Galileo Pre-K Online:

Aligned with the Head Start Child Development and Learning Framework and the Office of Head Start Monitoring Protocol

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I. Introduction

The Head Start Child Development and Learning Framework is designed to provide Head Start and other early childhood programs with a description of the developmental building blocks that are most important for a child's school and long-term success. The 11 Domains and 37 Domain Elements comprising the Framework outline the essential areas of learning and development for children, 3 to 5 years old. These essential areas of learning and development are to be used by programs in a number of ways to guide local decision-making and action leading to positive outcomes for children including:

- The selection and implementation of curriculum and assessment tools as part of an overall approach to promoting positive outcomes for children;
- Connecting child assessment data to various aspects of Head Start program planning and design;
- Establishing school readiness goals consistent with state and local expectations;
- Monitoring children's progress;
- Guiding the collection of child assessment data for other early childhood reporting systems;
- Promoting continuous quality improvement in programs, child well-being and success.

Galileo Pre-K Online is uniquely designed to support systemic implementation of the *Head Start Child Development and Learning Framework.* Galileo is the first and most extensively integrated research-based online educational management system currently used in Head Start and other early childhood programs to support a collaborative, data-driven and goal-directed approach to promoting positive outcomes. In fact, since 1987, Galileo Pre-K has been successfully implemented in support of Head Start, public-school preschool, and proprietary early childhood programs efforts in achieving these fundamental goals.

Galileo Pre-K Online is a complete and fully integrated assessment, curriculum, and reporting system linking assessment, planning, individualization and the documentation of progress in ways that are directly articulated to the *Head Start Child Development and Learning Framework*. For example, the integrated set of goals established through the *Framework* are intended to help Head Start programs establish school readiness goals for children, monitor children' progress, and align curricula and conduct program planning in ways that promote all aspects of child development and early learning. Galileo Pre-K Online is uniquely designed to facilitate these Framework goals through the implementation of a program-wide, systemic approach to educational decision-making and action leading to positive outcomes for children. In this regard, implementation of Galileo Pre-K Online occurs within a continuous problem-solving, early intervention cycle making the effective management of early childhood education possible. The central components of the cycle include:

1. *Goal Setting*
2. *Assessment*
3. *Planning and Implementation*
4. *Monitoring and Management*
5. *Evaluation*

This problem-solving early intervention cycle is supported by:

1. *Quality Control*
2. *Communication Facilitated through a Fully Integrated Reports Suite*
3. *Professional Development and Technical Assistance*

II. The Galileo Pre-Online Early Intervention Cycle Facilitates Systemic Implementation of the Head Start Framework

The Galileo Pre-K Online problem-solving early intervention cycle guides the utilization of Galileo Pre-K Online in ways that help ensure local Head Start program fidelity in implementing the *Head Start Child Development and Learning Framework*.

Goal Setting and *Assessment* continuously overlap in the cycle. *Goal Setting* begins with the selection of one or more Head Start *Domains* (i.e., developmental areas) including *Domain Elements* (i.e., knowledge areas) and representative examples (e.g., capabilities or potential learning goals). Next, children's developmental accomplishments are assessed related to the range of potential goals within *Domain Elements*. Specific learning goals are set based on the children's developmental accomplishments, which are revealed through assessment. Plans are then formulated and implemented to assist children to achieve the established goals. *Implementation* is monitored and managed to ensure that it is occurring as planned. A major function of the *Evaluation* is to determine whether or not goals have been achieved. If goals have been achieved, the cycle is completed and a new cycle may begin. If goals have not been achieved, evaluation may suggest plan revision, or the selection of new goals.

The Q*uality Control*, *Professional Development and Technical Assistance*, and *Communication* components of the cycle provide support tools to Head Start programs for the effective management of *Framework* implementation. The *Quality Control* component is designed to minimize erroneous information in the system and to help ensure the completeness and timeliness of information in the system so that the Head Start program has the information needed when it is needed for use in promoting positive outcomes for children. The *Communication* component within Galileo Pre-K Online is the vehicle by which actionable information on children's learning and development is made available to Head Start staff, administrators, specialists, and families so that they may actively and continuously participate in decision-making focused on producing positive outcomes for children. In addition, the *Communication* component provides the necessary technology for disseminating information to the community, governmental agencies, and other audiences concerned with children's learning. Ongoing *professional development and technical assistance* is provided by ATI to Head Start programs to help ensure that all stakeholders involved in the education of young children can effectively utilize Galileo Pre-K Online to promote positive outcomes.

A. Goal Setting: Providing Actionable Integration between Assessment and Planning

As indicated by the Office of Head Start, the Improving Head Start for School Readiness Act of 2007 has increased the importance of the *Framework's* role for local Head Start programs serving 3 to 5 year olds. For example, as stated in the *Framework, "*The Act requires programs to align program goals and school readiness goals for children to the Framework. Also, their curricula, assessments and professional development activities are to align with the Framework." In this regard, it is important to note that a key innovative characteristic of Galileo Pre-K Online is that it is a goal-driven system. Planning, implementation, evaluation and professional development are all articulated to goals that have been established to promote children's learning. Moreover, creating these linkages and establishing goals for the provision of learning opportunities begins, as it must, with a clear and functional representation of the overarching *11 Domains and 37 Domain Elements* articulated in the *Framework.* In fact, the

Framework directly calls for the selection and use of assessment and curricula that are aligned with the *Framework.* In order to effectively accommodate this requirement and transform it into practical use as an integral part of day-to-day decision-making aimed at promoting positive outcomes for children, alignment must be articulated within to any technology system used by Head Start to meet *Framework* requirements*.* Galileo Pre-K Online effectively accommodates this need. For example, Galileo Pre-K Online contains a unique tool called *Scale Builder,* making it possible for the *11 Domains* and 37 Domain Elements, as well as any set of early learning standards from any state to be quickly entered into the system where they can then be seamlessly linked to assessment and planning process.

Being able to easily enter *Framework Domains* and *Domain Elements* as well as early learning standards for a specific state into Galileo Pre-K Online affords a number of advantages to Head Start programs. The first is that once these are in the system, they can be aligned to assessment and curricula content with little difficulty. This ensures that assessment is able to fully inform the provision of learning opportunities by providing data that is specifically articulated to the desired learning standards. Similarly, it enables the selection of learning opportunities by the learning standard they address. The flexibility of *Scale Builder* also allows for ready adaptation as desired standards evolve. Standards that have been entered into the system can easily be edited and the changes implemented into the instructional process.

As discussed previously, goal setting as well as planning within Galileo Pre-K Online involves the identification of learning goals for children and the planning of learning opportunities provided to children that will promote learning. Information of this type is easily documented in Galileo Pre-K Online through *Galileo Curriculum* tools such as Galileo *Plan Builder*. Moreover, within Galileo Pre-K Online, goal setting is linked closely to ongoing assessment results indicating not only what children currently know, but also what each child is likely to be ready to learn. Information of this type is provided in real-time to teachers, families, administrators and specialists through the array of multi-level reports comprising the *Galileo Reports* feature in the system.

B. Assessment: Articulating the Framework and State Early Learning Standards

The central role of assessment as discussed in the *Framework* is to provide Head Start programs with information that is “reliable and valid; developmentally, linguistically, and culturally appropriate for the populations served; and aligned with the Framework.” Moreover, “the Framework serves as a lens for analyzing data in order to understand child progress and to identify areas that need additional resources and attention.” Finally, “multiple assessment tools or procedures may be needed to fully understand children’s progress across all areas of child development and early learning.” Galileo Pre-K Online effectively accommodates these aspects of the *Framework* in a variety of ways, which are discussed below.

i. A Multi-Method Continuous Assessment Approach

In accordance with the *Framework*, a central role of assessment within Galileo Pre-K Online is to provide information from multiple sources that can inform decision-making for diverse groups of children served by Head Start. This information is used, for example to help teachers decide what kinds of learning opportunities will be best suited to a child's developmental needs and to help programs decide how to allocate program resources and plan professional development in ways that enhance the positive impact of the program on children's learning and development. Consequently, easily accessible, real-time access to actionable information on children's learning and development from multiple sources is essential to the effective implementation of the *Framework*. Galileo Pre-K Online effectively accommodates this need through the kinds of information that can be made available from multiple sources, the number of people who can access information, the amount of information that can be accessed, the flexibility with which information can be organized, and the speed at which information can be supplied. In particular, Galileo Pre-K Online supports a Multi-Method approach to assessment. The Multi-Method approach provides assessments in a broad range of formats that accommodate the various ways that children from diverse backgrounds, including Dual Language Learners (DLLs) and Children with Disabilities, may express their competencies. For example, assessment can occur through ongoing observation in the child's natural learning environment, through direct one-on-one assessment, gathering samples of children's work, information provided by families, other external assessment data sources, anecdotal recording of children's learning and development, or through computer-based assessment activities

The Galileo Multi-Method approach also makes it possible for Head Start programs to develop an *Individualized Education Plan (IEP)* for children. This capability helps programs address the requirement to use the *Framework* to support the development of an *IEP* and to guide the assessment of the child's progress. Galileo Pre-K Online assessments, for example are designed to be readily modified to comply with IDEA requirements. The multiple modes of assessment built into Galileo allow for the classroom teacher to present the assessment material in whatever format is consistent with a child's IEP or Section 504 Plan. For example, ATI has made large print versions of its direct assessment option available to programs; and Galileo assessments can be conducted in a group or one-on-one setting. In fact any mode of child response can be recorded by the teacher into the system.

ii. Alignment with the Federal Framework and State Standards

The *Galileo G3 Assessment Scales* reflect a comprehensive and extensive alignment with the *Head Start Child Development and Learning Framework.* Moreover, any additional assessment alignment needed to accommodate individual state or local program needs as discussed in the *Framework* can be drawn from the extensive *ATI Assessment Bank* and from the use of *Scale Builder* technology discussed previously.

For over a decade, Galileo Pre-K Online has been comprised of reliable and valid assessment scales aligned with the 2000 *Head Start Child Outcomes Framework*. The *Galileo G3 Assessment Scales* provided by ATI to Head Start for use beginning in the 2011-2012 program year are aligned with, and reflect the scope and intent of the *Head Start Child Development and Learning Framework* for children Ages 3-5. These updated scales, fully

articulate the 11 Domains listed below, as well as the 37 Domain Elements comprising each Domain:

- Physical Development and Health
- Social and Emotional Development
- Approaches to Learning
- Language Development
- Literacy Knowledge and Skills
- Mathematics Knowledge and Skills
- Science Knowledge and Skills
- Creative Arts Expression
- Logic and Reasoning
- Social Studies Knowledge & Skills
- English Language Development

As has been our tradition in serving early child programs for almost 25 years, ATI's approach to the construction, updating and alignment of assessment tools is designed to ensure that there are multiple representative capabilities that can be assessed across all domains of learning and development. This approach helps to ensure that early childhood assessment within Galileo Pre-K Online provides a comprehensive, meaningful, reliable and valid picture of a child's development. Information of this type can then be used by a variety of early childhood stakeholders for progress monitoring, outcome documentation, the planning of developmentally appropriate learning opportunities, and communication with families.

iii. *Technology and Expertise to Accommodate Standards-Based Assessment*

The *Head Start Child Development and Learning Framework* recognizes the important role of early learning standards both at the Federal and individual state levels in promoting continuous quality improvement in programs and child well-being and success. The *Galileo G3 Assessment Scales* reflect the importance this standards-based approach to assessment and the alignment of assessment tools to standards in ways that ensure that there is at least one and, more often, multiple representative capabilities in Galileo that can be assessed in order to provide a comprehensive and meaningful portrait of a child's development and mastery of standards. In addition, in order to provide reliable and valid assessments of children's learning and development that can be used to inform educational decision-making, all the capabilities on the *Galileo G3 Assessment Scales* and in the *ATI Assessment Bank* contain difficulty and discrimination parameters, making it possible to use them in generating Item Response Theory (IRT) interval level Developmental Level (DL) scores. The use of IRT makes it possible to use data from assessment with a high degree of fidelity in meeting Head Start requirements for *Education and Early Childhood Development Services* articulated in the revised FY2011 *Office of Head Start Monitoring Protocol.* These requirements call for the effective use of data by a variety of stakeholders for progress monitoring, outcome documentation, the planning of developmentally appropriate learning opportunities, and communication with families. For more information about IRT please visit the ATI website publications link at http://www.ati-online.com/galileoPreschool/PrePublications.html.

Standards-based Pre-K education is complex, and changing rapidly. In addition to the standards incorporated into the revised *Head Start Child Development and Learning Framework,* early learning standards can vary substantially from one state to another. Moreover, standards within states change frequently. As discussed previously, ATI uses a

unique technology called *Scale Builder* to support a dynamic approach to assessment that makes it possible to adapt quickly to the changing landscape of standards-based early childhood education. *Scale Builder* allows for desired learning standards to be easily entered into the system and articulated to assessment content and instructional materials. This step is instrumental in ensuring that an integrated alignment with the *Head Start Framework* is achieved.

With the standards (i.e*., Framework*) in the system, goals can be set and progress towards desired standards cannot be measured. This capability is also essential to support the adaptability of Galileo Pre-K Online as standards evolve as is the case with federal and individual state early learning standards that have occurred over these past several years and which will occur in the years ahead. Learning standards that have been entered into Galileo Pre-K Online may be readily expanded or edited and new alignments to assessment material created. Moreover, ATI maintains an *Assessment and Instructional Design Department* staffed by individuals with extensive experience in the development of assessment instruments including both direct assessments and observational assessments. The department team is responsible for developing and maintaining *ATI Assessment Banks*, which contain thousands of items and observational prompts designed for use in assessing children from birth through the 12th grade. These banks are used to adjust *Galileo Assessment Scales* as needed to ensure continuing alignment with federal and state early learning standards. Finally, given the fact that almost every state now has early learning standards, the Multi-Method approach described earlier affords Head Start and other early childhood programs the flexibility needed to accommodate changing and varied standards.

iv. State-of-the-Art Research Producing Reliable and Valid Assessments

Effective implementation of assessment aimed at monitoring progress and documenting learning outcomes in response to *Framework* goals requires reliable and valid assessments. The *Galileo G3 Assessment Scales* included in Galileo Pre-K Online meet this need. The assessment content in these instruments have been studied thoroughly and extensive information is available on their reliability and validity. In addition, to meet unique and changing assessment requirements impacted by changes in state and federal policy decisions and early childhood learning standards, ATI maintains research services as an integral component of Galileo Pre-K Online. For example, as discussed previously, ATI has developed technology making it possible to update the psychometric properties of assessment instruments using IRT techniques. Thus, research services for the use of the *Galileo G3 Assessment Scales* include ongoing, updated psychometric analyses of these Scales. The ATI *Research and Development Department* has automated the process of establishing the psychometric properties of newly developed assessments. Assessments are initially used informally by clients in the classroom. When an initial round of assessments has been completed, IRT models are run providing information on the reliability and validity of the assessment. The results are made available online in an *Item Parameter Report*.

v. An Ideal Measurement Approach to Facilitate Progress Monitoring and Trends

Galileo Pre-K Online is ideally suited for monitoring progress, assessing trends and evaluating the impact of curricula intervention over time as called for within the *Framework.* The measurement of progress requires assessment scales capable of reflecting continuous changes in children's development. ATI uses IRT techniques to establish continuous developmental scales for the *Galileo G3 Assessments* used to measure progress and document Head Start child outcomes. The Developmental Level (DL) Score provided for the

scales is generated using IRT techniques. It provides both norm-referenced and developmental information. For example, DL scores can be used to indicate the relative standing of particular groups of children such as DLLs in a norm group comprised of preschool children. Normative information can be used to target local Head Start program curricula resources to ensure that all children are receiving the learning opportunities that they need to support their development. In addition to providing normative information, the DL score indicates position in a developmental progression.

ATI uses IRT to empirically validate developmental sequences linked to indicators related to the *Domains* and *Domain Elements* in the *Framework*. The DL score can pinpoint a child's position in an empirically validated progression. In Galileo Pre-K Online, the developmental information given by the DL is used to provide planning suggestions indicating the capabilities that the child is ready to learn now or will be ready to learn soon or later.

In light of the many benefits associated with IRT, it is not surprising that it represents the "gold standard" for measuring progress in standards-based education. It is used to generate ability scores for the National Assessment of Education Progress (NAEP) and it is used in statewide assessments in states across the nation.

The effective measurement of children's progress in Head Start requires advanced database technology as well as state-of-the-art statistical techniques. ATI stores information in a scalable storage area network (SAN) that makes it possible to access information on progress over time quickly and efficiently. We do not archive data, thereby making it inactive and not easily accessible to Head Start programs. All data in the system is active. Nothing is lost. Currently, the Galileo database contains over three-hundred million records on children's learning. As a consequence, reports documenting progress can be generated for multiple time points during a given program year or across years by any user of the system. Reports are available for all children who have been assessed through the system including children who are currently receiving services as well as children who have received services in the past. A prime example of the use of this technology in Head Start is the *Portrait of Child Outcomes.* Over the past several years, a broad array of Head Start programs have been part of a multi-state, innovative, grassroots initiative with ATI in which Head Start programs from a number of states joined together, pooled their data, and shared information about children's learning and development. The role of ATI in this initiative is to aggregate data gathered by programs and to display the data in reports documenting children's learning. Galileo generated Portrait data are recorded online and are available in real-time. Thus, there is a unique opportunity to provide a changing portrait of outcomes reflecting the course of children's learning. The Portrait is available on the ATI website (http://www.ati-online.com/galileoPreschool/PreOverviewChildOutcomes.html) and the National Head Start Association website (http://www.nhsa.org/research/full_research_studies).

vi. Continuous Assessment to Promote Learning, Monitor Progress, and Document Outcomes

Galileo Pre-K Online supports continuous assessment to promote learning, monitor progress and document outcomes. In fact, any number of observation periods can be accommodated within Galileo Pre-K Online. Each time information regarding a capability is entered into Galileo Pre-K Online, the information, the data source, related anecdotal notes, and the date of the entry are recorded. When a new record is entered, the information for that record is added to the system. Nothing is ever lost. As a consequence, a continuous record of

children's learning is available from the system. This innovative feature helps to ensure that assessment, as called for in the *Framework*, occurs in ways that serve as a lens for continuously analyzing data in order to understand child progress and to identify areas that need additional resources and attention. Moreover, whenever assessment information is entered into Galileo Pre-K Online, for a given Head Start Domain, the child's DL score is immediately updated and recommendations are made as to the capabilities that the child is ready to learn now, soon, or later. These recommendations are empirically based. IRT technology makes it possible to estimate the probability that a child achieving a given DL score on a particular assessment scale in Galileo will be able to perform any of the various capabilities assessed in that scale. These estimates are continuously updated and used to identify capabilities that are appropriate targets for instruction. Activities aligned with capabilities may then be selected to provide learning opportunities continuously reflecting each child's learning needs. Tools such as Galileo *Progress Reports* and Galileo *Curriculum Maps* provide instantaneous information for use in facilitating children's continuous development and learning. Finally, through the use of Galileo *Scale Builder*, ATI can translate the *Galileo G3 Assessments* into another language (e.g., Spanish), thereby providing an opportunity for the program to report assessment results in the home language of the child.

vii. Outcome Assessments over Multiple Years

As indicated previously nothing is ever lost in Galileo Pre-K Online. Accordingly, it is possible to assess learning over multiple years. The procedure is exactly the same as that used to assess learning at multiple times during a single year. The Head Start program user selects an assessment and specifies the dates of interest and the system runs reports corresponding to those dates.

C. Planning: Galileo Supports Diverse Curricula and Local Implementation Design

According to the *Framework*, "a Head Start program needs to make curriculum decisions that take into account a number of factors." For example, "a program is required to use a curriculum that is developmentally appropriate, research-based, and aligned to the *Framework*." "In fact, programs may find that curriculum adaptations or additional curricula are necessary to address all the domains or to be culturally and linguistically responsive to children, families, and communities." Finally, "programs (are to) conduct ongoing child assessment throughout the year to determine if instructional strategies need to be adapted to meet children's specific needs."

Clearly, the planning of learning opportunities and the selection of appropriate curricula to help facilitate these opportunities in ways that promote development is a critical component of the *Framework*. Effective planning requires knowledge of each child's developmental accomplishments, activities that provide learning opportunities to promote development, procedures for evaluating learning, and a lesson plan recording the activities intended for the children during a specified time period. Galileo Pre-K Online includes features that aid Head Start programs in achieving these goals and in accomplishing each facet of the planning process in ways that allow for a great deal of flexibility to support diverse curriculum content while maintaining the direct articulation to desired outcomes for children.

i. Planning Suggestions

As discussed previously, in Galileo Pre-K Online planning and implementation is closely linked to assessment. For example, assessment information provided through Galileo Pre-K Online includes planning suggestions, which assist in the planning and implementation of learning opportunities designed to promote development. For example, a teacher using the system may be advised to plan activities soon to promote the development of a particular capability or set of capabilities within and across *Domains*. Using IRT measurement technology discussed previously, planning suggestions are based on estimates of the probability that a child at a particular developmental level will be able to perform the capability in question. Suggestions recommend learning opportunities reflecting a broad range of difficulty levels. For example, the advice to plan now would typically include activities that will be challenging to acquire as well as those that will be relatively easy to acquire. For ease of interpretation, the probability continuum and estimates computed using IRT is divided into levels (e.g. learned, plan now, plan soon, and plan later). Planning suggestions are displayed as teachers their record observations of children's development. Suggestions along with recommended activities are also available in several reports provided in the system. Planning suggestions and recommended activities are just suggestions. The user can override them. For example, a teacher might record "plan soon" for a capability, which initially had a "plan later" suggestion.

ii. Activity Building

Teachers are continually searching for new activities to promote children's learning. Moreover, teachers often find it useful to develop activities of their own. The continual search for new activities is well justified. In a society characterized by rapid social and technological change, there is a continual need to offer new kinds of learning experiences to children. In the paper-based world of the past, activities were constructed as part of static curriculums that remained constant over extended time spans. The information age and the requirements of the *Framework* call for dynamic curriculum that accommodates continual modification of activities. Galileo Pre-K Online accommodates the need of continual change by enabling teachers to create their own activities and to modify activities that are stored and disseminated electronically. When a new activity is created, it is automatically hyperlinked so that it can be related to relevant *Framework Domains* and *Domain Elements*. New activities are also automatically linked to assessment information in the manner described earlier. Sets of activities can also be added to the system. This makes it possible for the system to accommodate a broad range of curricula including large numbers of activities from which the user may choose. Activities are entered into Galileo Pre-K Online using *Activity Builder*. Users are supplied with a single straightforward interface to enter specifics about the activity including skills to which it should be aligned, details about how it should be conducted, and the library in which it should be stored. The libraries are an important construct within Galileo because they provide a means for activities to be accessed and shared enabling teachers to work collaboratively if desired.

iii. Activity Libraries

Galileo Pre-K Online includes several libraries of activities that can be used in planning and implementing learning opportunities to meet children's developmental needs as called for in the *Framework*. In Galileo, activities are linked to assessment information. For example, when a teacher is recording development with a particular *Domain Element* such as *Number Concepts and Quantities*, the teacher may preview activities that could be used to promote development in that area. To view activities providing learning opportunities related to counting,

for example, the teacher could click on a link in Galileo labeled *counting*. This brings up an activity related to counting. Activities are hyperlinked. Thus, the teacher could browse through other activities related to counting. The search could be broadened to other math activities, or to the table of contents, which includes libraries classifying activities in terms of a broad range of developmental areas, knowledge areas, and age levels.

iv. Electronic Lesson Planning

Electronic lesson planning in Galileo Pre-K Online also promotes the provision of learning opportunities that meet children's developmental needs, as called for in the *Framework*. Teachers using Galileo lesson-planning tools can select and implement goals that are directly linked to the capabilities targeted by assessment. Goal selection is informed by the inclusion of data indicating the readiness levels of children with respect to each goal. Electronic lesson planning in Galileo also links goal selection to activity selection. When a teacher selects a goal, activities related to that goal can be previewed. When a suitable activity is found, it can be added to the plan with a mouse click. Activities may also be searched by a keyword search function. Electronic lesson planning in Galileo makes it possible for teachers to share plans and/or to create joint plans as part of implementation. For example, a group of Head Start teachers may decide to develop a lesson plan series, which may be used by all members of the group. Substitute teachers and volunteers might also use plans in the series. In this way the series could make an important contribution to the continuity in children's learning in those instances when a member of the planning group is sick or otherwise unavailable for teaching.

D. Monitoring: Ensuring that Implementation is on Track

Galileo Pre-K Online *Monitoring Tools* are used to monitor the implementation of plans to achieve positive outcomes for children and are essential tools for helping Head Start programs address the requirements of the *Framework*. These Galileo *Monitoring Tools* are particularly helpful in supporting Head Start requirements for *Education and Early Childhood Development Services* articulated in the revised FY2011 *Office of Head Start Monitoring Protocol.* The revised *Protocol* places a greater emphasis on the quality of the delivery and management of program services such as those provided in the area of *Education and Early Childhood Development Services*. As discussed in the *Head Start Monitoring Protocol*, "the focus of the Protocol is on making connections between program systems and collecting data on critical indicators of success in promoting school readiness."

i. Linking the Monitoring of Implementation to Program Management

The ability of a Head Start program to engage in the effective management of *Education and Early Childhood Development Services* within the context of the Galileo Pre-K Online *Early Intervention Cycle* involves monitoring the implementation process to inform decisions necessary to ensure that implementation occurs as planned. Monitoring implementation in order to help support effective management is one of the most important technological advances for head Start provided by Galileo Pre-K Online. Electronic monitoring through Galileo gives rapid access to information that can be of assistance in determining whether or not implementation is occurring as expected. The rapid availability and ease of accessing monitoring information increases the likelihood of promptly correcting implementation problems. The annals of educational research and evaluation are filled with examples in which the effectiveness of innovative interventions has been seriously compromised by lack of monitoring information and

attendant corrective action. The technology comprising Galileo Pre-K Online makes it possible to change this unfortunate state of affairs.

Galileo Pre-K Online includes *Monitoring Tools* that make it possible for program administrators can effectively monitor implementation. These tools allow the user to check data from any classroom, center, agency, or grantee including child information, parent information, and staff information. In addition, the system maintains a log of the information that has been checked so that the user can retrieve it when required. For example, the system can monitor teacher observations of children's learning. The log can detail what developmental areas have been observed and when observations have been made.

A major goal in the FY2011 *Office of Head Start Monitoring Protocol* is to evaluate the kinds of learning opportunities provided to children. As is well known, children construct new knowledge and skills when they are afforded learning opportunities that are appropriate for their level of development. Galileo Pre-K Online allows Head Start programs to evaluate learning opportunities by monitoring the kinds of goals and activities included in lesson plans. For example, suppose that a teacher found that her lesson plans included very few goals providing learning opportunities in the *Literacy Knowledge and Skills Domain*. This information might alert her to review children's progress in this *Domain* and the underlying *Domain Elements*. On the basis of her review of lesson plans and children's learning, she might decide to increase the number of learning opportunities provided in this *Domain* and for specific *Domain Elements*.

Monitoring implementation of *Education and Early Childhood Development* Services as called for in the *FY2011 Office of Head Start Monitoring Protocol* is not limited to the evaluation of learning opportunities. There are many other activities that may need to be evaluated to manage implementation effectively. For example, a teacher or education specialist may need to evaluate parent contacts or the implementation of a developmental screening program as part of her effort to guide implementation. Galileo Pre-K Online allows teachers and other key staff in Head Start to determine whether or not activities expected to occur as part of implementation have occurred. For example, suppose that an education specialist wanted to check to ensure that all children scheduled for developmental screening had received screening. To address this question, Galileo Pre-K Online would indicate all of the children missing screening information. The list would be recorded in the system log so that it could be retrieved as needed by the educational specialist. The system also allows the user to determine whether or not activities are being implemented in a timely fashion. For example, in the case of developmental screening, the education specialist might want to ensure that screening occurred by a certain date. To address this question, the system would identify cases in which screening occurred after the selected date. This information would be recorded in the log so that it could be retrieved as needed.

E. Evaluation: Promoting Continuous Quality Improvement in Programs

The *Head Start Child Development and Learning Framework* calls for local decision-making and action leading to positive outcomes for children including promoting continuous quality improvement in programs, child well-being and success. In order to achieve this goal, ongoing evaluation involving the gathering of information in a timely fashion is essential for informing implementation decisions and revisions in those decisions during the course of the program year. In many cases, evaluation is the culmination of the Galileo *Problem-Solving Early Intervention Cycle* achieved through use of Galileo Pre-K Online. For example, when an implementation goal is attained, problem solving with respect to that goal is completed. The

teacher, specialist, or program, then may turn attention to a new set of goals and problem solving commences again. In those instances in which the goal is not attained, evaluation typically leads to additional efforts to achieve the originally established goal. However, it may also eventuate in the decision to revise the goal.

In Galileo Pre-K Online, evaluation information is provided through various reports that can be used to monitor learning. These reports are designed to accommodate varying levels of aggregation. For example, reports can be generated that aggregate child learning outcomes across several groups of children, classes, centers, or agencies. It is also possible to aggregate across all centers within an agency. One can also generate reports for classes within a center or school. In addition, it is possible to generate individual reports for one or more children. Galileo Pre-K Online includes five types of reports that support local program evaluation efforts and continuous quality improvement: *Development Profile Reports*, *Development Milestone Reports*, *Development Summaries*, *Achievement Level Reports*, and *Progress Reports*.

i. Evaluating Goals and Goal Achievement

Electronic monitoring associated with the evaluation component in Galileo provides information that can be used to inform a variety of management decisions directly linked to local Head Start program decision-making activities associated with *Framework* and *Monitoring Protocol* guidelines. In this regard, decisions involving the selection and achievement of learning goals are of particular importance. For example, consider the familiar situation in which an array of learning goals comprising several *Domain Elements* have been identified as requiring inclusion in upcoming lesson plans in the next few weeks. Clearly one of the principal goals of intentional instruction/intervention and scaffolded learning during this time will be to ensure insofar as possible that all children meet achieve these goals. There may be, indeed probably will be, children who have met the goals before instruction begins. What are the goals of learning for these children? Galileo Pre-K Online provides information that allows the decision-maker to address questions related to the establishment of learning goals. For example, by looking at lesson plan goals in conjunction with the Developmental Levels of the children, derived from the *Galileo G3 Assessments,* a teacher could gain information that would assist her in determining whether goals have been set at too low or too high a developmental level for each of the children in her class. She would also be able to determine whether the goals established to promote learning cover all of the developmental areas that the program is intended to cover within a specified period of time.

Galileo provides the additional capability to allow Head Start programs to customize the achievement levels that are to be used to set goals and evaluate child outcomes. For example, a teacher might set two achievement levels such as *Learned* and *In Progress* and run Galileo reports using these levels. While this might meet the needs for some classrooms, others might wish to have three or four achievement levels. For example, many Head Start programs use three levels: *Beginning Level of Development, Intermediate Level of Development,* and *Advanced Level of Development.*

ii. Continually Evaluating Goal Achievement and Modifying Plans to Achieve Positive Outcomes

Given that appropriate goals have been set, it is important for a Head Start program to evaluate the extent to which those goals are being achieved. The importance of evaluating goal attainment is inherent both within the *Education and Early Childhood Development Services*

component of the *FY2011 Office of Head Start Monitoring Protocol* and in the Head Start Framework. Galileo Pre-K Online allows Head Start programs to address this aspect of evaluation in a number of ways. The most direct approach is to examine the congruence between previously established goals and children's current developmental accomplishments. For example, if a previous goal was to provide learning opportunities for children to "retell stories or information from books through conversation, artistic works, creative movement, or drama" (see, for example, *Book Appreciation and Knowledge* within the *Literacy Knowledge and Skills Domain*), the teacher would determine whether the children for whom that goal had been set had acquired the requisite skills. Another approach would be to look at changes in children's developmental levels over time and changes in lesson plan goals occurring over time. The advantage to this approach is that it allows the teacher to address a broad range of goals, as called for in the *Framework,* within the context of one piece of information - the Galileo Developmental Level score. It also affords the teacher the opportunity to assess the relationship between developmental outcomes and the provision of learning opportunities. It is reasonable to expect that there will be a relationship between what is taught and what is learned. If this is not the case, something is probably amiss in the implementation of the curriculum being used.

When learning goals are not being achieved, there are basically two courses of action that one can take. One is to revise the plans for providing learning opportunities for the children. The second is to revise the goals set for learning. If there has been no progress toward the goals of instruction/intervention, the teacher or education specialist may wish to reexamine the plans made to promote learning. The first question to be asked in this regard is whether or not the plan was implemented as intended. For example, if the plan called for the implementation of a set of learning activities from a selected curriculum, were those activities implemented? If they were, the teacher or other Head Start program staff may wish to examine whether or not the activities that were implemented actually provided the intended learning opportunities. For instance, it may be found that some children did not fully participate in the activities. In those instances in which problems are found in plan implementation, one may wish to revise the plan and engage in further implementation to provide children additional opportunities to achieve the established goals. On the other hand, if it is determined that plan implementation revisions are not likely to achieve the desired results, one may elect to revise the goals.

In some cases, there may be progress toward the achievement of goals, but the rate of progress is far less than expected. Under these conditions, there is probably no reason to change the goals. The typical course of action will be to revise the plan. In those instances in which goals have been achieved, new goals may be selected to provide opportunities for the children to experience further growth. In addition, enrichment activities may be implemented to provide children with opportunities to deepen their understanding and increase their capability to implement newly acquired competencies.

iii. Accounting for Variables that may Affect Positive Outcomes

Effective evaluation activities designed to articulate *Framework* and *Monitoring Protocol* guidelines requires consideration not only of whether or not learning goals are achieved, but also of the factors that may affect learning. Learning may be influenced by a number of child, family, classroom, and community variables. *Child variables* include characteristics such as age and attendance in Head Start. *Family variables* include characteristics such as family size, the age of primary caregivers, their education, and their relationship to the child. *Classroom variables* include factors such as teacher education and experience. *Community variables* include factors such as community size and learning resources. Galileo Pre-K Online makes it

possible for Head Start programs to collect information on these kinds of variables and to assess their relationship to learning outcomes. The innovations for Head Start provided with the *Merlin* capability of Galileo Pre-K Online makes it possible for Head Start programs to keep track of any variable that might be relevant for planning with the particular group of children served by their program. These variables can be quickly added to a dynamically created form and data collected immediately. For instance, if child participation in a particular program was of interest, within minutes the appropriate additions could be made to the *Merlin* data collection forms being used. Once the *Merlin* form changes have been made then data collection can begin immediately and the results can then be used in the Galileo reporting engine as a filter. Filtering capabilities in Galileo make it possible to generate reports on selected groups of children, and customized reports, as well as export routines which afford the capability to produce files that can be transmitted to other early childhood reporting systems, as called for in the *Framework.*

III. Supporting the Problem-Solving Early Intervention Cycle

A. Quality Control: A Proactive Approach to Help Ensure Data Quality

In order for the information in Galileo Pre-K Online to be useful in promoting children's learning, it is necessary to ensure the quality of information available in the system. It is virtually certain that there will be errors in the information available in any electronic system used by Head Start programs to implement *Framework* and *Monitoring Protocol* guidelines. The job of the quality control component is to catch errors when they occur. Quality control checks within Galileo Pre-K Online fall into three categories: checks associated with data collection, checks associated with data transfer, and checks associated with data updates. For example, Galileo Pre-K Online includes quality control features that alert the Head Start user to data entry errors at the time that data entry occurs. In addition, the system includes tools that allow the user to check the quality of data that has been collected previously. The following quality control features illustrate the kinds of measures taken to ensure the accuracy of data collection in the system. Globally unique identifiers (GUIDS) based on technology developed by the Open Software Foundation are used to ensure that all IDs used to reference data will be unique. GUIDS are by definition unique over both space and time. This guarantees for example, that a child ID generated on one computer will be different from a child ID generated on any other computer. Out of bounds checks are included to ensure that data entered conform to expected values. For example, the user is alerted if the entry for a child's date of birth is not within logically reasonable limits. Checks for duplicate information are included in Galileo Pre-K Online. For example, checks are included to alert the user to duplicate agency, center, or class entries.

As called for in the *Framework*, there may be instances in which a Head Start program will need provide child assessment data to other early childhood reporting systems. Galileo Pre-K Online includes the capability to download data in a variety of different formats including XML and delimited text files such as csv. XML format is considered the gold standard for transfer of data from different software applications to a centralized database. The module within Galileo Pre-K Online has been used by several Head Start ATI clients to transfer child and program information to the federal government. This module contains quality control monitoring tools to determine if the XML document conforms to the required standards. Error messages generated by these checks can prompt the users to enter additional information or to fix problems with what has been entered.

B. Communication: Connecting Head Start Stakeholders as Partners in Learning through a Fully Integrated Reports Suite

The *Framework* and *Monitoring Protocol* guidelines are intended to assist Head Start programs in developing effective connections between program systems and among program staff that support the collection and use of data to promote learning and school readiness. Clearly effective connections require effective systems of communication be used by stakeholders. In this regard, the communication component of Galileo Pre-K Online is designed to promote the sharing of information about children's learning among stakeholders in the learning process. The system supports the dissemination of information on children's learning to various audiences within and outside Head Start.

Galileo Pre-K Online is comprised with a fully integrated reporting suite that can be used to address requirements of the *Education and Early Childhood Development Services* component of *the FY2011 Office of Head Start Monitoring Protocol* and the *Head Start Child Development and Early Learning Framework.* The Galileo Online reporting engine for example, is used extensively by teachers for individual and child classroom reports. These reports are designed to support and inform the planning process. The overall goal of *Online Reporter* is to provide those in administrative, monitoring, supervisory, and policy-making roles with the advantage of rapid access to information for use in setting educational goals, making and implementing plans to achieve those goals, and evaluating goal attainment. Users of the information in the reports are administrators, specialists, Education Coordinators, policy-makers, and researchers.

The reporting tools in Galileo Pre-K Online provide efficient reporting of child data to all stakeholders including teachers and parents. Since Galileo assessments are scored automatically by Galileo the moment the assessment data is entered, Galileo reports are immediately available to all stakeholders and provide accurate, up-to-the-minute information on which to base educational decisions.

Galileo Pre-K Online provides five primary ways of reporting children's performance data, each of which can be generated for the individual child, a selected group of children, a whole class or an entire agency. A list of the primary report types and a brief description of the array of reports available within these report types follows.

TABLE 1
Six Major Types of Galileo Pre-K Online Reports

Six Major Types of Galileo Pre-K Online Reports		
1	**Development Profiles and Learning Plans**	Shows the count of children at each readiness level for each goal in a selected scale.
2	**Knowledge Area Proficiency Profiles**	Shows the number and percentage of skills rated at the proficient level for each knowledge area.
3	**Development Milestones**	Shows the percentage of children at each readiness level for selected goals in a scale.
4	**Development Summaries**	Provides a series of four scores that summarize a child's development.
5	**Progress Reports**	Shows change that occurred in children's development from an initial observation period to a subsequent observation period.
6	**Online Reporter**	Expanded aggregated reporting on status, trends and progress.

1. Individual Development Profile

The *Individual Development Profile* shows an individual child's readiness level related to each goal in a selected *Domain*. The teacher may also choose to generate a version of the report that includes the data source on which the observation for each capability is based. The *Individual Development Profile* can be filtered according to readiness level. For example, the teacher may wish to generate a report listing only the skills for which the child is *ready now*. This is easily accomplished when generating the report by removing check marks from all of the readiness levels except for *Ready Now*. This report can also be generated according to data source. For example, a report could be generated listing only parent input. With *the Individual Development Profile* in hand, the teacher now has a handy checklist of skills to focus on with this particular child.

2. Individual Learning Plan

Another report that is closely related to the *Individual Development Profile* is the *Individual Learning Plan*. This report serves to facilitate communication between the teachers and parents and is useful for parent-teacher conferences. It is essentially the same as an *Individual Development Profile* but at the bottom of the report it contains a place for the parent to sign the report. This helps teachers document that the parent has been informed of his or her child's progress. As with the other reports teachers can choose which readiness levels they wish to display.

3. Class Observation Report

Although the *Class Observation Record* is designed as a tool for recording observations, it also serves as a convenient report that provides the classroom teacher with an overview of where all of the children in the class stand, developmentally, with regard to the skills within each Domain and Domain Element.

4. Individual Knowledge Area Proficiency Profile

The *Knowledge Area Proficiency Profile* is a report that lists each Domain Element (i.e., knowledge area) of a Domain, the number of goals per Domain Element, and the percent of goals attained by the child (or children, if the report is aggregated across children). The percentage is determined by the following two-step formula:

(children) x (goals in knowledge area) = A

(children in the "learned" column)/A = %

When the report is generated for a single child, of course, the formula is simply the number of goals in the knowledge area that the child has learned divided by the total number of goals in the Domain Element. This report allows the user to view all Domains at one time, thus showing the development of the child in all Domains at once.

5. Development Milestones

Development Milestones reports are also closely related to the *Development Profile*. Essentially, this is a *Development Profile* that is run on a set of selected capabilities in a given Head Start *Domain*. Typically, the teachers, directors, and supervisors together select certain capabilities in each *Domain* to monitor. These capabilities are usually important benchmarks in the child's development. For example, out of the *Mathematics Knowledge and Skills Domain*, an agency may want to document progress on several math capabilities that are essential for children successfully transitioning into kindergarten. This information is especially beneficial to use when developing lesson plans that address these important benchmarks.

6. Development Summaries

The *Development Summary* report gives a series of four norm-referenced scores that summarize a child's development. When the report is generated, the educational manager can select which *Domains* to include so that developmental data regarding all *Domains* of interest can be viewed at once. A program/district administrator or teacher can generate a *Development Summary* for individual multiple children.

The *Percentile Rank of the Developmental Summary* gives the percentage of scores in the norm group at or below a particular score. Percentile ranks in Galileo reports serve essentially the same purpose as standard scores in that both scores indicate position in a norm group. The percentile rank is particularly useful in communicating to audiences with varying familiarity with statistical terms. Percentages are widely used in a variety of fields to communicate quantitative information. As a result many people have a good idea of what a score expressed in terms of a percentage means.

The *Standard Score* in the *Summary* specifies position in a norm group in terms of standard deviation Units. A distribution of standard scores has a mean of zero and a standard deviation of one. Standard scores provided in reports in Galileo Pre-K Online may be used to plan interventions for individual children or groups of children. For example, a teacher may wish to plan an intervention program for children who score one or more standard deviations below average on an assessment.

The *Normal Curve Equivalent (NCE) Score* is a norm-referenced score with a mean of 50 and a standard deviation of 21.06. The result achieved by setting the mean at 50 and the standard deviation at 21.06 is a set of equal interval scores ranging from zero to 99. NCE scores have been widely used in federally funded remedial education programs. They provide a common approach for describing performance on tests in different subject areas. In so doing they facilitate comparisons of assessment scores reflecting achievement in different areas. It should be noted that standard scores and percentile ranks also can be used to compare assessment scores in different areas.

Finally, the *Developmental Level (DL) Score* can be interpreted as a norm-referenced score. However, as its name implies, it can also be interpreted from a developmental perspective. Discussion here will focus on the norm-referenced nature of the DL Score. The DL score is calculated in Galileo Pre-K Online using a mathematical model based on Item Response Theory (Thissen & Wainer, 2001). The model assumes that ability is normally distributed and that the ability distribution has a mean of zero and a standard deviation of one. In keeping with accepted measurement practice, a series of linear transformations are implemented to replace the mean of zero and standard deviation of one with numbers that are more intuitively reasonable for teachers, administrators, specialists and parents. The values used for these transformations will vary depending on the extent to which test equating is implemented across grades. For the purposes of reporting to program administrators, the teacher can select all children and present them on a single *Development Summary* report. Single or multiple *Domains* can also be selected.

7. Progress Reports

Progress reports provide one convenient method for monitoring outcomes and progress over time, but Galileo Pre-K Online provides many others. This is because, when generating any of the reports described in this document, the user can select an observation period. The default for this feature is the current date, but a teacher could, in April, 2011, generate a report for the period ending September 30, 2010 and compare it to the report generated for the current time period. Thus the teacher always has comparative data for *Development Profiles, Knowledge Area Proficiency Profiles, Development Milestones and Development Summaries* at her fingertips.

Teachers and especially program administrators often find aggregated data reflecting progress or the current status of the children useful in making educational decisions. Such data is quite useful for program evaluation, for example. To meet these needs, the vast majority of reports in Galileo Pre-K Online can be run at several levels of aggregation: the class, center and agency levels. With this ability to aggregate in hand, program administrators can compare the performance of different classes or centers within the agency. Or the outcome of a program can be monitored at any of these levels.

i. Expanded Aggregation to Monitor Status, Trends, and Progress

Galileo Online Reporter enables Head Start administrators and supervisors to generate a variety of multi-level reports that reflect child outcomes including patterns of progress. This multi-level capability goes beyond that in Galileo Pre-K Online in that reports can be produced at a multi-agency level in addition to the class, center, and agency levels. Program administrators from several agencies may decide they want to be able to aggregate their data for reporting purposes. This would be accomplished in *Online Reporter* by forming an e*Learning*

Community. As discussed previously, the **Head Start Portrait of Child Outcomes** is an illustration of this reporting capability. The Portrait is available on the ATI website (http://www.ati-online.com/galileoPreschool/PreOverviewChildOutcomes.html) and the National Head Start Association website (http://www.nhsa.org/research/full_research_studies).

With *Online Reporter* reports, programs can look at child outcomes for the entire agency as well as for various groupings of children (e.g., children at a specific center or at specific delegate agencies). Likewise, *Online Reporter* allows agencies with broad oversight, such as state departments of education, to look collectively and separately at all programs within their jurisdiction. The overall goal of *Online Reporter* is to provide those in administrative and policy-making roles with the advantage of rapid access to information for use in setting educational goals, making and implementing plans to achieve those goals, and evaluating goal attainment.

Galileo *Online Reporter* includes filters that make it possible to create reports for specific groups of children. For example, an administrator might wish to run a *Development Profile* in *Mathematics Knowledge and Skills* for children who will be five by September 1 of the upcoming school year. Creating this profile is possible simply by activating the age filter provided in *Online Reporter*. Programs create their own filters when they create *Child Forms*. Other filters of interest include ethnicity, gender, special needs, financial need, program type, and primary language. Examining the accomplishments of different groups of children may lead to the establishment of different sets of goals for different groups. Moreover, for all reports in *Online Reporter* it is possible to generate a *Demographic Report*. The *Demographic Report* provides the user with basic demographic information about the children in the report.

C. Implementation Supported by Professional Development and Field Services

No technological system utilized in Head Start can be effective if it is not properly implemented. At ATI we help to ensure effective implementation of Galileo Pre-K Online through onsite professional development and field services support conducted by the ATI Professional Development Department, the Field Services Department, and the Information Technology Department.

The ATI professional development team provides an array of online and on-site training venues and tools designed to address the start-up, rollout and systematic implementation of Galileo Pre-K Online. ATI's Professional Development Department has successful instructed thousands of teachers on Galileo, as well as our standards-based K-12 technology for almost 20 years. Our user-friendly features and easy-to-understand applications facilitate the successful professional development of staff and the utilization of Galileo Pre-K Online. ATI's Field Services and technical support team work directly with Head Start programs throughout the year to help maintain effective implementation. Moreover, Galileo Pre-K Online includes online tools that facilitate effective and prompt responses to Head Start program needs for support.

IV. Conclusion: Serving Head Start Needs Now and in the Future

Galileo Pre-K Online from Assessment Technology Incorporated provides a data-driven, standards-aligned approach to the management of learning for children from infancy through age five. One of the first to offer Head Start and other early childhood programs *online* assessment and curriculum tools, Galileo is built on the principles of science, supported by a

commitment to research, and guided by a vision that everyone should benefit from the opportunities and transformations of technology.

Today, Galileo Pre-K Online provides early childhood educators and other stakeholders a complete and fully integrated assessment, curriculum, and reporting system that links assessment, planning, individualization and program progress. Galileo Pre-K Online utilizes the Early Intervention Cycle and provides users with reliable and valid data on which to base learning opportunities and program management decisions. The cycle begins with goal setting and planning and is followed by implementation, then evaluation (data gathering and analysis); the results of evaluation inform decisions guiding the next goal setting and planning stages.

ATI's patented technology offers Head Start innovative, research-based, multi-method, customized assessment and curriculum tools that assist educators meet local, state, and federal requirements. Galileo Pre-K Online allows for assessment through observation in the child's learning environment, one-on-one observation, samples of children's work, and parent input. This broad range of formats accommodates the ways children from diverse backgrounds express their competencies and helps provide a meaningful portrait of each child's development. Ongoing assessment and monitoring of progress help educators determine if success is underway or if intervention is needed.

With Galileo Pre-K Online and its continuous research and updating of psychometric properties of scales, Head Start programs have the ability to maximize local control, benefit from flexibility both in assessment data sources and customized assessment scales and in choice of curriculum and teaching methods. Additionally, users benefit from options in form content and design, report filters and aggregation options.

V. Text References

Thissen, D. & Wainer, H. (2001). *Test Scoring.* Mahwah: Lawrence Erlbaum.

Office of Head Start Administration for Children and Families, U.S. Department of Health and Human Services. (2011). *The Head Start Child Development and Early Learning Framework: Promoting Positive Outcomes in Early Childhood Programs Serving Children 3-5 Year Old.* Head Start Resource Center: Author. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/eecd/Assessment/Child%20Outcomes/HS_Revised_Child_Outcomes_Framework.pdf