GOAL ATTAINMENT SCALING

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USES FOR DATA COLLECTION

System/Program — System-wide decision making for accountability

Classroom/Teacher — Needs for professional development and use of quality instruction

Student — Inform decision making to monitor student responsiveness and make adjustment

(National Center for Educational Statistics, 1991).
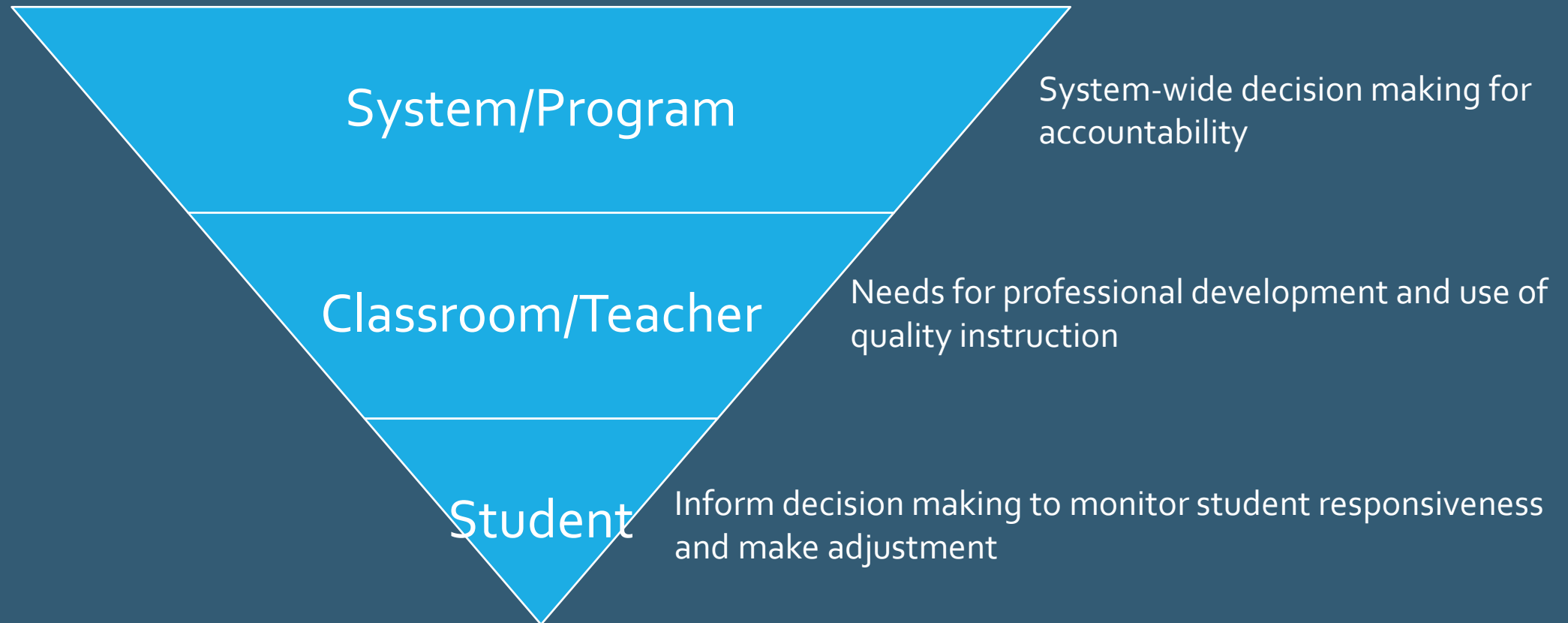
THE NEED FOR AN OUTCOME MEASUREMENT APPROACH THAT ALLOWS FOR:

Treatment goals that are different for each child

Children to start at different baseline levels

An intervention that varies based on individual needs of child

Feasibly implemented in real-life, community settings

ASD MEASURES & LIMITATIONS

- McConachie et al., (2015) – 3091 papers, 184 were extracted (6 and younger)
  - Across the tools, the majority measure autism characteristics and problem behaviors, rather than educational or intervention outcomes

- Brugha et a., (2015) – 818 papers, 30 were extracted (adolescents +)
  - Nonstandardized assessments were used most frequently with minimal focus on autism characteristics.
    - Clinical Global Impression Rating Scale; Yale-Brown Obsessive Compulsive Scale

- Limitations (McConachie and colleagues; 2015)
  - No psychometrically adequate measures that gauge children's social participation and well-being
  - Paucity of evidence to suggest that nomothetic measures are potent enough to detect changes in children's response to intervention

Goal Attainment Scaling

- Developed by Kiresuk and Sherman (1968)
  - For mental health practitioners initially
  - Used by an array of disciplines today

- Can be applied as an objective outcome measurement tool

- Sensitivity to the intervention
  - Allows for measurement of outcomes that are customized to the context/individual
  - Ideal for children with different intervention outcomes and plans

GAS	Value
Baseline Performance	-2
Progress toward goal	-1
Goal attainment	0
More than expected outcome	+1
Much more than expected outcome	+2

Steps to Create GAS: Standard description

Identify expected goals/outcomes

Identify continuum of benchmarks

Describe baseline performance

Implement intervention / monitor fidelity

Monitor progress for decision-making

Evaluate final goal attainment

Goal Attainment Scale (GAS) Form for Anthony

-2 Present level of performance	-1 Progress	0 Expected level of outcome (GOAL)	+1 Somewhat more than expected	+2 Much more than expected
Aggresses when given a task he does not want to do. Is difficult to motivate. Does not have a more appropriate way to communicate refusals or to negotiate.	When presented with a task menu, Anthony will start and complete three (1) 2-3 minute tasks each day without aggression with one (2) adult verbal cue (e.g., time to work) and gestural/picture cues across two weeks.	When presented with a task menu, Anthony will start and complete three 2-3 minute tasks each day without aggression with one adult verbal cue (e.g., time to work) and gestural/picture cues across two weeks.	When presented with a task menu, Anthony will start and complete three (4) 2-3 minute tasks each day without aggression with one (0) adult verbal cue (e.g., time to work) and gestural/picture cues across two weeks.	When presented with a task menu, Anthony will start and complete three (6) 2-3 minute tasks each day without aggression with one (0) adult verbal cue (e.g., time to work) and gestural/picture cues across two weeks.
Has difficulty imitating others, especially children using actions with objects. Likes objects he can manipulate.	Anthony will imitate play activities for five (2) minutes with at least three (1) different preferred objects (dinosaurs, animals, doll…) each day across two weeks.	Anthony will imitate adult play activities for five minutes with at least three different preferred objects (dinosaurs, animals, doll…) each day across two weeks.	Anthony will imitate adult play activities for five (7) minutes with at least three (4) different preferred objects (dinosaurs, animals, doll…) each day across two weeks.	Anthony will imitate adult (peer) play activities for five (10) minutes with at least three (6) different preferred objects (dinosaurs, animals, doll…) each day across two weeks.
May use aggression as a way to request. Relies on adult prompts to make requests.	Anthony will make 10 (5) different requests per day independently (with verbal cues) or as a response to a question (go home, eat, help, more, finished, various objects/activities) using sign, pictures, or verbal on a daily basis.	Anthony will make 10 different requests per day independently (go home, eat, help, more, finished, various objects/activities) or as a response to a question ("what do you want?") using sign, pictures, or verbalization on a daily basis.	Anthony will make 10 (15) different requests per day independently (go home, eat, help, more, finished, various objects/activities) or as a response to a question ("what do you want?") using sign, pictures, or verbalization on a daily basis.	Anthony will make 10 (20) different requests per day independently (go home, eat, help, more, finished, various objects/activities) or as a response to a question ("what do you want?") using sign, pictures, or verbalization on a daily basis.

Assumptions / Concerns of GAS that should be tested

- GAS scores are comparable across individuals
  - Are the intervals between each scaled description equal?
  - Is the targeted skill measurable and objective?
  - Is the degree of difficulty equivalent between groups when starting abilities vary between children?
- Psychometric Equivalence Tested Goal Attainment Scaling (PET-GAS)
  - Equidistance
  - Measurability
  - Level of difficulty

Ruble, L., McGrew, J. H., & Toland, M. D. (2012). Goal attainment scaling as an outcome measure in randomized controlled trials of psychosocial interventions in autism. *Journal of autism and developmental disorders*, *42*, 1974-1983.

Definitions: Measurability

Code	Description
1	<u>None</u> or only <u>one</u> indicator (prompt level, criterion for success; observable skill) is listed for each description
2	<u>Two</u> of the three indicators (prompt level, criterion for success; observable skill) are provided for each description
3	Describes <u>all three</u> indicators (prompt level, criterion for success; observable skill) for each description

Definitions: Difficulty

Code	Description
1	Skill is <u>very close to what the child is already described as able to perform</u> in the present levels of performance
2	The present levels of performance indicates that the child is able to <u>perform the skill in limited ways</u> compared to what is written in the objective (limited people, prompts, or places); if PLEP says child has difficulty doing it, score a "2"
3	The present levels of performance indicates that the <u>child is unable to perform skill with anyone, anywhere, or with any prompts</u> compared to what is written in the objective

Definitions: Equidistance

   * Equilibration was determined if prompts went from most to least or described as going from physical/verbal to environmental /independent, or the skill frequency increased or reduced by less or more than 50% (do not include the present levels of performance -2 description).

Code	Definition
1	None or only 1 of the three descriptions (-1; +1; +2) are equilibrated appropriately in reference to the targeted objective (which is zero). *
2	Two of the three descriptions are equilibrated appropriately in reference to the targeted objective (which is zero). *
3	All of the three descriptions relative to the targeted objective are equilibrated and scaled appropriately.*

GAS Change Associated with Changes in Parent and Teacher Ratings of Progress and Vineland Social and Communication Scores

	1	2	3
Idiographic measures			
1. PET–GAS change	–		
2. Parent progress rating	.34*/56	–	
3. Teacher progress rating	.54***/44	.43**/39	–
Nomothetic measures			
4. Teacher VABS change	.36**/54	– .02/31	.38^/22
5. Teacher VAB comm change	.27*/54	.11/33	.14/23
6. Teacher VAB social change	.35**/58	.19/35	.38^/22
7. Teaching VAB daily living change	.21/57	.09/34	.29/23
8. Teacher VAB motor change	.26/34	.07/23	.59*/15
9. Parent BASC change	– .05/75	.03/52	– .17/38
10. Teacher BASC change	.03/80	.01/56	.03/44
Discriminant validity			
11. IQ change	– .18/62	.11/37	.12/24

Ruble, L., McGrew, J., Dale, B., & Yee, M. (2022). Goal attainment scaling: An idiographic measure sensitive to parent and teacher report of IEP goal outcome assessment for students with ASD. *Journal of autism and developmental disorders*, 52, 3344-3352.

Randomized Studies in Autism with GAS

- Afsharnejad, et al., (**2022**). KONTAKT® social skills group training for Australian adolescents with autism spectrum disorder: a randomized controlled trial. *European Child & Adolescent Psychiatry*, *31*(11), 1695-1713.

- Duncan, et al., **(2022**). A Randomized Clinical Trial Targeting Daily Living Skills in Autistic Adolescents Without an Intellectual Disability Before the Transition to Adulthood. *Journal of Developmental & Behavioral Pediatrics*, 10-1097.

- Hume, et al., (**2022**). Efficacy of a school-based comprehensive intervention program for adolescents with autism. *Exceptional Children*, *88*(2), 223-240.

- Jamali, et al., (**2022**). Randomized controlled trial of occupation performance coaching for families of children with autism spectrum disorder by means of telerehabilitation. *British Journal of Occupational Therapy*, *85*(5), 308-315.

- Kang, et al., (**2023**). Initial evaluation of an environment-based intervention for participation of autistic children: a randomized controlled trial. *Disability and Rehabilitation*, 1-11.

- Ruble, et al.,. (**2018**). Randomized control trial of COMPASS for improving transition outcomes of students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *48*, 3586-3595.

- Ruble, et al., (**2013**). A randomized controlled trial of COMPASS web-based and face-to-face teacher coaching in autism. *Journal of consulting and clinical psychology*, *81*(3), 566.

- Ruble, et al., (**2010**). The effects of consultation on individualized education program outcomes for young children with autism: The collaborative model for promoting competence and success. *Journal of early intervention*, *32*(4), 286-301.

- Schaaf et al., (**2014**). An intervention for sensory difficulties in children with autism: A randomized trial. *Journal of autism and developmental disorders*, *44*(7), 1493-1506.

Results & Summary

- GAS is a useful and reliable intervention outcome tool in autism
- Measurability, equidistance, level of difficulty can be evaluated prior to intervention implementation to ensure comparability between RCTs
- GAS scores can be based on direct observation or video
  - Scores from observation are similar to scores from video
- Teachers find the approach helpful for monitoring progress and useful for decision-making
- Training is necessary for writing high quality GAS.
- Goals are only as good as the approach taken to identify them.