Accuracy of a Decision Support System for Systematic Job Matching of Individuals with Disabilities

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October 31, 2015
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Session Learning Objectives

1. Determine the accuracy of the VFA decision support system.
2. Describe the clinical utility of a systematic procedure for making job matching decisions
My long-term goal is to improve postsecondary employment outcomes for individuals with IDD through the adaptation, development, and deployment of systematic assessment and intervention strategies.
Background

- About 3% (9 million people) of the American population lives with an intellectual disability (ID)\(^1\)

- Birth – 21, IDEA

<table>
<thead>
<tr>
<th>Postsecondary Outcomes</th>
<th>Intellectual Disabilities</th>
<th>All Disabilities</th>
<th>General Population</th>
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<tbody>
<tr>
<td>Education</td>
<td>29%</td>
<td>60%</td>
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<tr>
<td>Employment</td>
<td>39%</td>
<td>60%</td>
<td>66%</td>
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- Total lifetime costs (healthcare, support services, lost productivity) ≥ $1 million per individual with ID\(^3\)

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\(^1\) Administration on Intellectual and Developmental Disabilities, 2012  
\(^2\) Newman et al., 2011; Bureau of Labor Statistics, 2012  
\(^3\) Centers for Disease Control and Prevention, 2006
Importance of Employment

- Work is a fundamental human occupation
- Strongly linked to identity\textsuperscript{1}, SES,\textsuperscript{2} QoL,\textsuperscript{3} and health\textsuperscript{4}
- Provides sociocognitive structure to view the world\textsuperscript{5}
- Federal contractors must employ 7\%\textsuperscript{6}
- Most employment services fail to meet the needs of those in transition\textsuperscript{7}

\textsuperscript{1} Corcoran, 2004
\textsuperscript{2} Butterworth et al., 2012
\textsuperscript{3} Eggleton et al., 1999
\textsuperscript{4} Petrovski & Gleeson, 1997
\textsuperscript{5} Daston, Riehle, & Rutkowski, 2012
\textsuperscript{6} Final Rule on Section 503 of the Rehabilitation Act of 1973
\textsuperscript{7} Wehman, 2006; Wehman & Scott, 2013
High Level of Support

Low Level of Support

Segregated Environment

Integrated Environment

- Reasonable Accommodations
- Project SEARCH
- Customized Employment
- Supported Employment
- Sheltered Workshops

The Ohio State University
Transition, Employment, & Technology Lab
Developing Research Questions

- How do people with ID find & keep a job?

  - Job Matching
  - Assessment
  - Discovery
  - Decision Making
  - Negotiating Work
  - Training
  - Integrated Env.

1. Fultz & Kinsey, 2004
2. McDonnell et al., 1989
3. Morgan 2008; Morgan 2011
4. Stevens & Martin, 1999
5. Trach, 1989; Trach 1990
6. Martin, Mithaug, & Husch, 1988
7. Mithaug et al., 1988
8. Daston et al., 2012
10. Wehman & Brooke, 2013
11. Rusch & Mithaug, 1980
12. Wehman, 1981
14. Graffam et al., 2002
15. Nisbet et al., 1990
Research Program

Current Practices in Job Matching

Vocational Fit Assessment
Study #1 Research Questions

1. What are the current practices in job matching?

2. What are the outcomes of JM/JP practices?

3. What tools do professionals use to inform JM/JP decisions?
Mixed-Methods Sequential Explanatory Design

**Phase**
- QUANTITATIVE and Narrative Data Collection
- QUANTITATIVE Data Analysis
- Focus Group Development
- Qualitative Data Collection
- Qualitative Data Analysis
- Integration of Quantitative and Qualitative Findings

**Procedure**
- Web-based cross-sectional survey ($N = 192$)
- Data screening and cleaning
- Univariate analyses
- Frequencies
- Purposefully selected key stakeholders
- Develop focus group protocol
- Focus groups conducted with 4 key stakeholder groups
- Audio-video recording
- Triangulation of observers
- Coding
- Case comparison
- Thematic analysis
- Constant comparison
- Interpretation and explanation of quantitative and qualitative findings

**Product**
- Numeric data
- Narrative data
- Descriptive statistics
- Focus groups ($k = 4$)
- Focus group protocol
- Textual data transcribed from focus group recordings
- Codes and themes
- Thematic structure
- Development of visual model
- Discussion
- Implications
Survey Participants
• N = 192; 42.6% response rate
• 97% aged 25-65
• 90% White, 7% Black, 2% Hispanic
• 84% Female; 16% Male
• Years of experience μ = 10.73, σ = 8.37

Focus Group (k=4) Participants
• Professionals (n=7) 5 women; 36-64; all White
• College students (n=6) all men; 18-24; all White
• High-school students #1 (n=5) 4 women; 18-24; 1 Black, 1 Hispanic, 3 White
• High-school students #2 (n=2) 2 men; 18-24; 1 Black, 1 White
Job Matching is a Collaborative Process

At what age does transition planning begin?

- At what age does transition planning begin?
Job Matching is a Collaborative Process

At what age do vocational training activities begin?

The bar chart shows the proportion of respondents at different ages. The peak is around age 16, indicating that vocational training activities tend to begin around that age.
Study #1 Integrated Findings

Job Matching is a Collaborative Process

[Graph showing percentage of stakeholders involved in job matching]
Job Matching is a Collaborative Process

“meeting is held with the intern's team to include [sic] the Project SEARCH team, relatives, friends and supportive people in the intern's life.”

“In my opinion the process that works best is what works best for the individual and that is usually a team approach that includes the job seeker, family members, friends, community folks, including employers and the providers that know the job seeker well and can provide input.”
Study #1 Integrated Findings

Key Stakeholders Consider Many Types of Data When Job Matching

![Bar Chart: Types of Data that Inform Job Matching]
Study #1 Integrated Findings

Key Stakeholders Consider Many Types of Data When Job Matching

“Job training evaluations, feedback from managers, coworkers, and parents...to have a comprehensive understanding of the individual's skills in order to match the person with a disability to a particular job, work evaluations, assessment of transferrable skills...level of independence, mode of transportation, willingness to work part-time or full-time, and level of motivation.”
Study #1 Integrated Findings

Current Practices in Job Matching are Variable and Lack Consistency

Do you have an adequate tool to match an individual to an appropriate job?

- Yes
- No
Study #1 Integrated Findings

Current Practices in Job Matching are Variable and Lack Consistency

Are you satisfied with your ability to match a student to an appropriate job?

- Yes
- No
Study #1 Integrated Findings

Current Practices in Job Matching are Variable and Lack Consistency

“trial and error is used most often! Job developers try their best to find open positions that might match a person’s interest and skill set and hope that the team agrees.”

“We use discovery first to get to know the individual job seeker. We then use warm contacts, cold contacts and the job bank to search for appropriate positions. We offer a Summer Program to high school students to expose them to work. We offer Project SEARCH!”
Outcomes of the Job Matching Process are Poorly Defined

“community employment”

“We have great outcomes. At least 60% each year with some sites getting 100%. Of those employed there is a high percentage of long term stability,” “on the average, we have been over 80% successful,” “85% hire rate…long term, about 80% retentions [sic] rate.”
Study #1 Integrated Findings

Outcomes of the Job Matching Process are Poorly Defined

“This process has equipped students with the job readiness skills need [sic] to successfully and actively pursue employment opportunity [sic] after post-secondary completion.”

“individuals have learned employability skills.”

“help them get a work placement that they like and can learn several skills that can be generalized to future employment.”
Study #1 Integrated Findings

Facilitate
- Interests & abilities
- Willingness to learn
- Strong family support
- Interdisciplinary collab.
- Honesty of assessment
- Natural supports
- Transportation
- Job availability
- Confidence
- Community connections
- Effectiveness of professional

Impede
- Unrealistic expectations
- Interfering behaviors
- Stereotypes
- Lack of transportation
- Lack of family support
- Poor environment
- Lack of motivation
- Rural communities
- Poor follow-along support
- Potential loss of benefits
- Insufficient services funding
- Lack of objective tools
Please rate the importance of the following to the overall success of the transition to postsecondary employment:

- Social Competence
- Students' Self-Awareness
- Age at which transition planning began
- Performance in High School Sciences
- Skill of Job Coach
- Students' Persistence
- Performance in High School English
- Appropriateness of Job Match/Placement
- Students' Self-Determination
- Social Supports in the Workplace
- Performance in High School Mathematics
- Availability of Work
- Employer
- Involvement of Parent
- Skill of Teacher
About Job Matching

• In the absence of adequate job matching resources, we strongly recommend that transition teams employ best practices including:
  1. proactive interdisciplinary and interagency teaming, collaboration, and community outreach
  2. data-based decision making
  3. defining acceptable, person-centered outcomes
  4. working to increase the consistency of transition planning practices

1 Persch, Cleary, Rutkowski, Malone, Darragh, & Case-Smith, in press
Problem

“Job matching is the collaborative, data-based decision-making process used by transition teams to determine the best fit between an individual’s abilities and preferences and the job’s environmental and occupational demands”\(^1\)

\(^1\) Persch, Cleary, Rutkowski, Malone, Darragh, & Case-Smith, 2015
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1 Persch, Cleary, Rutkowski, Malone, Darragh, & Case-Smith, 2015
• Can you…?
• Is the worker able to…?

• Accessibility…?
• Social supports…?

• Does the job…?
• How often does…?

Work of People with Disabilities
Gaps

• Reliance on individuals > systems results in variable practices and poor outcomes.

• A systematic procedure for making job matching decisions is needed to decrease the variability of job matching practices may be capable of enhancing outcomes.

• Vocational Fit Assessment (VFA)
  • Worker Edition
  • Jobs Edition
About Job Matching

• A systematic procedure for making job matching decisions is needed to decrease the variability of job matching practices may be capable of enhancing outcomes.

1 Persch, Gugiu, Onate, & Cleary, 2015
Vocational Fit Assessment (VFA)

• Purposes of the VFA:
  1. assess individual abilities
  2. assess job demands
  3. identify pros and cons of each potential job match
  4. identify areas of need, suitable for intervention

• 4+ yr. - iterative, instrument development process
  • 70% of individuals with disabilities = 153 jobs
  • 153 jobs = 2,970 work tasks (i.e., items)
    • 18 months, item optimization
      • Resulted in ~100 item assessment

• Items reflect the work of people with disabilities
Study #2 Findings

126 VFA Common Item Stems

- Cognitive Abilities (k=7)
- Communication Skills (k=6)
- Computer Skills (k=16)
- Higher Task-Related Abilities (k=8)
- Interpersonal Skills (k=6)
- Lower Task-Related Abilities (k=10)
- Physical Abilities (k=7)
- Self-Determination (k=11)
- Work Structure (k=7)

126 items → 10 subscales, 86 items
# Study #2 Findings

<table>
<thead>
<tr>
<th>Category</th>
<th>VFA-W</th>
<th>Ordinal $\alpha$</th>
<th>VFA-J</th>
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<tr>
<td>Cognitive Abilities ($k=7$)</td>
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<td>Communication Skills ($k=6$)</td>
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<tr>
<td>Computer Skills ($k=16$)</td>
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<td>Higher Task-Related Abilities ($k=8$)</td>
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<td>Interpersonal Skills ($k=6$)</td>
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<td>Lower Task-Related Abilities ($k=8$)</td>
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<td>Safety ($k=7$)</td>
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<td>Self-Determination ($k=11$)</td>
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<td>Work Structure ($k=7$)</td>
<td>0.864</td>
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How does this work?
Clinical Scenario

• Kelly, a special educator, needs to match a new student (Brutus) to the most appropriate internship/job.
• Kelly knows that it is best practice to use a formal assessment to inform this decision.
• The **Vocational Fit Assessment** is designed for just this type of situation!
• As she supports Brutus’ work in the community, Kelly completes the VFA.
To what degree does the worker demonstrate the ability to communicate face-to-face with other people?

- High ability
- Some ability
- Low ability

Worker Application

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Clinical Scenario

• Day-to-day, Kelly has also begun to develop a database of jobs by using the VFA to assess jobs.
To what degree does the job demand the ability to communicate face-to-face with other people?

- High demand
- Some demand
- Low demand

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Cloud

Jobs Application

The Ohio State University
Transition, Employment, & Technology Lab
How should we convey this information to decision makers?
Future Directions

- Efficacy & Effectiveness Trials
- CER Trials

- Other populations
  - Veterans
  - TBI
  - Mental health disorders

- Other PEO problems
  - Neuromotor impairment
  - Environmental accessibility
Thank You!!

Questions?

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