Application of a brief functional analysis model at STAP

Methodological variations, multidisciplinary collaboration, and outcomes.

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What is STAP (Short Term Assessment Program)?

- (Usually) a 28-day, inpatient, multidisciplinary assessment program
- Children and adults with developmental disabilities
- Challenging (problem) behaviors
- Often complex medical issues
- Often dually-diagnosed

The official description:

STAP Assessment Services Available
- Medical/Nursing/Pharmaceutical/Dental
- Dietary/Communications/Audiology/
- Behavioral/Psychological/Psychiatric
- Physical/Occupational/Music Therapy
- Adaptive Physical/Vocational/Education
- Therapeutic Recreation/Family Services

The Short Term Assessment Program is designed to meet the unique needs of children and adolescents with mild to profound mental retardation combined with significant behavioral challenges and/or psychiatric needs. However, adults may also be offered services in this program. The STAP assessment team provides detailed comprehensive assessment of the individual’s current status, responds to referral questions and provides recommendations for supporting the individual in his/her community living setting.

Admissions are determined following screening by STAP staff and approved by the Central Wisconsin Center Admissions Committee. The length of stay is 5-28 days.
Many disciplines = Diverse foci

• Up to 15 disciplines on a case at STAP
• Behavior is often a chief concern.
• But how to create a focus regarding behavior to which diverse assessments can speak?
Functional Assessment of Behavior: What’s the point?

- Behavior analysis ain’t about behavior alone, but about analyzing the system in which behavior occurs.
- That system can be summarized as the 3 Term Contingency: \( SD \rightarrow Behavior \rightarrow R+ \)
- The function of a behavior can essentially be seen as the specifics of a 3 term contingency (expanded somewhat by contextual variables or motivating operations (MO), see earlier presentations) keeping the behavior recurring.
From a behavior analytic perspective, if you don’t know the function of a behavior, you really know very little useful about the behavior.

Hence Functional Assessment.
Functional Assessment vs. Functional Analysis

- Functional assessment approaches:
  - indirect correlation (e.g., rating scales, interviews)
  - direct correlation (e.g., ABC direct observation)
  - direct causal: functional (experimental) analysis.

- Functional analysis:
  - One sub-type of functional assessment
  - Only type directly testing causal relationships
  - Most valid
Functional Analysis vs. Functional Assessment

• Correlation functional assessment approaches:
  – Allow for gathering contextual information
  – Typically are not predictive of function in themselves


• Functional analysis:
  – Tests hypotheses often derived from correlation approaches
  – In our experience, often directly lead to interventions
Functional Analysis Models

- Seminal formulation:


  - First published model to assess entire 3 term contingency


  - Repeated sessions over days and weeks, multiple sessions for each condition (hypothesis function) being tested.

  - “Long form”
Long Form FA

Strengths
- Repeated assessment
- Can make procedural variations over time

Drawbacks
- Can take a long time
- Duration may hinder collaboration
The model we work off of:


- Developed in response to the demands of completing assessments within confines of a 90 minute outpatient visit
- Typical one 5 minute session (or probe) of each hypothesized function plus control condition
- “Short form”
Short Form FA

Advantages

- Efficient
- Minimizes time potentially increasing problem behavior
- More amenable to involvement by more team members
- May be more adaptable to more settings (e.g., school, vocational setting, or home)

Short Form FA

Weaknesses

- 5 minute sessions not always long enough to capture function (See: Wallace, et al., on preceding slide.)
- Possibility of sequence effects
- May have to be extended for procedural variations if function not found
Reasons for Brief Functional Analysis at STAP

- “28 days” really isn’t 28 days.
- A brief FA allows for involving parents and caregivers.
- A brief FA need not be clinic-bound.
- Body of literature supporting validity and efficacy of brief FA.
- In the following case: The client’s home was 4 hours away, we had limited time with caregivers, and there was limited ability to provide follow-up.
STAP Functional Analysis (FA): Case Example

- Functional Assessment Interview (FAI): Interviewed caregivers, hypotheses strongly expressing
- Descriptive Analysis (DA): 3 hour, unstructured to semi-structured observation – gives particulars for hypoth. and analog sessions
- FA: Test hypotheses (escape, material, attention) with caregiver running sessions
- Treatment trials: FCT using established PECs repertoire (w/new response), multiple trainers
Baseline (BL): Reinforce Target

Functional communication training (FCT)

FCT - FR/VR
Novel therapists
Increasing amount of other activity to complete before requesting repet. act

Total target behavior

FCT response
Percent of Intervals Engaged in Repetitive Activity
Vs. Rate of Target Behavior In Treatment Sessions

Session

% whole intervals of picture-looking

Total problem behaviors per minute

Target behaviors per minute
Treatment Evaluation

- Contingency reversal: Counterbalanced treatment and baseline trials
- Repeated treatment sessions with explicit generalization (trainers, setting, etc.) and demand fading or activity interspersal.
- Track growth in skills and alternative behaviors related to function, e.g., FCT response, engagement in other leisure activities.
Training and follow-up

• Training mostly accomplished in course of assessment
• Discharge meeting allows for integration with multidisc. team findings and sharing with a larger audience.
• Follow-up visit to school – IEP with school and caregivers.
• Follow-up call to community psychologist
• Training video.
Overall FA outcomes at STAP

- Use of SF substantially reduces assessment time.
- Function identified in 92% of cases.
  - 40% positive reinforcement
  - 40% negative reinforcement
  - 20% multiple functions
  - 0% automatic reinforcement
- Successful treatment identified in 58% of cases (64% of cases with identified function).
<table>
<thead>
<tr>
<th>Person Hours</th>
<th>Type (LF = long form; SF = short form)</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.75</td>
<td>LF</td>
<td>Negative reinforcement: Escape&lt;br&gt;Positive reinforcement: Attention (Secondary function) Demand fading with attention for compliance. Treatment significantly reduced problem behaviors, alternative appropriate behaviors increased.</td>
</tr>
<tr>
<td>8.5</td>
<td>SF</td>
<td>Positive reinforcement: Attention in the form of stereotypic interactions over preferred materials. DRA: Functional Communication Training (FCT) to request interaction, with fading in increasingly longer periods of engagement in other leisure activities, paired with attention Treatment significantly reduced problem behavior, alternative appropriate behaviors increased.</td>
</tr>
<tr>
<td>6.5</td>
<td>SF</td>
<td>Positive reinforcement: Access to preferred activity. DRA: FCT to request access to preferred activity Treatment significantly reduced problem behavior, alternative appropriate behaviors increased.</td>
</tr>
<tr>
<td>13.0</td>
<td>SF</td>
<td>Positive reinforcement: Attention DRA: Attention provided for varying conversational topics. Treatment unsuccessful. More varied intraverbal repertoire not acquired.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Function not identified.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>--------------------------</td>
</tr>
<tr>
<td>7.5</td>
<td>SF</td>
<td>Negative reinforcement: Escape task.</td>
</tr>
<tr>
<td>14.0</td>
<td>SF</td>
<td>Positive reinforcement: Access to activities named in perseverative speech.</td>
</tr>
<tr>
<td>6.0</td>
<td>SF</td>
<td>Negative reinforcement: Escape from task.</td>
</tr>
<tr>
<td>23.5</td>
<td>LF</td>
<td>Negative reinforcement: Escape from task. Tentative finding.</td>
</tr>
<tr>
<td>20.6</td>
<td>LF (after ambiguous results in SF)</td>
<td>Positive reinforcement: Material access (materials ritualistically kept in specific places).</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14.8</td>
<td>SF</td>
<td>Negative reinforcement: Escape from task.</td>
</tr>
</tbody>
</table>
Outcomes: Comparison to published literature

<table>
<thead>
<tr>
<th>Identified function</th>
<th>SIB (n = 29)</th>
<th>Combined problem behavior (n = 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of subjects</td>
<td>Percentage of cases</td>
</tr>
<tr>
<td>Positive reinforcement</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>Attention</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Tangible</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Attention and tangible</td>
<td>7</td>
<td>24.1</td>
</tr>
<tr>
<td>Negative reinforcement</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>Positive and negative reinforcement (Attention or tangible escape)</td>
<td>2</td>
<td>7.0</td>
</tr>
<tr>
<td>Automatic reinforcement</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>11</td>
<td>37.9</td>
</tr>
</tbody>
</table>

Outcomes: Comparison to literature

<table>
<thead>
<tr>
<th>Summary of Functions of Behavior</th>
<th>DD</th>
<th>ND</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative and positive reinforcement</td>
<td>39%</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Negative (escape) reinforcement</td>
<td>27%</td>
<td>40%</td>
<td>29%</td>
</tr>
<tr>
<td>Positive (tangible or attention) reinforcement</td>
<td>14%</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>Automatic reinforcement</td>
<td>7%</td>
<td>10%</td>
<td>7%</td>
</tr>
<tr>
<td>Automatic and one or more social reinforcement functions</td>
<td>9%</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Undifferetiated</td>
<td>4%</td>
<td>0%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Meaning of outcomes

- Inpatient setting makes long-term outcomes unclear.
- Lower percentage of automatic reinforcement functions than expected.
- Cautions:
  - Signs a LF FA may be likely
  - Care in incorporating parents/caregivers
  - Medications
  - Procedural variations
Multidisciplinary collaboration

- Challenges to integrating other professionals into the functional analysis
- Benefits of integrating other professionals into the functional analysis
Limited opportunities for professional interaction

- Lack of Board Certified Behavior Analysts in Wisconsin (approx. 39)
- Lack of BCBA training programs in Wisconsin
Lack of common terminology between team members

- The 3 Term Contingency: SD → Behavior → R+
- ABA communication terms: from BF Skinner's *Verbal Behavior* - primary verbal operants: mand, tact, echoic, intraverbal, textual, transcription
- SLP communication terms: morphology, phonology, semantics, syntax, pragmatics
Training programs lead to different approaches to problems

- Communication deficit → communication breakdown → the “problem”

- Solution: Remediate the speech/language deficit
Benefits of integrating other professionals into the functional analysis

• Unique opportunity to integrate knowledge from different training backgrounds

Example: knowledge of developmental paths of different communication options
  - Gestures
  - Pictures
  - Sign language
  - Verbal
Work establishing an FCT response can precipitate outside communication growth

- An FCT response could take many forms, but considerate selection of a communication modality that the individual is capable of producing in a flexible manner, across environments has broader value in reinforcing to the individual that acceptable communication will help them reach desired outcomes without the need for them to use maladaptive behavior.
Behavior function and communicative repertoire

- When looking at behavior, the function can be the same in multiple individuals, but the repertoire is different

Low Attention

Developmentally low
- screaming
- self injurious (SIB)

Developmentally high
- aggression
- inappropriate verbal

selected FCT response
VOCD
scripted phrase training
Cross training opportunities

- Students
- Parents, direct care staff
Other interdisciplinary opportunities

- Preference assessments with Recreation Therapy
- Assessing the role of skills deficits in ADLs with Occupational Therapy
- Assessing the role of physical disabilities with Physical Therapy
- Assessing issues like curricular mismatch with Education
ABA Practice and the Multidisciplinary Team

- Be a team player by maintaining your integrity and being open to phenomena.
- Balancing collaboration with being efficient and effective.
- Pragmatism.
- Have clear goals and answerable questions.
Good functional analyses benefits clients and multidisciplinary teams

- Talking function provides an integrating focus.
- FA leads us to data based decision making.
- Brings parsimony (and, through parsimony, sometimes clarity).
- Avoid ineffective or unnecessary treatment.
- The FA can help integrate findings.
- FA and function-based treatment can be a vehicle for collaboration.