeks to get any therapeutic benefit. In addition, it is generally useful to plan for one of two types of repetition within a daily time block: the routine may be very brief and be repeated several times, with different role assignments each time: for example, child A may be the ringmaster the first time we play circus and the ticket taker on a subsequent round; or the routine may incorporate the repetition of a core subroutine several times in the course of the overall routine: for example, a store customer may request several different items from the store clerk, who must, in turn, verify the appropriate color, size, and other characteristics of each item.

*Plan for Controlled Variation.* Of all the elements listed here, this last is probably

the most critical. Without a plan to introduce controlled variation into the routines, we would be training only long chains of rote responding, which would offer little hope of generalizing to any real communication situation. The greatest value of the familiarity and expectancy that is developed through experience with a joint action routine is that it provides a background against which a novel element will be highly salient to the student, as well as a "scaffold" to support the one new required response in an otherwise known communicative context. It is only in a known context that we can deliberately introduce an element of surprise to evoke a spontaneous declarative or interrogative communication act. Similarly, it is in a highly familiar and comfortable interaction routine that we can begin to model and expect a new linguistic structure, perhaps a two-word utterance to express a meaning that the student has previously expressed successfully with one word. Within a snack preparation routine, the actual types of food or drink to be prepared can be varied to require new words to talk about the ingredients, utensils and actions associated with different foods. We can "forget" one of the critical utensils or ingredients and thus create a need for communication. Within a pretend restaurant routine, the adult may assume the role of "waiter" and announce that the food choice is no longer available, or the food items pictured on a familiar menu may be changed. Our most effective routines offer endless possibilities for such planned and controlled variation, and it is within this variation that we can provide the greatest learning opportunities. Finally, of course, such planned variation preserves the predictability benefits of the overall routine while protecting against satiation and boredom, effects that would come with rote repetition of the routine in the exact same way every day.

### *Three Major Types of Joint Action Routine*

We noted that one defining characteristic of the joint action routine is its unifying theme or purpose. This underlying theme

or purpose may be one of three general types and allows us to categorize the type of joint action routine accordingly. These three major types are: preparation or fabrication of a specific end product, a story or plot line, and a cooperative turn-taking game.

Probably the most obvious and natural joint action routine is one associated with the preparation or fabrication of a specific end product. In this type of routine, the roles and sequence are determined by the nature of the end product and are thus inherent to the routine. This type of routine is generally the most appropriate with older students, for whom pretend play and cooperative games may be difficult to design in ways that are judged to be "age-appropriate." Examples include food preparation (often a part of the basic domestic living skills curriculum for students of secondary school age) and product assembly, as in the vocational training area of most secondary programs. With younger students, snack preparation and art activities frequently lend themselves to modification to become rich joint action routines. In designing this type of routine, our task is generally to take a noninteractive production activity and alter it so that it involves the interaction of two or more individuals, each assigned a particular role within the routine. One role may be that of director or foreman, involving the actual determination of specific materials to be used and assignment of roles or tasks to other participants. Other roles in a food preparation routine could include "helper" (person who gets out and puts away all ingredients and utensils) and "cook" (person who actually mixes, pours, and so on). Similar roles can be defined and codified for any type of production activity. Once the role expectations associated with a general type of joint action routine are established, the specific product and associated components or ingredients involved in that routine on a particular day can be varied endlessly.

The second major type of joint action routine is one that is organized around a central plot or story line. This type of rou-

tine is very common in the natural pretend play of normally developing children and can be very effective with young handicapped children. In deciding whether a particular theme will be effective as a joint action routine, it should be analyzed for its potential to provide the eight critical elements identified earlier. As noted, some themes that we have found very successful with preschool handicapped and language-delayed children include: "Restaurant," "Circus," "Baby Care," and "Fireman/Firewoman." With older students, role playing is often used as an instructional procedure (as opposed to being viewed as "just play") for teaching community living skills, such as shopping, eating out, using public transportation. Whether viewed as pretend play or role playing, this type of joint action routine can be structured to provide many language-learning opportunities. The sequential progression within this type of routine is not as integral to the theme as in the product-oriented type previously described and, thus, must be determined and modeled initially by the therapist or teacher. With a little imagination, it is not difficult to lay out a set of roles and basic sequence of events to be associated with one of these theme areas. Once this basic story line and cast of characters is familiar to the students, then controlled variation, in the form of surprise elements, story modifications, or introduction of new roles can be added as appropriate to scaffold particular types of communication and language responding.

Finally, we have recognized what can be called the cooperative, turn-taking game as one more type of joint action routine. We should caution, however, that such routines only marginally qualify in terms of the eight critical elements identified earlier. For example, in our handicapped preschool program, we developed a morning circle routine similar to those that characterize almost any preschool programs. After all the children were sitting in a circle, there would be a predictable sequence of events that began with a "Where is \_\_\_\_\_?" song, in which each child would identify himself or herself. This is followed by a

question-answer activity centered around photographs associated with highlights of the previous day's activities and plans for the current day's snack preparation (what to make, what ingredients are needed). This type of routine lacks two important elements of a true joint action routine, as we have defined these. First, it does not have a logical sequence unified by a central theme or purpose, even though it does have a predictable sequence. Second, the roles involved in this routine, although quite familiar to the students, are not fully exchangeable, since the teacher basically maintains the teacher-group leader role throughout. However, this type of routine does allow for a lot of controlled variation and language-learning opportunities. Also, we found that it served a scaffolding function in helping students who had never participated in group interactive, turn-taking activities gain the turn-waiting and turn-filling response patterns essential to participation in any other joint action routine. With older, severely handicapped students, we found this type of routine could be built into group music therapy and recreational therapy sessions.

#### CONSIDERATIONS FOR APPLICATION IN PUBLIC SCHOOL CLASSROOMS

Before discussing specific applications of the joint action routine in two model-demonstration programs, a few practical considerations involved in applying this approach in "real world" school settings will be identified. These include issues of accountability, including the individual education plan (IEP), some attitudinal issues, and, finally, some specific suggestions regarding how to actually go about implementing joint action routines.

##### *Accountability and the IEP*

As with any treatment approach, the teacher or clinician implementing joint action routines must have clearly specified goals and objectives for each student or

client involved in the program. One of the advantages of this approach is that it allows programming toward more than one communication objective and with more than one student in a single session or block of time. However, care must be taken that the joint action routine does not become the proverbial tail that wags the dog—each joint action routine should be designed and continued only to the extent that it serves to facilitate acquisition of specifically targeted communication responses by clients or students. Furthermore, if a routine is to function as a truly therapeutic activity, and not simply "playtime," then it must be implemented in a systematic manner. This, in turn, requires not only that specific, observable treatment objectives are reflected in the plan for the routine, but also that some procedures be implemented to measure the actual effectiveness of that plan.

Our experience suggests that two types of evaluation are needed if joint action routines are to be implemented systematically. First, we have found it essential that we periodically stand back and evaluate the reliability with which we are actually implementing our therapy plan. Although the plan may call for Child A to encounter five communicative demand situations for two-word, attribute plus entity constructions in the course of a particular joint action routine, the routine may have begun to "take on a life of its own," and Child A may in fact only respond once or twice during the course of a session. When this begins to happen, and the density of response opportunities for a child is consequently reduced, the results will usually show up very quickly in sudden deceleration of the child's previous progress toward achievement of his or her therapy objectives.

The second type of evaluation needed in this approach is, of course, evaluation of child progress toward goal attainment. Although the basic principles of program data collection and monitoring that obtain for any clinical procedure apply here, there are also some special considerations when we work in the context of a joint action routine. Specifically, if the teacher or therapist is to

be truly engaged in the routine and assuring appropriate types of response opportunity for each child involved in the group, it will not be feasible to maintain continuous data on every response for every child in the session. Therefore, the teacher or therapist will need to decide upon an appropriate probe, or a teach and test data collection schedule. A good general rule of thumb is that data should be collected for each objective in a child's program at least once a week, assuming that programming is being conducted 5 days per week. It may be that one child or one group of objectives is targeted for data collection in any one routine session. Alternatively, a paraprofessional may be assigned to observe the routine and record data on several child objectives and/or several children during the same session. Finally, some objectives may be appropriately assessed in the context of an isolated, one-to-one testing session in which a series of predetermined, random-ordered test trials is presented to the child and rate of correct responding compared with performance during the last testing session. In this approach to data collection, the process of teaching, which has been taking place all week in the context of joint action routines, is separated from the process of testing. Whatever system and schedule of data collection are selected, it is important that the data collected be monitored on a continuing basis so that valuable child time will not be wasted on ineffective procedures or routines.

##### *Attitudinal Issues*

In implementing joint action routines in a classroom context, there are some attitudinal issues that must be addressed in addition to the technical issues involved in actually designing the routines. These attitudinal issues relate to our own and others' traditional notions of what constitutes "good therapy" and "good teaching." As teachers and therapists, we tend to feel that we are not doing our jobs, not earning our pay, if we are not continually coming up with new and creative ideas for program

activities. Thus, we have found that it is very difficult for many professionals to allow a routine to repeat on a daily basis for 2 weeks or longer—this somehow violates our most basic work ethic! However, if we try to adopt the child's perspective, we quickly realize that children love repetition. Give a child a choice of a story to hear or a song to sing, and that child will request the story you have told a hundred times and the song you have sung more times than you can count. So it is with joint action routines. The more experience our students have had with them, the more they enjoy them and the more new responses we can integrate into them.

The second attitude we have had to overcome is that "speech therapy" must consist of a child and a therapist sitting across a table from each other in a special room. Certainly, there are times when this type of therapy is the most effective and efficient for initially training or shaping a specific response. However, it now seems that language and communication programming that seeks generalization of responses to natural discourse contexts can be most effectively implemented in settings and under conditions that more closely approximate the demands of those discourse contexts. Again, this means that we must modify our own attitudes and those of our colleagues and consumers to accommodate these changes in our therapy models.

##### *Suggestions for Implementing Joint Action Routines*

To conclude this discussion of general principles and issues associated with the use of joint action routines, we offer the following list of very practical suggestions, based on our own experience in both preschool and secondary special education programs.

1. Introduce the concept of joint action routines gradually. Start by selecting one, very high-probability activity and only a few students for the first structured joint action routine. Let parents and colleagues observe

the potential benefits of this type of therapy, and become comfortable with it yourself, before expanding to additional areas and students.

2. Do not expect the students to master a new routine the first day it is introduced. At first, students may seem to be just going through motions without a full grasp of the purpose of the routine. Be prepared to model and help students perform roles the first few times the routine is conducted. By definition, it takes some time for a new joint action to become a "routine."

3. Do not be afraid of repetition. Plan to repeat the routine on a daily basis, with controlled variations gradually introduced, for at least 2 to 3 weeks. Later in the school year, you can reintroduce an old routine for a few days, and it will seem new again to you and the students.

4. In introducing a new routine, provide the students with an overview of the entire routine and its purpose. For a story type of routine, this can be done by briefly telling the story or plot to the group before assigning roles. In a product preparation or fabrication routine, it is usually most helpful to start with an example or picture of the ultimate product that is to be prepared in the routine. This overview of the routine's goal may need to be repeated at the start of the routine the first few times it is implemented.

5. Establish a clear signal for the initiation and termination of the routine. This may consist of some generic signal, such as ringing a bell, or signal specific to a particular routine, such as getting out or collecting all the "menus" for a restaurant routine.

6. Include at least a few minimal props that are associated with a particular routine and that distinguish the various roles within the routine. In a food preparation program, the cook can wear the apron or in a circus routine, the ringmaster may wear a paper top hat. Such props serve as nonverbal stimuli for the appropriate responses expected of students in different roles, so that the adult does not have to keep verbally prompting and reminding.

## APPLICATIONS IN TWO PROGRAMS

### SECONDARY PROGRAM FOR NONVERBAL, SEVERELY RETARDED STUDENTS

#### *The Program*

The first setting in which we used joint action routines was a public school special education program for severely and profoundly mentally retarded adolescents. These students were all residents of a state institution for the mentally retarded and were between 13 and 16 years of age at the time we began working with their teachers. In order to be included in this project, these students had to meet two criteria: they had to be functionally nonverbal, that is, they were not reported or observed to produce any real words, in any mode, in their spontaneous communication; and they had to have been receiving, and not making acceptable progress in, more traditional speech-language therapy as provided by the hospital's own staff. We were able to collect pretest and post-test data on 12 such students who were enrolled in two different classrooms.

The intervention in these two classrooms took place over 2 school years and has been described in more detail elsewhere (McLean, Snyder-McLean, Jacobs, and Rowland, 1981). Almost all of the programming toward communication objectives was provided through joint action routines, usually conducted in small groups consisting of two to three students with one adult. These routines were developed and introduced gradually into the program, so that it was only at the end of the intervention period that students were actually participating in several different routines each day. Thus, we would consider this to be a very weak test of the potential effects of such programming when it is fully implemented. For several reasons, these students received no speech or language therapy services other than those provided by classroom staff under our supervision during the course of our involvement with them.

The joint action routines that were im-

plemented in this program were organized around three major areas of the secondary curriculum: food preparation, vocational/prevocational skills, and leisure skills. In each of these domains, we first observed and analyzed the training routines already used in the classrooms and then modified these as necessary to build in the elements of multiple roles and interaction among participants. An example of one of the resulting routines is provided in Appendix A. (Complete descriptions of all the routines are available in McLean et al., 1981).

#### *Results*

Expressive communication abilities of these students were measured using several different procedures. These included: standardized administration of a questionnaire regarding communication abilities, based on a model provided by Bates, Benigni, Bretherton, Camaioni, and Volterra (1977); to classroom and residential staff; direct observation, using an event-sampling procedure, in classroom and cottage settings; administration of the Callier-Azusa Scales (Stillman, 1978); and analysis of videotaped communication protocols, in which specific events were staged in an attempt to evoke spontaneous communication from the students.

After this 2-year intervention, all of the students had acquired some new communication skills, as reported by staff on the 33-item communication skills interview, with a mean gain of 10.75 new items passed per student. Additionally, nine of the 12 students demonstrated measurable gains in the speech and language subscale of the Callier-Azusa instrument, and all 12 showed large gains in the peer-interaction items. The observational and protocol data analyses revealed that six of these 12 students were spontaneously using at least some true words in their communicative interactions at the conclusion of this project, and even the five subjects who had demonstrated no intentional or primitive-illocutionary level (McLean et al., 1983)

communication, all used at least some intentional communicative gestures. Perhaps most important was the finding that the communicative responses acquired by students in this program generalized spontaneously to expressive use in other settings. In light of the initial nonverbal and, in many cases, even perlocutionary (nonintentional) communication status of these students, as well as their chronological ages, institutional status, and therapy histories, these positive results suggest that joint action routines can provide an effective alternative to traditional therapy models for severely handicapped students.

### PRESCHOOL PROGRAM FOR LANGUAGE-DELAYED AND OTHER HANDICAPPED CHILDREN

#### *The Program*

Most recently, we had an opportunity to implement the joint action routine approach in a model preschool intervention program. During the first year of this program's operation, we were able to collect pre- and post-test data for seven children, ranging in chronological age at pretesting from 38 to 48 months, with a mean age of 44 months. Primary handicapping conditions of these children included: mental retardation/Down's syndrome (two children), emotional or behavior disorder (one child), and language or communication disorder (four children). Because this was the first year of program operation, children entered the program at different points during the year and thus the length of the intervention period between pre- and post-testing ranged from 3 to 7 months, with a mean length of 4.7 months.

These seven children all participated in a center-based program that operated 4 mornings per week. The daily center program revolved around several different types of joint action routine. These included the morning greeting circle (described earlier); snack (including planning, preparing, serving, eating, and cleaning up); and

a thematic play activity, such as "Restaurant" or "Circus," as described earlier. These story-type joint action routines were repeated on a daily basis for 2 to 3 weeks, during which period that same theme was also reflected in the art and story activities planned each day. In addition, children with specific articulation disorders received traditional articulation therapy in the classroom for approximately 20 minutes per day. An example of one of the joint action routines used in this program is provided in Appendix B.

### Results

Three procedures were used to evaluate the communication and language abilities of these children: administration of the Sequenced Inventory of Communication Development (SICD) (Hedrick, Prather, and Tobin, 1975); administration of the Communication subscale of the Developmental Profile (Alpern and Boll, 1972); and transcription and analysis of a standardized 10-minute language sample involving the child in interaction with one parent. Results from the two norm-referenced instruments are reported as developmental ages and can be summarized as follows. On the SICD, these children gained an average of 6.86 months in Receptive Communication age, or 1.41 months for each month of intervention per child, and 5.14 months in Expressive Communication Age, or 1.12 months for each month of intervention per child. The Developmental Profile Communication Ages increased an average of 10.5 months, or 2.24 months for each month of intervention, per child. The language sample analyses revealed the following gains from pretest to post-test: Total number of utterances produced by the child increased from a mean of 58.43 to 71.71; the total number of intelligible morphemes produced increased from a mean of 86.71 to 144.57; and the mean length of utterance, in morphemes, increased from 1.49 to 1.88. We are currently extending this work with additional children and teachers and will have more conclusive data regard-

ing the effectiveness of this approach in the future. For now, however, we can again conclude that the results we do have are highly encouraging regarding the potential benefits of the joint action routine as an approach to communication and language programming in the classroom for young handicapped children.

### CONCLUDING COMMENTS

In this article, we have provided a brief overview of the joint action routine, including consideration of the hypothesized benefits of such routines in both natural and therapeutic language acquisition, identification of some basic principles and suggestions for implementation of such routines, and preliminary data from our own applications of this approach in intervention programs for both preschool and adolescent-aged handicapped children and youth. Our experience, as well as feedback we have had from clinicians in other programs attempting this type of approach, suggests that there is much promise in the joint action routine as a clinical procedure. However, we should offer two cautionary comments in conclusion. First, the joint action routine cannot and should not replace all other forms of language therapy. There are still many treatment objectives that will require "branching" to the type of intensive, massed-trial training that has been our standard mode of therapy for so long. (For further discussion of this point, see McLean et al., 1983; Snyder-McLean, 1984).

The second cautionary comment relates to the issue of data and is twofold. At the individual program level, this type of procedure requires extra vigilance in the processes of both planning and monitoring to be assured that the procedures are both systematic and effective. On a larger scale, we must remember that the data base supporting the effectiveness of this type of communication programming is still very small. Results such as those reported here, as well as those reported by Culatta (this issue of *Seminars*) and Culatta and Horn

(1982) are certainly promising, but there is much future research to be done in identifying and validating the critical features and parameters of truly effective joint action routines. At this point, based on the

data available, we would suggest that this approach merits serious consideration by the clinician working in public school settings, given the above precautions.

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ARTICLE FIVE

SELF-ASSESSMENT QUESTIONS

1. The following does **not** reflect some consideration of the function of interaction routines between young children and their careproviders:
  - (a) Bruner's work on the origins of communication
  - (b) Chomsky's work on transformational grammar
  - (c) Piaget's work on assimilation and accommodation
  - (d) MacNamara's work on comprehension development
  - (e) all of the above
2. In this article, the following is/are identified as critical elements in a successful joint action routine:
  - (a) opportunities for sensorimotor level exploration
  - (b) nonarbitrary, predictable sequence
  - (c) parallel talk
  - (d) self-talk
  - (e) all of the above
3. The following would probably **not** be an effective joint action routine for facilitating language development:
  - (a) choral reading (a group of students all read the same material out loud in unison)
  - (b) baking different kinds of cookies
  - (c) role-playing around the theme of "going to the store"
  - (d) playing house (role playing mother, father, child)
  - (e) none of the above
4. The following is **not** suggested by the authors as one of the advantages of joint action routines:
  - (a) this approach allows the clinician or teacher to work on different therapy objectives with different children in the same session
  - (b) this approach is especially appropriate in the consultant-model approach to service delivery within a school setting
  - (c) this approach minimizes the time and effort required for data collection and monitoring
  - (d) this approach facilitates spontaneous generalization of targeted language forms to natural discourse contexts
  - (e) none of the above
5. In implementing a joint action routine, the following was suggested as an appropriate strategy:
  - (a) The adult models the appropriate behaviors and communication associated with different roles
  - (b) showing the students the completed end product to be fabricated before initiating a new routine
  - (c) building in many repetitions
  - (d) having "props" associated with different roles within a routine
  - (e) all of the above

APPENDIX A

EXAMPLE OF JOINT ACTION ROUTINE IN SECONDARY PROGRAM

Activity Sequence: General Description for Prevocational Training

Steps	Action Behaviors/Interaction Behaviors
Retrieve	Student A gets large container of materials from shelf and brings to table. Student B removes materials from box and sets up on table.
Select	Student picks up or takes out two pieces. Student A gives selected piece to Student B, who then sorts piece. This activity is continued until all pieces needed have been selected and given to Student B for sorting.
Sort	Student puts piece into small containers, template, or sorting boxes or trays. After Student B sorts all the pieces needed to make a certain product, he then gives the pieces back to the Student A, who will assemble.
Assemble	Student puts two pieces together. Student A receives sorted pieces and assembles (one by one) until all pieces have been put together to make a product. Student A passes completed product to Student B or students nearest stacking or display area.
Stack	Student stacks or displays completed product in designated area (optional for some sequences).
Package	Student puts completed product in sectional cartons, plastic bags, or cardboard boxes (optional for some sequences). Student A gets or holds cartons or bags for packing while Student A packs them.
Put away	Student puts all unused materials back in large container and returns it to open shelf space. Student puts package products on counter. Student B passes materials and packaged products to Student A for putting away or putting on counter.

APPENDIX B

EXAMPLE OF JOINT ACTION ROUTINE FOR PRESCHOOL PROGRAM

Activity Sequence—Firemen/Firewomen

<i>Roles</i>		<i>Props</i>	
<i>Firepeople</i>	<i>Family</i>	firetruck area	kitchen area with oven
driver	lead cook	fire hats	cooking utensils
bell ringer	helpers	fire hoses	paper fire flames
phone person	phone person	cleaning rags	cat
director		2 telephones	tape recording of cat
		bell	ladder
<i>Activity Sequence</i>		<i>Variations</i>	
<i>Set-Up</i>			
<ol style="list-style-type: none"> <li>1. T. plays siren to signal beginning of activity</li> <li>2. Ch. and adults meet at large table</li> <li>3. T. describes activity sequence with ch. help</li> <li>4. Ch. are divided into 2 groups:                             <ol style="list-style-type: none"> <li>1) Firepeople</li> <li>2) Family</li> </ol> </li> <li>5. Ch. request appropriate props</li> <li>6. Ch. and adults go to appropriate areas</li> </ol>		<ol style="list-style-type: none"> <li>1. Ch. describes activity sequence</li> <li>2. T. goes to wrong area</li> </ol>	
<i>Play Sequence IA (Family)</i>			
<ol style="list-style-type: none"> <li>1. T. and Ch. sit at kitchen table and decide what the cook</li> <li>2. T. and Ch. alternate turns retrieving and pouring ingredients to make _____(cookies)</li> <li>3. Ch. opens oven door to put in cookies and sees fire</li> <li>4. Ch. says "fire"</li> <li>5. T. says "call the fire dept. Sandy"</li> <li>6. Ch. dials "0" and waits for fire dept. to answer</li> <li>7. Ch. describes fire and where they are (in the oven at the PREP school)</li> <li>8. Ch. relays message to get the babies and them out of the house</li> <li>9. T., Ch. and babies get out of the house and wait</li> </ol>		<ol style="list-style-type: none"> <li>1. Cat is placed on a high shelf out of easy field of vision</li> <li>2. Tape recording is set to play midway through activity sounding like a stranded cat</li> <li>3. Follow sequence to save cat by calling fire dept.</li> </ol>	
		<ol style="list-style-type: none"> <li>1. Fire may be discovered in various places in kitchen (garbage can, in register, curtains)</li> <li>2. Generally cued by T. saying "I smell smoke"</li> </ol>	
<i>Play Sequence IB (Firepeople)</i>			
<ol style="list-style-type: none"> <li>1. Ch. and T. go to the firetruck</li> <li>2. Ch. and T. use cleaning rags and hoses to shine up the firetruck</li> <li>3. Ch. answers fire call</li> <li>4. Ch. directs someone to drive and to ring bell</li> <li>5. Firepeople drive to fire</li> <li>6. Ch. grab hoses and run to house</li> <li>7. Ch. extinguish fire</li> </ol>		<ol style="list-style-type: none"> <li>1. To save cat firepeople bring a stepladder</li> <li>2. Ch. try to get cat by alternating turns but they are too short</li> <li>3. T. fireperson climbs up and saves cat</li> </ol>	
<i>Play Sequence IIA</i>			
<ol style="list-style-type: none"> <li>1. Family thanks firepeople for putting out fire</li> <li>2. Firepeople say "you're welcome and be careful"</li> <li>3. Family return babies and props to house</li> <li>4. Firepeople return to station</li> </ol>		<ol style="list-style-type: none"> <li>1. Family thanks firepeople for saving cat</li> </ol>	
<i>Play Sequence IIIA and B</i>			
<ol style="list-style-type: none"> <li>1. Ch. switch roles and repeat sequence</li> </ol>			

T = Teacher; Ch = child