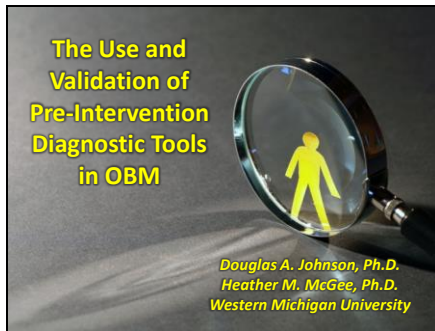


Slide 1



Slide 2



### Functional Analysis and Assessment

- Standard in many areas of ABA (Bailey & Burch, 2002; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982)
  - First assess maintaining variables
  - Then identify targeted interventions based on results of assessment

Slide 3



### Assessment in OBM

- Many choices
  - ABC Analysis
  - PIC/NIC Analysis
  - Behavior Engineering Model (BEM)
  - And others
- Most commonly seen in *Journal of Organizational Behavior Management (JOBM)* – Flagship journal of OBM
  - Behavioral Systems Analysis (BSA)
  - Performance Diagnostic Checklist (PDC)

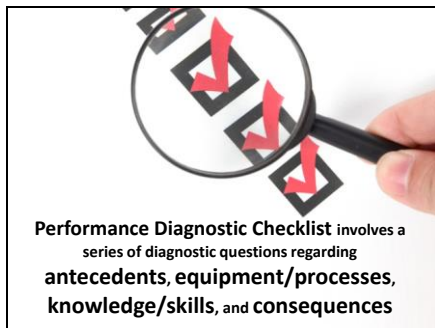
Slide 4



### Behavioral Systems Analysis

- Long history in OBM (Brethower, 1972, 1982; Connellan, 1978; Harshbarger & Maley, 1974; Morasky, 1982)
- Subject of two special issues of *JOBM*
- Consists of:
  - Series of maps, charts, and other tools
  - Populated via observations, questionnaires and guided interviewing
  - Aid in the pinpointing of performance gaps in complex environments and in guiding the subsequent change efforts that result from the identification of those gaps

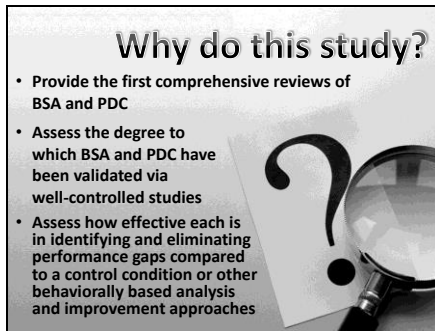
Slide 5



### Performance Diagnostic Checklist

- Series of diagnostic questions around four areas that affect performance
- Based on study that investigated the process of question asking (Austin, 1996)
  - Provided consultants and managers with a series of performance problems
  - Asked them to talk aloud as they tried to solve the performance issues
  - Results showed most success occurred when questions were asked in four areas
    - Antecedents
    - Equipment and processes
    - Knowledge and skills
    - Consequences

Slide 6



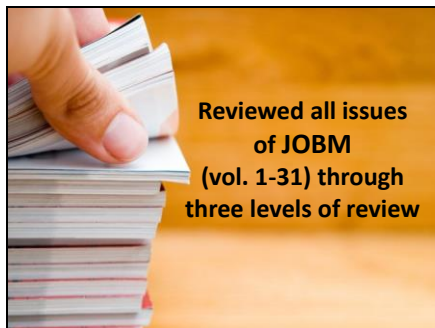
**Why do this study?**

- Provide the first comprehensive reviews of BSA and PDC
- Assess the degree to which BSA and PDC have been validated via well-controlled studies
- Assess how effective each is in identifying and eliminating performance gaps compared to a control condition or other behaviorally based analysis and improvement approaches

### Purposes of Study

- Provide the first comprehensive reviews of BSA and PDC exist
- Assess the degree to which BSA and PDC have been validated via well-controlled studies
- Assess how effective each is in identifying and eliminating performance gaps compared to a control condition or other behaviorally based analysis and improvement approaches

Slide 7



Reviewed all issues of *JOBM* (vol. 1-31) through three levels of review

### Method

- All issues of *JOBM* from 1977 thru 2011 (Volumes 1-31) reviewed
- Book reviews, announcements, and editorials were excluded
- 3 levels of review
  - Two independent reviewers recorded and scored each article at each level of review
  - Any classification disagreements were resolved by discussion and subsequent independent recoding

Slide 8

• systems analysis  
• systems thinking  
• processing system  
• receiving system  
• process maps  
• relationship map  
• total performance system  
• performance matrix  
• super system  
• organizational scan  
• behavior engineering model  
• human performance system  
• Performance Diagnostic Checklist

**First, searched for many terms anywhere in the articles**



**First Level of Review**

- *Searched for the following terms:*
  - systems analysis
  - systems thinking
  - processing system
  - receiving system
  - process maps
  - relationship map
  - total performance system
  - performance matrix
  - super system
  - organizational scan
  - behavior engineering model
  - human performance system
  - Performance Diagnostic Checklist

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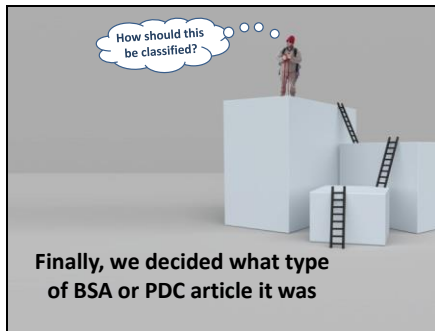


**Next, we reviewed the actual content of the article**

**Second Level of Review**

- All articles containing terms from Level 1 review were reviewed at Level 2 by researchers with explicit training and experience in both Performance Management and BSA
- Careful examination of article content to classify articles as
  - A systems article or not
  - A PDC article or not
- Only articles that utilized either BSA or PDC or included a substantial discussion BSA or PDC were selected at this level
- Brief mentions of BSA terms or PDC was not sufficient

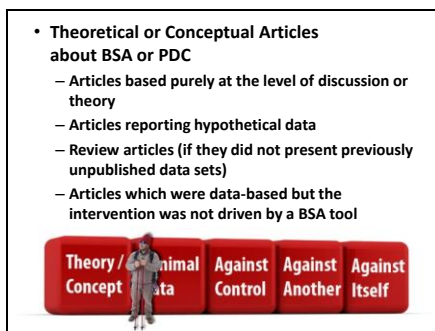
Slide 10



### Third Level of Review

- All articles passing Level 2 review were included in Level 3 review
- Two researchers classified articles according to level of empirical comparison
- Any classification disagreements were resolved by discussion and subsequent independent recoding

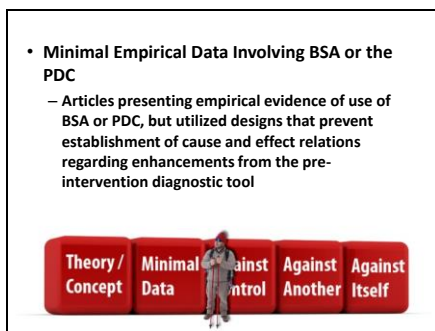
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### Third Level of Review Classifications

- Theoretical or Conceptual Articles about BSA or PDC
  - Articles based purely at the level of discussion or theory
  - Articles reporting hypothetical data
  - Review articles (if they did not present previously unpublished data sets)
  - Articles which were data-based but the intervention was not driven by a BSA tool

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### Third Level of Review Classifications

- Minimal Empirical Data Involving BSA or the PDC
  - Articles presenting empirical evidence of use of BSA or PDC, but utilized designs that prevent establishment of cause and effect relations regarding enhancements from the pre-intervention diagnostic tool

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- **Experimental Evidence Involving BSA or the PDC Compared Against a Control Condition**
  - Articles that directly compared effectiveness of interventions selected through use of BSA or PDC to no active intervention (or no change to existing interventions or initiatives)




### Third Level of Review Classifications

- Experimental Evidence Involving BSA or the PDC Compared Against a Control Condition
  - Articles that directly compared effectiveness of interventions selected through use of BSA or PDC to no active intervention (or no change to existing interventions or initiatives)

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- **Experimental Evidence Involving BSA or the PDC Compared Against an Alternative Approach Condition**
  - Articles that compared interventions selected through use of BSA or PDC to another active intervention selected by another type of analysis (or no prior analysis)




### Third Level of Review Classifications

- Experimental Evidence Involving BSA or the PDC Compared Against an Alternative Approach Condition
  - Articles that compared interventions selected through use of BSA or PDC to another active intervention selected by another type of analysis (or no prior analysis)

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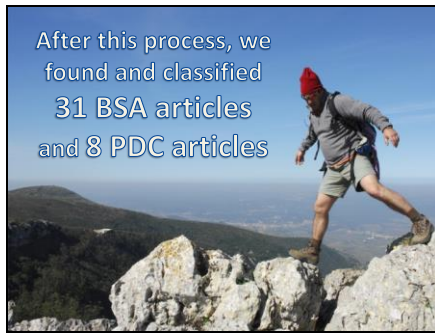
- **Experimental Evidence Involving the Comparison of One or More BSA Tools or the Comparison of One or More PDC Components**
  - Articles that directly compared relative effectiveness of one BSA tool/PDC component or combinations of tools/components against another BSA tool/PDC component or combination of tools/components in improving performance



### Third Level of Review Classifications

- Experimental Evidence Involving the Comparison of One or More BSA Tools or the Comparison of One or More PDC Components
  - Articles that directly compared relative effectiveness of one BSA tool/PDC component or combinations of tools/components against another BSA tool/PDC component or combination of tools/components in improving performance

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## Results

- First level of review
  - 107 possible BSA articles with IOA of 76%
  - 12 possible PDC articles with IOA of 100%
- Second level of review
  - 31 BSA articles with IOA of 92%
  - 8 PDC articles with IOA of 100%
- Third level of review
  - Classification of articles into an empirical comparison category results in an IOA of 94% for BSA and 100% for PDC

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Category	% of BSA Articles
Theoretical/conceptual	71%
Minimal empirical data	26%
BSA-driven intervention vs. no-intervention control	3%
BSA-driven intervention vs. alternative approach condition	0%
Experiments comparing different BSA tools	0%

## Results of Level 3 Review – BSA Articles

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Category	% of PDC Articles
Theoretical/conceptual	12.5%
Minimal empirical data	87.5%
PDC-driven intervention vs. no-intervention control	0%
PDC-driven intervention vs. alternative approach condition	0%
Experiments comparing different PDC components	0%

## Results of Level 3 Review – PDC Articles

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### Discussion

- Use of a-priori or concurrent assessments has increased over time

Slide 20

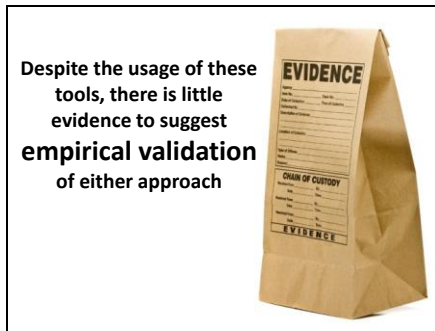


### Discussion

- However, pre-intervention assessments are not explicitly incorporated in the majority of OBM articles
  - From 2000 to 2011, less than 15% of published JOBM articles made more than a brief mention of BSA or PDC tools
  - A cursory look through the remaining 85% of articles suggests that it is not a case of assessment tools besides BSA and PDC being used
- Despite assertions regarding the popularity of the PDC (Fante, Gravina, & Austin, 2007; Fante, Gravina, Betz, & Austin, 2010), the use of this tool seems to be limited and possibly in decline
  - During the last three years of this review (2009-2011), no published articles used the PDC



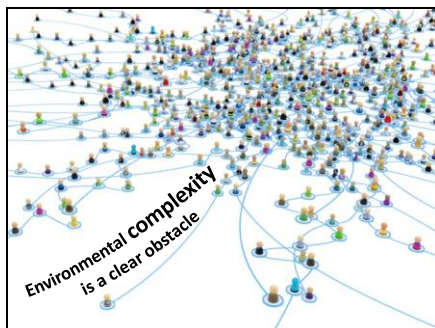
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### Discussion

- Results of current review indicate that BSA and PDC are being used in OBM
- However, there is little evidence to suggest empirical validation of either approach
  - 26% of the BSA studies and 87.5% of the PDC studies provided evidence that the tools were used to guide the selection of interventions
  - Only one BSA study and zero PDC studies actually attempted to empirically validate the assessment approach through experimental manipulations
  - The lack of empirical validation may be a contributing factor to the standard use of these tools in published accounts of organizational interventions

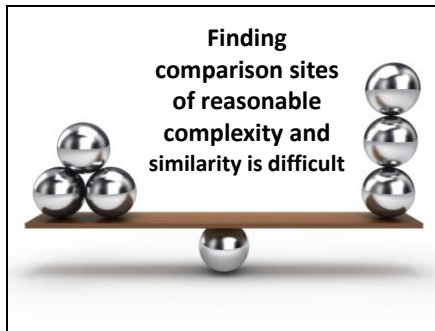
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### Possible Reasons for Lack of Empirical Validation

- Environmental Complexity
  - Difficult to control extraneous variables in complex environments well enough to determine functional relationships
  - Difficult to recreate a sufficiently complex environment in the lab
  - Both BSA and PDC require investigator interaction with the environment may lead to an unintentional altering of the environment even before an intervention is implemented

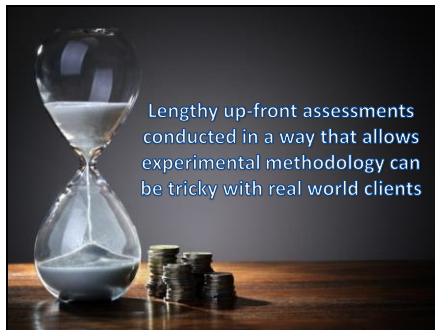
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### Possible Reasons for Lack of Empirical Validation

- Suitability of Comparison Sites or Conditions
- No two sites or organizations are the same
- Could potentially impact the results if the investigator is attempting to compare two different assessments or different components of the same assessment

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### Possible Reasons for Lack of Empirical Validation

- Cost and Time
  - BSA can take several weeks or even months
  - Potential cost and time requirements might outweigh perceived value
  - Delay to creating organizational change may not be tolerated by impatient clients unless measurably superior results can be shown or proof that a lack of detailed up-front assessments may risk costly errors or interfere with future assessment results and interventions
    - Even more of an issue if client is not persuaded by need for scientific rigor

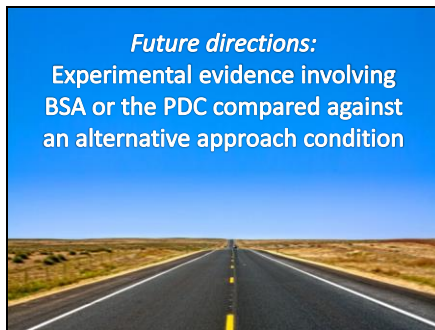
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### Suggestions for Future Research

- Experimental evidence involving BSA or the PDC compared against a control condition
- Use two similar sites of the same organization or two different organizations under the same parent company
- Compare the results of either BSA or the PDC against a control condition

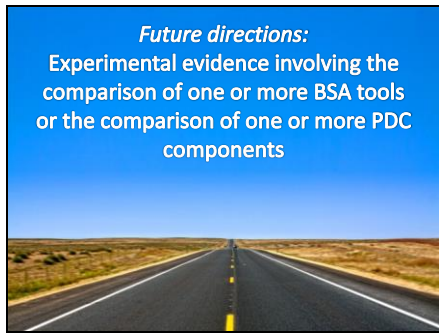
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### Suggestions for Future Research

- Experimental evidence involving BSA or the PDC compared against an alternative approach condition
- Use two similar sites of the same organization, two different organizations under the same parent company, or different individuals within same setting
- Determine whether different assessments yield similar suggestions for interventions
- Compare BSA assessment tools or PDC checklist to other organizational analysis strategies to see which strategies produce superior results
- Compare BSA assessment tools against the PDC checklist to assess:
  - differences in terms of the types of interventions that are selected
  - total time to select and implement interventions
  - differences in terms of success of interventions driven by various analyses

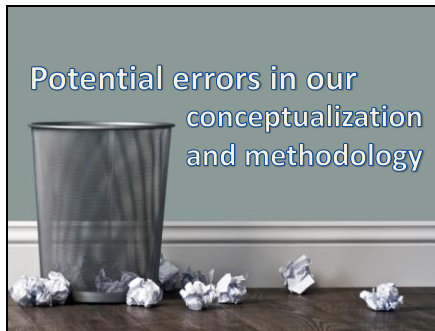
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### Suggestions for Future Research

- Experimental evidence involving the comparison of one or more BSA tools or the comparison of one or more PDC components
  - Compare visual representations (maps) to text-based job-aids in terms of time to create and value in pinpointing disconnects
  - Compare number of performance levels assessed and success of interventions
  - Empirically analyze various BSA tools to determine which are essential for identifying appropriate intervention(s)
  - Empirically analyze individual components of specific BSA tools to determine which are essential for identifying appropriate intervention(s)
  - Empirically analyze individual components of PDC checklist to determine which are essential for identifying appropriate intervention(s)

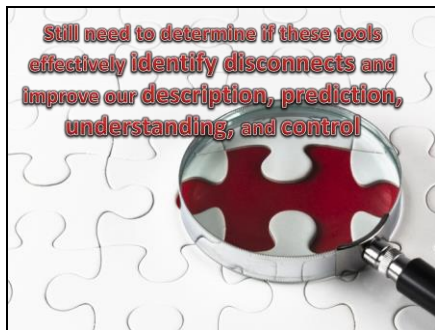
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### Limitations

- Possible that search terms were not broad enough and some articles were missed
- Current review only included articles from (*JOBM*)
- Possible that other publications contain additional
- We specifically chose this journal because it is the flagship journal of OBM
- Possible the definition of BSA as a multi-level analysis or the use of specific assessment tools used in this review was too restrictive

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### Conclusions

- We still need to determine whether OBM pre-intervention assessments identify more disconnects and lead to better interventions
- Scientific inquiries allow one's respective field to better describe, predict, understand, and control the phenomenon under study

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