LINK Virtual Forum on Authentic Assessment for Early Childhood Intervention: Interdisciplinary & International Consensus

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Abstract

The LINK Virtual Forum on Authentic Assessment for Early Childhood Intervention: Interdisciplinary & International Consensus was orchestrated through a series of virtual focus groups during the pandemic in 2021-2022. This new strategy for conducting a more robust national/international consumer social validity study gathered practice-based evidence from the field using national and international expert panel focus groups and an expert panel forum to survey Authentic Assessment (AA) experts and users. Uniquely, these deliberations relied upon the Nominal Group Technique (NGT) among participants to reach consensus decisions and Qualtrics survey results. The decision-making process addressed the types of assessment measures that fulfill early childhood intervention purposes best, but also, what specific processes best engage parents, professionals, and young children in a developmentally appropriate and ecological assessment, using best practice competencies and standards in the field to fulfill diverse Early Childhood Intervention (ECI) purposes. The central organizing feature of the forum was the use of seven disciplinary focus groups (n=81), with membership selected by a disciplinary chairperson and the authors consisting of the following interdisciplinary professional groups: Early Childhood Educators/Early Intervention/Early Childhood Special Educators; Speech/Language Specialists; Physical Therapists, Occupational Therapists; Psychologists; University Faculty Representatives, and International Experts. We recruited a nationally and internationally representative...
sample of interdisciplinary participants and graduate student professionals (n=81) from the US, Canada, Australia, Turkey, Italy, Spain, Portugal, Ireland, Holland, China, Colombia, Korea, Taiwan, and Uzbekistan, for two major LINK Forum activities: (1) LINK Expert Panel Focus Groups (n=7); and (2) a cross-disciplinary LINK Expert Panel. The process and outcome data on best practices in Authentic Assessment for Early Childhood Intervention from the LINK Forum were based on the consensus of interdisciplinary and international experts in the ECI field.

Keywords: authentic assessment, early childhood intervention, recommended practices, best practices, international, interdisciplinary

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Creating a culture of respect for children during assessment is profoundly important to successfully implement equity and inclusivity in early childhood intervention (The Division for Early Childhood & The National Association for the Education of Young Children [NAEYC]; 2009; NAEYC, 2019). Leaders engaged in assessment maintain common elements of best practices when they focus on the child within the context of their family using authentic activities, routines, materials, and settings (Macy & Bagnato, 2023a). Leadership in authentic assessment methods and procedures crosses disciplinary boundaries when professionals engage in collaboration with families and others within their profession or from another profession. Our study focused on the perspectives of national and international leaders across various disciplines (e.g., occupational therapy, school psychology, speech/language, etc.) with expertise in authentic assessment.
Snapshot of the “Best Practices” Professional Standards on Authentic Assessment for Early Childhood Intervention

Professionals engaged in assessing young children refer to professional organizations for guidance when focusing on effective assessment practices. For example, The National Association for School Psychologists (NASP) and American Psychological Association (APA) are organizations for school psychologists that lead the way for determining best practices for assessment, as is the American Academy of Pediatrics for professionals working in healthcare. Leadership through assessment in Early Childhood Education (ECE) is a way to incorporate best practices for authentic assessment for early childhood assessment. Two organizations for professionals in the early childhood education field will be described next.

The NAEYC is the largest professional organization for the early childhood education field. In 2019, NAEYC released a powerful position statement entitled *Advancing Equity in Early Childhood Education*. The document outlines recommendations for promoting equity in ECE that can inform authentic assessment practices. Table 1 displays eight quality indicators for ECE leadership from the NAEYC (2019) with a crosswalk to how the indicator informs authentic assessment (p. 10).

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice Recommendations from NAEYC with Implications for Authentic Assessment</td>
</tr>
<tr>
<td>Section</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>
### Table 1 continued

<table>
<thead>
<tr>
<th>Section</th>
<th>NAEYC</th>
<th>Authentic Assessment (AA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Prepare prospective early educators to meet the Professional Standards and Competencies for Early Childhood Educators.</td>
<td>Prepare professionals to meet standards in childhood AA for all children.</td>
</tr>
<tr>
<td>3</td>
<td>Work with students, community leaders, and public officials to address barriers to educational attainment in the specific community you serve.</td>
<td>Work across sectors to address AA barriers.</td>
</tr>
<tr>
<td>4</td>
<td>Implement transfer and articulation policies that recognize and award credits for students’ previous early childhood courses.</td>
<td>Prepare workforce to implement AA with aim toward tangible credentials and degrees as demonstrated competency through work experience.</td>
</tr>
<tr>
<td>5</td>
<td>Work actively to foster a sense of belonging, community, and support among first-generation college students.</td>
<td>Intentionality in creating a sense of community with sharing AA teamwork process.</td>
</tr>
<tr>
<td>6</td>
<td>Set and achieve measurable goals to recruit and retain a representative faculty across multiple dimensions.</td>
<td>Recruit and retain representative AA professionals across multiple dimensions.</td>
</tr>
<tr>
<td>7</td>
<td>Provide regular time and space to foster a learning community among administrators, faculty, and staff.</td>
<td>Communicate AA purpose and procedures among administrators, faculty, and staff.</td>
</tr>
</tbody>
</table>
The Division for Early Childhood (DEC) of the Council for Exceptional Children identifies Recommended Practices (DEC, 2014) for several areas, and one of them is focused on leadership. DEC practice recommendations state, “Candidates exhibit leadership skills in advocating for improved outcomes for young children, families, and the profession, including the promotion of and use of evidence-based practices and decision-making” (p. 2). Table 2 presents 14 quality indicators for ECI leadership from the DEC (2014) with a crosswalk to how the indicator informs authentic assessment.

### Table 2

<table>
<thead>
<tr>
<th>Section</th>
<th>DEC</th>
<th>Authentic Assessment (AA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Leaders create a culture and a climate in which practitioners feel a sense of belonging and want to support the organization’s mission and goals.</td>
<td>AA leaders create a culture and a climate in which practitioners feel a sense of belonging and want to support the organization’s mission and goals.</td>
</tr>
<tr>
<td>L2</td>
<td>Leaders promote adherence to and model the DEC Code of Ethics, DEC Positions &amp; Papers &amp; the DEC Recommended Practices.</td>
<td>AA leaders adhere to exemplary ethical practices.</td>
</tr>
</tbody>
</table>
### Table 2 continued

<table>
<thead>
<tr>
<th>Section</th>
<th>DEC</th>
<th>Authentic Assessment (AA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3</td>
<td>Leaders develop and implement policies, structures and practices</td>
<td>AA leaders share in the decision making with families and other team members.</td>
</tr>
<tr>
<td></td>
<td>that promote shared decision making with practitioners and families.</td>
<td></td>
</tr>
<tr>
<td>L4</td>
<td>Leaders belong to professional association(s) and engage in ongoing</td>
<td>AA leaders engage in professional development.</td>
</tr>
<tr>
<td></td>
<td>evidence-based professional development.</td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>Leaders advocate for policies and resources that promote the</td>
<td>AA leaders develop, refine, and implement policies and procedures that create the</td>
</tr>
<tr>
<td></td>
<td>implementation of the DEC Position Statements and Papers and the</td>
<td>conditions for practitioners to implement best practices.</td>
</tr>
<tr>
<td></td>
<td>DEC Recommended Practices.</td>
<td></td>
</tr>
<tr>
<td>L6</td>
<td>Leaders establish partnerships across levels (state to local) and</td>
<td>AA leaders establish collaborative relationships.</td>
</tr>
<tr>
<td></td>
<td>with their counterparts in other systems and agencies to create</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coordinated and inclusive systems of services and supports.</td>
<td></td>
</tr>
<tr>
<td>L7</td>
<td>Leaders develop, refine, and implement policies and procedures that</td>
<td>Communicate AA purpose and procedures among administrators, faculty, and staff.</td>
</tr>
<tr>
<td></td>
<td>create the conditions for practitioners to implement the DEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recommended Practices.</td>
<td></td>
</tr>
</tbody>
</table>
L8  Leaders work across levels and sectors to secure fiscal and human resources and maximize the use of these resources to successfully implement the DEC Recommended Practices.  
AA leaders know how to use resources effectively.

L9  Leaders develop and implement an evidence-based professional development system or approach that provides practitioners a variety of supports to ensure they have the knowledge and skills needed to implement the DEC Recommended Practices.  
AA leaders use evidence-based practices.

L10 Leaders ensure practitioners know and follow professional standards and all applicable laws and regulations governing service provision.  
AA leaders ensure team knows and follow professional standards and all applicable laws and regulations governing service provision.

L11 Leaders collaborate with higher education, state licensing and certification agencies, practitioners, professional associations, and other stakeholders to develop or revise state competencies that align with DEC, Council for Exceptional Children (CEC), and other professional standards.  
AA leaders develop collaborative relationships with others to promote assessment competencies.
A joint statement on inclusion from two of our professional organizations focuses on access, participation, and supports (DEC & NAEYC, 2009). ECI professionals create inclusive opportunities for children when they use an authentic assessment framework. With all the efforts accomplished in the policy realm, the time is right to revisit interdisciplinary and international professional practices.
and the implications—both in the process and the methods—of authentic assessment for early childhood intervention.

**Snapshot of Rationale & General Structure for LINK Forum**

Previously, Bagnato and colleagues have published research articles based on US national consumer social validity studies; nearly 2000 professionals participated in the study; all had specific experience in selecting and using both conventional tests and authentic assessments for early childhood intervention purposes (Bagnato et al., 2014; Bagnato, Lee, Pretti-Frontczak, 2016; Bagnato et al., 2020); the initial results of these studies were profiled in the 2010 text, *LINKing Authentic Assessment & Early Childhood Intervention: Best Measures for Best Practices* (Bagnato & Pretti-Frontczak, 2010).

As a prelude to the upcoming 5th edition of the same text, Bagnato and Macy (in press) orchestrated a unique “virtual” international social validity process and study of interdisciplinary colleagues during the pandemic, using consensus decision-making techniques about “best practices” regarding both the process and the methods of Authentic Assessment for Early Childhood Intervention.

Importantly, there exists a superb array of innovative international research on authentic assessment process, methods, and purposes for diverse populations which does not enjoy the respect accorded to USA research with its rigid and often exclusive adherence to traditional methodologies without an applied researchbase in real-world settings. Topics of these diverse international studies range widely, including: assessment processes for communicative competence (Guzman-Simonet al., 2020); use of the ASQ in countries experiencing Zika and for classification and individualized programming (Atell et al., 2020); consistency among service provision, outcomes, and functional skills in England for children with disabilities (CastroKemp et al., 2021); documenting in-situ relationship between motor and language skills for infants and
toddler (Reikeråset al., 2020); reconceptualizing developmental domain frameworks for screening, eligibility and programming (Keilty et al., 2015; Macy & Bagnato, 2023b; Macy & Bagnato, 2022); assessment of children with severe disabilities in European countries (Wesselset al., 2021); development and validation of an AA early development scale for use in low-resource countries (McCoy et al., 2017); a screening tool to classify ecological frameworks of children (DeCandia et al., 2020); using AA PAUD e-Port systems to assess children in ECI (Gonadi, 2018); evaluation strategies for children in ECE in Greece (Sakellariou et al., 2019), and providing early childhood intervention supports and services virtually during the pandemic (Gonzalez, M., Rama, C., Nawab, A., Robertson, E., Partridge, P.A., Mansoor, E. Van Weelden, J., Peña, K., Natale, R., 2023).

The LINK International & Interdisciplinary Virtual Forum on Authentic Assessment for Early Childhood Intervention was “orchestrated” through a series of virtual focus groups during the pandemic in 2021-2022. This new strategy for conducting a more robust national/international consumer social validity study gathered practice-based evidence from the field using national and international expert panel focus groups and an expert panel forum to survey Authentic Assessment experts and users. The central organizing feature of the Focus Groups and the Forum was the use of seven disciplinary focus groups with membership selected by a disciplinary chairperson and the authors consisting of the following interdisciplinary professional groups: Early Childhood Educators/Early Intervention/Early Childhood Special Educators; Speech/Language Specialists; Physical Therapists, Occupational Therapists; Psychologists; University Faculty Representatives, and International Experts. The chairperson was chosen based on reputation in each disciplinary field and demonstration of other valuable assets (i.e., some government and/or administrative responsibilities; a connection to their professional organization, etc.).

We recruited a national and international representative sample of interdisciplinary participants from the US, Canada, Australia, Turkey,
Italy, Spain, Portugal, Ireland, Holland, China, Korea, Colombia, Taiwan, and Uzbekistan, for two major LINK activities: (1) LINK Expert Panel Focus Groups (n=7); and (2) a cross-disciplinary LINK Expert Panel Forum. The Forum will ensure the opportunity for the 7 disciplinary-specific expert panels and members to join together to discuss and debate two overarching questions: *How can authentic assessment accomplish early childhood intervention purposes?; and Do popular assessment measures meet the LINK standards for developmentally-appropriate assessment?* The consensus decisionmaking methods will be described in the methodology section. The process and outcome data profiled in this article on best practices in authentic assessment for early childhood intervention from the LINK Forum were based on the consensus of interdisciplinary and international experts in the ECI field and were presented as a symposium at the International Society for Early Intervention (ISEI) Conference in Chicago, IL, USA in September 2022 (Bagnato, 2022).

**Method**

Seven disciplinary specialty focus groups met to discuss and debate both the process and the methods in authentic assessment for early childhood intervention purposes. The diverse perspectives of members enabled us to discuss wide perspectives on assessment in the fields. Next, we share the organizational structure of the LINK Forums, and quantitative and qualitative data collection strategies.

**LINK Forum & Focus Group Organizational Structure**

The LINK Forum was organized into groups of members from the following categories: Early Childhood Educators/Early Intervention/Early Childhood Special Educators; Speech/Language Specialists; Physical Therapists; Occupational Therapists; Psychologists; University Faculty Representatives; and International Professionals. Chairs of seven disciplinary focus groups were invited by authors, based on their expertise in assessment in their discipline.

A total of 81 members across the 7 focus groups and forum
participated in completing the LINK Qualtrics Survey and engaging in the virtual focus group discussions: Early Childhood Educators/Early Intervention/Early Childhood Special Educators (n=6); Speech/Language Specialists (n=4); Physical Therapists (n=6); Occupational Therapists (n=6); Psychologists (n=6); University Faculty (n=4); International Professionals (n=15) and Graduate Student Professionals (n=34). LINK Forum data strategies involved both qualitative and quantitative strategies.

**LINK Focus Group Quantitative Data Collection Strategy**

Quantitative electronic data collection strategies were used to survey the interdisciplinary partners further about authentic assessment processes and methods to fulfill early childhood intervention purposes. The LINK Forum Survey was created using Qualtrics software that the LINK Forum members completed online via a link. The survey was created in English and the Chair of the International LINK Forum and her Canadian team translated it into French and Spanish.

**LINK Authentic Assessment Forum Qualtrics Survey**

All members, including the 7 Chairs, completed the LINK Survey. The survey was comprised of eight topical areas:

1. **Alignment With DAP “Professional Best Practices” In ECI/ECSE/ECE**
2. **Fulfillment Of Specific ECI Purposes**
3. **Assessment Processes & Models for Teamwork & Collaboration**
4. **Assessment-Intervention Linkages**
5. **Limitations Of Conventional Tests & Testing for ECI Purposes**
6. **Technologies For Virtual Authentic Assessment In ECI**
7. **Clinical Judgment/Informed Opinion for EI Eligibility & With All Assessments**
8. **International Perspectives on Assessment For ECI**

The LINK Survey contains a total of 91 items across the 8 central topics. Participants used a four-point rating scale which included their
perceptions of the importance of the statement with Unimportant, Somewhat Important, Important, and Vital as labels.

Once participants rated the items based on their perceptions of authentic assessment, they were directed to reflect on the topic area by writing a response to an open-ended prompt about authentic assessment. The LINK Survey generated quantitative data from the 4-point rating scale totaling 5040 data points across the 91 questions, and responses were collected from 100% of members. Qualitative survey data were gathered from the typed responses of participants about their perspectives to eight open-ended reflections related to authentic assessment process, purposes, methods, and applications to professional practice and public policy which yielded an additional 3000 coded data-points.

**LINK Focus Group Qualitative Data Collection Strategy**

Qualitative data collection strategies were used to learn more about authentic assessment perspectives through a structured process of rank-ordering and consensus decision-making using the Nominal Group Technique (NGT; Delbecq et al., 1986). A face-to-face format via Zoom allowed us to learn more about interdisciplinary professional’s beliefs, values, and practices regarding assessment processes and methods to address ECI purposes. Finally, the focus groups implemented a LINK Assessment Forum consensus-seeking format via NGT. All groups had one meeting for their LINK Forum conversations about authentic assessment, except for the International Professional group which met three times.

**Nominal Group Technique (NGT)**

A collective decision-making process was implemented using the Nominal Group Technique (NGT). We clustered the NGT questions into a flow that started with opening questions, followed by questions categorized as introductory, transitional content, key, and then ending, following the Krueger and Casey method (2009). “Tell us your name and how long you have been involved in assessment,” were the opening questions for the LINK Forum.
“How did you learn about assessment?” was the Introductory question “Think back to when you first became involved with assessment. What were your first impressions? What was the start-up process like for you?” were Transitional questions for LINK Forum.

“What is helpful about authentic assessment? What is frustrating about authentic assessment? What do you wish everyone knew about authentic assessment in your field?” were the Key questions for LINK Forum.

Finally, the LINK Forum Ending questions were, “If you had a chance to give advice to others about authentic assessment, what would it be? We want you to help us evaluate authentic assessment. We want to know how to improve, and the difference authentic assessment makes on the field(s). Is there anything we missed? Is there anything that you came wanting to say that you didn’t get a chance to share yet?”

The NGT was structured according to traditional procedures (Delbecq et al., 1986) by requiring focus group members to rank-order their respective responses about “best practices” issues in ECI focusing on best assessment processes (developmentally appropriate) and best measure methods (authentic vs conventional). The focus group chairs then facilitated consensus decision-making on final group determinations about best practices using the above procedures.

Transcriptions of Group Discussions

All focus groups were virtual using Zoom to record the discussion; graduate students in Applied Developmental Psychology and Early Childhood Special Education were trained to observe the recording and use the NGT to code the conversation. Direct quotes were captured, paraphrasing, as well as industry-specific words related to assessment and/or their discipline using a data collection tool created by the authors as shown in Table 3.
Table 3
Focus group questions for qualitative responses & discussions

<table>
<thead>
<tr>
<th>Questions 1–8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. Tell us your name and how long you have been involved in assessment.</td>
</tr>
<tr>
<td>Q2. How did you learn about assessment? Authentic assessment?</td>
</tr>
<tr>
<td>Q3. Think back to when you first became involved with assessment. What were your first impressions?</td>
</tr>
<tr>
<td>Q4. What was the start up process like for you?</td>
</tr>
<tr>
<td>Q5. How does our field use authentic assessment to create linkages between assessment-intervention?</td>
</tr>
<tr>
<td>Q6. How do we help identify the child’s ‘hidden” capabilities with our assessment practices?</td>
</tr>
<tr>
<td>Q7. What is helpful about authentic assessment?</td>
</tr>
<tr>
<td>Q8. What is frustrating about authentic assessment?</td>
</tr>
</tbody>
</table>

The data collection tool used a key that was adopted from a study by Onwuegbuzie et al. (2009) which included: A = Indicated agreement (i.e., verbal or nonverbal); D = Indicated dissent (i.e., verbal or nonverbal); SE = Provided significant statement or example suggesting agreement; SD = Provided significant statement or example suggesting dissent; and NR = Did not indicate agreement or dissent (i.e., nonresponse). In addition to the coding convention, Table 3 shows the questions flowing from introductory, transitional content, key, and then ending that were used in the six focus groups (i.e., Early Childhood Educators/Early Intervention/Early Childhood Special Educators; Speech/Language Specialists; Physical Therapists; Occupational Therapists; Psychologists; University Faculty, Graduate Student Professionals).
LINK International Forum & Focus Group Process for NGT

The NGT is a consensus method used to produce, develop, and prioritize ideas and reach a group consensus on a specific topic. In this structured process, people with relevant knowledge or experience on the topic should be selected to participate in the consensus session. A facilitator or moderator is essential for the development of the sessions; the facilitator guides the process, encouraging, and promoting the involvement of all members. As described by Manera, Hanson, Gutman & Tong (2019), the NGT consists of four phases. The first phase is the silent generation of ideas; in this phase, the facilitator asks the participants a question and invites them to generate their ideas individually and silently using a sheet of paper or computer document. The second phase is the round-robin recording of ideas; in this step the facilitator asks the participants, one at a time, to share one idea with the group. Participants share only one idea at a time until they run out of ideas. At this stage, as participants share ideas, the facilitator writes them down in a visible place so that everyone can see the ideas (flip chart). The third phase, the discussion of ideas, invites participants to discuss the ideas that have been shared in the previous phase. In this phase, the facilitator encourages participants to clarify and express their opinions about the ideas. Also in this phase, the group can regroup, add, delete, or modify ideas. The fourth phase is voting. This final stage consists of participants individually prioritizing ideas based on what they consider most important. There are several ways to carry out this process, including scoring, ranking, or rating the ideas.

As part of the LINK Forum Survey, the NGT was selected to improve the quality of group decisions by reducing pressure on group members to conform and encouraging the participation of all group members. Participants were a group of experts from different countries (Australia, Canada, China, Colombia, Ireland, Italy, Korea, Netherlands, Portugal, Spain, Taiwan, Turkey, United States of
America, Uzbekistan) who were invited to speak in Spanish, English or French to reduce language barriers.

The LINK International Forum & Focus Group used a different flow and questions since they had three meetings instead of one. The first meeting of the international group was focused on getting to know each other. The second meeting involved using the electronic survey to spark discussion with international perspectives, to rank-order individual perspectives and to reach collective consensus. The third, and final, meeting shared results from the LINK Forum survey and perspectives and sought additional insights from members. Table 4 shows the eight questions discussed during the final meeting of the international group.

Table 4
Focus Group Questions for the International LINK Focus Groups & Forum

<table>
<thead>
<tr>
<th>Questions 1–8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Are you surprised about the results of the synthesis?</td>
</tr>
<tr>
<td>Q2: How is the family being incorporated in other people’s multidisciplinary teams?</td>
</tr>
<tr>
<td>Q3: Reaction towards the synthesis of the most important and least important purposes for assessment in ECI.</td>
</tr>
<tr>
<td>Q4: A delay in diagnosis does not always equate to a need for services. A more humanistic perspective is that a team could render decisions based on functional needs. What are perspective from other countries?</td>
</tr>
<tr>
<td>Q5: Reaction towards the synthesis of the most important and least important attributes of assessment for intervention linkages.</td>
</tr>
<tr>
<td>Q6: Reaction towards the synthesis of the strongest and weakest features of conventional tests and testing procedures. Anything else to add?</td>
</tr>
<tr>
<td>Q7: Reflections/additions regarding the synthesis of uses of CJ/IO in action</td>
</tr>
<tr>
<td>Q8: How can an international perspective support a paradigm shift. What are the main barriers?</td>
</tr>
</tbody>
</table>
NGT is a method characterized by its flexibility and the ability to modify it, according to the needs of the study and the groups with which the consensus work is being conducted (Manera, Hanson, Gutman, Tong, 2019; Olsen, 2019; McMillan et al., 2014). To facilitate the work, a PowerPoint presentation was developed with the topics to be discussed. The topics corresponded to the 8 themes included in the survey. At the beginning of the first session, the four stages of the NGT were presented. However, since the members had already completed a survey, some modifications were made to the NGT. The adaptation is presented in Table 5.

Based on the survey responses completed by all participants, the facilitator and her team compiled the participants’ ideas for each of the 8 themes prior to the second session. This compilation of ideas was sent to all participants individually so that they could validate it and possibly add new ideas. For the second session, the main ideas of each topic were presented in a PowerPoint presentation to discuss them with the group. Participants were then invited to clarify and provide their opinions about these ideas, and were also invited to add, eliminate, regroup, or modify the ideas. Additionally, immediately after the discussion of the main ideas of each theme, participants were invited to categorize the most important ideas of each topic and to express the reasons for their selection.

Table 5
Adaptation of the Nominal Group Technique procedures for LINK International Forum & Focus Group Consensus

<table>
<thead>
<tr>
<th>Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1: Silent generation of ideas</strong></td>
</tr>
</tbody>
</table>
| Phase 2: Round-robin recording ideas | Participants are asked one at a time to contribute a single idea to the group which the facilitator then records on a flip chart (or similar), which is visible to the whole group. The round-robin proceeds until all participants have stated their ideas and there are no new ideas being generated, or until the group determines that a sufficient number of ideas have been produced. (Comments and discussion from participants at this stage are not recommended).
Data compilation and validation. The facilitator and her team compiled the participants’ ideas for each of the 8 themes prior to the second session. This compilation of ideas was sent to all participants individually so that they could validate it and possibly add new ideas. |
| Phase 3: Discussion of ideas | Group discussion of each of the ideas listed on the flip chart are made and facilitators clarify and express their understanding and opinions of the ideas, as well as to explore the rationale underlying their perspectives. Throughout the discussion, the group may decide to add, alter, or group similar ideas together. Facilitator must ensure that all ideas are discussed and that participants have a full understanding of each of the ideas, to enable them to make informed decisions in the voting process. The main ideas of each topic were presented in a PowerPoint presentation. The participants were invited to clarify and provide their opinions about these ideas, and were also invited to add, eliminate, regroup, or modify the ideas. |
| Phase 4: Voting | The voting phase consists of participants individually prioritizing the ideas based on what they believe to be most important (scoring, ranking, or rating the ideas). Depending on the desired anonymity of the voting process, participants may share their votes with the group and the facilitator may tabulate these on the flip chart to be discussed by the group ranking. The participants were invited to categorize the most important ideas of each topic and to express the reasons for their selection. |
Results
Alignment with DAP “Best Practices” Statements in EI/ECSE/ECE from DEC and NAEYC

The most critical developmentally appropriate professional practice for early childhood intervention cited was assessing children in their natural environment, with 21 participants noting this as a critical practice. A quote from one of our international participants, whose background is in the medical field, supports this idea of assessing a child in their natural environment: “The context is what determines to a large extent the development in early childhood, the daily activities in their context allow to show the real functioning of the child and from this optimize it according to actual needs” (Macy et al., 2021-2022). The next highest noted critical practices were using multiple methods and teaming with families and other professionals, both with 20 participants noting these practices as critical, as shown in Figure 1.

Figure 1

Reflections on Most Critical Developmentally Appropriate Practices
For Your Discipline in Early Childhood Intervention Services:

- Dominant Language Used
- Understandable Reports
- Tools Used with Sensitivity
- Progress Monitoring
- CIJO Used
- Natural Environment
- Multiple Methods
- Learn From Child’s Strengths and Needs
- Appropriate Materials/Strategies
- Teams with Family/Professionals
- Family Preferences Used

Frequency of Critical Practices in Reflections
Fulfillment of Specific ECI Purposes

The next result was the most important reason for assessment related to early childhood intervention services, which was found to be **individualized program & goal-planning**, with 28 participants noting this as critical displayed in Figure 2. An occupational therapist reflected: “Having goals and strategies that are related to that particular child is important to ensure that the services are individualized and not cookie cutter services” (Macy et al., 2021-2022).

![Figure 2](image)

While there was consensus on individualized program & goal-planning as the most important reason for assessment, there were differing opinions regarding the next most important reasons for assessment for early intervention services. While international professionals seemed to be concerned about progress monitoring, speech/language specialists seemed to be concerned about eligibility determination. Table 6 shows the breakdown for each discipline.
Assessment Processes & Models for Teamwork & Collaboration

The model of teamwork that participants noted had the most positive effect about the benefits for assessment and early childhood intervention was **Transdisciplinary**; 23 participants reported pros related to this model and is illustrated in Figure 3. This model provides collaborative services with the parents and child at the center of the process, but often has one focal discipline providing the initial services.

An international participant, with a background in early childhood and teacher education reflected:

“I have identified only the Transdisciplinary Model of the teamwork models as close fit. I believe this model facilitates meaningful engagement of all stakeholders, which should include the child also in the process. I believe that this model highlights the principle of equitable relationships between practitioners/professionals/parent.”
Critically, the role of collaboration in this model allows for accurate assessment-linkages to be made. The model aligns with the principles of early childhood intervention and the centrality of partnership that is promoted in the general field of early childhood education. However, I believe the child should have a more central role in this model also to ensure it is responsive to the needs of the child rather than simply the practitioners/professionals and family/caregivers. (Macy et al., 2021-2022).

**Assessment-Intervention Linkages**

Participants emphasized that **Functional Goals** were the most important linkage between assessment and intervention with regards to parent/professional goal-planning for children; 19 participants noted the importance of functional goals, as presented in Figure 4. An international participant with a background in education and applied developmental psychology stated:

“Functional content and functional goals are, to me, the two most important. These go together as when the assessment is assessing the needs of the student and it shows what the progression might be, then the goals can be aligned with this which creates a curriculum of helpful strategies and activities that benefit the student and teach them from where they are at, to their potential” (Macy et al., 2021-2022).
Participants agreed on Functional Goals in Table 7 being the most important linkage between assessment and intervention with regards to parent/professional goal-planning for children, however with the next highest rated linkages there were variances across disciplines.

School psychologists reported that functional content was the next most important linkage between assessment and intervention, while international participants, occupational therapists, and physical therapists all noted family priorities to be the next most important linkage. It is important to consider family priorities when creating functional goals, which is consistent with the concept of teaming with families and other professionals as a critical developmentally appropriate practice as mentioned previously.
Table 7
Breakdown of Discipline Reports on Most Important Attributes for Intervention Linkages

<table>
<thead>
<tr>
<th>Discipline</th>
<th>INTRNL</th>
<th>OT</th>
<th>PT</th>
<th>PSY</th>
<th>UNIV</th>
<th>SLP</th>
<th>ECI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Linkage</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Attributes</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play-based</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routines-Based</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Universal Design</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards-Aligned</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Curriculum-Based</td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Functional Goals</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Functional Content</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Family Priorities</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND:** INTRNL= International; OT=Occupational Therapy; PT=Physical Therapy; PSY=Psychology; UNIV=University Faculty; SLP= Speech/Language Pathology; ECI=Early Childhood Intervention

Limitations of Conventional Tests & Testing for ECI Purposes

Figure 5 shows reflections on the strongest features of conventional “table top” testing procedures, according to participants. A physical therapist stated:

“Test scoring and results provide objective data for defined eligibility and 3rd party payors, evidence-based -- depending on the tests, the use for prognosis and predictive disability is useful, strong alignment test design is useful for certain research designs,” (Macy et al., 20212022).

However, another physical therapist posed an important concern about conventional testing:

“There may be purposes for conventional testing when there are unknowns and the child has not been diagnosed with a disability or significant developmental delay, but once this has occurred,
there needs to be testing/assessment specific to that child and the in-child progress (or not) rather than compared with typically developing children. There needs to be consideration of those children with significant physical and intellectual disabilities and those with progressive conditions - how do we understand their situation and determine appropriate outcomes with them and their families. Conventional testing has limited value in the ECI field” (Macy et al., 2021-2022).

**Figure 5**

<table>
<thead>
<tr>
<th>Conventional Testing Attributes</th>
<th>Frequency of Pros of Conventional Testing in Reflections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Purposes</td>
<td>10</td>
</tr>
<tr>
<td>Evidence-Based Score</td>
<td>15</td>
</tr>
<tr>
<td>Test Scoring/Results</td>
<td>15</td>
</tr>
<tr>
<td>Test Content</td>
<td>10</td>
</tr>
<tr>
<td>Test Situation</td>
<td>10</td>
</tr>
<tr>
<td>Response Mode/Stimuli</td>
<td>10</td>
</tr>
<tr>
<td>Test Design</td>
<td>10</td>
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</table>

Figure 6 indicates that conventional testing procedures, or “tabletop” testing consists of practices that are not considered developmentally appropriate. The **test situation was the weakest reported feature** of conventional testing procedures, with 12 participants noting this as a weakness, which supports the finding previously noted regarding assessment of children in their naturally occurring environments. It is important to note that all the features of conventional testing were reported on as weaknesses on this question.
A speech language pathologist stated:

“As is clear with authentic assessment - functional context matters - as do functional items. If we base our assessment solely on contrived, decontextualized information we will lack true information about a child - or at best, lack a full picture” (Macy et al., 2021-2022).

**Figure 6**

Weakest Features of Conventional Testing and Testing Procedures for Use in Early Childhood Intervention Services:

<table>
<thead>
<tr>
<th>Conventional Testing Attributes</th>
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</tr>
<tr>
<td>Test Design</td>
<td>5</td>
</tr>
</tbody>
</table>

**Technologies for Virtual Authentic Assessment in ECI**

Participants reflected on a wide range of examples of technology modes for assessing children for early intervention purposes in Figure 7. **Zoom, iPad, and cell-phone videos** of a child’s performance and progress were the most frequently noted technology (n= 15); this was followed by **family interviews** conducted via Zoom and the use of **Telehealth** procedures. A school psychologist observed:

“I think that family interviews via Zoom, video recordings of child progress, and Zoom & Teams generally are vital and are already used appropriately for ECI purposes. It is easily accessible and allows virtual consultation and interviews with teachers and families and provides a way for the examiner to understand a child’s progress” (Macy et al., 2021-2022).
Clinical Judgment/Informed Opinion for EI Eligibility & With All Assessments

Regarding how clinical judgment and informed opinion can be used for assessment for early childhood intervention purposes, the synthesis of information from multiple settings and sources was the most commonly noted example of their use in action (see Figure 8).

Twelve participants reflected on the importance of collecting data from multiple settings and sources, including a school psychologist who said:

“We often gather information across multiple settings and multiple days. We like to see the child in action in a variety of settings throughout the day, and that can include home visits. We also like to gather information from multiple people to truly inform the assessment and get a clear picture of the child’s functioning in a variety of settings”. (Macy et al., 2021-2022)
The last section of results from the LINK survey’s open responses were three promising assessment frameworks that are deemed to be authentic by interdisciplinary users. The NAEYC Developmentally Appropriate Practices (DAP) was the highest reported “authentic” framework for assessment when working in the early intervention field, with 17 participants reporting familiarity with using the framework in their daily practices. The World Health Organization’s (WHO) International Classification of Functioning, Disability, and Health: Children and Youth (ICF-CY) and the DEC Recommended Practices were the two next highest reported frameworks deemed to be promising within the field of early childhood intervention, both having 12 participants note their use in their daily practices. However, it is most important to note that many of these frameworks are U.S. focused and norm-based; this was highlighted by an early childhood educator who stated: “Having worked in Zambia for a few years, I know that many of the recommendations (NAEYC, DEC, Zero to Three, etc.) that we
use are fairly US specific. While we aim to make them relevant to more cultures, they are not quite there. And they do not take into consideration the realities of many low-income, developing countries. I believe we need common definitions, but options for implementation and an understanding that it needs to look different in various locations". (Macy et al., 2021-2022).

**Discussion**

The LINK Focus Groups and Forum were a remarkable series of events, with 81 interdisciplinary and international professionals engaging actively in the survey and enthusiastically in the focus-group discussions, debates, and consensus decision-making on “best practices” in authentic assessment for early childhood intervention. We regard the LINK Forum and social validity process as an exceptional opportunity to gather “real-world” data on those specific processes, practices, and methods which active interdisciplinary professionals regard as most notable and crucial for their work in supporting families and young children with delays/disabilities, as well as the professionals who help them to cope and thrive.

Uniquely, these deliberations focused not only on what types of assessment measures address early childhood intervention purposes
best, but also the specific processes that best engage parents, professionals, and young children in a developmentally appropriate assessment.

Three overarching points are noteworthy about the values, beliefs, and practices of these professionals. First, we were impressed by the strongly held and fundamental perspectives of participants despite differences in countries and disciplines. All embrace the NAEYC and DEC recommended practices as their essential guides in working with young children and families; they also find alignments with their professional organizations’ “guild” standards.

Next, processes and methods which emphasize family priorities, collaboration, individualization, flexibility, accommodations, and natural routines in the child/family ecology are most valued; processes which are standardized, contrived, and group-oriented are rejected as misaligned with the early childhood intervention field.

Finally, the majority of interdisciplinary and international professionals in our sample held strong views about the institutional barriers faced by families and their children to gain needed medical and health services; moreover, they were concerned about the lack of respect within medical system’s procedures accorded their professional judgments and informed opinions, as education and allied health professionals, in reaching consensus with parents on the need and content of early childhood intervention services from the regulatory and insurance systems in both the US and other countries.

**Essential Take-Home Points of the LINK Forum on Authentic Assessment for Early Childhood Intervention**

Finally, we present our synthesis of the essential applied implications as “take-home” points from the LINK Forum. These points represent the consensus of the forum, based on the expert judgments and critical thinking of active interdisciplinary and international experts on “best practices” regarding authentic assessment for early
childhood intervention. This synthesis—in the form of guiding statements—is based upon our collective experiences observing the focus group discussions and debates “in action”, analyzing the LINK Survey results, and classifying the transcriptions of the focus group discussions:

- The impact and social validity of Authentic Assessment is maximized when video recordings are integrated with assessments using responsive technology such as Zoom and Teams, and supplemented by iPad and cell phone videos of children interacting with their physical and social environment at the moment and over time.
- Young children should be assessed only in their natural environments using multiple methods and in collaboration among familiar and knowledgeable parents and professionals, not strangers.
- Individualized goal-planning for young children and their families is the most critical purpose of assessment for early childhood intervention.
- Transdisciplinary teamwork models best fit the style and principles of early childhood intervention, because they emphasize equitable relationships among parents and professionals and promote the design of the most accurate assessment-intervention linkages.
- Functional developmental content within both scales and curricula for developmental goals, designed by parents and professionals working together, ensure the best linkage between assessment and intervention.
- Scripted tabletop testing procedures are one of the most developmentally inappropriate modes for assessment of young children, because they emphasize decontextualized situations; ignore the primacy of attachment relationships; lack universality, and fail to embrace each child’s individual developmental ecology.
• Conventional tests have some limited value in early childhood intervention for eligibility determination, but only if the tests have a standardization sample which includes a representative sample of children with specific diagnoses and lower functional capabilities, so that appropriate and relevant levels can be obtained.

• Regarding performance and progress assessment, early childhood intervention is most focused upon intra-individual comparisons in which baseline or past performances for each child during intervention are the reference points, not group or inter-individual normative comparisons.

• Structured use of clinical judgment and informed opinion processes needs to be expanded (based on the IDEA mandate for all assessments in Part C) in the ECI field since it is the form of authentic assessment which best operationalizes parent/professional teamwork, collaboration, and consensus decision-making based on multiple sources of information.

• NAEYC, DEC, and the WHO/ICF systems are the most relevant sources for guiding best practices in the field, and, also, for emphasizing the importance of activities and participation aligned with ecological or environmental modifications for individuals with disabilities.

• Obviously, our focus in the LINK Forum was birth to 8 years of age—the true early childhood period. Philosophically, however, the disability-related fields are coalescing around the use of more functional scales and systems for all ages, particularly with the focus on the ICF-CY, ecological variables in each individual’s life, and the activity and participations concepts—which are antithetical to the concept and activities of tabletop and decontextualized testing.

• The NAEYC, DEC, and WHO ICF systems require more creative and practical work to make them universally designed, culturally applicable, and relevant in global circumstances.
Finally, our interdisciplinary and international deliberations focused on the “best fit” of philosophical perspectives, assessment methods, and assessment processes to fulfill early childhood intervention purposes. Essentially, these results underscore the fundamental consideration for developmentally appropriate practice in assessment equally as in education and intervention and the linkage between them for the early childhood intervention field. Authentic Assessment stands as the professionally-sanctioned and evidence-based form of measurement for use in the ECI field.

Italians use the term *valutare insieme* when referring to assessment of all young children, but especially those with delays and disabilities. *Valutare* indicates a humanistic valuing process of the worth in which each individual’s full capabilities and needs are uncovered; *insieme* indicates and emphasizes that *valutare* is done together as teams of parents and professionals with children. We believe that this humanistic tone must replace the brutish administrative tone of most “testing” required in ECI, special education, and psychology so that we professionals in this specialization can recapture the original essence of using developmental observations as fundamental to practice in early childhood education.

**References**


