Language Activities of Daily Living – Sterling Editions Background, Rationale, and Use in Instructional Programs

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Introduction

Ever since Laureate published its first ground-breaking software program, *First Words*, in 1982, the usefulness of computers in promoting vocabulary development has been the subject of much research and analysis. Consequently, myriad studies have been published providing evidence of the effectiveness of using computer technology in this area of instruction (e.g., Bennett, Arvidson, & Giorgetti, 2004; Blachowicz & Obrochta, 2005; Boling, Martin, & Martin, 2002; Coleman-Martin, Heller, Cihak, & Irvine, 2005; Henning & Pickette, 2000; Hetzroni & Shalem, 2005; Higgins & Hess, 1998; Loucky, 2007; Manzo, Manzo, & Thomas, 2006; Shimpi & Huttenlocher, 2007; Teal, 2003; Wepner & Cotter, 2002; Wood, 2001). Also during the years since Laureate's first programs appeared, computers have found a home in nearly every classroom, rehabilitation center, speech language pathologist's office, and home. Continuing advances in computer technology have made it possible to add more stimulus material and vastly improve the sound and graphics used in language development software. Progress in linguistic theory and language research has informed the development of more effective instructional strategies. These advancements have led to many updates to Laureate's applications over the years. Nevertheless, the fundamentals of the curriculum on which these programs are based have "withstood the test of time" and continue to provide an appropriate and effective foundation for contemporary language development software.

The original *Language Activities of Daily Living* (*LADL*) series was published in 1993, at a time when the notion of using computers to teach "functional" or "daily living" skills was still in its infancy. Since then, of course, the use of instructional software to help people to become more proficient at tasks and activities that increase functional independence has burgeoned. At the same time, the effectiveness of such programs has been subjected to a great deal of research and thoroughly reviewed in the literature. If there is a consensus that can be said to emerge from this work, it is that the application of computer programs targeting an individual's ability to function more independently within his or her home, school, or community, can be a very effective and valuable strategy (Ayres & Langone, 2002; Ayres, Langone, Boon, & Norman, 2006; Davies, Stock, & Wehmeyer, 2003; Hutcherson, Langone, Ayres, & Clees, 2004; Kennedy, LaPlante, Mitchell, & Kaye, 1997; Kent & Rakestraw, 1994; Langone, Clees, Rieber, & Matzko, 2003; Langone & Mechling, 2000; Mechling, 2004; Mechling & Cronin, 2006; Mechling, Gast, & Barthold, 2003; Mechling, Pridgen, & Cronin, 2005; Mohler, 1998; Shimizu & McDonald, 2006; Sigafoos, O'Reilly, Cannella, et al., 2005; Simpson, Langone, & Ayres, 2004).

The original *LADL* series continues to be a valuable and highly effective tool in the development of functional language skills amongst children and adults with developmental disabilities. The educational context of this chapter and the references cited in the original monograph remain relevant to this day, and are included here along with more contemporary research that supports the methodologies used in the original design. Given advances in technology over recent years, however, it has been possible for computer-based instruction to become an even more effective tool. A variety of interface options, for example, make it possible for almost anyone to use a computer. With the impressive processing speed and quantity of memory in even the most economical of today's computers, the sophistication of software in terms of depth of content, curriculum control, and individualized lesson delivery, is immeasurable as compared to the early days of computer instruction. This also has led to graphics capabilities which allow programs to offer remarkably detailed, crisp, vibrant visual displays.

Given so many advances in the technology, and considering that language is a dynamic, ever changing entity, Laureate has given the *LADL* series a complete overhaul for this *Sterling Edition*. While much of the curricular design remains the same, the vocabulary has been brought up to date (e.g., a DVD player has replaced the VHS deck) and many new items have been added. Visually, the updated "scenes" are amazing. The realism of the state-of-the-art graphics makes the *LADL* series all the more effective for training vocabulary in realistic settings. The series also now features an *Optimized Intervention*® system designed to monitor a user's progress and use this information to present the *LADL* curriculum in the most efficient and effective manner.

Background

The *Language Activities of Daily Living* (*LADL*) series consists of three instructional programs designed to help children and adults with severe communication impairments understand and express the language encountered during daily routines. The term "functional communication skills" refers to the ability to understand and express the language necessary to perform everyday activi-

ties (Calculator, 1988; Halle, 1982). The content and design of the *LADL* series is based on the language requirements of independent living skills. Specifically, it contains the language of activities of daily living within the home, community, and school. Each program has eight different activities designed to introduce, train, and test understanding of the names and functions or descriptions associated with items, places, and people commonly encountered in familiar settings. All activities can be carried out within each of the six scenes in each program. *My House: LADL* covers the language associated with scenes depicting a bathroom, bedroom, dining room, kitchen, living room, and laundry room. Scenes in *My Town: LADL* include a city, dentist's office, doctor's office, park, restaurant, and suburban neighborhood. In *My School: LADL*, a cafeteria, classroom, gym, library, main entrance, and music room are shown.

The activities of the *LADL* series cover many skills that have been identified as necessary for meaningful, acceptable independent living. The value of pragmatic language training is evidenced by studies showing an increase in functional independence and a decrease in "learned helplessness tendencies" in those individuals receiving such training (Carr & Durand, 1985; Halle, 1982; Keogh & Reichle, 1985).

The language skills addressed in the *LADL* series commonly emerge in typically developing children at very young ages. For example, one language emergence inventory indicates that children are able to recognize objects according to their label by nine months of age and can demonstrate an understanding of an object's function by 27 to 30 months (Bzoch & League, 1972). These two skills are targeted in the *LADL* series by asking the student to identify common items, places, and people in household, community, and school settings by name and by function or description. Given this approach, it is safe to assume that this type of training is appropriate for anyone with the language skills of a 30-month-old. Of course, once it is evident that an individual has a core vocabulary, or has demonstrated awareness that oral-linguistic symbols (words) have corresponding real-life meanings, vocabulary training can take place within a variety of formats. Given the relative importance of the language of activities of daily living, it is quite natural to focus on teaching these words and their associated functions or descriptions to individuals who are low functioning.

Description of *LADL: My House, My School, and My Town*

There are six scenes in each *LADL* program. The scenes in *My House: LADL* and *My Town: LADL* are not age-specific and could easily represent the home and community settings of either a child or an adult. *My School: LADL* is appropriate for students of any age. Each scene is depicted in clear, concise, full-screen color computer graphics. They are proportionally accurate and stocked with common objects typically found in each setting. There are between 20-30 identifiable items per scene with over 140 items in each program. After selecting a particular scene or scenes in which to work, the teacher or clinician can select a subset of items to target. For example, a lesson in the *My House* bathroom scene can be set to focus on just four objects (e.g., toothbrush, toothpaste, toilet & sink), or all 26 bathroom items.

The vocabulary included in these programs was carefully selected based on a variety of independent living skills inventories (Brown et al., 1976; Rogers-Warren & Warren, 1980; Skills to Achieve Independent Living (SAIL), 1979; Wehman, Renzaglia & Bates, 1985). The pictures and words in *My House* represent very basic skills such as toileting, as well as more advanced skills such as ironing. All items depicted in the program are essential, however, to achieving functional independence at home. Similarly, the vocabulary items selected for *My Town: LADL* are associated with achieving functional independence in settings in the community, and those in *My School: LADL* are important to achieving functional independence in a typical school setting.

There are eight activity options in each *LADL* program:

Optimized Intervention -Training by Name
Optimized Intervention -Training by Function
Discover Names
Discover Functions
Identify Names
Identify Functions
Test Names
Test Functions

***Optimized Intervention*®**. The first two of the activities listed employ Laureate's *Optimized Intervention* (*OI*) technology, and in most circumstances will provide the most efficient and effective means to teach the *LADL* curriculum. These are *OI*-Training by Name and *OI*-Training by Function. *Optimized Intervention* increases the efficiency of training by keeping the focus on material that has not yet been mastered, and by providing an appropriate level of instructional support for each item on each trial. This in turn can be expected to lead to faster and more successful learning, and to more effectively maintain student interest.

When *Optimized Intervention* is initiated, the program presents the first scene and begins training. Each item name or function is introduced with antecedent instruction, one at a time, and the student is then asked to identify the associated item. If the student does not correctly identify an item on the first try, instructional support is increased. For example, if the item name or description had been presented with antecedent instruction but no cueing to the correct response, cueing will be added on the next trial with that item. If on the other hand the student does correctly identify an item on the first try, instructional support will be reduced; the next time the student will be asked to identify the item without antecedent instruction. Instructional support is increased or decreased in this manner until the student can, without antecedent instruction or cueing, identify the item associated with a name or function. Once the student can identify an item reliably, the item is removed from training and will appear in student reports as "Mastered during Training".

Discover Names/Functions. Two other activities allow the student to explore items freely within and across scenes (unless

items or scenes are deselected). In Discover Names, the user simply selects an item and the computer "speaks" its name in the context of a short carrier phrase. In Discover Functions, the user selects an item and the computer "speaks" its name and function or description.

Identify Names/Functions. Two additional activities can be used to teach the *LADL* curriculum using a fixed level of instructional support. Choose Identify Names or Identify Functions to have the computer verbally prompt the student to find items according to their name or their function/description. The three fixed training levels feature antecedent instruction and cueing to the correct response (Beginning Training), antecedent instruction only (Intermediate Training), or no instructional support before or during the trial (Advanced Training). Training will continue until the student has been asked to identify every item in a scene, and then will move to the next scene.

Instructional feedback is always provided during training activities. When the student responds correctly, the narrator acknowledges the correct response ("Good!") and instructional feedback is provided. If the student does not respond correctly, the correct item is cued and the question is repeated. A correct response on the second try elicits the same feedback as a correct response on the first try, but the trial is not counted as correct. If there is a second incorrect response, the item is again cued and the instructional sentence is repeated.

Test Names/Functions. Finally, two other activities provide a means to evaluate a student's knowledge; e.g., before and/or after using the program. When Test Names or Test Functions is selected, the program asks the student to identify each item in a scene. The student is given only one opportunity to respond. No instructional support or feedback is provided. After one trial with each item, the program automatically moves on to the next scene and continues (unless only one scene is selected). Testing ends after all items selected in all scenes selected have been tested.

In terms of order of difficulty or sequence of training, the Discovery activities are designed to be open-ended, less structured exercises. The training and testing activities follow a question-response format and are appropriate for assessing and teaching functional language skills. During typical development one would expect a child to first be able to identify an item based on its name before being able to identify it according to its function or description (Bzoch & League, 1972; Crnic & Pym, 1979). It follows that discovering and identifying objects by name should usually be undertaken before working with functions and descriptions. Within each activity, lessons can vary in difficulty by adjusting the number of items included in the lesson, and by adjusting the level of instructional support in the Identification activities.

Operational Options

The *LADL* series offers many operational options which allow the educator or clinician to customize the lesson for each user. These features make each program useful for children and adults in many settings as they adjust the program's difficulty level and access requirements (Eisner, 1986). This flexibility in operation makes each program effective for individuals with a variety of disabilities and range of severity, in a variety of settings. Specifically, in addition to selecting the appropriate activity, scenes, and vocabulary, the educator or clinician can change the program's interface options according to the particular needs and abilities of the current user. Interface options enable the user to access the computer with a mouse, a touch-sensitive screen, the keyboard, a single switch, or a two-switch interface. The Response Time setting provides for adjusting the length of time that the computer will wait for a response before reprompting. If the Scanning option is selected, the Scan Delay can be made longer or shorter according to the scanning abilities of the user. There are also three different scanning modes: With Linear Scanning, the highlight moves automatically from object to object. An object is selected when you press the return key, space bar, click the mouse, touch the surface of a touch-sensitive screen, or provide a switch input. With Single Switch Step Scanning, the highlight moves from one object to another each time you activate one of the above-mentioned interface input options. After a designated amount of time with no input, the object is selected. During Two Switch Step Scanning, the scan indicator advances one step at a time for each activation of one switch. A selection is made by activating the second switch when the scan indicator is on the desired response choice.

Implementation Suggestions

Functional language training, like any training, should be done in a logical and systematic manner (Halle, 1982; Kent, 1984; Spellman, DeBriere, Jarboe, Campbell, & Harris, 1978; Wehman et al., 1985). The suggestions made here should help increase the effectiveness of the programs.

Before commencing training with the *LADL* series, an assessment should be conducted to determine an individual's current functional skill level and a statement of needs should be generated which prioritizes skills to be trained (Snell, 1981). This can be accomplished through informal observation, using commercially available inventories, or using the *LADL* series. Upon implementation of the programs, the educator or clinician should make efforts to use realistic materials and natural environments in conjunction with the computer and software. Cross-training, or using several different learning environments, will also encourage use of the vocabulary in a variety of settings. If you are training language related to the kitchen, for example, supplement the computer applications with actual kitchen objects. If you are working with the

vocabulary of a park or playground, arrange to visit one. You can also print out copies of the training scenes from the Program Settings menu (click on the "Select Scenes & Vocabulary" button on the navigation bar, then click on "Print Scenes"). You can use the scene printouts while walking through an actual setting, and associate the pictured items with real items. While the increased motivation and structured environment of the computer have positive effects on learning, it is imperative to encourage use of functional language in real-life settings.

As mentioned earlier, it is wise to start with activities associated with item names before working with the item function or description activities. This approach will reduce the likelihood of confusion by introducing concepts without necessary prerequisite skills (Kent, 1984). The Discovery activities are designed for open-ended exploration of language. They can be used to encourage the use of verbalizations, gestures, hand signs, pictures, etc., to facilitate the communication process. The Identification activities are better suited for individual practice and reinforcement of the receptive language skills. The most successful applications of the *LADL* series have occurred when the sessions were rich with communication between the educator and student.

Different Applications of the *LADL* Series

A wide variety of persons with communication disorders can benefit from using the *LADL* program series. Children with significant language disorders, regardless of handicapping condition, first need to establish a core vocabulary in order to grasp the concept that oral-linguistic symbols, or words, have corresponding meanings. Laureate's Early Vocabulary Development Series (*First Words, First Words II, and First Verbs*) is designed to establish these prerequisite language skills. Once a core early vocabulary is mastered, further vocabulary training can be approached from a variety of perspectives. The language training provided in the *LADL* series can lead to considerable progress when a focus on functional language is chosen. The *LADL* series is also an ideal set of programs to meet the needs of adults with developmental disabilities needing remediation in functional communication. With an increased level of independence, these people will require less staff care and will make an easier assimilation into the community (Crnic & Pym, 1979; Shane et al., 1982).

Individuals with Autism Spectrum Disorders (ASD) can benefit from exposure to the vocabulary and the function or description of objects via computer. Many children and adults with ASD will tolerate one-on-one instruction via a computer when they won't engage in a human tutorial dyad. The language skills of individuals with ASD have been noted to improve through computer-assisted instruction when other traditional methodologies have failed.

Impaired communication is often one of the most devastating results of stroke or Traumatic Brain Injury (TBI). Individuals recovering from such conditions are typically in need of cognitive and language retraining, especially those in early stages of rehabilitation. "Disoriented" is how their language skills are often described. Because of the vital need for structure and stimulus control, computer-assisted training is highly effective for TBI patients. While rehabilitation can be a long, exhausting road, most specialists agree that their first objective is to achieve functional independence (Hagen, 1984). The *LADL* series can be used to retrain the language necessary to help a recovering patient become self-sufficient within his/her own home and community. Because the computer allows the clinician to control the vocabulary, instructional support, and stimuli, the individual is much less likely to experience frustration or stimulus overload. These same factors have led to the use of the *LADL* series with persons suffering from Alzheimer's disease. The debilitating memory deficits associated with the disease can be addressed with the program in order to maintain independence with daily activities for as long as possible.

The *LADL* series has also been found very useful in teaching English as a Second Language. The functional nature of the programs make them equally appropriate for children and adults for whom English is not their native language.

The physical limitations of those with orthopedic impairments have often excluded them from activities that require mobility or dexterity. Through proper accessing techniques, a computer can provide sufficient stimulation for language training. Like all Laureate programs, operational features of the *LADL* series allow for a variety of access options. The programs have been designed to work with input from the keyboard, mouse, or a touch-sensitive screen. They can also work with a single or dual switch. For individuals with direct selection capabilities, the touch-sensitive screen provides direct, immediate feedback. Given accurate switch activation abilities, even individuals with severe physical impairments can access the programs. This means that they too can reap the benefits of using these language enhancement programs (Goosens & Kraat, 1985).

Summary

The ultimate goal of speech-language pathologists and special educators is to help their students and clients become communicatively competent. This means we must help them acquire language forms for communication and then encourage them to apply their knowledge in appropriate environmental contexts. *My House: LADL*, *My Town: LADL*, and *My School: LADL* can help in developing active use of the important vocabulary of household, community, and school items and their functions or descriptions. With these programs, we can help our clients reach the goal of becoming more independent in as integrated an environment as

possible. The *LADL* series can be an essential tool in meeting the challenge of developing independence for our clients. We hope this revised Sterling Edition of the series will prove to be even more useful, helpful, and effective.

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