



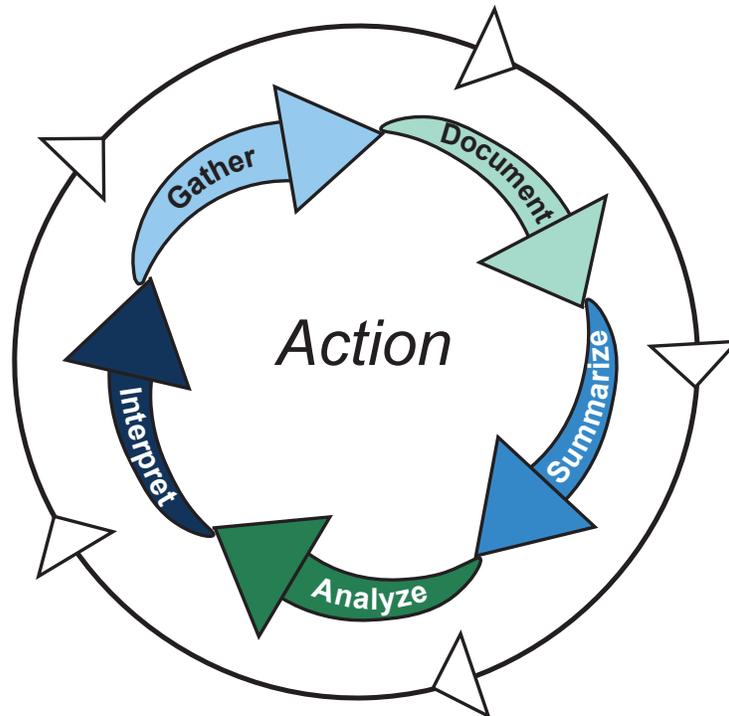
A Framework for Engaging in Early Childhood Data-Driven Decision-Making

Teachers make decisions on a regular basis. In fact, early research on teacher decision-making and efficacy estimated that teachers made as many as 1300 decisions daily. At the heart of making data driven decisions, is the ability to gather and use information for an individual child and groups of young children. Two key decisions are mostly commonly reached by Pre-K teaching teams: 1) which child outcomes should be targeted through which instructional efforts; and 2) how are children responding to instructional efforts and when is different or more intensive instruction warranted.

A five-step process is suggested to guide teachers and teaching teams (e.g., teachers, assistants, Itinerant teachers, therapists, family members) in making data-driven decisions including: gathering information, documenting, summarizing, analyzing, and interpreting. The primary way information is *gathered* is through observation. Observations allow teachers and teaching teams to learn about children's interests, preferences, styles of communication and interaction, as well as their strengths and emerging skills related to the general curriculum. Teachers and Teaching teams are then encouraged to *document* (i.e., record) children's performance using written narratives such as anecdotal notes, gathering permanent products such as writing samples or videos, and collecting counts and tallies (Grisham-Brown et al., 2005). It is not sufficient, however, to gather volumes of data if they are not used.

A necessary step to using data is *summarizing* using a mixture of narrative summaries, visual summaries, and numerical summaries. *Analyzing* data summaries is the fourth step where teachers and teaching teams examine patterns and trends. Analysis can be done through visual inspection, comparison of standard scores to a normative group or criterion set forth in a measure, and/or through discussion with team members where predictable actions by the children are recognized, and their implications for development considered.

Lastly, teachers and teaching teams need to *interpret* and make meaning out of the data. Interpretations should lead to decisions regarding who needs to learn what, whether certain outcomes are a higher priority than others, the type and level of instruction that is needed, and how and when to revise or change instructional efforts.



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Figure 1. An illustration of the DDDM process.

Step 1: Gathering - When we gather information, we collect, capture, or obtain information needed to make important decisions. Therefore, we can define the step of gathering as the process of collecting relevant information by interviewing parents, caregivers, or others; administering tools or assessments; reviewing records; and/or observing.

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- A2. Practitioners work as a team with the family and other professionals to gather assessment information.
- A4. Practitioners conduct assessments that include all areas of development and behavior to learn about the child's strengths, needs, preferences, and interests.
- A5. Practitioners conduct assessments in the child's dominant language and in additional languages if the child is learning more than one language.
- A6. Practitioners use a variety of methods, including observation and interviews, to gather assessment information from multiple sources, including the child's family and other significant individuals in the child's life.
- A7. Practitioners obtain information about the child's skills in daily activities, routines, and environments such as home, center, and community.

Checklist For Gathering:

1. Have we planned to gather information in familiar settings, with familiar people, interacting with familiar objects in familiar ways?
2. Do we know what skills, behaviors, and/or knowledge to assess and is there a clear operational definition of all skills, behaviors, and/or knowledge the child is to demonstrate?
3. Do we know who is gathering information, when the best times are for both the child and the teaching team, and where to gather information?
4. Have we gathered from multiple sources including daily observations and interactions, formal and informal interviews with others, and direct testing as needed?
5. Have we gathered information from multiple settings and across time (at least three different sessions)?
6. Do we know how to interact with the child to gather information vs. directly testing them or pulling them out of context to “see” what they know and can do?
7. Do we know how to talk to and/or interview others to learn about the child?
8. Have we gathered information about all areas of development, the child’s strengths, the child’s interests and preferences, and the child’s needs?
9. When using more formal assessment tools, such as checklists, rubrics, and/or curriculum-based assessments, have we ensured we are using the right tool for the right purpose?
10. Have we gathered information that will be useful in making instructional decisions?

Tips For Gathering:

- Reifel, S. (March 2011). Observation and Early Childhood Teaching Evolving Fundamentals. *Young Children*, 66. Retrieved from https://www.naeyc.org/files/yc/file/201103/OurProudHeritage_Online0311.pdf
 - This article highlights the importance of observational skills in the classroom. The history of the practice is discussed to show how it has evolved and grown. Past and current research is translated into best practice to encourage getting to know the “whole” child.
- Rencken, K.S. (November 1996). Observation: The Primary Tool in Assessment. *Child Care Information Exchange*, 50. Retrieved from <https://www.childcareexchange.com/library/5011250.pdf>
 - This article discusses the mindset/role of the educator who is a constant observer of the children in her classroom. Other themes highlighted include: the importance of recording observations in a meaningful manner, using observation data to guide discussion with family members and to inform ongoing curriculum and as a part of ongoing assessment to hold central on the strengths of the child.
- Elementary Teachers’ Federation of Ontario. (2009). *Thinking it Through: Teaching and Learning in the Kindergarten Classroom*. Retrieved from <http://earlylearningcentral.ca/wp-content/uploads/2009/02/assessment-that-informs-8-15-21-241.pdf>
 - This position statement emphasizes important guidelines that educators should adhere to when engaging in assessment practices. The focus is on observation; a powerful tool for supporting a child’s learning. The paper breaks down the what, why, where, when and how of the practice.
- Pretti-Frontczak, K. (Feb., 28, 2015). *B2K Solutions Tip: Getting to What Children Know*. Retrieved from <https://youtu.be/Rrq3OeqKsKs>
 - This video contains recommended practice tips for learning about what children know and can do. Three strategies: listening, parallel-talk, and self-talk are explored.

Step 2: Documenting - When we document information, we record, chronicle, or detail information needed to make important decisions. Therefore, we can define the step of documenting as the process of recording relevant information by writing, tallying, scoring, and/or by creating permanent products (e.g., videos, audio, photos).

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- A3. Practitioners use assessment materials and strategies that are appropriate for the child's age and level of development and accommodate the child's sensory, physical, communication, cultural, linguistic, social, and emotional characteristics.
- A10. Practitioners use assessment tools with sufficient sensitivity to detect child progress, especially for the child with significant support needs.

Checklist For Documenting:

1. Have we used multiple methods to document including numbers, narratives, and visuals?
2. Have we used the most efficient and effective methods for documenting?
3. Have we documented objectively, and avoided judgment and labels?
4. When possible, have we utilized digital technologies (e.g., google drive, Dropbox, YouTube, Evernote, email, shared cloud/server space, smartphone/pad)
5. Have we maintained confidentiality?
6. Have we adhered to privacy policies?
7. Have we included situational information and performance information?
8. Have we documented relevant information within a reasonable timeframe from when it was gathered?
9. Have we documented the perspective of all relevant team members, even if there isn't full agreement?
10. Have we documented only relevant information that can be used to make instructional decisions?

Tips for Documenting:

- There are at least **three broad methods** for documenting, each with its own advantages and disadvantages:
 1. *Written documentation* (e.g., running records, anecdotal records, jottings)
 - The advantages include:
 - That they can provide a detailed and comprehensive of the child's actions and context in which those actions occurred.
 - Minute by minute exchanges allow for examination of patterns and a child's ability to extend their ideas and actions.
 - Allows for consideration of related factors such as who else was involved or interacting and/or what was said or done by others.
 - The disadvantages include:
 - The amount of time required to generate can be extensive.
 - The amount of information that is included may distract from the original question or intent of creating the running record.
 2. *Numerical documentation* (raw scores, %, frequency counts, duration/time intervals, rating, mean/median/mode) and standard scores (e.g., percentile rank, developmental quotients/DQs)

- The advantages include:
 - Easy to create and easy to share.
 - Forms for documenting numbers can be reused and easily modified.
 - Can document numbers for individual children or groups of children.
 - The disadvantages include:
 - May be difficult to explain to others.
 - May misguide decision-making.
 - May not provide a holistic picture of performance.
3. *Artifact documentation* (video recording, audio recording, photograph, drawing/painting)
- The advantages include:
 - Permanency allows for looking at trends over time.
 - Allows for a greater understanding of not only the outcomes, as well as the learning process.
 - Illustrates what children are able to do, what they're interested in, and their growth over time in a variety of ways.
 - The disadvantages of include:
 - May be difficult to store and can take time and effort to collect.
 - The amount of information that is included may distract from the original question or intent.
- Common "places" for documenting:
 - Forms (e.g., rating forms, recording forms, demographic forms, survey forms)
 - Protocols (e.g., test protocols, interview protocols)
 - Graphics (e.g., diagrams, maps, charts)
 - Plain "paper" (e.g., sticky notes, journals, tablet paper, NCR paper)
 - General guidelines for documenting: Herr, J. (2016). *Observing Children: A Tool for Assessment*. In *Working with Young Children, 8th Edition* (pp. 52-67). Retrieved from http://www.g-w.com/pdf/sampchap/9781590708132_ch03.pdf
 - This chapter presents an overview of assessment practices for trainees. Students are given a working definition of assessment as well as the different types and methods. Practical examples, visual illustrations and tips are embedded in the text.

Step 3: Summarizing - When we summarize information, we compile, recap, or describe “in a nutshell” information needed to make important decisions. Therefore, we can define the step of summarizing as the process of compiling relevant information by creating written reports, adding and totaling numbers, and by generating illustrations (e.g., graphs).

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- A11. Practitioners report assessment results so that they are understandable and useful to families.

Checklist For Summarizing:

1. Have we used multiple techniques or strategies to summarize?
2. When possible, have we combined techniques (e.g., visuals with narratives) to convey the greatest meaning possible?
3. Have we established a baseline and/or a rich description for comparisons over time?
4. Have we used objective language and avoided jargon?
5. Have we maintained confidentiality?
6. Have we adhered to privacy policies?
7. Have we summarized the child's strengths, gifts, and contributions?
8. Have others indicated that our summaries make sense and represent their perspectives?
9. Have we avoided the trap of letting the form dictate the information we summarize?
10. Have we summarized in such a way as to guide instructional decision-making?

Tips For Summarizing:

- There are at least **three broad techniques** for summarizing:
 1. Narratives summaries allow us to use words to compile, recap, or describe “in a nutshell” the information collected and documented.
 - Guidelines for generating narrative summaries:
 - Incorporate multiple perspectives and examples while avoiding labels or judgments.
 - Narratives should represent a child's performance across time, settings, and materials, and should provide real examples from across the child's daily routine.
 - Avoid using labels, even those that seem positive (e.g., kind, happy, cute, sweet, agreeable), and/or those that many imply a judgment (e.g., is overly active, doesn't play much with others, appears tired).
 - Write in plain English and avoid jargon or technical terms. Even the most commonplace term can be jargon for someone who is outside the field of early education and/or who may speak a language other than English. Even words like assessment hold confusion within the field and paired with terms or phrases such as “symbolic play”, “with adaptations”, “developmental readiness”, “unintelligible” and “pincer grasp”, can lead to more confusion than understanding.
 - No matter the decision we need to make, we must always equally consider a child's strengths and provide any summaries from such a perspective. In other words, we can and should share strengths before concerns, and to the extent possible, start AND end on a positive. We do this not just because it is kind or sensitive to the family (although it is), but also because it will help us to consider strategies to help children (and families) achieve optimal functional, developmental, and academic outcomes.
 - Include objective statements and avoid subjective statements. Objective statements are those which state facts, do not include opinions, should have limited bias, and often represent multiple perspectives. Subjective statements are those that are grounded in a person's opinion and are therefore subject to bias.

2. Numerical summaries allow us to take large amounts of information and condense it into something more manageable.
 - Examples of numerical summaries
 - Means
 - Percentages
 - Standard scores
 - Total amount of time
 - Total number of occurrences
 - Total length of time
 - However, using numbers, while efficient, can lead to misunderstandings and in general, should be paired with narrative and/or visual summaries. This fact sheet is a resource to help avoid a common mistake in assessing children...misusing terms.
 - Wright, P.W.D. & Wright, P.D. (August 2008). *Tests and Measurements for the Parent, Teacher, Advocate & Attorney*. Retrieved from http://www.wrightslaw.com/advoc/articles/tests_measurements.html
 - An article written in layman's terms about the importance of understanding what assessment tools measure and what the results mean for a child considered eligible for special education services. Being able to interpret the data that is generated from an assessment will help the child's parent, advocate or teacher better be able to plan and modify an education program that is most appropriate for the child's strengths and challenges. Armed with information about measuring change, the general principles of statistics, using the bell curve to measure progress and understanding test data gives the parent or advocate a seat at the table in helping to make objective and valid decisions about their child's education program.
 - Lyons, A. & Pretti-Frontczak, K. (2015). *B2K SolutionsSM Fact Sheet: Assessment Terms Primer*. Brooklyn, NY: B2K SolutionsSM, Ltd.
 - The primer contains definitions for over 100 assessment terms, from content validity, to standardized testing, to universal screening.
 - Download sample at https://prekteachandplay.com/shop/assessment_primer
3. Visual Summaries allow us to illustrate strengths, emerging skills, and progress towards prioritized outcome. In addition, visual summaries can help identify even small increments of change.
 - Visual summaries help a) identify trends or patterns in children's performance; b) quickly determine the effects of instruction or intervention; and c) communicate with caregivers regarding children's progress over time.
 - Examples include graphs, charts, diagrams, pictures, videos, bulletin boards, documentation panels, portfolios, slideshows, movies, and even maps.
 - General guidelines for summarizing:
 - Need to carefully consider when to use each technique so that summaries are trustworthy, accurately illustrate a child's abilities and/or a family's priorities and concerns, and provides a comprehensive picture to inform decision-making.
 - The importance of engaging in summarizing information before moving to analysis and interpretation for decision-making is to place what we have gathered and documented into context. That is, summarizing information helps us to take stock of all of the information we have and to present it in a format that will be useful for analyzing and sharing, and ultimately making decisions.

Step 4: Analyzing - When we analyze information, we examine, explore, or scrutinize information needed to make important decisions. Therefore, we can define the step of analyzing as the process of examining relevant information by looking for patterns and trends from what has been gathered, documented, and summarized.

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- A1. Practitioners work with the family to identify family preferences for assessment processes.
- A8. Practitioners use clinical reasoning in addition to assessment results to identify the child's current levels of functioning and to determine the child's eligibility and plan for instruction.
- A9. Practitioners implement systematic ongoing assessment to identify learning targets, plan activities, and monitor the child's progress to revise instruction as needed.

Checklist For Analyzing:

1. Have we gathered, documented, and summarized enough information?
2. Is the information we have gathered, documented, and summarized, trustworthy?
3. What reoccurring or predictable patterns did we find?
4. Is the child's performance changing over time or staying the same?
5. Were differences in the child's performance found based upon time of day, people who were present, demands of the situation, etc.?
6. Is there anything we were expecting to find and didn't?
7. Do all team members understand the patterns and trends that are being identified?
8. Have we identified patterns of strength in particular?
9. Have we compared the child's performance to trustworthy indicators or benchmarks regarding development and learning?
10. Have we analyzed the patterns and trends in order to make sound instructional decisions?

Tips For Analyzing:

- Analyzing has to do with "inspecting" the data in order to identify useful information, generate conclusions, and support instructional decisions.
- A primary "thing" we look for are patterns, which are events that reoccur, typically in a predictable manner and trends are related to the general direction in which something is moving (up, down, not moving).
 - Examples of patterns:
 - Unexpected performance: Represents instances where the child demonstrates a skill that seems higher or harder than what is expected for their age or is missing a skill that is easier or should have emerged earlier in development. This pattern also is sometimes referred to as having *splinter skills*.
 - Need for assistance: Represents instances where objects from the environment and/or people have to complete part or all of the task/response for the child.
 - Interfering behaviors: Represents instances when a child demonstrates something other than the desired or expected concept or skill.

Interpreting - When we interpret information, we decipher, come to conclusions, or make decisions about the information we have collected. Therefore, we can define the step of interpreting as the process of deciphering relevant information to make meaningful decisions.

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- A11. Practitioners report assessment results so that they are understandable and useful to families.

Checklist For Interpreting:

1. Have we used the right tool(s) for the right purpose and gather, document, and summarize?
2. Do we need more or different data?
3. Do all team member agree with the conclusions being made based upon the DDDM process? If not, what other data are needed or how will consensus be obtained?
4. Are we able to make a variety of sound decisions?
5. Have we found ways to use the same data for multiple purposes?
6. Have we avoided bias and judgment to cloud our decisions?
7. Have we worked with others to ensure multiple perspectives?
8. Have “mediating” factors (e.g., attendance, health status, exposure to other therapies, changes in medications) been considered before making decisions?
9. Have family priorities been factored into the decision-making process?
10. Are we ready to make instructional decisions (i.e., do we know who needs to learn what, how best to create learning opportunities, and which instructional efforts need revised)?

Tips For Interpreting:

- Top three recommendations when engaging in the DDDM process, particularly when interpreting information to make instructional decisions:
 - Access multiple sources and use methods, techniques, and strategies.
 - Use tools for the purposes for which they were designed, and their scores validated.
 - Whenever possible, include multiple perspectives across the DDDM process.
- This is a list of resources that includes research reports, journal articles, examples of best practices, and tools compiled by the Harvard Family Research Project to help family members and special educators establish effective collaborative partnerships to promote children learning and development.
 - Ferrel, J. (2012). *Family engagement and children with disabilities*. Cambridge, MA: Harvard Graduate School of Education.
 - <http://www.hfrp.org/content/download/4289/116678/file/SPED%20Bibliography-FINAL.pdf>
- The following free resources provide overview of different assessment purposes, practices, and corresponding recommended tools:
 - Washington State Office of Superintendent of Public Instruction. (2008). *A Guide to Assessment in Early Childhood, Infancy to Age Eight*. Retrieved from http://www.k12.wa.us/earlylearning/pubdocs/assessment_print.pdf
 - This guide is a useful resource for early childhood professionals and administrators. It is a comprehensive look at all the components of an assessment framework (i.e., screening, informing instruction, program

evaluation, etc.). For each assessment purpose, different tools/instruments are described in detail. Further, this resource can be useful in creating activities for professional development seminars/presentations.

- ZERO TO THREE. (2010). *Infant/Toddler Development, Screening, and Assessment*. Retrieved from <http://www.zerotothree.org/public-policy/state-community-policy/nitcci/multidisciplinary-consultant-module-2.pdf>
 - A written module with activities that provides training and support to practitioners, consultants, and others who are new to working with infants and toddlers, in-group and child care settings. The resource may also be useful to more seasoned professionals who are interested in a refresher or deeper understanding of assessment practices.
- Brookes Publishing Company. (N.D.) *What are the Advantages of Using Authentic Assessment for Early Childhood Intervention?* Retrieved from <http://archive.brookespublishing.com/author-interviews/bagnato-70472-interview.htm>
 - A Q&A with the authors of *LINKing Authentic Assessment & Early Childhood Intervention: Best Measures for Best Practices, Second Edition*. The authors discuss the difference between authentic assessment and conventional testing and why authentic assessment works better in real-life scenarios. They also talk briefly about the standards an assessment should meet to be considered a quality measure for best practices. This information is especially relevant for an early childhood educator or team of professionals who are trying to decide upon the best fit for their early education program.

Tiered Progress Monitoring

The idea of revising learning opportunities is sometimes called progress or performance monitoring, and is *systematic, repeated, continuous, recursive, overtime, ongoing, and integrated*. It is designed to monitor initial instructional decisions in terms of accuracy and efficacy, and its aim is to determine if instructional efforts are promoting growth and development (ultimately leading to family satisfaction and quality programming).

There are likely thousands of ways to conceptualize how to revise and enhance the learning process, which is a critical component of assessment in early childhood.

While progress monitoring is a critical early childhood assessment purpose, some have begun using the phrase “performance monitoring”. This is due to the fact that the word **progress** often values vertical learning over horizontal learning (i.e., end up promoting learning the next step in a sequence instead of strengthening existing skills).

There also tends to be an emphasis on the acquisition of new skills that are generically targeted for an age or grade, and suggests all aspects of growth can and should be quantified.

Conversely, the word **performance** suggest the following:

- vertical and horizontal learning are both seen as important (i.e., promote learning the next step and promote gaining strength, flexibility, adaptability, etc.)
- seen as an inherent aspect of individualization
- both quantitative and qualitative means are needed to fully understand complex phenomenon

Performance monitoring, as with instruction, needs to be tiered or differentiated because:

- Development (at any age, but particularly in the early years) is highly variable and highly inter-dependent.
- Development and learning are impacted through transactions (complex interactions between the child, adults/peers/siblings, and the environment) not through bi-directional interactions (just the child and an adult, or just the child and a toy).
- Early learning programs can't serve as an inoculation to all the risk factors children face.
- Children's growth over time should be measured within the context of their daily influences including all social and physical environmental variables.
- There is a lack of assessment measures that meet recommended practice standards and which are sensitive to young children's growth and development over time - even the best measures have limitations and are not the ones typically chosen or mandated.
- **Collecting more data that can't or won't be used to inform instruction doesn't improve instruction.**

In a tiered model of performance monitoring, different outcomes are tracked at differing degrees of intensity and frequency. The same DDDM steps apply; however, the tools used and again, the frequency and what is monitored is varied/differentiated. See Figures 2, 3, and 4, which illustrate a tiered model of performance monitoring (PM).

PM Type by Outcome

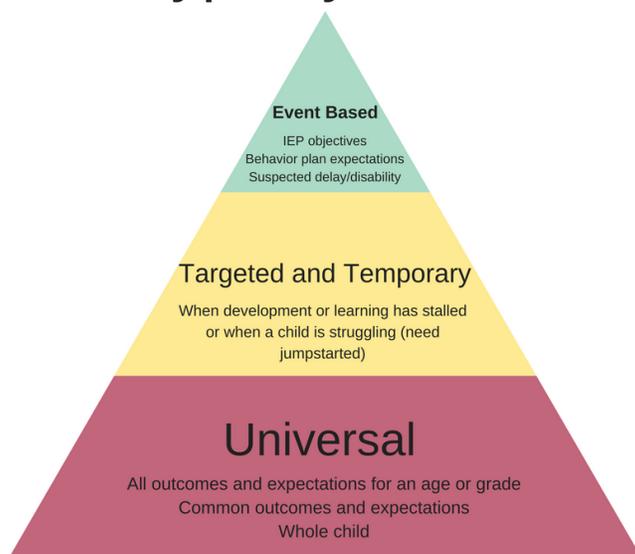


Figure 2. Performance monitoring by type of outcome.

PM Type by Frequency

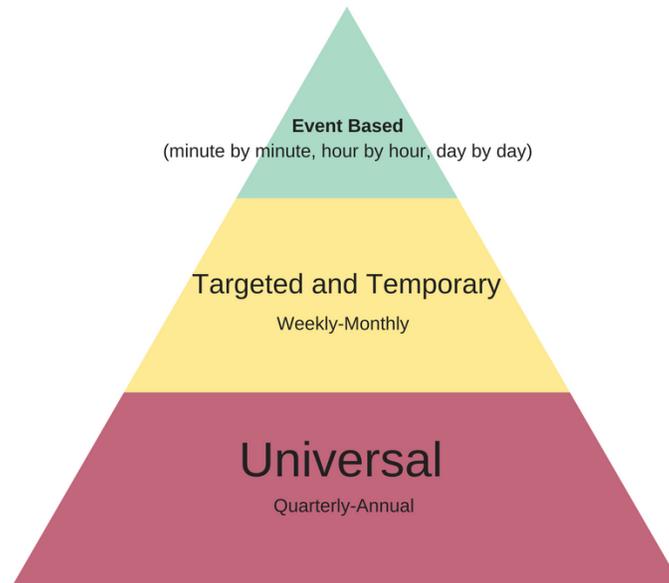


Figure 3. Performance monitoring types by frequency within a tiered model.

PM Examples

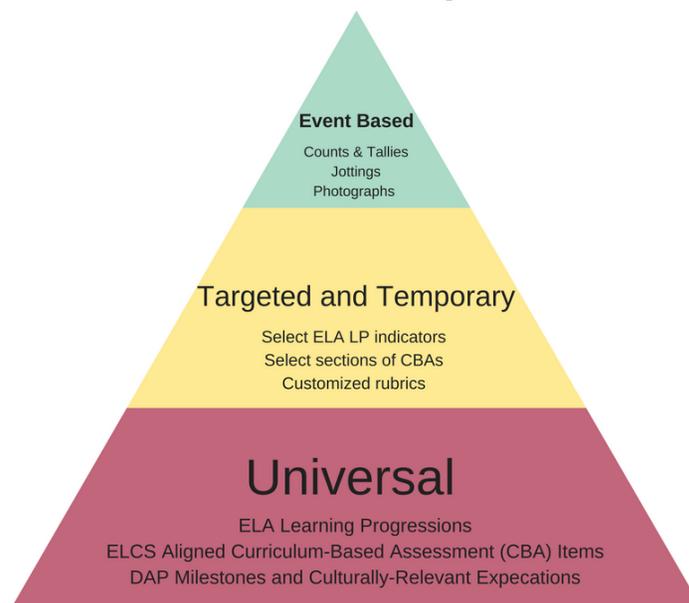


Figure 4. Performance monitoring examples by type.

References

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- Pretti-Frontczak, K., Bagnato, S., & Macy, M. (2011). Data driven decision-making to plan programs and promote performance in early childhood intervention: Applying best professional practice standards. In C. Groark (Series Ed.) & S. P. Maude (Vol. Ed.), *Early childhood intervention: Shaping the future for children with special needs and their families, three volumes: Vol. 2* (pp. 55-80). Santa Barbara, CA: ABC-CLIO, Praeger.
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