Interobserver Agreement | Information

Definition

According to Morgan & Morgan 2009, interobserver agreement (IOA) is a measure of reliability of data. It represents the extent to which the data between two observers corresponds.

Use

IOA is used to determine the quality and accuracy of measurement across observers (Cooper, Heron, & Heward, 2007).

It has many applications in the realm of organization behavior management, especially in the areas of staff training and feedback. IOA is also a required measure in research studies and has many other uses throughout organizations.

Practical Application

Imagine that staff at an applied behavior analysis center that serves adults with severe problem behavior receives training in reducing inappropriate behavior. As part of this skills training, staff are expected to identify occurrences of target behavior and record their frequency. IOA can be used to ensure that all staff have the proper definitions of the behavior and it can also be used to identify when there may be observer drift and retraining is needed (Morgan & Morgan 2009).

Key points about IOA

- Measurement is said to be accurate when observed values, the data produced by measuring an event, match the true state, or true values, of the event.
- Observers should use the same measurement system, observe same participants, and record data independently.
- Methods for calculating IOA include total count, mean count per interval, and exact count per interval.
- Percentage of agreement is the most common way to report IOA in applied behavior analysis.
- A mean of 80% agreement means the data are accurate, but there can be no set criterion.

- IOA can also be calculated using data obtained by timing, interval recording, and time sampling.

- IOA Measures are used to determine competence of new observers, detect observer drift, confirm the accuracy of an operational definition, and to determine if the data reflects actual changes in behavior.

Calculating IOA

There are many different methods for calculating IOA. Each method provides a different view of the accuracy between observers (Cooper, Heron, and Heward, 2007). Here is an overview of methods used for calculating IOA by event recording:

- **Total Count IOA**: Expressed as the % of agreement between the total numbers of responses by two observers; calculated by dividing the smaller by the larger counts and multiplying by 100.

$$\frac{\text{Smaller Count}}{\text{Larger Count}} X\ 100$$

- **Mean Count-per-Interval IOA**: The total observation period is divided into a series of smaller counting times. Observers record the occurrence of the behavior during those intervals. The agreement between the two observers is calculated using the count for each interval.

$$\frac{(\text{Int1 IOA} + \text{Int2 IOA} + \text{IntN IOA})}{\text{N Intervals}} X\ 100$$

- **Exact Count per Interval IOA**: Uses the same method to break up the observation periods as mean count-per-interval. Intervals are compared to determine the % of agreement for each interval.

$$\frac{\text{Number of Intervals of 100\% IOA}}{\text{N Intervals}} X\ 100$$

- **Trial-by-Trial IOA:** Uses the same method as total count IOA except the measure here is the occurrence of the behavior.

$$\frac{\text{Number of trials (items) agreement}}{\text{Total number of trials (items)}} X\ 100$$