

Montessori Principles and CEI's Programs: A Correlation

Montessori Principles	<i>ELS</i> and <i>MLS</i>
Multi-Aged Grouping	Schools typically run <i>ELS</i> and <i>MLS</i> in multi-age classrooms since both programs are totally individualized and differentiated depending upon each child's academic prescription (see Chapter IV in <i>ELS</i> research paper and Chapter VI in <i>MLS</i> research paper for discussions on individualization/differentiation).
Human Tendencies (to explore, move, share with a group, to be independent and make decisions, create order, develop self-control, abstract ideas from experience, use the creative imagination, work hard, repeat, concentrate, and perfect one's efforts).	<p>Both <i>ELS</i> and <i>MLS</i> require the student to move from the computer to print materials (<i>ELS</i> and <i>MLS</i>) and/or concrete manipulatives (<i>MLS</i>) in the course of a lesson—in part to allow time for new learning to move into long-term memory and also to allow the software to assess whether that happened (see Chapter III in <i>ELS</i> research paper and Chapters V and VII in <i>MLS</i> research paper for discussions on lesson design; see Chapter IV in <i>ELS</i> research paper and Chapter VI in <i>MLS</i> research paper for discussions on assessment).</p> <p>Additionally, both <i>ELS</i> and <i>MLS</i> require the students to move about the lab to interact with the facilitator on selected tasks. Because of this, most good labs operate under a guiding set of rules or procedures established to maintain order and respect. For example:</p> <ul style="list-style-type: none"> --Students move to the facilitator to read aloud or to complete word meaning review. --Students may move to a specific station to self-edit Copy-Write; then, they move to facilitator for review. --Students must interact with facilitators to have written work reviewed. --Facilitators must monitor students as they complete some tasks; therefore, a procedure is established to let the facilitator know when to come monitor. --Students usually follow procedures for collecting materials and filing work. <p>Practice exercises for both <i>ELS</i> and <i>MLS</i> are guided in the beginning and then independent. Few programs have adequate practice built in to move a child who struggles to learn to mastery and long-term recall. Not only do both <i>ELS</i> and <i>MLS</i> have adequate practice, but the exercises are also varied to maintain student interest and engagement (see Chapter IV in <i>ELS</i> research paper and Chapter VI in <i>MLS</i> research paper for discussions on repetition/practice).</p>

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	<p>A fundamental principle in CEI’s motivation program is that effort and hard work make a difference (see Chapter V in <i>ELS</i> research paper and Chapter VII in <i>MLS</i> research paper for discussions on motivation). Students are encouraged to repeat and practice new learning until they develop expertise or perfection. They receive immediate corrective feedback as they work through the lessons (see Chapter IV in <i>ELS</i> research paper and Chapter VI in <i>MLS</i> research paper for discussions on corrective feedback).</p> <p>Computer screens are as plain as possible to eliminate distractions, which are disasters for students with learning disabilities. The plain screens enable students to concentrate and focus so that they learn more effectively (see Chapter IV in <i>ELS</i> research paper and Chapter V in <i>MLS</i> research paper for discussions on computer screen design).</p>
<p>Process of Learning</p> <ol style="list-style-type: none"> 1. introduction of concept 2. processing 3. understanding 	<p>Both <i>ELS</i> and <i>MLS</i> employ the three stages of learning (see Chapter III in <i>ELS</i> research paper and Chapter V in <i>MLS</i> research paper for discussion on lesson phases).</p> <p><i>ELS</i> lesson introductions are in SHARE (see, hear, and respond) lessons at the beginning of each lesson sequence. Subsequent components of the prescription for each child include more processing (including practice/repetition) and applications to build understanding and mastery. Mastery lessons check for understanding.</p> <p><i>MLS</i> uses the concrete—semi-concrete—abstract lesson sequence for all lessons involving concepts (see Chapter V in <i>MLS</i> research paper for discussion). Embedded assessments check for understanding.</p> <p>CEI uses multi-sensory processing strategies in all software lessons for both <i>ELS</i> and <i>MLS</i> (see Chapter II in <i>ELS</i> research paper and Chapters III and VI in <i>MLS</i> research paper for discussions of multi-sensory processing; practice and repetition; etc.).</p>
<p>Indirect Preparation</p>	<p>Both <i>ELS</i> and <i>MLS</i> lab facilitators use the results of multiple assessments to design an individual prescription for each child of his/her therapeutic intervention. Decisions are made about the appropriate skill level, the lesson parameters (speed, series of lessons, numbers of repetitions, level, addition or deletion of scaffolding, etc.), and assessment strategies. (See Chapters II and III in <i>ELS</i> research paper</p>

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	and Chapter VIII in <i>MLS</i> research paper for discussions of the characteristics of effective therapeutic cognitive interventions for struggling learners and how CEI programs meet those criteria.)
Prepared Environment	<p><i>ELS</i> and <i>MLS</i> lab facilitators become data-driven decision makers who continuously review progress reports and results of mastery lessons to determine the next instruction step for each student. Software sequences and/or parameters are modified as necessary to keep students on track toward mastery and with sufficient success to keep them highly motivated to continue. (See Chapter III in <i>ELS</i> research paper and Chapter VII in <i>MLS</i> research paper for discussions on the role of the teacher.)</p> <p>CEI Direct (a new <i>ELS</i> feature) enables lab facilitators to check with CEI's Solutions Analysts to get immediate feedback about individual student progress. This process enables an even more prepared environment.</p>
Observation	<p><i>ELS</i> and <i>MLS</i> lab facilitators have a variety of ways to collect observation data of participating students: results of diagnostic assessments, daily progress monitoring by the computer, teacher observations during lab time, results of mastery lessons, results of summative assessment, etc. (See Chapter III in <i>ELS</i> research paper and Chapter VII in <i>MLS</i> research paper for discussions on the role of the teacher in observation of student progress. See also Chapter IV in <i>ELS</i> paper and Chapter VI in <i>MLS</i> paper for discussions on the assessment and data-driven decision-making.)</p> <p>CEI Direct enables CEI also to observe lab progress so that Solutions Analysts can intervene as necessary to keep labs maximally effective and productive.</p>
Work Centers	<p><i>ELS</i> and <i>MLS</i> labs can be set up as work centers for the students most in need to develop knowledge, skill, and fluency. CEI recommends a minimum of 45 minutes per day for optimal results. This level of intervention is required as one of the criteria for true interventions that are therapeutic. (See <i>ELS</i> and <i>MLS Implementation Toolkits</i>.)</p>
Teaching Method	<p><i>ELS</i> and <i>MLS</i> fit in well with this Montessori principle that requires individualized and differentiated instruction for each child, according to needs. The computer is a tool that facilitates individualization, concentration, multi-sensory processing, and ongoing progress monitoring.</p>

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Class Size	CEI sells four-station labs as a minimum, but schools may place as many stations in a lab as they desire. One school in California has 70+ stations running each period all day long. The lab requires a facilitator dedicated to the participating students (not computers placed in the back of the room to be just one of the things the teacher monitors at any one time). Computers enable large classes of children to continue to receive one-on-one tutoring all the time, again fitting in well with Montessori principles.
Basic Lessons	The <i>ELS</i> and <i>MLS</i> lab facilitators receive a minimum of two days of training before a lab can be implemented, but CEI does not stop there. A certified teacher on CEI staff will be assigned to provide ongoing support to the facilitators, and he/she is available continuously via e-mail and telephone, as well as through scheduled lab visits to provide follow-up professional development and coaching to maximize lab results. A major emphasis in CEI programs is individualization and teaching children in their zones of proximal development (Vygotsky).
Areas of Study Linked	In <i>ELS</i> students study words that are grouped according to spelling patterns, and they come from multiple subject areas. These more than 2000 words are taught directly, and they are taught in context, so students are indirectly taught thousands of other words. Pronunciation, spelling, meaning, and application are covered in each lesson sequence—plus adequate and varied practice for mastery.
The Schedule	<p>The school can schedule <i>ELS</i> and/or <i>MLS</i> time as it chooses. CEI recommends 45 minutes each day for each area to which a child is assigned—for optimal results.</p> <p>Several <i>ELS</i> and <i>MLS</i> practice tasks are available online through CEI’s Web-based Activity Center. Students can access these activities from any internet-connected computer, extending opportunities for practice and the development of decoding fluency for reading and fact fluency for mathematics.</p>
Assessment	Multiple assessment instruments are provided with the programs, with an emphasis on progress monitoring to guide instructional planning. Motivation is achieved through corrective feedback that is frequent and immediate in the design of the programs and in keeping each child adequately challenged to maintain interest, but not so challenged that he or she becomes discouraged due to lack of success.

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Requirements by Age	<i>ELS</i> and <i>MLS</i> are not designed for certain ages or grade-levels. Rather they are organized by skill level. Both programs serve learners from kindergarten through adult.
Learning Styles	CEI's most powerful strategy is probably multi-sensory processing, addressing multiple modalities. (See Chapters II in <i>ELS</i> paper and Chapter VI in <i>MLS</i> paper for thorough discussions.) Instruction is provided through multiple modalities in order to strengthen weak neuron pathways in the brain or to build new ones so that learning can occur. Also, multi-sensory processing enables multi-modality retrieval, providing learners with more recall flexibility.
Character Education	Part of the lab orientation for students includes their responsibilities in participating in the program, care of the materials, procedures for moving around the lab, how to operate the computer and headphones, how not to disturb other participating children, etc. (See also the discussion under Human Tendencies above.)
Results	<p>When <i>ELS</i> and <i>MLS</i> are included in the learning environment, increasing numbers of children, especially those who struggle to learn due to learning difficulties (environmental, such as lack of prior instruction, previous inappropriate instruction, or limited-English) or due to learning disabilities (such as dyslexia, dyscalculia, or other disabilities affecting executive function, language system, or visuo-spatial system in the brain) also can experience the joy of successful learning. The more severe the problem, the more critical it is that the child have access to a therapeutic cognitive intervention.</p> <p>Students in <i>ELS</i> and <i>MLS</i> programs gain, on average, approximately two years in one year of instruction—greatly accelerating what they typically achieve. It is not unusual in well-run programs to see gains of four to six years in one year. These kinds of gains are life-savers for kids who struggle—and for their families and friends.</p> <p>(See Chapter VI in <i>ELS</i> research paper and Chapter VIII in <i>MLS</i> research paper for analyses of program results. See also archived issues of <i>SHARE</i> newsmagazine for anecdotal evidence of results at www.ceilearning.com.)</p>

Montessori principles listed above are from “Montessori Philosophy, Age 3—12+ Years: An Introduction to Montessori Philosophy and Practice.” See www.michaelolaf.net/1CW312MI.html.
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