

CITATION

Erhardt, R. P. (2014) The process of creating a learning-teaching style assessment: a checklist for documenting observations and teaching strategies. *Innovative Teaching*, 3, 11.

The process of creating a learning-teaching style assessment: a checklist for documenting observations and teaching strategies¹

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Abstract

Summary.—This paper describes the process of creating an observational assessment designed to identify learning styles of individual children, help teachers, therapists, and parents select optimal strategies for teaching new skills in schools, clinics, and home environments, and evaluate results of the selected intervention strategies to either maintain or modify them. The checklist is organized into sections of learner styles (Visual, Auditory, and Tactile/Kinesthetic), each with two subsections (Behavior Characteristics Observed in School, Clinic, and/or Home Contexts, and Teaching Strategies Recommended). The final section, Interpretation and Recommendations, includes the analyses of results, based on calculation of percentages to indicate strongest learning styles, or to detect Multi-Sensory learners. Planning of a field-test study is described.

The assessment and teaching of 21st century skills is an international project organized in the United Kingdom by the Centre for Research and Practice. Its goal is to provide teachers with information that will guide them to teach the skills required for students and workers to function effectively in a world where human performance requires increasingly sophisticated and complex problem-solving and coordinating skills, such as creativity, innovation and collaboration. To identify the nature of those skills, the design and development of assessment tasks require research efforts at the classroom level (Care, 2014). Leaders of the project recommend that administrators create time and space for staff to engage with research, apply it to their own contexts, test specific interventions, and then refine and improve their practice (Hendrick, 2014).

Many professional health organizations, e.g., physical, occupational, and speech therapy, have also stated strongly that more research needs to be done by those working in the field, rather than by university students and professors only. A good practice is an ongoing informal research program. Most clinicians, however, believe they do not have the time. They need to see an actual model of how it can be done, how the process can be to interwoven into their professional activities, and how their practices can be enriched by the process and its products.

This paper describes the process of creating a new observational assessment that identifies learning styles of individual children and recommends appropriate teaching methods. This instrument differs from others as it is designed for a wider group of test administrators, not only to select optimal strategies for teaching new skills, but also to do so in the different contexts of schools, clinics, and home environments. Teachers, therapists, and parents who want to teach academic, motor, and self-help skills to children effectively need an individualized assessment methodology that (a) identifies preferred learning styles, (b) contains correlated teaching strategies, and (c) provides ways to evaluate results of the selected intervention strategies in order to adapt or modify them. Thus, tests must be both qualitative (to individualize learning modes), and quantitative (to measure progress).

Definitions of Learning Styles

People learn, process, and retain information in different ways. Common types of learning styles have been briefly described as (a) visual: learning through seeing, (b) audito-

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ry: learning through hearing, and (c) tactile/kinesthetic: learning through touching, doing, and moving (Ability-Path, 2014; Child Central, 2014). Some sources describe multi-sensory learners who do well when several or all of those methods are employed to learn a particular concept or skill (Learning Styles Identifier, 2014).

Barseghian and Kelmon (2014) reported that visual learners operate best by observing (either in print or pictures); auditory learners absorb information best by hearing it through verbal instructions; physical learners (tactile/kinesthetic) like to use their hands and whole body movements to make discoveries. Robledon (2014a, 2014b, & 2014c) writes for parents in more detail about learning modes:

Visual learners like to sit and leaf through a book; play with puzzles or shapes and letters; have keen powers of observation; may watch people's lips move as they speak; pay close attention to someone demonstrating something; rely primarily on the sense of sight to take in information, understand it, and remember it, or else do not fully comprehend it. The two types of visual learners are (a) picture learners, who think in images, previously seen in a photograph or in person, and (b) print learners, who think in words, quickly learning to read and easily memorizing the correct spelling of words, and enjoy practicing writing and forming letters (Robledon, 2014c).

Auditory learners understand new ideas and concepts best when information is heard; learn a tune just from hearing someone sing it; follow directions perfectly after being told only once or twice what to do; concentrate better at a task with music or white noise in the background; retain new information best by talking about it (Robledon, 2014a).

Physical learners, also known as tactual-kinesthetic learners (tactual for touch, kinesthetic for movement), rely on their sense of touch to grasp new ideas and concepts, as most babies do. By the time children reach preschool or kindergarten, many have begun to adopt other learning styles, but some maintain a strong affinity for physical learning. The two types of physical learners are (a) tactual, who prefer hands-on activities, such as scissors and crafts, and (b) kinesthetic, who learn best by immersing in physical activities; like to move and get the whole body involved; are very expressive, like to act out stories with the whole body, wiggling, dancing, and waving arms (Robledon, 2014b).

According to Raghavan and McDonald (2013), a collaborating triad of teachers, therapists, and parents, to achieve consistency in responding to students' learning styles, can be a powerful approach to assessment methodologies and teaching strategies. Of course, the adults who are instructing the children need to be aware of their own learning styles, especially if a mismatch may be apparent (Hayes & Allinson, 1993). A number of studies have found that students' achievement increases

when teaching methods match their own learning styles (Dunn, Beaudry, & Klavas, 2002).

Assessment of Learning Styles

Standardized assessments, required by many educational facilities and health systems are important for documenting change and determining placement, but do not yield much useful information leading to differentiated instruction. Some, including those available online, refer to other types of learning categories, rather than sensory channels; that research has expanded greatly in the last several decades (Dunn, *et al.*, 2002).

For example, Kolb's original printed 1971 version of the Learning Style Inventory (LSI), listed four prevalent learning styles: (a) diverging, (b) assimilating, (c) converging, and (d) accommodating (Kolb, Rubin, & McIntyre, 1971). Later versions of the *LSI*, based on the Dunn and Dunn Learning Styles Model, included a short section on perceptual learning styles (Neely & Alm, 1992). Kolb then revised his online version to designate nine learning patterns: (a) experiencing, (b) imagining, (c) reflecting, (d) analyzing, (e) thinking, (f) deciding, (g) acting, and (h) balancing (Kolb, 2014). Interestingly, that online version also measures the extent to which people change their learning styles in different contexts, and which learning style types individuals use in addition to their dominant learning style type (Dunn, 2014).

Current qualitative observational or self-report instruments, such as questionnaires and checklists, may or may not provide appropriate test items for assessing children's learning styles, and rarely link teaching strategies to the assessment data. A plethora of instructional methods reported in the literature similarly lack direct linkage to individuals' learning styles. Many checklists measure academic achievement (Wilkinson & Robertson, 2006), motor skills (Rosa, Ridgers, & Barnett, 2013), personality (Eysenck & Eysenck, 1985), social skills (Matson, Rotatori, & Helsel, 1983), and even children's preferences for teaching strategies (Heal, Hanley, & Layer, 2009). The existing checklists that do measure sensory attributes of learning in children are primarily focused on classroom skills, which are not as useful for therapists and parents who may want to individualize their teaching of motor or self-help skills. In order to provide the best learning experience possible for their children, some practitioners consider constructing their own instruments (Erhardt, 2007). Table 1 describes the stages of one such project that encompassed the needs of a wide range of children in the contexts of their natural environments, and was designed for parents as well as professionals.

Theoretical Approaches

A comprehensive literature search included information about current practical approaches to assessment

TABLE 1
An Example of Assessment Development: A Hand Preference Assessment

| Process | Examples of Incorporating the Process into a Professional Career |
|--|--|
| Motivation | As an occupational therapist, needing more information to be able to answer teachers' and parents' many questions about hand dominance and implications for function in school and home environments |
| Ongoing comprehensive literature review using key words: dominance, preference, handedness | Reading everything possible during clinical pediatric practice, because of fascination with the topic, the need to know more in order to respond accurately to questions, and to provide appropriate programs for children with and without disabilities |
| Presentations at conferences and workshops | Sharing more knowledge, asking challenging questions, and exploring more solutions with participants about the topic |
| Publications of journal articles | Disseminating more information to occupational therapists and teachers, who shared with parents |
| Videotaped research | Normative study of typical children, ages 5–11 yr., to determine unilateral hand preference, as well as bilateral and bimanual hand movements |
| Production of video programs | Edited from a series of video tapings and distributed for educational use |
| Research versions of the assessment | Five versions revised over a period of 10 yr. during clinical use and ongoing literature reviews |
| Formal field testing of the assessment | Volunteer occupational therapists from the United States, Canada, and Europe providing valuable feedback that contributed to revisions |
| Production of more videos about normal and atypical hand preferences | Part 1. Descriptions of emerging and mature hand preferences and congruencies Part 2. Factors influencing hand preferences in persons with disabilities |
| Teaching online course about hand preference | Hand preference issues and applications to practice [®] |
| Publication of 1st version of test booklet | Distribution of the assessment |
| Publication in a journal for occupational therapy, schools, & early intervention | A pilot study of scissor skills and hand preference, revealing that therapists teaching children to use scissors consider not only handedness, but also environmental factors, hand/eye congruence, and scissors use as a bimanual task |
| Publication of a book about hand preference | Including the current version of the assessment inside the book and as a separate test booklet |
| YouTube postings: Use of the assessment | Occupational therapy students demonstrating selected administration and scoring procedures for the hand preference assessment |

and intervention, based on theoretical principles of Differentiated Assessment (DA), which support the learning process by helping teachers identify and address student strengths and needs, are ongoing and responsive, and change over time in response to student growth and development (Learning Resources Centre, 2010; Penn State Extension, 2014); Response to Intervention (RTI) foundational principles provide educators with guidance on how to match the needs of children with appropriate levels of support to ensure that instructional opportunities are effective and foster continued progress (Jackson, Pretti-Frontczak, Harjusola-Webb, Grisham-Brown, & Romani, 2009); and Universal Design for Learning (UDL) guidelines incorporated into the language of the test items to provide multiple means of representation, action and expression, and engagement for children with and without disabilities (Rose & Gravel, 2011). The principles of UDL overlap with and complement the approach of differentiated education, and may rely on the use of technology to make learning resources and environments more flexible (Learning Resources Centre, 2010).

Many educational systems are now recognizing that in order to support the sensory intelligences of all children, the focus must be on inclusive teaching through

the facilitation of differentiated instruction and the design of sensory responsive classroom environments (Alberta Education, 2010; Hildreth, 2013). For example, teachers of high school students in Zimbabwe defined innovative teaching as (a) the introduction of new things in a creative, organized, and unique way to get students excited about learning, and (b) new ways of utilizing human and material resources by breaking away from the norm and doing something, i.e., fun while learning (Gudyanga, Gudyanga, & Mutemeri, 2013).

Title I of the Elementary and Secondary Education Act of 1965 was created to improve the academic achievement of the disadvantaged by “meeting the educational needs of low-achieving children in our Nation's highest-poverty schools, limited English proficient children, migratory children, children with disabilities, Indian children, neglected or delinquent children, and young children in need of reading assistance.” (U.S. Department of Education, 2014, p. 1). In order to meet those educational needs, teachers may need to identify their students' learning styles, adjust their own teaching methods to accommodate the diverse learning styles of their students, and redesign their classroom environments with flexibility and ongoing responsiveness (Park, 2002).

Incidence and Characteristics of Learning Styles

A review of studies about preferred learning styles revealed that the typical K-12 classroom contains 30 percent visual learners, 25 percent auditory learners, and 15 percent kinesthetic learners, with the remaining 30 percent consisting of students with mixed learning styles (Hope, 2014). A study of five ethnic groups of high school Secondary English Learners showed that high achievers were the most visual and low achievers were the least visual; middle achievers showed statistically significant higher preferences for auditory learning than low achievers, and these students generally preferred to learn through tactile and kinesthetic modes (Park, 2002). Brown (1999) gave self-reporting questionnaires to vocational education students, and found that kinesthetic learners retained best, but they made up only 5 percent of the population, whereas visual learners made up 65 percent, and auditory learners, 30 percent.

Many researchers and educators who have studied learning styles believe that the purpose of these instruments is to identify the preferred learning style of each individual, which in turn should result in modified instructional methods to optimize each individual's learning. A plan for designing such assessments must consider (a) purposes of the assessment, (b) types of performances to be evaluated, (c) activities that will allow that performance to be observed, and (d) systematic rating procedures (Stiggins, 1987). A Canadian study of self-reported learning styles, however, challenges the hypothesis that individuals learn best with material presented in a particular sensory modality. Instead, it concludes that most people are probably multimodal and multi-situational learners, changing learning strategies depending on the context of the to-be-learned material (Krätzig & Arbuthnott, 2006). Most experienced teachers, especially those aware of the need to adapt their teaching styles to students' learning styles, are comfortable using their own observation, intuition, and judgment to select theories and implement strategies for specific children in specific situations.

Stages of Creating a New Learning-Teaching Style Assessment

The first three (motivation, literature review, and draft version) of the seven stages in the process to develop a learning-teaching style assessment described in this paper have been completed. These stages include:

1. Motivation
2. Literature review
3. Draft version of new checklist

4. Plan for formal field-testing
5. Results of formal field-testing and final draft

6. Clinical and educational use
7. Publication of the assessment (primarily for teachers, therapists, and families)

The next stages include drafting an assessment, planning for field testing, revising the ELSA and clinical use. The work and information necessary in these stages is described below.

Stage 3: Draft Assessment

The third stage involved collecting, comparing, modifying, and organizing test items into a draft version of *The Erhardt Learning-Teaching Style Assessment (ELSA)*. As suggested by Abdel-Khalek (2013), the item pool was constructed from several sources: (a) search of the literature, (b) items from existing scales, and (c) personal clinical experiences of the author. The statements were written as concisely as possible, and were consistent with the language of Differentiated Assessment (DA), Response to Intervention (RTI), and Universal Design for Learning (UDL). This draft version was organized into three sections of types of learners: Visual, Auditory, and Tactile/Kinesthetic, each with two subsections: Behavior Characteristics Observed in School, Clinic, and/or Home Contexts and Teaching Strategies Recommended. The fourth section is titled Interpretation and Recommendations. Scoring symbols included:

- (Behavior characteristic observed)
- (Teaching strategy recommended and scored:
+ Effective results, – Ineffective results)

Scores from each section and sub-section will be calculated as percentages by a formula including the total possible score. Analyses of results, documented in the Interpretation Section, are based on additional calculation of percentages to indicate strongest learning styles or detect Multi-Sensory Learners. Interpretation and Recommendations should be written with consideration of possible relationships to specific tasks, topics, and/or environmental contexts. The fourth stage will involve formal field-testing of the instrument with elementary-age children.

Stage 4: Formal Field Testing

For this fourth stage, a convenience sample of children who are struggling with academic performance in reading (25%–50% quartile) will be recruited from a total of approximately 40 children in two Title I pull out classrooms (kindergarten through 3rd grade), in an urban elementary school. The demographics of this population, which crosses all levels of income, includes students with a variety of learning problems who, depending on their progress, will either (a) return to their regular classrooms without assistance, (b) be recommended for continued services in the Title I program, or (c) qualify for special education services. About one-third of

the children in these classrooms are considered English Second Language (ESL) or English Language Learners (ELL). Others are underachievers who have difficulty with focus and attention, lack motivation, or are emotionally affected by their negative life experiences. Total staff includes two teachers and three teaching assistants, who work with the children in groups of two or three, and sometimes 1:1, if needed. Descriptions of two children identified as potential candidates for the study typify the challenges the learning styles assessment was designed to address (M. Cavanagh, personal communication, July 9, 2014).

Participant 1 is a six-year-old first grader with English Language Learner (ELL) support. She was referred to the Title I reading intervention team for assessment and additional reading assistance. Her social language skills are fair, but her vocabulary and academic language are limited, and sight words are difficult. She appears to be a happy girl, living with her parents and three siblings, who often participate in special family activities together. Her mother reads with her and does extra word work every night. Becoming a good reader is important to her, and within the small group she likes to share her ideas about the stories they are reading together. However, limited vocabulary makes it difficult for her to fully comprehend the stories that most first graders can understand. She came to kindergarten with limited English language experience, which has resulted in a slower pace in improving reading skills. The Title I reading intervention team has collaborated with the ELL teacher to make sure she is placed appropriately in a small reading group.

Participant 2 is a six-year-old first grader who is having reading difficulties. Because the Response to Intervention (RtI) Tier One interventions used in his classroom have not been enough to help him keep up with first grade reading goals, he was referred to the Title I reading intervention team for assessment and additional reading assistance. Although learning first grade sight words is easy for him, and he is able to read and spell words with common phonetic patterns, he has difficulty with comprehension issues. He lacks confidence when asked to share ideas about stories the class is reading. His expressive language is grammatically correct, but he appears to be unfamiliar with many words and concepts that most first graders know, e.g., "flower." He lives with his mother and two older brothers who are responsible for him while their mother is at work. His evenings and weekends are spent playing video games and watching television. He spends very little time with friends, playing outside, or having conversations with his family members. It appears that his limited social and conversational experiences have prevented him from gaining the prior knowledge and vocabulary needed to comprehend what he reads at a first grade level.

Planned Procedure for the Formal Field Test

Since the first 2 wk. at this school are spent observing all the Title I children, the draft Erhardt Learning-Teaching Style Assessment will be one of the checklists informally used to flag significant behaviors that need attention. The designated Title I lead teacher, with the assistance of her staff, will then select appropriate children for the study, i.e., those children who are struggling with academic performance in reading (25%–50% quartile).

During the school year, Title I staff (teachers and teacher assistants) will use the Erhardt Learning-Teaching Style Assessment draft version (Appendix A) to score each child's learning styles during everyday observations in school, until the checklist is completed. Each Behavior Characteristics page will be scored, calculated, and interpreted (Step 1). Next, Initial Teaching Strategies will be selected and implemented for a trial period, to be determined by the teaching staff (Step 2). Strategy Effectiveness will then be scored, to determine and record final recommendations, including methods of ongoing individualization and adaptations (Step 3).

Following this period of implementing the final recommended strategies, reading performance will be measured by independent common assessments (post-tests) used in the school district and compared with previous assessments (pre-tests) (Step 4).

Stage 5. Results of Formal Field-Testing and Revisions

At the conclusion of the study, participating staff will be requested to provide their reactions and suggestions for improvements to the Erhardt Learning-Teaching Style Assessment on a Feedback Form (Appendix B). Table 2 provides guidelines for creating the final draft of the new assessment, similar to those in Table 1.

Stage 6: Educational and Clinical Use

With ongoing use of the ELSA in the classroom, teachers can accommodate the needs of individual students with different learning styles, and provide increased interactivity and functionality to foster effective learning environments. For example, instructors could supplement online discussion forums (for visual learners) with classroom exchanges that encourage verbal sharing among students (for auditory learners) and physical activities related to the lesson topic (for tactile/kinesthetic learners) (Teo, 2011). While technology has empowered many learners, especially those with learning and physical disabilities, some concrete thinkers may find that technology-differentiated learning is more difficult for them than it is for abstract thinkers. Therefore, recommended strategies in the ELSA have focused on providing children with as many opportunities as possible for experiential, concrete, and 3-dimensional learning, rather than a preponderance of digital technology and electronic devices.

TABLE 2
Proposed Process for Developing
The Erhardt Learning-Teaching Style Assessment (ELSA)

| Process | Description of Stages for Creating a New Checklist |
|---|--|
| * Motivation | The need for an instrument that could determine optimal learning styles of individual children, and recommend instructional strategies for teachers (academics), therapists (motor skills), and parents (self-help skills) |
| * Literature review using key words: children, learning styles, checklists, test items | Ongoing searching and reading materials related to learning styles, to compile test items for a new checklist for children who are underachievers or have difficulty learning new skills in home, school, and community environments |
| * Draft version of new checklist: The Erhardt Learning-Teaching Style Assessment (ELSA) | Modifying and organizing test items, devising scoring system, recommending strategies, and describing methods of interpretation and recommendations |
| † Formal field-testing of ELSA | Selected school staff observing and scoring a sample of children in Title I classes for reading performance, implementing and scoring the effectiveness of the recommended strategies, and completing the feedback form to analyze for revision. |
| † Revision of ELSA based on feedback form | Results of formal field-testing, revision, and submission for journal publication |
| † Informal field-testing | Educational and clinical use, recording suggestions for improvement |
| † Publication of ELSA | Final version and publication for distribution |

Note * Stages completed; † Stages to be implemented

Once published, the ELSA will be available to teachers, therapists, and parents, for continual, structured observation of children's interactions with their environment, their individual interests, and current abilities. In both the educational and clinical contexts, information from the ELSA can contribute to the development of programs that support individual learning of academic and motor skills. In the home context, with this knowledge, caregivers can decide which specific strategies to use for teaching new skills, especially in the area of self-help activities.

Conclusion

This paper has described the process of creating a new observational assessment, The Erhardt Learning-Teaching Style Assessment (ELSA), designed to provide a useful tool for therapists and parents, as well as teachers, in the different contexts of schools, clinics, and home environments. The assessment checklist differs from others by helping a variety of test administrators (a) identify learning styles of individual children, (b) select optimal strategies for teaching skills in other categories in addition to academics (e.g., motor, self-help), and (c) evaluate results of the selected strategies in order to modify them if needed.

The structure of the ELSA has been explained as containing three categories of learner styles (Visual, Auditory, and Tactile/Kinesthetic), each with two subsections (Behavior Characteristics Observed) and (Teaching Strategies Recommended). The final section (Interpretation and Recommendations) will include the analyses of results, which are based on calculation of percentages to indicate strongest learning styles, or to detect Multi-Sensory Learners, with consideration of possible relationships to specific tasks, topics, and/or environmental contexts. The stages, participants, and procedures for formal field-testing have been described. Revision will be done according to feedback received, and informal

field-testing with more revisions will continue through practical use before final publication of the ELSA.

It is hoped that this description will motivate professionals who are interested in developing new assessments to integrate the necessary research into their clinical practice, using the described process as a blueprint (Erhardt, 2007).

Potential users of the ELSA: The author is seeking volunteer field-testers for The Erhardt Learning-Teaching Style Assessment (ELSA). To apply, e-mail RPerhardt@ErhardtProducts.com with "ELSA Field Test" in the subject line, and your name and preferred e-mail address in the message. You will then receive a return e-mail with two attachments: the ELSA, in booklet format, to print as many times as you wish, and the Field-Test Feedback Form, which should be returned after you have used the assessment with one or more children. Your feedback will be used to refine and revise the instrument during 2015, for publication in 2016. At that time, you will receive the final version for your own use, and acknowledgment in a future journal article reporting the results.

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Appendix A

ELSA (2014 Draft Version)

The Erhardt Learning-Teaching Style Assessment (ELSA)© 2014 Draft Version

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Purpose: The Erhardt Learning-Teaching Style Assessment (ELSA) is an observational tool to:

- Identify children's optimal learning styles for acquiring new skills
- Plan educational and therapeutic management strategies in school/clinic/home contexts
- Evaluate results of trial interventions to modify teaching strategies, an ongoing process

Scoring Key

- ✓ Behavior characteristic observed
- ✓ Teaching strategy recommended
- + Effective results
- Ineffective results

Section 1. Visual Learners

- 1a. Behavior Characteristics
- 1b. Teaching Strategies

Section 2. Auditory Learners

- 2.a. Behavior Characteristics
- 2.b. Teaching Strategies

Section 3. Tactile/Kinesthetic Learners

- 3.a. Behavior Characteristics
- 3.b. Teaching Strategies

Section 4. Interpretation, Initial and Final Recommendations

Name _____ Age _____ Gender _____ Examiner _____

Dates: Initial Observations _____ Strategies Implementation _____ Effectiveness _____

Learning Concerns _____



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Distributed by Erhardt Developmental Products
2379 Snowshoe Court East
Maplewood, MN 55119 USA
(651) 730-9004

ISBN 9781930282711
Catalog #C19

SECTION 1.A.

Visual Learner

Relies on sense of sight to take in, understand, and remember new information

| Behavior Characteristics Observed in School, Clinic, and/or Home | Score (✓) |
|--|-----------|
| Notices visual details | |
| Studies people's facial expressions, especially lips, as they speak | |
| Remembers faces after meeting new people, even after time has passed | |
| Watches others to see how to learn a new skill | |
| May close eyes to visually remember | |
| Describes/thinks in words and/or images | |
| Likes books, pictures, interesting patterns, and other visual displays | |
| Excels at putting jigsaw puzzles together | |
| If waiting in line, will look at surroundings rather than converse with others | |
| Performs better if visual stimuli are isolated from auditory and kinesthetic distractions | |
| Chooses a place to sit/stand, to see better, without visual obstructions | |
| Has difficulty learning if environment is cluttered, disorganized | |
| Has trouble comprehending reading material during background noise | |
| Becomes impatient if extensive listening is required | |
| Understands written instructions or demonstrations better than verbal | |
| Enjoys listening only if the language is rich in visual imagery | |
| Prefers to read alone | |
| Sometimes ignores verbal directions | |
| Remembers best by seeing, reading, and writing | |
| Recognizes words by sight rather than sounding them out | |
| Comprehends written words better than spoken | |
| Memorizes words best when presented visually rather than verbally | |
| Explains what is happening in a story in terms of visual content | |
| Can describe a sharp, clear picture memory of an experience | |
| Assembles object, e.g., model kit, by following written directions | |
| When taking a test, remembers what was read, rather than what was heard | |
| Would rather use a diagram, than ask directions, e.g., to find a classroom) | |
| <i>Number of Total Checkmarks</i> | |

SECTION 1.B.

Visual Learners

Scoring Key: ✓ (Strategy Recommended) + (Effective Results) – (Ineffective Results)

| Teaching Strategies (chosen from multiple contexts) | Strategies | + Results – |
|---|------------|-------------|
| Primarily School Contexts (academic activities: e.g., reading, writing, math, science) | | |
| Quiet environment faced away from visual distractions | | |
| Reminders to look at person speaking, to help focus | | |
| Short, single auditory instructions | | |
| Learning a new activity by watching someone do it | | |
| Charts/maps/diagrams, e.g., studying planets (science) | | |
| Color coding and/or highlighting important material | | |
| Picture cues to enhance meaning in a reading activity | | |
| Individual whiteboards or notebooks to copy new words | | |
| Opportunities to work alone, e.g., solving math problems | | |
| Flash cards, well organized, by topic, for review | | |
| Writing and rewriting to learn new words and ideas | | |
| Primarily Clinic Contexts (motor activities: e.g., posture, movement, balance) | | |
| Visual exploration/inspection of equipment | | |
| (continued on next page) | | |

SECTION 1.B. (Cont'd)

Visual Learners

Scoring Key: ✓ (Strategy Recommended) + (Effective Results) – (Ineffective Results)

| Teaching Strategies (chosen from multiple contexts) | Strategies | + Results – |
|---|------------|-------------|
| Demonstration of skill by therapist to encourage imitation | | |
| Postural supports: proximal stability for visual control | | |
| Manual assistance, only if needed, gradually decreasing | | |
| List of instructions with illustrations, e.g., fine motor task | | |
| Single auditory directions, before and during movements | | |
| Mirror to monitor and self-correct posture/movements | | |
| Many repetitions of activity, until competent and automatic | | |
| Generalization, e.g., different environments, positions | | |
| Primarily Home Contexts (self help activities: e.g., feeding, dressing, hygiene, chores) | | |
| Lists of instructions/ pictures, in notebook, or on refrigerator | | |
| Parent demonstration of task for imitation, e.g., dusting | | |
| Hands-on assistance, only if tolerated, e.g., dressing | | |
| Drawings of activity with minimal verbal instructions | | |
| Mirror for self-monitoring and self-correcting, e.g., hygiene | | |
| Practicing skill often within daily routines until competent | | |
| <i>Number of Total Effective and Ineffective Results</i> | | |

SECTION 2.A.

Auditory Learner

Understands new ideas and concepts best when information is heard

| Behavior Characteristics Observed in School, Clinic, and/or Home | Score (✓) |
|---|-----------|
| Gathers and processes large amounts of auditory information | |
| Retains new information best by talking about it | |
| Remembers what others say and how they say it (voice, pitch, speed) | |
| Is sensitive to loud environmental noises | |
| Understands people's feelings by the tone of their voice expression | |
| Learns a new song easily just from hearing someone sing it | |
| Is aware if someone is singing off key | |
| Remembers new people by what they said, even after time has passed | |
| Likes to ask directions, to find a new place (in school / neighborhood) | |
| Likes to hear self and others talk | |
| Likes to verbally describe what to do and how to do it | |
| Frequently moves lips or sub-vocalizes while reading | |
| Corrects self when mispronouncing words | |
| May whisper to self, or hum when working, without being aware of it | |
| Expresses interest and enthusiasm verbally | |
| Has difficulty working quietly for long periods of time | |
| May try to remember something (phone number, address) by repeating it | |
| If waiting in line, will start a conversation to keep from getting bored | |
| Remembers best by listening | |
| Enjoys discussions in class, talking, and listening to others | |
| Has good auditory word attack skills and uses phonics to sound out words | |
| Remembers best by speaking out loud and through verbal repetition | |
| Memorizes words and stories best when presented verbally | |
| Likes to memorize information by verbalizing it to music or poems | |
| May not understand or remember what has been read silently | |
| Assembles an object, e.g., model kit, best by following verbal directions | |
| When taking a test, remembers best what was heard, not read | |
| <i>Number of Total Checkmarks</i> | |

SECTION 2.B.

Auditory Learners

Scoring Key: ✓ (Strategy Recommended) + (Effective Results) – (Ineffective Results)

| Teaching Strategies (chosen from multiple contexts) | Strategies | + Results – |
|---|------------|-------------|
| Primarily School Contexts (academic activities: e.g., reading, writing, math, science) | | |
| Limiting distracting noises in the classroom | | |
| Setting goals and verbalizing them, e.g., learn times tables | | |
| Listening to teacher's verbal instructions, not reading them | | |
| Reading, seeing, and hearing words simultaneously | | |
| Reading aloud while pointing to the words, e.g., books | | |
| Repeating material aloud for better comprehension | | |
| Discussing topics with partner, or small or large class groups | | |
| Role-playing verbally to tell story or describe science concept | | |
| Reading flash cards aloud rhythmically, in time with music | | |
| Varying speed/pitch, to create aural textures | | |
| Reading book while listening to talking book (head phones) | | |
| Taping teacher's lecture for repetitive playback at home | | |
| Taping child reading, repeating to show progress | | |
| Child teaching others, which helps integrate own learning | | |
| Primarily Clinic Contexts (motor activities: e.g., posture, movement, balance) | | |
| Limiting distracting noises in the environment, if possible | | |
| Discussing how activity relates to child's goals, e.g., sports | | |
| Verbally describing activity, e.g., stringing bead patterns | | |
| Learning skill by singing a familiar tune to each movement | | |
| Telling story or singing to maintain child's attention | | |
| Describing what child is doing (reinforcing performance) | | |
| Therapist, then child, describing each step of task & doing it | | |
| Primarily Home Contexts (self-help activities: e.g., feeding, dressing, hygiene, chores) | | |
| Eliminating distracting noises while learning new skill | | |
| Reading instructions aloud, or listening to family read aloud | | |
| Making instructions into songs/poems, e.g., tying shoelaces | | |
| Describing how new skill was learned, e.g., at dinner table | | |
| Teaching sibling or parent new skill, e.g., following recipe | | |
| <i>Number of Total Effective and Ineffective Results</i> | | |

SECTION 3.A.

Tactile/Kinesthetic Learner

Remembers what he/she experiences through movement and touch

| Behavior Characteristics Observed in School, Clinic, and/or Home | Score (✓) |
|---|-----------|
| Prefers hands-on and/or movement activities | |
| Likes to examine and manipulate materials/objects to learn how things work | |
| Gestures when speaking | |
| Expresses emotions physically | |
| Wants to move around or fiddle with something often | |
| Can pay attention better when moving, e.g., sitting on therapy ball | |
| Enjoys heavy work for proprioceptive input, e.g., carrying heavy objects | |
| Has a good sense of balance and eye-hand coordination | |
| Finds it difficult to pay attention to auditory or visual presentations | |
| Is a poor listener, quickly loses interest in long verbal discussions | |
| If waiting in a long line, may become fidgety and wiggly | |
| Would rather try new task after demonstration, not written/verbal instructions | |
| Seems impulsive, choosing solutions that always involve movement | |
| Wants to touch objects excessively, losing focus on current task | |
| Remembers best by doing, not seeing or hearing | |
| Enjoys making and creating, especially collaborating with others | |
| Improves understanding by acting out learning topic | |
| May be poor speller, writes words to know if they “feel” right (not look right) | |
| Learns well by writing words over and over, e.g., translation of language | |
| Remembers new people by their movements/what they did | |
| Understands people's feelings by studying their body language | |
| Prefers books with action, may fidget while handling books | |
| Likes using tools or lessons which involve active, practical participation | |
| When taking tests, remembers best what was written, not read/heard | |
| May try to remember, e.g., phone number, by finger “writing” on leg | |
| Assembles a model kit best by figuring it out and manipulating the pieces | |
| Is good at constructing objects, and fixing things that are broken | |
| <i>Number of Total Checkmarks</i> | |

SECTION 3.B.

Tactile/Kinesthetic Learners

Scoring Key: ✓ (Strategy Recommended) + (Effective Results) – (Ineffective Results)

| Teaching Strategies (chosen from multiple contexts) | Strategies | + Results – |
|---|------------|-------------|
| Primarily School Contexts (academic activities: e.g., reading, writing, math, science) | | |
| Writing on paper, at the board, “in the air”, on own leg | | |
| Using utensils requiring pressure, e.g., chalk/pencil/crayons | | |
| Writing letters/numbers in media, e.g., sand, clay, glue lines | | |
| Creating own flash cards, using different colors | | |
| Physically acting-out concepts, e.g., role-playing, dancing | | |
| Handling “fidgets” while listening, taking short breaks | | |
| Drawing, painting, diagramming, building models | | |
| Counting on fingers, handling objects, e.g., to learn math | | |
| Doing experiments, e.g., science, related puzzles/games | | |
| Marking pages with sticky notes or colored transparent tape | | |
| Relating body actions to language, e.g., go <i>under</i> table | | |
| Working/reciting in different positions or during movements | | |
| (continued on next page) | | |

SECTION 3.B. (Cont'd)

Tactile/Kinesthetic Learners

Scoring Key: ✓ (Strategy Recommended) + (Effective Results) – (Ineffective Results)

| Teaching Strategies (chosen from multiple contexts) | Strategies | + Results – |
|---|------------|-------------|
| Primarily Clinic Contexts (motor activities: e.g., posture, movement, balance) | | |
| Encouraging exploration of therapy equipment, e.g., shapes | | |
| Imagining performing task before and after doing it | | |
| Postural supports for correct alignment | | |
| Learning each component of task first | | |
| Combining sequences of actions to perform skill | | |
| Practicing new skill until competent | | |
| Reverse role-playing, e.g., child as therapist, teaching skill | | |
| Execution of automatic skill while multi-tasking | | |
| Primarily Home Contexts (self-help activities: e.g., feeding, dressing, hygiene, chores) | | |
| Encouraging exploration of materials, e.g., toothbrush | | |
| Modeling skill, so child imitates, e.g., setting table | | |
| Alternating roles, e.g., feeding caregiver, then self | | |
| Hands-on assistance, if tolerated, gradually decreasing | | |
| Repeating a new skill until competent, e.g., tying shoelaces | | |
| Recording successes on a chart with stickers | | |
| Cutting/pasting pictures showing self-help tasks into a book | | |
| <i>Number of Total Effective and Ineffective Results</i> | | |

SECTION 4

Interpretation and Recommendations

| | |
|---|--|
| Scoring Key | <i>Scoring Instructions</i> |
| ✓ Behavior Characteristic observed | Total possible Behavior Characteristic scores: 72 |
| ✓ Teaching Strategy recommended | Step I: Transfer the number of scores from Sections 1a, 2a, & 3a to the columns below, and calculate percentages for each learner type, or *Multiple Sensory Learner. |
| + Effective results – Ineffective results | Step II: Select and implement chosen strategies. |
| Step I: Example | Step III: Determine effective strategies; make final recommendations for individualizations. |
| Section 1. Visual Learner: If total checks (✓) are 21, the calculation is $21 \div 72 = 29\%$. | |

| Learning Style Scores | a. Behaviors | % | b. Strategies | Effective | Ineffective |
|---|--------------|---|---------------|-----------|-------------|
| Section 1. Visual | | | | | |
| Section 2. Auditory | | | | | |
| Section 3. Tactile/Kinesthetic | | | | | |
| Determination of child as a *Multiple Sensory Learner is calculated by subtracting two highest numbers of Sections 1, 2, 3 from each other. If difference is 0, 1, or 2: Yes. | | | | | |
| *Multiple Sensory Learner <input type="checkbox"/> Yes <input type="checkbox"/> No Strategies: a balance of Sections 1, 2, 3 | | | | | |

Step I: Interpretation of Behavior Characteristics

Analysis of results from Sections 1a, 2a, & 3a, based on calculation of percentages, indicate strongest learning styles (or multiple sensory style). Relationships to tasks, topics, and environmental contexts should also be considered and documented.

Step II: Initial Strategies Recommendations

Strategies checked (✓) from Sections 1b, 2b, & 3b determine initial recommendations. (Electronic devices and other digital technologies are not included in those strategies, to provide children with more opportunities for experiential, concrete, and 3-dimensional learning).

Step III: Final Recommendations

Specific Strategy Effectiveness information from Results columns of Sections 1b, 2b, & 3b determine final recommendations, including methods of ongoing individualization and adaptations.

Appendix B

ELSA Field Study Feedback Form

Date Study Began _____ Date Completed _____ Examiner's initials: _____

1. Date/time periods for test administrations and recommendations reports

a. Initial observations, scoring, and recommendations: From _____ To _____

b. Approximate average time for: Calculations: _____ Interpretations _____

c. Implementation of strategy recommendations: From _____ To _____

d. Scoring of strategies' effectiveness / final recommendations: From _____ To _____

2. Clarity of administration, scoring, and calculation instructions

3. Links between scoring results, interpretations, and recommendations

4. Relevancy for intervention/management

5. Specific suggestions for test improvement