

Beyond Vygotsky: What Soviet Activity Theory Offers Naturalistic Language Intervention

Au-delà de Vygotsky : ce que la théorie soviétique sur l'activité offre à l'intervention naturaliste de langage

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ABSTRACT

Naturalistic, functional language intervention or activity-based intervention is increasingly the choice of speech-language pathologists. Working on language targets in the complex contexts of daily life activities presents challenges in supporting language learning. Traditional methods of task analysis, hierarchical task structuring, and writing skills-based objectives are not conceptually consistent or very helpful for activity-based intervention. Theory of activity, developed by Soviet psychologists following a Vygotskian framework, provides a new perspective on the notion of competence within activities. Together with its conceptual cousin, scaffolding, theory of activity provides ideas and methods for analyzing and supporting language learning in context.

ABRÉGÉ

Les orthophonistes choisissent de plus en plus l'intervention naturaliste ou fonctionnelle, ou l'intervention par activités. Les cibles langagières, dans les contextes complexes des activités de la vie quotidienne, présentent des défis pour le soutien à l'apprentissage du langage. Les méthodes classiques comme l'analyse des tâches, la structuration hiérarchique des tâches et les objectifs d'écriture basés sur l'aptitude, ne sont pas cohérentes sur le plan conceptuel et ne sont pas très utiles en intervention à base d'activité. La théorie de l'activité, élaborée par des psychologues soviétiques à partir d'un cadre vygotkien, donne une nouvelle perspective à la notion de compétence en activité. Comme pour son cousin conceptuel, l'échafaudage, la théorie de l'activité offre des idées et des méthodes pour l'analyse et le soutien de l'apprentissage du langage selon le contexte.

KEY WORDS

language intervention • social interactionist • Vygotsky

Over the past few decades, language intervention has moved from emphasizing structure and pattern in contrived, hierarchically structured tasks to emphasizing meaning and use in naturalistic, functional activities. Language intervention increasingly reflects the understanding that "language serves communication ends and is learned in the course of communicative events" (Johnston, 1985, p. 128). This movement from breaking down a task to working within whole, real, complicated activities has created a need for methodologies suited to interventions operating in the classroom or some other real communicative situation, methodologies very different from the traditional behavioural and linguistic approaches of teaching rule-knowledge and skill performance through tight situational control and gradually increasing task complexity.

This article introduces the Soviet theory of activity as a view of mental representation and suggests how it can be applied to analyzing, teaching, and generalizing communicative competence in naturalistic, functional language intervention. Scaffolding, arising from similar theoretical sources, is recommended as a way of supporting learning in such an activity-based view of language learning. Finally, the gap between interventions and objectives is discussed, and suggestions are put forward for modifying goal statements to provide a better fit with such an intervention approach.

Naturalistic Language Intervention

Naturalistic, functional language interventions, which are the focus of this article, have already been termed by some authors as "activity-based intervention" (e.g., Bricker & Cripe, 1992). The label "activity-based" appears to

derive from the emphasis on working in situ, in whole, natural activities, rather than any dependence on the theory of activity.

Activity-based Intervention

Activity-based intervention cuts across developmental domains and involves a strong focus on embedding instruction in highly motivating, age-appropriate activities and routines occurring during the child's day (Bricker & Cripe, 1992; Linder, 1993). According to Bricker and Cripe, the basic goal of activity-based intervention is, "to improve children's acquisition and use of important motor, social, affective, communication, and intellectual (e.g., problem-solving) behaviours that, in turn, are integrated into response repertoires that are generative, functional, and adaptable" (p. 10-11). Multiple targets across and within domains are addressed in single activities and reinforcement is logically-occurring and intrinsic to the activity. Activities are chosen to provide functional, naturalistic contexts: routine daily self-care activities such as dressing or snacks, child-initiated play, and planned activities, which, "should interest children and be developed in ways that children find appealing, as opposed to being designed exclusively to practice a target skill. Examples included activities such as planting seeds, acting out a song, or playing circus" (p. 45). Within these activities, individual objectives are targeted and progress is monitored using behaviour analytic methods.

Activity-based intervention subsumes a variety of techniques from both language therapy and early childhood special education. Child-directed play-based intervention such as facilitative play and focused stimulation, naturalistic hybrid interventions such as milieu teaching, pragmatically-oriented interventions all fall within this general framework (Bricker & Cripe, 1992). Although the term is generally applied to intervention with preschool children, similar principles are applied in language intervention with school-age children. Curriculum-based and collaborative interventions, as well as language intervention following whole language principles could all be considered activity-based interventions.

Activity-based interventions are widely practiced by speech-language pathologists. Focusing on presenting behaviours rather than underlying impairments, as well as use of naturalistic contexts, incidental instruction, targeting multiple goals, and emphasis on immediate functionality and meaningfulness are all common threads in current clinical practice for both preschool (Bricker & Cripe, 1992; Lahey, 1988; Linder, 1993) and school-age children (Beaumont, 1992; Gillam, 1995; Naremore, Densmore, & Harman, 1995; Norris & Hoffman, 1993; Tibbits, 1995).

The Need for New Understandings of Activity and Skill

Learning and development in this activity-based framework occur through active exploration of a carefully planned environment with social mediation from adults. The social-interactionist and cognitivist theories of Dewey, Vygotsky, and Piaget are considered the theoretical bases for this approach (Bricker & Cripe, 1992). Bricker and Cripe also cite Brown, Collins, and Duguid's (1989) notions of situated cognition and authentic activity, and the inseparability of "what is learned from how it is learned and used" (p. 32) which are not well known, but are conceptually close to theory of activity. Functional theories of language acquisition (e.g., Bates, 1976; Bates & MacWhinney, 1987; Bruner, 1983; Nelson, K., 1986; Ninio & Snow, 1996), emphasizing the effects of the social and physical context on language learning are also consistent with activity-based intervention.

While the foregoing provide theoretical rationale for adding naturalness, meaning, and functionality to language intervention, there has been little consideration of how the change in focus from skills to activity affects the analysis, support, and measurement of performance. Bricker and Cripe (1992) go beyond many authors in considering how to target and measure performance in these contexts. They provide a myriad of antecedent-behaviour-consequence and level of performance charts across behaviour domains, skills, subskills, contexts, and children, but the end result is an overwhelming sense that there is just too much — that the complexity and variability of naturalistic contexts has made traditional skills measurement and teaching unmanageably complicated. Some SLPs may, understandably, resort to very holistic, child-directed approaches, where simply participating in the activity with facilitative language models is assumed to target a variety of relevant skills. Rather than selecting between these two rather unsatisfactory avenues, we need to seek a new conception of the relationship between skills and contexts, one that can provide guidance in working within activities to develop communicative competencies.

Theory of Activity

Theory of activity offers a new view of competence within activities. This theory elevates "activity" over "skill" as the basis of development, subsuming skills within the activity package. While theory of activity is wide-ranging, aspects of the theory that pertain to language intervention include: (a) the unit of mental organization is the activity rather than the skill; (b) skilled execution of a task or activity involves accomplishment of a goal through the orchestration of many, flexibly employed and func-

tionally defined component elements; and (c) generalization of competence is expected for activities which are functionally similar rather than structurally similar.

Activity as an Internal Organizational Unit

Theory of activity is concerned with the transforming nature of work and tool use: that people think differently when they interact with the material world, achieving goals and mastering tools (Wertsch, 1981). Although the earliest elements of it appear prior to Vygotsky, in Marxist-Leninist views on human activity as a building block for thought (Wertsch, 1981), Vygotsky's work on the process of internalization of the material (and social) world is considered foundational, leading into what Soviet psychologists call the Vygotsky-Leontiev-Luria theory of activity (Zinchenko & Davydov, 1985). Theory of activity has been the organizing framework for Soviet psychology throughout the years of behaviourist rule for Western psychology. Beginning with the publication in English of *Thought and Language* (1962), Vygotsky's work and ideas have steadily gained influence in Western thought, but subsequent developments have not gained similar attention.

Following the Vygotskian idea that individual thought and language have their source within inter-individual activity, Leontiev and other proponents of the theory of activity suggest that "internal organizational units for performing a mental function arise out of practical, external, organizational units for performing that function" (Cole, 1981, p. viii). These external units are real life activities that involve, "both the individual and his or her culturally defined environment" (p. viii). These theorists take the position that mental activity not only grows out of, but reflects the structure of everyday, practical activity (Cole, 1981). According to this view, a child develops the mental grammar for subject-verb-object (SVO) requests in the course of the daily act of asking for juice. The routinized request sequence is integrally linked with the communicative intention, the concepts of "empty" and "more," and the syntactic mapping of the utterance.

Activity is composed of a number of functionally determined, hierarchically organized elements, none of which can be removed from the activity context without changing their nature and losing the integrity of the activity (Leontiev, 1981). If the SVO utterance is taught in an imitative picture description sequence outside of a typical requesting situation, it is then part of a different activity, and would accordingly not be applied spontaneously in the accustomed situation (which might explain the notorious difficulty of generalizing language teaching across structured, skill-based contexts).

Activity Components

In theory of activity, there are three levels of analysis to an activity: (a) motive and activity, (b) goal and action, and (c) conditions and operations (Leontiev, 1981). The primary, underlying element is the motive, which is the general, basic, often unconscious drive to initiate an activity, the "energizing force." Motives include hunger, curiosity, or a desire for human contact. The activity resulting from a motivation can be a simple action or a complex constellation of actions. Mentally represented activities would be abstract and generalized while the mental building blocks, external activities, are specific events, existing only until the end goal is achieved. In the juice request situation, thirst might be the motivation. The resulting actions are the steps from the initial motivation to the satisfaction of that motivation with juice.

While motivation is the propellant, goal is the attractant. Goals direct the actor's selection and orchestration of actions (Leontiev, 1981). Goals are conscious and specific. They are achieved through the actions that translate desired activity into actual activity. Each action has some subgoal but all are subsumed and organized toward the larger end goal. Actions must be carried out under certain conditions that both constrain and facilitate the achievement of goals. Enactment of the actions involves the execution of automatized operations. While actions can be considered the know-what of the activity, operations are the know-how, the heuristics of dealing with conditions arising in the activity. The goal in this case is the specific intent of obtaining a glass of juice (not water, which might also satisfy the thirst motivation, but which isn't nearly as interesting). The constraining conditions might include whether there is juice in the fridge, and the whereabouts and preoccupation of the agent, in this case, mother. The know-what actions might be knowing that mom's attention must be attracted and the need must be clearly specified, adding SVO and a "please" to the automatized know-how operations of whining and reaching towards the fridge.

Leontiev suggests that actions and operations may appear indistinguishable as steps taken toward the goal, but that they are very different in their origins, dynamics, and fate. The difference can be seen most clearly in actions involving tools, where operations have been crystallized as the material object: the goal of dividing a length of rope can be accomplished in several ways, using a variety of actions such as cutting with a knife, cutting with scissors, or tearing with teeth. The operation is the handling of each tool and so is part of the tool itself; the motion employed with a knife, how scissors are used, knowing which pair of incisors is sharpest. Operations grow out of transformations of actions through the "inclusion of one ac-

tion in another and its ensuing 'technicalization'" (p. 64).

The origin of an operation is an action -- each unconscious operation subordinated to larger goal-directed actions was originally a goal-directed, conscious action. Leontiev uses the example of learning to drive, where for the novice driver every act is an action subordinated to a goal and the many actions required are overwhelming. As competence is gained, an action is downgraded to a more automatic level, attention shifts to other, unmastered actions, and the new operation becomes incorporated into actions such as dealing with speed and road inclines. The former goal-directed action of gear shifting becomes an unconscious, almost mechanical operation, which, under normal circumstances, does not even appear to exist for the driver. The unconscious operations of dragging a request into a drawn out, repeated whine, and pointing toward the item were at one point in development intentional, planned acts, which, through many successful engagements, have become automatized and subsumed within the more conscious actions of attracting favourable attention and clearly specifying needs.

Functional Equivalence

As should be apparent from the action versus operation distinction, in which, depending on the context, one act can be either an action or an operation, elements are defined functionally rather than structurally. This also holds at the more global level of activity. Although activities can be grouped by physical, objective features, the most important feature that distinguishes one activity from another is its object or end goal. Two activities may appear very similar but occur for very different reasons and would thus involve different actions and operations. Two very differently appearing activities may be similar because they are being used to achieve a similar goal.

For example, in trying to remember a list of words, one could (among other things) use a set of external pictures or one could store them mentally. Since both of these behaviours serve the same functional role in an activity, Soviet psychologists would often be interested in pointing out the similarities and perhaps the genetic sequence of these two ways of dealing with the problem ... these functional criteria result in the fact that one of the actions involved in an activity in one situation may be considered to be an entire activity in another situation ... An activity may be carried out in a variety of ways by employing different goals (with their associated actions) under different conditions (with their associated operations) (Wertsch, 1981, p. 19).

To continue the developmental example, the child may

achieve the goal of obtaining a glass of juice through a variety of actions. Any actions that achieve the goal could be considered functionally equivalent, despite their morphological differences. So obtaining juice through verbal requesting, gesturing, or opening the fridge oneself would all be considered functionally equivalent. A flexible, goal-directed operator will be able to consider and select among an array of actions to best suit the goal and conditions at hand.

On the other hand, if the underlying motive was actually desire for human contact, with the specific goal of delaying bedtime, the ostensibly simple request for juice might have morphologically similar actions and operations, but the end goal, if recognized, might be satisfied with a cuddle and a song, rather than a glass of juice. The observant caregiver is aware that superficially similar actions can be the result of very different motivations and end-goals, and responds accordingly.

Applying the Theory of Activity to Language Intervention

Theory of activity leads directly into structuring therapy. Rather than intervening with particular, isolated "basic skills," thought to underlie many activities, activity-based interventions focus on competence within coherent, meaningful, purposeful, everyday activities. The theory of activity provides a framework for targeting and supporting language learning within such complex contexts, directing selection of activities, component elements, and objectives. (The term "goal" is part of the structure of activity, so "objective" will be used for therapy targets in this discussion.)

Theory of activity is a model of mental organization, and might allow us to infer a locus of cognitive or linguistic impairment, but the focus here, consistent with current functional views of language disorders and a focus on presenting behaviours rather than underlying impairments, is in remediating the performance disability. Theory of activity is used in structuring both our observations of performance in activities, and our expectations and support when intervening within the accomplishment of the activity. It allows us a way into the activity while retaining the activity-unit throughout assessment, goal-setting, and intervention. And then, if Vygotsky, Leontiev, and Luria are correct in their conception of mind, better "internalization" or learning may be obtained because of the consistency between the external activity arrangement and the internal structure of mind.

Analyzing and Prescribing Activities

The basis of intervention is the activity. From this per-

spective, standardized test results will provide little useful information on a student's strengths and weaknesses and how to remediate them. In addition, general information on how students are expected to perform is only part of the picture. Actual observation of student performance in specific activities is necessary. The SLP needs a good understanding of significant activities and how students successfully achieve them to determine how best to help a student with language-learning disabilities within them.

Activity is present in all stages of the intervention process, beginning with selection of significant activities or arenas of performance and observation of peers in the activities, moving to assessing the target student's performance in those activities, to determining remediation targets that are aspects of those activities, and finally working on the target student's achievement of the activities. The final section of this article will discuss a crucial bridge between assessment and intervention: writing goal statements that are consistent with an activity-based focus. The result of this approach is a coherent, theoretically-grounded activity-based intervention carrying across all stages of the intervention process.

Determining Activities and Components

The array of activities chosen are selected from the child's daily school and home life. Activities should not be contrived simply for skills targeted, rather they should have some greater significance for the participants, where actions and operations are employed to achieve some end goal. Although school activities often lack relationship to eventual real life adult competencies (Brown et al., 1989; Scribner, 1984), the protracted period children are in school and the social significance ascribed to academic success mean that "school life" can be considered "real life" by the speech-language pathologist (SLP), with activities selected from those occurring during the school day. Activity-based intervention does not preclude pull-out or contrived situations: SLPs may work with students in groups on activities based on classroom activities; they may also work with students individually practicing and coaching prior to supporting performance in actual situations within the classroom.

Preschool activities could be those suggested by Bricker and Cripe (1992): routine activities such as snack or clean-up time, child-initiated play, and planned activities such as learning about autumn leaves. Significant basic communicative activities for the young student might include story writing, retelling an event, explaining a scientific process, sequencing an activity, describing an image, responding to a teacher's questions, or conversing in a cooperative learning group. Harris-Schmidt and McNamee (1986) suggest dramatic performance, where children are

authors and actors, as a "basic activity" for the development of language and literacy. Whether planned by the SLP or spontaneously motivated by the child, the activities should be purposeful and meaningful to the participants. Determining basic activities for a particular child might involve classroom observation and discussion with the teacher and student about what is important for the student to accomplish during the day.

Once the basic activities are established, the SLP identifies the activity components. Activity components are not unvarying sets of skills and subskills, but an array of actions and operations that can be flexibly employed: competence in an *activity* involves the achievement of the *actions* and *operations* necessary to obtain the *goal* in light of the actors' *motivations* and the reigning *conditions*, along with recognition of *functional equivalence*, that a skilled participant flexibly and strategically employs multiple methods of achieving a goal.

For an activity of storywriting at Halloween, possible components are outlined in Table 1. Components that lead to success or difficulties in a particular classroom would be noted. The actual components would depend on observations of the particular child, his or her classmates, and the classroom context. The functional elements breakdown of an activity is tailored to the individual child in a particular situation, providing task analysis, individual objectives, and monitoring of progress without resorting to structural, behavioural views of skills and context.

Such an analysis provides intervention objectives: motives that need attention; goals that should be discussed; actions that need to be learned as conscious strategic choices or made more skilled and automatized, turning them into operations; and operations that need to be brought to conscious attention and modified. Intervention would target problematic components that are affecting the target student's success in the activity. Since many language-learning disordered students have multiple areas of weakness, the SLP may choose to focus on a few that can be remediated fairly quickly (e.g., learning basic story grammar structure to allow for the action of plot development) and provide compensations for other, longer term problems (e.g., using sketching to plan story ideas if the operation of writing is too laborious, McFadden, 1998; Ukrainetz, 1998).

The underlying motive is not generally of concern to the SLP unless maladaptive motivations are suspected. For older learners, with histories of academic failure and perceptions of learned helplessness, motivation may be a primary concern (Nelson, 1995). Goals may be assigned without discussion for younger children, but again, for older students, it is important that they are not only aware of, but select and determine goals to be achieved (Nelson).

Table 1. Elements of a classroom Halloween Story Writing Activity.

Motive or energizing force	<ul style="list-style-type: none"> · to please parents and teachers · to be considered entertaining 	
Specific goal	<ul style="list-style-type: none"> · to tell a well-formed, correctly written, entertaining, scary (but in good taste) story appropriate to the age-level of the student 	
<ul style="list-style-type: none"> · generally assigned by SLP or teacher · accepted and understood by the students 	<ul style="list-style-type: none"> · thinking about how the scary idea could happen in a different way from the story read · remembering to begin the story with setting information · deciding on the problem · using previously discussed adjectives to develop the scary atmosphere · using words other than "and" to link sentences · remembering not to worry about spelling in the first draft 	
Actions	<ul style="list-style-type: none"> · conscious, goal-directed steps in the process · these are only a sampling of those involved 	<ul style="list-style-type: none"> · In the classroom · limited time · model story presented · vocabulary words previously discussed · interesting topic · support available from teacher & SLP · expecting adult to explain activity at least twice · knowing the spelling of many words and how to sound out others · using appropriate basic grammar and vocabulary · layout on the paper: title, double spacing, name and date · the writing process expected in this classroom · what are considered funny or scary ideas by your peers · web, outline, or sketch ideas · use best guess on spelling, ask peers, or refer to the dictionary · several problems or just a problem and resolution · multiple drafts or only a few
Conditions	<ul style="list-style-type: none"> · social, emotional, physical, and discourse supports and constraints 	
Operations	<ul style="list-style-type: none"> · parts that are automatized · what the child already does easily, without thought 	
Functional Equivalence	<ul style="list-style-type: none"> · strategic selection of appropriate actions given the reigning conditions 	

With assigned goals, the SLP should still determine whether the child recognizes and accepts the goal or whether personal goals are concordant with the assigned goal. The goal-directed actions are where the intervention will focus, but how these will take shape will be based on the conditions existing and previously learned opera-

tions. In some cases, operations may also be targeted for change, but learning can be expected to be slower — it takes time to make actions skilled and automatized, such as making a struggling reader into a skilled reader, or to change maladaptive operations that already are automatic, such as avoiding reading whenever possible.

Generalization between Activities

Skills are taught within their contexts of use, obviating the need for generalization from the therapy room to daily life activities. However, an activity-based approach may appear to implicate the need to teach each and every significant daily activity (perhaps everyday since no context is identical!). But generalization from one situation to another is still expected within this perspective.

Contextualized approaches including theory of activity do not claim that, "cognitive activities are completely specific to the episode in which they were originally learned or applied. In order to function, people must be able to generalize some aspects of knowledge and skills to new situations" (Rogoff, 1984, p. 3). Instead, the assumption of broad generality is removed, and the focus is moved up to the activity level instead of the skill level. Generalization will occur between similar activities, not individual skills. Furthermore, similar activities are determined functionally: the participants' interpretation of the events, their goals, and the conditions of the activity are considered. Similarity in actions and operations are not the basis for generalization; rather, it is similarity in goals and orchestrations of actions and operations that determine whether learning will transfer. The actions involved in the Halloween storywriting, such as using adjectives to develop the scary situation, would be expected to transfer to other storywriting situations, particularly those focused on evoking emotions. Adjective use would not be expected to transfer as a "linguistic skill" to an activity with very different goal such as using adjectives to describe the features of leaves in a science project.

Scaffolding as Learner Support

The theory of activity provides a way of breaking down a meaningful, purposeful, complex activity into component parts while still recognizing the functional interrelationships of the parts. A method of working with the parts, of reducing the number and complexity of elements, that is consistent with this integrity of activity is scaffolding.

Scaffolding as an Avenue to Internalizing Activities

According to a social-interactionist view of development, learning occurs through internalization of the social world, supported through scaffolding by more competent others.

Vygotsky (1978) proposed that the young child's consciousness and thought processes are built during daily life activities with more competent members of the culture through observation, imitation, guided participation, and semiotic mediation (using language and other signs as tools to acquire, change, and organize symbolic thought). Vygotsky proposed a range of performance, called the zone of proximal development, which provides a window on both the process of internalization and the soon-to-be-internalized workings of the child's mind (Wertsch, 1985). The lower end of the zone is the child's level of independent performance and the upper end is what the child can achieve with maximal adult support. The support provided to the child is a temporary consciousness: the adult is thinking for the child while together they accomplish an activity. Eventually, through the child's repeated reception of the adults' verbal and nonverbal mediation, and the gradual withdrawal of adult control, the adult's ways of approaching a task become the child's ways, the adults' questioning and regulation of the child become the child's own self-questioning and self-regulation (Vygotsky, 1978). In this way, the social world is internalized as a child's thoughts through the assisted participation or scaffolding of the child in the event.

Caregivers and workers in many cultures use scaffolding techniques to bring children and apprentices into competence. The term scaffolding was first applied by Wood, Bruner, and Ross (1976) in describing the process of teaching/learning occurring during block construction tutoring sessions with three to five year olds. Bruner (1983) also used the term in explaining parental roles in children's learning. Western investigators interested in how children learn and are taught in everyday situations have examined scaffolding in contexts such as routine games and daily activities (e.g., Bruner, 1983; Rogoff, Mistry, Goncu, & Mosier, 1993), parent-child bookreading (Ninio & Bruner, 1977; Scheiffelin & Cochran-Smith, 1984; Snow, 1983), tutoring (Rogoff & Gardner, 1984; Wertsch & Hickmann, 1987), and apprenticeships (Greenfield, 1984). Despite the use of practices such as observation and imitation, the child is viewed as an active learner. The child's situation definition and task focus must be considered to achieve successful transfer of skills and mental processes. Imitation does not involve "blind matching behavior" (Wood et al., 1976, p. 99), rather, in successful scaffolding:

the child becomes 'aware' of the functional significance of the behaviours he has been performing under the guidance of an adult, in the sense of grasping how these behaviours constitute appropriate means to reach a particular goal. (Wertsch & Hickmann, 1987, p. 262)

Scaffolding Within Activity-Based Interventions

Scaffolding is not a new method of supporting learning -- parents and tutors have always provide graduated support within complex activities. Some of the most child-oriented intervention approaches such as the Hanen Program (Manolson, 1983), which are modelled on Western parent-child interactions, structure support through scaffolding, but it is a relatively new notion in the clinical realm of hierarchical training and sequential objectives.

Scaffolding as a way of supporting learning is fundamentally different from the traditional method of shaping occurring in structured, skill-based language interventions. In shaping, the learner's task is initially simplified, with gradually increasing levels of difficulty, and the level of support provided by the clinician held fairly constant (Greenfield, 1984). In scaffolding, the learner's task is held constant, but the level of support provided by the SLP gradually decreases. Variables are eliminated by having the more competent other, in this case the SLP, carry out some task aspects until the learner can achieve the task independently. Scaffolding into competence means that the learner can achieve functional goals even when his or her competence is extremely limited. All children can participate in daily life activities with support of a more competent other, in contrast to shaping of discrete skills, where, "a whole semester, or even a school year, may pass with the student acquiring only one or two language-processing skills against a sea of overwhelming language demands" (Nelson, 1995, p. 378). Scaffolding is not intended to be permanent, rather it is a temporary source of support, enabling "the novice to carry out new tasks while learning strategies and patterns that will eventually make it possible to carry out similar tasks without external support" (Applebee & Langer, 1983, p. 169).

Scaffolding within activity-based intervention, where learning is embedded in its context of use, can be viewed as a situation of communicative apprenticeship (shifting terms slightly from Brown et al.'s 1989 cognitive apprenticeship): in apprenticeships, learners such as a mechanic apprentice or a medical intern operate on real cars and real patients prior to independent competence. Initially, the novice observes and performs minor elements while the teacher models and performs most of the work. As the novice gains knowledge and competence, increasingly greater responsibilities are handed over. In this way, cars

and patients are successfully repaired and the learner moves from novice to competent performer. Although the end point for all language intervention is competence in daily life activities, in activity-based intervention, competence in daily life activities occurs throughout the dependence to independence continuum.

Scaffolding Methods

Scaffolding is not a single technique, rather it is a method of flexibly supporting a child's performance to enable successful completion of the activity. Scaffolding can involve physical or structural support as well as social support. The distance between teacher and learner as well as their interactional patterns vary across cultures, communities, and situations (Wertsch & Hickmann, 1987). Despite the variation, all scaffolding involves:

an interactive system of exchange in which the tutor operates with an implicit theory of the learner's acts in order to recruit his attention, reduces degrees of freedom in the task to manageable limits, maintains "direction" in the problem solving, marks critical features, controls frustration and demonstrates solutions when the learner can recognize them. (Wood et al., 1976, p. 99)

Modeling and imitation are frequent methods of scaffolding, but possibilities are limited only by creativity and experience. Articles are appearing discussing how SLPs can provide the support needed by children with language impairment within this model (Duchan, 1995; Kirchner, 1991; Nelson, 1995; Olswang, Bain, Rosendahl, Oblak, & Smith, 1986; Schneider & Watkins, 1996; Vigil & van Kleeck, 1996). Applebee and Langer (1983) report instructional scaffolding in whole-class settings involving both direct interaction with individual students and support of group-oriented instruction by methods such as structuring lessons, framing exercises and textbook material, and focusing comments and discussions. Support does not have to be from an adult, it can be a buddy system, peer tutoring or cooperative learning. It can be organizer notebooks, increased time to accomplish assignments, or having a quiet place to work in the classroom. During language intervention activities, support can be as varied as picture sequences, role play, or predictable texts. Complex discourse forms such as a compare/contrast essay can be scaffolded with a discourse frame such as in Table 2. Children compose their discourse using the support. In subsequent activities, the frame may be presented, then removed; then only verbal reminders given, and then ultimately not presented at all. The key is repeated mean-

Table 2. Example of a Comparison-Contrast Guide.

Dimension	Object 1	Object 2
Shape:		
Size:		
Color:		
Texture:		
Comparison vocabulary:	similar to, just like, like, same as	
Contrast vocabulary:	unlike, different, in contrast	

Note. Adapted from Stewart (1985).

ingful activities in which the child displays increasingly independent performance.

In a scaffolding approach to intervention, progress is not measured by the complexity or correctness of the task achieved. Consistent with an intervention beginning with real life, complex activities, progress is determined by degree of independence within the whole activity. All children will successfully participate in daily life activities at all points in intervention, but they will have varying degrees of support. While ability grouping clearly simplifies classroom management, if heterogeneous groupings and inclusion are desired ends, scaffolding allows for differing skill levels within single activities. Some children will need considerable guidance and modeling from adults or peers while others will be able to accomplish the same activity with only occasional reminders. Although some children may not achieve desired independence levels, the consequences with the traditional shaping approach are more severe because the child is limited to adult-contrived components of tasks. In contrast, with scaffolding, the child is limited to participating in real life activities with some sort of aid. Since we all live in a social world and are frequently helped by others or by our own self-organizing props to accomplish our goals, the latter endpoint seems preferable.

Writing Activity-Based Objectives

The literature increasingly recommends contextualized, functional activity-based intervention, and is beginning to recognize scaffolding as a way of language-learning support within this approach to intervention (e.g., Beaumont, 1992; Kirchner, 1991; Nelson, N., 1995; Paul, 1995). In-

terestingly though, there is a marked lack of parallel reformulation of therapy plans and goal statements, creating a clash between on-paper accountability and actual practice. In this section, possibilities are considered for modifying goal statements to reflect how therapy is supposedly being done.

Considering Current Objectives

While intervention is often already carried out within meaningful daily activities, when clinicians write out goals, objectives, and program steps, they may fall back on hierarchically organized objectives intended to shape the child into eventual functional situations. Table 3 shows an example of such a situation: the overall goal is clearly functional and activity-based, but the steps suggest intermedi-

Table 3. A preschool skill-based shaping sequence.

Goal	Child assembles toys and/or objects that require putting pieces together.
Objective	Child fits a variety of shapes into corresponding spaces.
Program Step One	Child removes a variety of shapes from corresponding spaces.
Program Step Two	Child places round objects into corresponding spaces.

Note: from Bricker and Cripe (1992, p. 147).

ate steps devoid of context or meaning for the child: "child places round objects into corresponding spaces". Table 4 is a version that adds both a goal-directed activity component and a scaffolding component to the objectives.

Typically, several objectives from different language domains (e.g., increase use of adjectives, increase use of complex sentences, improve sequencing skills) are listed. If activities are mentioned, they are often different activities for each objective. Within a particular objective, substeps, or "interim objectives" (Naremore et al., 1995) also deal with different activities. Naremore et al. present a sequence of objectives that deal with the functional language skill of communicative reference, and provide specific activities in which to work on the skill. There is clearly a shaping sequence, with a distinct jump in difficulty between the third and final steps. In addition, quite different activities are used, with clearly different goals for the speaker (Table 5). Step Two demands clear referential communication in a situation where explicitness is

Table 4. A preschool activity-based scaffolding sequence.

Goal	Child assembles toys and/or objects that require putting pieces together.
Objective	To build a puzzle (goal), child will select appropriate pieces, orient, and fit them (actions) into a wooden, 6-piece frame independently (conditions).
Program Step One	After observing the adult build the puzzle, the child removes a variety of shapes from corresponding spaces in readiness for the adult to build it again.
Program Step Two	Child places puzzle pieces into the puzzle with position orientation aid from the adult.

Table 5. A school-age skill-based, shaping sequence.

Interim Objective One	George will correctly evaluate the communication behavior of speaker and listener in a referential communication task presented on videotape.
Interim Objective Two	George will provide sufficient information to enable a listener to distinguish among possible referents in a referential communication task in which he is the speaker.
Interim Objective Three	George will ask for further information in the face of ambiguous messages when he functions as the listener in a referential communication task.
Interim Objective Four	George will use his referential communication skills in spontaneous conversation with his peers.

Note: from Naremore et al. (1995, p. 97)

the goal, akin perhaps to a science experiment where one person is directing another, while Step Four involves social conversation, where the goal is more often maintaining social relations rather than explicitness of reference. If skills are learned in context, then one would expect difficulty transferring the skills acquired in the earlier contexts to the very different context of the final step.

Moving to Activity-based Objectives

It is difficult to break up a task into simpler elements while retaining the integrity of the task and the link between skill and activity. Theory of activity and scaffolding provide a way to do this. To reflect theory of activity and scaffolding, goals should (a) occur within functionally similar naturalistic activities throughout the hierarchy of subgoals; (b) show decreasing support rather than increasing task complexity; and (c) target goals, actions, or operations involved in successful completion of the activity. A horizontal goal plan would be consistent with such an approach to intervention, recognizing both the complexity and the richness of a daily life activity and the active, flexible participation of both learner and instructor.

As an example, for an overall, real communicative objective of "improved oral report of personally experienced events," an activity goal and actions at several levels of language might be chosen based on classroom observation (Table 6). Rather than providing a list of unrelated objectives, the objectives can work towards achieving a single functional activity. Instead of a half-dozen skill objectives supposedly independent of context, a single context is targeted, with a half-dozen orchestrated skills coming together to provide activity mastery. The activity is a significant one, which occurs frequently in the student's daily life and which is functionally similar, allowing generalization, to other daily life activities, such as report writing. Generalization of component skills would not be expected

to the topically similar, but functionally different conversation about the field trip with friends outside the classroom.

Activities are complex, with many possible actions and operations. Students with language learning disabilities may be deficient in many aspects. One way of structuring targets could be along traditional linguistic and communicative divisions such as the following: (a) for pragmatics, the goal of providing new information; (b) for discourse, the action of sequencing; (c) for grammar, the action of noun phrase elaboration; (d) for lexicon, the action of using specific bird vocabulary; (e) for wordfinding, reducing the maladaptive operation of overuse of vague vocabulary; and (f) for communicative competence, the strategic orchestration of activity components.

Scaffolding Objectives and Learning Support

The substeps hierarchy would reflect scaffolding rather than shaping, with task complexity held constant and decreasing levels of support provided over repeated performance opportunities (Table 7). The opportunities would be in functionally equivalent real or naturalistic situations. The scaffolded support for this report could be fairly heavy initially: advance discussion and practice followed by picture cues and prompting every two to three actions from a knowledgeable adult. The report would be given again to another class, or another report would follow fairly soon after, with decreased support. By the fifth opportunity to give a verbal report, the degree of independence achievable

by a typical child of that age would be expected (e.g., only advance discussion). If the SLP was aware that an oral report would be delivered in the class in two weeks, this scaffolded "preteaching" would allow the child to achieve more typical levels of independence by the time of the class report.

In addition to the preplanned scaffolds, the support would flexibly respond to the child's needs for pragmatic, discourse, grammatical, or lexical support, with decreasing support over time. For discourse support, comments would focus on the sequence, as described above. For pragmatic support, comments would deal with the need for an uninformed audience, "Why would it be better to present to the second grade

Table 6. Example of Objectives consistent with Activity-Based Intervention and Scaffolding.

Objective	Activity Component	Language Component	Activity
Objective One	Component	Component	Sarah will give an oral report of a class field trip to a bird sanctuary that will include:
Objective Two	Goal	Pragmatics	choosing to provide new, useful information to peers who did not attend the field trip rather than old, known information to classmates
Objective Three	Action	Discourse	at least four actions in sequential order (e.g., arriving at the sanctuary, hearing the naturalist's introduction, viewing the birds, discussing sightings over lunch)
Objective Four	Action	Grammar	at least two postmodified noun phrases (e.g., a student with binoculars saw a warbler with yellow breast feathers)
Objective Five	Action	Lexicon	at least five different bird labels (e.g., eagle, warbler, heron, wood duck, loon)
Objective Six	Operation	Wordfinding	reducing the use of vague vocabulary (e.g., thing, stuff) to fewer than three occurrences.
Objective Seven	Functional equivalence	Communicative competence	will modify actions to fit changing audience, time, or format needs.

Table 7. Example of Graduated Steps for Goal of Providing Oral Reports of Events.

Step One	<ul style="list-style-type: none"> · advance discussion · practice · picture cues · prompting every two to three actions from a knowledgeable adult (e.g., What did we do when we got off the bus?)
Step Two	<ul style="list-style-type: none"> · advance discussion · practice · picture cues · prompting every two to three actions from a naive adult (e.g., Where did you go?)
Step Three	<ul style="list-style-type: none"> · advance discussion · practice · picture cues
Step Four	<ul style="list-style-type: none"> · advance discussion · practice
Step Five	<ul style="list-style-type: none"> · advance discussion only <p>** Expected level of independence achieved **</p>

class than to your own?" For grammatical support, comments might focus on increased detail such as "Which boy saw the warbler?" "Oh, the boy with the binoculars." For lexical and wordfinding support, comments might deal with specific vocabulary: "What kind of bird was it?" Oh, a warbler." Finally, for support of functional flexibility, discussions would deal with changes in audience, time allotments, or dealing with questions during the presentation. In this way, language objectives will reflect scaffolding and the child's learning of multiple aspects of language, all embedded within activity-based intervention.

Conclusion

Social-interactionist views on language learning and language intervention have been increasingly evident in recent years. Many investigators and clinicians support functional, naturalistic intervention, where the child is an active learner and the social environment provides both the language to be internalized and the support for the internalization process. Techniques for supporting language learning are emerging.

Building on the Vygotskian idea of internalization of the outside world as inner thought and language, the Soviet theory of activity provides a valuable perspective on the notion of activity, rather than skill, as a unit of mental representation. By considering activity as an integral, functionally organized unit, new possibilities for targeting language learning in complex, daily life activities appear. Scaffolding, already emerging as a way of supporting language learning in intervention, is a key element in carrying out intervention based on theory of activity. Together, theory of activity and scaffolding lead to a coherent framework for providing activity-based assessment, goal-writing, and intervention.

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