

4-1-2011

## An Excel-Based Mean Weighted Discrepancy Score Calculator

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### Recommended Citation

McKim, B. R., & Saucier, P. (2011). An Excel-Based Mean Weighted Discrepancy Score Calculator. *The Journal of Extension*, 49(2), Article 31. <https://tigerprints.clemson.edu/joe/vol49/iss2/31>

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**April 2011**  
**Volume 49 Number 2**  
**Article Number 2TOT8**

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# **An Excel-Based Mean Weighted Discrepancy Score Calculator**

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**Abstract:** The Borich (1980) needs assessment model requires that a mean weighted discrepancy score be calculated for each item, competency or activity included in the needs assessment. The two most common types of Borich-type discrepancy scores noted in the agricultural education literature are importance/ability or what is/what should be. An Excel-based mean weighted discrepancy score calculator provides a simplified process of calculating mean weighted discrepancy score and reduces opportunities for user error. The Excel-based mean weighted discrepancy score calculator is a free Microsoft Excel file that allows individuals to calculate discrepancy scores for importance/ability or what is/what should be scores.

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## **Introduction**

Many needs assessments have been conducted to determine the in-service or training needs of agriculture educators, both in formal settings (Edwards & Briers, 1999; Garton & Chung, 1997; Layfield & Dobbins, 2002; Newman & Johnson, 1994; Peake, Duncan, & Ricketts, 2007) and nonformal settings (Bowe, Smith, Massey, & Hansen, 1999; Conklin, Hook, Kelbaugh, & Nieto, 2002; Gregg & Irani, 2004; Waters & Haskell, 1989). Many of those studies used the Borich (1980) needs assessment model to identify where educators' in-service or training needs existed by calculating mean weighted discrepancy scores (MWDS).

Borich (1980) noted the versatility of his model that allows for modification and expansion. A discrepancy can be calculated by comparing the participants' behaviors, skills, and competencies, with the goals of the program: "a discrepancy analysis that identifies the two polar positions of what is and what should be" (Borich, 1980, p. 39). Further, a comparison could be made to determine a group of individuals' perceived level of competence to complete a task, with their desired level of competence to complete a task. The two most common types of Borich-type discrepancy scores noted in the agricultural education literature were importance/ability or what is/what should be.

Using the Borich (1980) needs assessment model requires that a MWDS be calculated for each item (competency, activity, etc.). Each of the previously noted articles indicated the formula used to calculate

MWDS; however, none of the articles indicated the specific medium used to calculate the MWDS (e.g., SPSS, Microsoft Excel, manual calculation). Although most social scientists have access to SPSS or Microsoft Excel software, neither SPSS nor Microsoft Excel provides a menu function for calculating MWDS. Therefore, an Excel-based MWDS calculator provides simplified process of calculating MWDS and reduces opportunities for user error.

## Procedures

The Excel-based MWDS calculator is a free Microsoft Excel file. One spreadsheet in the file can be used to calculate discrepancy scores for importance/ability, and another spreadsheet allows users to calculate what is/what should be scores. Additionally, a third sheet provides users a detailed description of each formula used to calculate the MWDSs for user reference or for use in describing methods. The MWDS calculator file allows users to calculate scores for up to 70 items, competencies, activities, etc., and up to 200 respondents. However, the file can be expanded to accommodate a greater number of variables and respondents.

Once the user has obtained a copy of the Excel-based MWDS calculator, data can either be manually entered or copied and pasted into the calculator. Calculations are automatic; the output includes discrepancy scores, weighted discrepancy scores, and the MWDS for each item. The final MWDS are displayed in a summary table that indicates the MWDS for each item and the valid *n* for each item (Figure 1).

**Figure 1.**  
Sample View of the Mean Weighted Discrepancy Score Calculator

Resp. I.D.	Ability	Importance	DS	WDS	Ability	Importance	DS	WDS
RE001	2.00	3.00	1.00	3.80	2.00	3.00	1.00	3.30
RE002	1.00	4.00	3.00	11.40	2.00	4.00	2.00	6.60
RE003	2.00	4.00	2.00	7.60	1.00	4.00	3.00	9.90
RE004	3.00	5.00	2.00	7.60	3.00	5.00	2.00	6.60
RE005	1.00	3.00	2.00	7.60	2.00	2.00	0.00	0.00
RE006	2.00	2.00	0.00	0.00	1.00	2.00	1.00	3.30
RE007	3.00	5.00	2.00	7.60	2.00	3.00	1.00	3.30
RE008	4.00	3.00	-1.00	-3.80	3.00	3.00	0.00	0.00
RE009	2.00	5.00	3.00	11.40	3.00	4.00	1.00	3.30
RE010	1.00	4.00	3.00	11.40	2.00	3.00	1.00	3.30
	3.80	10.00	MWDS=	1.14	3.30	10.00	MWDS=	0.33

  

Summary Table		<i>n</i>
MWDS Var. 1 =	1.14	10
MWDS Var. 2 =	0.33	10

## Discussion

Using the Excel-based MWDS calculator expedites the process of calculating MWDS, eliminating any need to make manual calculations. Furthermore, the Excel-based MWDS calculator reduces opportunities for user error.

Copies of the Excel-based MWDS calculator are free and can be obtained by contacting the authors. Future plans include making the Excel-based MWDS calculator available on the Web. The Excel-based MWDS calculator will function properly on Windows or Macintosh platform computers with Microsoft Excel

correctly installed.

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