Gesell Institute of Child Development
Confirms: Development Matters

January 21, 2016
Alliance for Early Childhood
26th Networking Dinner

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Parenting in the 21st Century: What Research from Gesell Institute of Child Development Tells Us Is Most Important

January 22, 2016
Alliance for Early Childhood

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Hello from Gesell Institute of Child Development

Dr. Arnold Gesell

Arnold Gesell, PhD, MD, 1880 - 1961
1911 came to Yale, founded Yale Child Study Center
1950 established Gesell Institute of Child Development
First to systematically document and study child development and discover stages of development
Father of Child Development or Father of School Psychology

Gesell’s Mission
To promote the principles of child development for all decision-making about young children.

Gesell Developmental Observation-Revised (GDO-R)
Published —1925, 1940, 1964, 1979, 2011
Hello from IPA/USA

CHILDREN are the foundation of the world's future. CHILDREN have played at all times throughout history and in all cultures.

WWW.ipausa.org

Right to Play

UN Convention on the Rights of the Child
• International treaty that sets out universally accepted rights for children, 1989
• Supersedes Declaration of the Rights of the Child adopted in 1959.

Article 31 of the UN Convention
• That every child has the right to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts.
• That member governments shall respect and promote the right of the child to participate…

United States is the only country that has not ratified the 1989 Convention on the Rights of the Child!

www.childrightscampaign.org

“If we use effective tools, the child reveals himself to all who will stop and listen to what he says, and who, with seeing eyes, will watch what he does.”

-- Dr. Arnold Gesell

What Is the Gesell Developmental Observation?
• Truly an observation—all behaviors reveal something—truly developmental
• A performance-based, criterion referenced assessment system for children 2 ½-9 years
• Results provide a Developmental Age
• Results also provide a Performance Level Rating for each strand (Age Appropriate, Emerging, or Concern)
• Social/Emotional/Adaptive behavior evaluated with Teacher and Parent/Guardian Questionnaires in order to provide information about a child’s experiences and environments the context
Developmental Age
- Age which best describes the child’s overt behavior and performance on a developmental scale
- Developmental Age may be equal to, older than, or younger than the child’s actual chronological age
- Examiners receive training (3-day hands-on workshop) to learn how to use the GDO-R to determine a child’s Developmental Age

Purpose of the Study
- GDO last updated with technical data in 1979
- Former research did not meet today’s APA standards
- At one time, close to 25% of all Kindergarten children in the U.S. were assessed with the GDO
- Current state and federal standards mandate more research-based child assessment instruments
- Necessary to re-establish the integrity and national standing of Gesell Institute

Overview of GDO Study Timeline

Method
- Child data on 17 of the 19 GDO ©2007 tasks (167 items)
- Child data on 70 new pilot items
- Parent data on child’s Home/Health/History and Social/Emotional/Adaptive skills (78 items)
- Teacher data on child’s classroom behavior and Social/Emotional/Adaptive skills (45 items)
- Psychometric support and statistical analysis provided by Mid-Continent Research for Education and Learning (McREL)
Site Sample: School Type

- Private: N=33
- Public: N=703
- Total: N=736

Site Sample: Ethnicity

- Caucasian: 61%
- Hispanic: 15%
- African American: 15%
- Asian American: 4%
- American Indian: 3%
- Other: 2%

Site Ethnicity Distribution

Site Sample: Eligibility for Free/Reduced Lunch

- Children Eligible for FRL at GDO Study Sites

Examiner Sample

- 101 Examiners participated
- 88% examiners hold a Bachelor's or Master's degree
- Examiners were trained on standardized administration and data collection procedures for all GDO tasks for children age 3-6
- Examiners possessed a mean of 7 years GDO experience

Child Data Sample

- Sample n=1,287 children age 3-6
- Sample of convenience

<table>
<thead>
<tr>
<th>Age Band</th>
<th>Sample N</th>
<th>Chronological Ages of Children Included in Each Age Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>53</td>
<td>3 years 9 months and 0 days – 3 years 11 months and 29 days</td>
</tr>
<tr>
<td>3.5</td>
<td>131</td>
<td>3 years 3 months and 0 days – 3 years 8 months and 29 days</td>
</tr>
<tr>
<td>4</td>
<td>186</td>
<td>3 years 9 months and 0 days – 4 years 2 months and 29 days</td>
</tr>
<tr>
<td>4.5</td>
<td>264</td>
<td>4 years 3 months and 0 days – 4 years 8 months and 29 days</td>
</tr>
<tr>
<td>5</td>
<td>278</td>
<td>4 years 9 months and 0 days – 5 years 2 months and 29 days</td>
</tr>
<tr>
<td>5.5</td>
<td>221</td>
<td>5 years 3 months and 0 days – 5 years 8 months and 29 days</td>
</tr>
<tr>
<td>6</td>
<td>154</td>
<td>5 years 9 months and 0 days – 6 years 2 months and 29 days</td>
</tr>
</tbody>
</table>

Child Data Distribution: Sex

- Male
- Female
Performance Level Expectations

- Data Rubrics contain Performance Level Expectations
  - Not Yet Expected
  - Qualified Expectation
  - Solid Expectation
- Refers to the percentage of children within each age group that performed the task successfully.
- For reference purposes only; not used for scoring

Results: Performance Expectations by Age Band

Results: Cubes

Results: Cubes Findings
### Results: Cubes Findings

- Manipulating a cube to create an oblique angle (Gate) occurs at 5 years.

<table>
<thead>
<tr>
<th>Cube Structure Built</th>
<th>Solid Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>3 ½ years</td>
</tr>
<tr>
<td>Bridge</td>
<td>4 years</td>
</tr>
<tr>
<td>Gate</td>
<td>5 years</td>
</tr>
</tbody>
</table>

### Results: Copy Forms

<table>
<thead>
<tr>
<th>Form Copied</th>
<th>Solid Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>3 years</td>
</tr>
<tr>
<td>+</td>
<td>4 years</td>
</tr>
<tr>
<td>△</td>
<td>4 ½ years</td>
</tr>
<tr>
<td>▽</td>
<td>5 ½ years</td>
</tr>
</tbody>
</table>

### Results: Incomplete Man

### Children Are Not Developing Faster or Sooner

- Results highly consistent with Gesell’s original work.
- Children still accomplish important developmental milestones at the same time; e.g., copying forms:

<table>
<thead>
<tr>
<th>Form Copied</th>
<th>Solid Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>3 years</td>
</tr>
<tr>
<td>+</td>
<td>4 years</td>
</tr>
<tr>
<td>△</td>
<td>4 ½ years</td>
</tr>
<tr>
<td>▽</td>
<td>5 ½ years</td>
</tr>
</tbody>
</table>
**Results: Incomplete Man**

- Complex body parts such as Neckline, Hair and Ear are added at 5 – 5 ½ years.
- Requires increasingly sophisticated manipulation of pencil to add these parts to a pre-drawn figure.

<table>
<thead>
<tr>
<th>Body Part Added</th>
<th>Solid Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leg</td>
<td>4 years</td>
</tr>
<tr>
<td>Foot, Hand, Arm, Eyes</td>
<td>4 ½ years</td>
</tr>
<tr>
<td>Body Line</td>
<td>5 years</td>
</tr>
<tr>
<td>Hair, Ear</td>
<td>5 ½ years</td>
</tr>
</tbody>
</table>

**Important Improvements to the GDO-R**

- TQ/PQ for social/emotional/adaptive development
- Strand Scoring
- Performance Level Ratings
- New Scoring Rubrics
- Technical Report

**Study Conclusions**

- Established reliability and validity evidence for renewed use of the GDO instrument
  - Content Validity
  - Construct Validity
  - Inter-rater Reliability (.91-.93)

- Supports current brain research which indicates that new knowledge is built upon previous knowledge as synapses are connected

- Demonstrates stability of children’s growth through ages and stages of development
- Confirms Arnold Gesell’s original findings on major developmental milestones
- Children today are not developing faster!
Results Reported in Harvard Education Letter-Online

Development Matters!

Influence of Environment

10 Principles of Child Development

Heredity

- Shapes development by providing a genetic framework for physical characteristics that then affect personal potentials and limitations
- Influences development throughout life by affecting the sequences of growth, the timing of puberty, and the course of aging
- Often influences a child’s temperament
• Tiger Woods and his father:
  – Nature or Nurture?

Culture

• Ways of life including arts, beliefs and institutions of a population that are passed down from generation to generation
• Includes codes of manners, dress, language, written word, religion, symbols and rituals
• Passed on by social interactions with significant others/parents

Culture is a multidimensional source of influence on a child’s development.

Experiences...

• Quality and number greatly affect development
• Necessary to support a child’s developmental growth and progression through the stages
• Enhances development, but cannot speed up a child’s rate of developmental growth
• Builds the foundation for future learning
• Affects brain development

It's necessary to understand the child and its family in relation to both the immediate and larger socio-cultural environment.

83% No screen time
73% Watch TV
73% Watch videos or DVDs
18% Use a computer
9% Play video games
10 Principles of Child Development

Principle Number 2

All children go through the same stages of development at his/her unique pace; with starts and stops, regressions and transitions.

10 Principles of Child Development

Principle Number 3

Specific behaviors are associated with each age and stage, yet there are huge individual differences among children.

Temperament

FEISTY / DIFFICULT
- Quarrelsome and touchy with intense moods
- Frequently excited; fidgety with high activity level

FLEXIBLE / EASY
- Tends to conform and “go with the flow”
- Easily adapts to change; bends rather than confronts

FEARFUL / CAUTIOUS
- Slow to adapt, alarmed easily, anxious until comfortable
- Withdraws from situations when upset
Temperament Influences....

- Activity Level
- Rhythmicity (Regularity)
- Approach/Withdrawal
- Adaptability
- Threshold of Responsiveness
- Intensity of Reaction
- Quality of Mood
- Distractibility
- Attention Span/Persistence

Not all children can be placed into one of the 3 groups

Approximately 65% of all children fall into one of the 3 main categories

- 40% Flexible/Easy
- 10% Feisty/Difficult
- 15% Slow to Warm up

The Goodness of the “Fit”

The match between a child’s temperament and the DEMANDS and EXPECTATIONS of his or her environment.

Understanding temperament helps you see each child as an INDIVIDUAL who reacts to you and others in his/her own way.

Recognizing temperament also helps you understand YOU react to children in various ways.

10 Principles of Child Development

Principle Number 4

Human relationships are critical to development.

Principle Number 5

Interactions with environment and with others is essential to learning and development.

Serve and Return

10 Principles of Child Development

Principle Number 6

Growth of self-regulation, cognitive flexibility, and working memory (Executive Functioning skills) cut across all domains and are a vital goal of development.

Executive Functioning Skills

- Focus
- Self-control
- Persistence/Engagement
- Perspective-taking
- Communication skills
- Making connections
- Critical thinking
- Problem Solving
- Creativity
- Flexibility
- Taking on challenges
Executive Functioning of the Brain

- **Self-control:** Ability to inhibit a dominant response in favor of a less salient one
- **Working memory:** Ability to hold information and recall it when necessary
- **Cognitive Flexibility:** Ability to change and adjust mental effort

Prefrontal Cortex
Executive Functioning Skills
“A Global Neuronal Workspace”

Executive Function Development Over Time

Executive function develops with age, peaking in early adulthood and eventually declining in old age.

Marshmallow Test

- Executive Function is a better predictor of academic success than IQ
- Relationship exists b/w EF and reading comprehension

https://www.youtube.com/watch?v=HyL-IQaKCIg


10 Principles of Child Development

**Principle Number 7**
Children are active participants in learning; they actually construct new knowledge through continuous accommodation and assimilation of new concepts in the brain.

New Knowledge Is Attached to Old Knowledge

Cannot “learn” what is not connected
10 Principles of Child Development

Principle Number 8

Brain cells make physiological connections as new knowledge is connected to old knowledge—also known as the wiring of the brain or the architecture of the brain.

Neuroscience

- Scientific study of the nervous system—an interdisciplinary science collaborating with chemistry, computer science, engineering, linguistics, mathematics, medicine, philosophy, physics, and psychology.

Brain Architecture

- Brain cells or neurons have a head called a nucleus, an axon that sends signals, and multiple dendrites that receive signals.
- When the axons and dendrites meet they form a synapse and exchange impulses.
- The forming of synapse after synapse is what forms the “wiring” or “architecture” of the brain.

Born with 100 B Brain Cells
**Brain Development: Connecting the Neurons**

At Birth  6 Years Old  14 Years Old

Synaptic Density in the Human Brain

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**10 Principles of Child Development**

**Principle Number 9**

A child is vulnerable to both environmental risks and interventions.
- Poverty
- Minority origins
- Low birth weight
- Birth defects
- Birthing complications
- Age and schooling of mother

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**10 Principles of Child Development**

**Principle Number 10**

The younger the child, the more plasticity exists in the human brain.

- The first 5 years are the most important years in the life of the child
- But more important are the first 3 years, and
- The most important is the 1st year of life.
- Timing is everything!

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**Physical Growth of Brain**

Prenatally  Infant to Adult

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**Principle #11**

Must consider the “whole” child

- Cognitive Development
- Physical Development
- Social Development
- Emotional Development

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**Common Sense—Implementing CCSS Must be Based on the Principles of Child Development**
Parents’ Perception

Common Core: Jack has a cat and Jill has a pail of water. If Billy has $5.00, how many figs will his dog eat? Write your constructed response using a bar graph.

Teachers’ Perception

Young children do not learn by paper pencil drills!

Common Core Instruction Must Match the Way Children Learn
Young Children Learn Differently—Through Play

• Birth to 8 yrs./Grade 3
• Learn in different ways than older children
• Learn through physically interacting with environment—both people and things
• Use their all their senses
• Build new knowledge based on old knowledge—“stair-steps analogy”

All Play Is Important but Not of Equal Value

• Construction play/wood working
• Creative play
• Manipulative play
• Sand and water
• Play with symbols
• Exploratory play
• Gross motor/active or Functional play
• Oral language play
• Music play
• Group/game with rules play
• Dramatic play
• Pretend/Make Believe
• Socio-dramatic play

Piaget’s Definition of Pure Play

• Play is an end in itself, purposeless
• Play is spontaneous
• Play is engaged in for pleasure
• Play has a relative lack of organization
• Play is free from conflicts
• Play contains elements not found in the real world (pretend)

Mature Socio-Dramatic (SD) Play Is Most Advanced

• Deep engagement
• Two or more players
• Planned in advance
• Roles with rules
• Scenarios change and adapt
• Symbolic props
• Interactions using language
• Voluntary self-regulation and “rules” of the role

What’s Developing During SD Play cont.

• Child must be creative and problem solve—What next? What if?
• Child must be flexible
• Child strengthens language by using language
Final Thoughts

• Play must be the primary instructional strategy in the classroom.
• Make time for pretend play in classroom and outdoors—nothing is more important
• Children learn things outdoors that they can’t learn indoors

Final Thoughts

• Play with child, if necessary, take on a role
• 30-45 min. inside and 30-45 min. outside daily

Final Thoughts

• Provide props and also junk; e.g., empty boxes, barrels, crates, cloth, tape, natural items, rocks, boards, leaves
• Loose parts
• Stuff

Final Thoughts

Children need playful, hands-on, experiential learning activities based on principles of child development in order to build the foundation for future academic success.

Tackling the Play Crisis?

In addition to the resources here, check out:
• Alliance for Childhood position paper: “Crisis in Kindergarten: Why Children Need to Play in School”
• www.allianceforchildhood.org
• www.usplaycoalition.clemson.edu
• www.deyproject.org
• www.ipausa.org
• www.ipaworld.org

Thank You!
Sample Lesson

**Literacy/Writing Centers** (30 minutes) Children rotate through centers, some reinforcing past concepts using familiar games and activities, and also including “dramatic PLAY.” One center includes the new concept based on CCSS and teacher is facilitator.

Sample Lesson

**Closing** (10 minutes): students “Think, Pair, Share” to discuss and review learning