Functional Behavior Assessments: Learning About Variations and Necessary Training

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Overview

• Objectives

• Historical foundations of FBA

• Typical FBA conceptualization

• Tiered FBA assessment conceptualization

• Training and experience for each assessment tier

Objectives

• Attendees will state the historical foundations of an FBA.

• Attendees will describe components of a tiered FBA process.

• Attendees will describe different education and experience requirements for different tiers of the FBA process.
Review

• Each attendee likely has some background and familiarity with FBA and behavior intervention plan (BIP) processes.

• Despite this previous training and experience, very few likely have an in-depth understanding of the FBA processes.

What Drill and Bit?
Historical Foundations of FBA

- *Psychology as a Behaviorist Views It* (Watson, 1913)

- “... it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods ...” (p. 158)

- This was an attempt to lead the field of psychology “out of darkness” and become like other natural sciences (e.g., biology, chemistry).

- Six attitudes of science
  - Determinism
  - Empiricism
  - Experimentation
  - Replication
  - Parsimony
  - Philosophic doubt
Historical Foundations of FBA

• Six attitudes of science
  • Determinism – the universe is a lawful and orderly place in which all phenomena occur as the result of other events
  • Empiricism
  • Experimentation
  • Replication
  • Parsimony
  • Philosophic doubt
Historical Foundations of FBA

- Six attitudes of science
  - Determinism
  - Empiricism
  - Experimentation
  - Replication – repeating of experiments
  - Parsimony
  - Philosophic doubt

Historical Foundations of FBA

- Six attitudes of science
  - Determinism
  - Empiricism
  - Experimentation
  - Replication
  - Parsimony – all simple, logical explanations be ruled out before more complex or abstract explanations are considered
  - Philosophic doubt

Historical Foundations of FBA

- Six attitudes of science
  - Determinism
  - Empiricism
  - Experimentation
  - Replication
  - Parsimony
  - Philosophic doubt – scientists continually question what is regarded as fact
Historical Foundations of FBA

- BF Skinner’s Radical Behaviorism

- “… behavior, whether inside or outside the skin, may be usefully regarded as a phenomenon directly related to the circumstances in which it occurs, rather than as merely an expression or manifestation of an inner or mental life.” (Moore, 2008)

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Historical Foundations of FBA

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Historical Foundations of FBA

- Cause and effect
  - It states more than scientists want to say
  - Implies how a “cause” causes its effect

- Functional relationship
  - A change in the independent variable
  - A change in the dependent variable
  - Asserts different events tend to occur to

(Schlinger & Normand, 2014)
Historical Foundations of FBA

• Functional
  • A relationship or expression involving one or more variables

• Analysis
  • A detailed examination of the elements or structure of something, usually for discussion or interpretation

Historical Foundations of FBA

• Functional
  • A relationship or expression involving one or more variables

• Behavior
  • The dependent variable
  • How is behavior (internal and external) related to other variables?

• Assessment
  • The evaluation or estimation of the nature, quality, or ability of someone or something

Historical Foundations of FBA

• Functional analysis (FA) or experimental analysis
  • Iwata et al., (1982/1994) published a specific process for evaluating typical relationships between variables

  • Control condition
    • Escape from academic or daily living tasks (i.e., negative reinforcement)
    • Access to attention from an adult (i.e., positive reinforcement)
    • Alone condition (i.e., automatic reinforcement)
FBA Experimental Analysis “Tools”

790 Total publications regarding functional analytic procedures!
[Hanley, Iwata & McLord, 2003]

Historical Foundations of FBA

• Why is the history important?
  • Creates a foundational context for discussion.
  • Shifts the discussion from procedural training to outcome training. That is, the outcome of a behavioral assessment (i.e., functional relationship) is more important than the process (e.g., FBA, FA) for determining the relationship.
  • Creates a foundation for discussing the various procedures under the umbrella of FBA.
  • Creates a foundation for discussing the training and experience needs to conduct behavioral assessments.
More Foundational Information

Assessment Components

Broader variables

Antecedent • Time

Behavior • Time

Consequence • Time
Assessment Components

- Antecedent
- Time
- Behavior
- Time
- Consequence
- Time

Broader variables

[Diagram of assessment components with antecedent, behavior, and consequence with time between them.]
Typical FBA Process

• Functional – all behavior serves a purpose
  • Get something
  • Get out of something

• Behavior
  • What the person does that is of interest. Behavioral definitions and measurement of the behavior.

• Assessment
  • Gathering information via indirect and direct methods. Leads to an understanding of the behaviors purpose.
Typical FBA

• Determinism
  • The assumption that the universe is a lawful and orderly place in which all phenomenon occur as the result of other events

• All behavior serves a purpose or is FUNCTIONAL

Typical FBA

• Indirectly observe behavior
• Directly observe behavior with no manipulations
• Directly observe behavior with manipulations

Typical FBA

• Indirect – the behavior is not observed
  • Interviews, records review, rating scales, checklists
  • Helps to identify conditions under which behavior, what behaviors are of concern, information for defining the behavior, etc.
  • Accuracy of such information is questionable
Functional Behavior Assessments

- Records Review
  - Concerns, previous treatments, medical conditions, related factors (e.g., family dynamics, communication), previous assessments, etc.

- Interview
  - Unstructured and structured
    - Functional Assessment Interview (FAI; O’Neill et al., 1997)

- Questionnaires
  - Functional Analysis Screening Tool (FAST; 2005)

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Functional Behavior Assessments

- Direct – the behavior is observed
  - Preference assessment, ABC chart, continuous recording
    - Clarifies information from indirect assessments. Allows for refining of definitions, understanding of behaviors of concerns, measurement of behavior, etc. Hypothesis development.
    - Can be time consuming. Although analysis can occur, it is not clear whether variables are truly related without experimentation.

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Functional Behavior Assessments

- Direct assessments
  - Continuous recording – record everything that happens in the environment
  - Narrative recording (ABC data) – record only the events that occur in conjunction with the target behavior. What happens before (Antecedent), the Behavior and what happens after (Consequence).
  - Scatterplots – record the presence/absence of behavior during intervals throughout the day
Functional Behavior Assessments

- Direct with manipulations – the behavior is observed under varied, controlled conditions
  - Functional analysis, manipulation of teacher praise, preference assessment
  - Provides data outlining functional relationships between behavior and observable events. Yields better information than indirect methods.
  - Can be time consuming. Requires expertise and training.

FBA

Indirect assessments

Direct assessment

Direct with manipulations

Higher Level of Precision
Higher Level of Difficulty

Historical Foundations of FBA

Behaviorism
Functional analysis
FBA
Experimental Analysis
Tiered FBA Assessment Process

Tiered Assessment

- Functional analysis
- Functional behavior assessment
- Simple functional assessment
- Assessment of system

- Specialized individual intervention
- Universal interventions

Students with dangerous behavior (1-2%)
Students with chronic/serious challenging behavior (3-7%)
Students with mild or no challenging behavior (80-85%)
Students at risk for challenging behavior (5-15%)
All students in school

Assessment of system

(Crone & Horner, 2003)
Tiered Assessment – Systems

• Recognizing different systems that affect challenging behavior
  • Schoolwide
    • Classroom specific
    • Non-classroom specific
    • Student specific

  • Schoolwide – if a certain percent (>30%) of students are referred to the office for a similar issue (e.g., non-compliance), it is a schoolwide issue.
  • Classroom specific
  • Non-classroom specific
  • Student specific

  • Classroom specific – If a disproportionate number of referrals are coming from a class, it is classroom specific issue.
  • Non-classroom specific
  • Student specific
Tiered Assessment – Systems

• Recognizing different systems that affect challenging behavior
  • Schoolwide
  • Classroom specific
  • Non-classroom specific – If a disproportionate number of referrals are related to a specific area (e.g., lunchroom), it is a non-classroom specific issue.
  • Student specific

All of these systems are related and affect one another. Assessment and intervention may need to take place at multiple levels.
Tiered Assessment – Tier 1

- Tier 1
  - Schoolwide, class specific, non-classroom specific
    - Identify challenges unique to the school setting
    - Alter routines
    - Proactively teach skills (i.e., staff and students)
    - "How do we build behavior to support students?"
    - Universal interventions (i.e., all staff and students)

Tiered Assessments – Tier 1

<table>
<thead>
<tr>
<th>Schoolwide</th>
<th>Class specific</th>
<th>Non-classroom specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Following instructions, sharing, accepting &quot;No&quot; for an answer, focus of behavior, expectations, etc.</td>
<td>Praise rates, opportunities to respond during instruction, routines, etc.</td>
<td>Generalization, supervision, routines, expectations, etc.</td>
</tr>
</tbody>
</table>
Tiered Assessment – Tier 1

Indirect assessments

Direct assessment

Direct with manipulations

Higher Level of Precision

Higher Level of Difficulty

Tiered Assessment – Tier 1

Behaviorism

Functional analysis

FBA

Experimental Analysis

Tiered Assessment – Tier 2

Functional analysis

Functional behavior assessment

Simple functional assessment

Assessment of system

All students in school

Students with dangerous behavior (1-2%)

Students with chronic/serious challenging behavior (3-7%)

Students with mild or no challenging behavior (80-85%)

Students at risk for challenging behavior (5-15%)

All students in school

Assessment of system

Universal interventions

Specialized group intervention

Specialized individual intervention

Specialized individual intervention

Crone & Horner, 2003
Tiered Assessment – Tier 2

• Tier 2
  • Student specific
    • Identify challenges unique to the student through a simple assessment
      • Brief interviews, questionnaires
    • 60 min or less
    • Specialize group intervention (i.e., students with similar issues)
    • Identification of accommodations and/or modifications to schoolwide, classroom and/or non-classroom specific systems
Tiered Assessment – Tier 2

- Behaviorism
- Functional Analysis
- FBA
- Experimental Analysis

Individual Student System
- School, Class, or Non-class Specific Systems

- Students with dangerous behavior (1-2%)
- Students with chronic/serious challenging behavior (3-7%)
- Students with mild or no challenging behavior (80-85%)
- Students at risk for challenging behavior (5-15%)

All students in school

Universal interventions

Specialized group intervention

Specialized individual intervention

Assessment of system

Simple functional assessment

Functional behavior assessment

Functional analysis

Tiered Assessment – Tier 3

- Tier 3
- Student specific
  - Identify challenges unique to the student through a comprehensive assessment
    - Emphasis of direct assessment methods
    - 6 hours or less
  - Refine accommodations and/or modifications to schoolwide, classroom and/or non-classroom specific systems
  - Refine specialize group intervention
  - Develop and implement individualized interventions
Wayne RESA Intensive Functional Behavior Assessment

Student: Date: 

Sources of Data: (place an “x” next to appropriate response(s))
  Record Review ________ Scatterplot ________ ABC Logs ________ Other ________

Interview information reported by: (place an “x” next to appropriate response(s))
  __ Teacher __ Parent __ Student __ Other ______

Completed by:

The following is a format for conducting FBA that considers a wider range of possible variables than simple FBA. It typically requires the input of a variety of informants and sources, using interviews, file review, direct observations, indirect assessments, and others. Indirect and direct assessment methods may be used to gather this information. 

After the initial information-gathering portion of the FBA is completed, a summary of variables, or a hypothesis statement is developed, which is then used to design the student’s behavior intervention plan.

DESCRIBE PROBLEM BEHAVIOR(S)

Describe in specific and observable terms. Prioritize 2-3 if more than one. What does the behavior look/sound like? Does it begin at a low intensity and escalate? Describe. 

Estimated frequency:

MEDICAL/HEALTH

Health, medical, or psychiatric conditions:

Current medication(s):

Effects and side effects of medication(s):
Tiered Assessment – Tier 4

- Tier 4
  - Student specific
    - Identify challenges unique to the student via systematic changes related variables
    - 20 hours or more (see Hanley, 2012 & 2014 for thoughts)
    - Refine accommodations and/or modifications to schoolwide, classroom and/or non-classroom specific systems
    - Refine specialize group intervention
    - Develop and implement individualized interventions

Functional Behavior Assessments

- Functional Analysis conditions based upon Iwata et al., (1994)
  - Control (i.e., free play)
  - Attention
  - Escape
  - Tangible
  - Alone
- Conditions are repeated until a pattern of behavior emerges
Functional Behavior Assessments

Positive Reinforcement (Attention) Function

Negative Reinforcement (Escape) Function

Automatic Function
Tiered Assessment – Tier 4

Indirect assessments

Direct assessment

Direct with manipulations

Higher Level of Precision

Higher Level of Difficulty

Behaviorism

Functional analysis

FBA

Experimental Analysis
Training and Experience Needs

Training and Experience

• “ABA Tools” – principles and strategies used in a particular way

FBA
- Data
- Scatter plot
- Interview
- ABC Chart

BIP
- Shaping
- Reinforcement
- Rewards
- DRA/DRO/DRI
- Ignoring
Training and Experience

• Behavioral assessment procedures can be utilized by a variety of individuals with appropriate training and oversight.
  • The assessment procedure should be discrete enough to allow for explicit training of steps to complete the assessment.
  • The individual should develop fluency of administration and interpretation.
  • A more broadly trained individual should check for maintenance of skills periodically.

Training and Experience

• Some would suggest the functional analytic procedures (i.e., Iwata et al., 1982/1994) are defined well enough to train for use by non behavior analysts.
  • The procedures are well defined but are also integrally related to other aspects of the broader functional analysis methodology. It is difficult to teach these procedures in isolation of this broader methodology.

Training and Experience

• Behavior Analytic Ethical Guidelines (BACB, 2016)
  • Conduct an assessment prior to recommendations or behavior-change programming
  • Medical consultation is required if behavior is influenced by medical or biological variable
  • Consent for assessment is obtained prior to conducting
  • Assessment results are explained in language understandable by the client
  • Assessment results are only shared with 3rd parties if consent is obtained
Only the QABF has research supporting its clinical utility. (Healy, Brett & Leader, 2012; Krittian & Iacono, 2013; Matson, Tureck & Rudee 2012; Smith et al., 2012; Watkins & Rapp, 2013)

**Repeatability**
Frequency, Rate and Coleration

**Temporal Extent**
Total duration, duration per occurrence, whole interval, partial interval and momentary sample

**Temporal Locus**
Response latency and inter-response time

**Topography**

**Magnitude**
(Cooper, Heron & Heward, 2007)
Training and Experience

Praise rates of teachers affect student rate of challenging behavior

Carnine (1976)
Decreased off-task behavior with higher teacher praise rates.

West and Sloan (1986)
Decreased disruptive behavior with higher teacher praise rates.

Conducting a FBA and developing an appropriate BIP is about more than having a few tools

Conducting a FBA and developing a BIP requires specialty training where all of the “tools” are understood and decisions regarding their use can be made.
Since 1998 there has been an international credential to recognize individuals meeting a minimum competency in behavior analysis.

"The Behavior Analyst Certification Board was established to meet professional credentialing needs identified by behavior analysts, governments and consumers of behavior analytic services."
Training and Experience

Planning, directing, and monitoring effective ABA programs for individuals with autism requires specific competencies. Individuals with autism, their families, and other consumers have the right to know whether persons who claim to be qualified to direct ABA programs actually have the necessary competencies. All consumers also have the right to hold those individuals accountable for providing quality services (e.g., to ask them to show how they use objective data to plan, implement, and evaluate the effectiveness of the interventions they use)

From "Consumer Guidelines for Identifying, Selecting, and Evaluating Behavior Analysts Working with Individuals with Autism Spectrum Disorders"

Training and Experience

• A. Measurement
  • A-01 Measure frequency (i.e., count).
  • A-02 Measure rate (i.e., count per unit time).
  • A-03 Measure duration.
  • A-04 Measure latency.
  • A-05 Measure interresponse time (IRT).
  • A-06 Measure percent of occurrence.
  • A-07 Measure trials to criterion.
  • A-08 Assess and interpret interobserver agreement.
  • A-09 Evaluate the accuracy and reliability of measurement procedures.
  • A-10 Design, plot, and interpret data using equal interval graphs.
  • A-11 Design, plot, and interpret data using a cumulative record to display data.
  • A-12 Design and implement continuous measurement procedures (e.g., event recording).
  • A-13 Design and implement discontinuous measurement procedures (e.g., partial & whole interval, momentary time sampling).
  • A-14 Design and implement choice measures.
Training and Experience

• B. Experimental Design
  • B-01 Use the dimensions of applied behavior analysis (Baer, Wolf, & Risley, 1968) to evaluate whether interventions are behavior analytic in nature.
  • B-02 Review and interpret articles from the behavior-analytic literature.
  • B-03 Systematically arrange independent variables to demonstrate their effects on dependent variables.
  • B-04 Use withdrawal/reversal designs.
  • B-05 Use alternating treatments (i.e., multielement) designs.
  • B-06 Use changing criterion designs.
  • B-07 Use multiple baseline designs.
  • B-08 Use multiple probe designs.
  • B-09 Use combinations of design elements.
  • B-10 Conduct a component analysis to determine the effective components of an intervention package.
  • B-11 Conduct a parametric analysis to determine the effective values of an independent variable.

Training and Experience

• H. Measurement
  • H-01 Select a measurement system to obtain representative data given the dimensions of the behavior and the logistics of observing and recording.
  • H-02 Select a schedule of observation and recording periods.
  • H-03 Select a data display that effectively communicates relevant quantitative relations.
  • H-04 Evaluate changes in level, trend, and variability.
  • H-05 Evaluate temporal relations between observed variables (within & between sessions, time series).

Checklist for Selecting a Qualified Professional to Supervise ABA Services for Individuals with ASD

Supervise direct interventions and oversee programs:

- Bcba
- Bcba-D
- Licensed Psychologist (non-ABA)

Education (minimum)
- Masters
- Doctorate
- Doctorate

Training
- 1000 hours (25/week for 40 weeks)
- 1000 hours (25/week for 40 weeks)
- ABAI-accredited program
- 1000 hours (25/week for 40 weeks)

Experience with ABA (minimum)
- 5 years
- 5 years
- 10 years
- Obtain resume

Licence/Certification
- Certification
- State license if applicable
- State license if applicable
- Certification
- State license if applicable
- ABA within scope of practice
- State license if applicable

Other/Notes
- Member of ABA
- Member ABA
- Member of ABA
- Member ABA
- Member of ABA
- Member of ABA

Training and Experience

Behaviorism

Functional analysis

FBA

Experimental Analysis

Thank you!
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