ATTITUDE SCALES

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Defining an Attitude

• “An attitude is the affect for or against a psychological object” Louis Thurstone, 1931
• evaluation of
• like or dislike of
• positiveness or negativeness toward
• (Do not say “feelings”)
Assumptions

• Attitudes are predispositions to respond.
• Attitudes are persistent over time.
• Attitudes are susceptible to change, but not easily.
• Attitudes produce consistency in behavior.
• Attitudes are directional (Summers, 1970).

An attitude is like a puff of smoke that we wish to describe. To do so, we must sample many molecules in the puff if we wish to describe it adequately. One molecule will not do!
Types of Attitudinal Scales

- Likert (summated rating)
- Semantic Differential

We will discuss these two, most common, scales but additional information is provided in the handout should you have an interest in the latter two.

- Guttman (cumulative)
- Thurstone (equal-appearing interval)
General Criteria for Attitude Statements

• Items should be a series of statements; not questions.
• Avoid statements that refer to the past rather than to the present.
• Avoid statements that are factual or capable of being interpreted as factual.
• Avoid statements with multiple interpretations.
• Avoid statements that are irrelevant to the psychological object under consideration.
• Avoid statements that are likely to be endorsed or not endorsed by almost everyone.
• Select statements that are believed to cover the entire range of the affective domain of interest.
• Keep the language of the statements simple, clear, and direct. Avoid words that may not be understood by the respondents.
Criteria for Attitude Statements (continued)

- Statements should be short; rarely exceeding 20 words.
- Each statement should contain only one complete thought.
- Statements containing universals such as *all, always, none*, and *never* often introduce ambiguity and should be avoided.
- Words such as *only, just, merely*, and others of similar nature should be used with care and moderation.
- Statements should be in the form of simple sentences rather than compound or complex sentences.
- Avoid the use of double negatives.
- Statements should not contain contractions.
- Avoid double-barreled statements: “My principal and my superintendent support my efforts at innovative
How do we know if someone has a positive attitude towards ice cream?
Indicators of Attitudes

- Behavior (She eats it)
- Affective reaction (She likes eating it)
- Self-Report (She tells us she likes it)
- Peer-Report (Her mom tells us)
- Physiological Measures (heart rate↑)
Birth of Attitude Measurement

“Attitudes can be measured!”

- Louis Thurstone (1928) attitudes can be measured scientifically
- Applied methods of psychophysics to attitudes.
Behavioral Indicators

Head movement

• When people listen to messages they agree with, they tend to move their heads vertically (nod) more than horizontally (shake).
Behavioral Indicators

Eye Contact

• Affiliative Conflict Theory - people who like each other are more intimate and engage in more intimate behaviors like eye contact.

• Therefore... If two people like each other, (+ attitude) they will make more eye contact than if they do not like each other (- attitude).
Behavioral Indicators

Galvanic Skin Response (GSR)

- Drop in the resistance of the skin to the passage of a weak electric current indicative of emotion or physiological arousal (usually measured in the palm of the hand).
Scaling

• Scales focus on a continuum from very negative to very positive attitudes. Determine where on the continuum the attitudes of individuals fall.

• Core assumption – one can measure phenomena by assigning numbers /value on the basis of rules/guidelines.

• Measures can have up to 20-30 questions on one attitude object.
One-Item Scale

• Question that asks how positively or negatively one feels about the AO.

• Used in surveys and in experiments because they:
  1. Do a sufficiently good job of measuring certain attitudes,
  2. Avoid redundancy
  3. Are extremely brief (cost-efficient)
One-Item Scale

Thermometer scale - how “warmly” one feels towards the attitude object.
4. One-Item Rating Scale

How much do you like the church?

<table>
<thead>
<tr>
<th>not at all</th>
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<th>very much</th>
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Construction of an Attitude Scale

1. Creating a set of items (statements about the attitude object).
2. Determine the location of the items on an evaluative dimension.
3. Administer the scale to a sample of respondents and verify that respondents interpreted the items as intended.
Creation of “good” items

1. Clarity of Attitude **Object** (i.e., ice cream vs. eating ice cream).
2. Clarity about the **Attitude Component** (e.g., evaluation, beliefs, affect).
3. Clarity of **statement** (e.g., avoid double negatives, use simple language).

Thurstone’s Method of Equal-Appearing Intervals

1. Panel of judges sort possible items into groups (positive, negative, neutral) - theorized to be equidistant.

2. Items used in the final scale are those with the highest level of agreement among the judges.

3. Respondents are then asked to state if they agree with each of the statements. Attitude scores consist of the average value of the items agreed with.
Thurston Scale

Thurstone scales. The Thurstone scale is made up of statements about a particular issue and each statement has a numerical value indicating the respondent’s attitude about the issue, either favorable or unfavorable. People indicate which of the statements with which they agree and the average response is computed.

First, you must be very clear about exactly what it is you’re trying to measure. Then, collect statements on the topic ranging from attitudes that are favorable to unfavorable. For this example, we will use same sex marriage. Example statements are

- It’s should be against the law.
- There’s absolutely nothing wrong with it.
- Marriage is between a man and a woman.
- It should be a sin.
- It’s perfectly appropriate for two consenting adults.
- It should be legalized.
- It can harm children.
- Same sex couples should have the same legal rights as a male/female couple.
- It’s just horrible.
- It can’t do any harm.
Thurston Scale

Next, you have judges evaluate, on an 11 point response format (1 very negative to 11 indicating very positive), what kind of attitude each of these statements reflects. For example it’s likely that the statement “It should be a sin.” would be judged to represent a very negative attitude while the statement “It should be legalized.” would be judged to represent a very positive attitude. The idea is that you’d like to develop a set of items that not only reflect the entire continuum between 1 and 11, but that your judges who helped you develop the set of items would have considerable consensus about what level of attitude each of the statements reflected. In this exercise, statements for which there is little consensus would be discarded. So, let’s assume that the average ratings among our judges are as below:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average</th>
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<tbody>
<tr>
<td>It’s should be against the law.</td>
<td>1.7</td>
</tr>
<tr>
<td>There’s absolutely nothing wrong with it.</td>
<td>6.8</td>
</tr>
<tr>
<td>Marriage is between a man and a woman.</td>
<td>2.4</td>
</tr>
<tr>
<td>It should be a sin.</td>
<td>1.3</td>
</tr>
<tr>
<td>It’s perfectly appropriate for two consenting adults.</td>
<td>8.4</td>
</tr>
<tr>
<td>It should be legalized.</td>
<td>9.1</td>
</tr>
<tr>
<td>It can harm children.</td>
<td>2.0</td>
</tr>
<tr>
<td>Same sex couples should have the same legal rights as male/female couples.</td>
<td>7.6</td>
</tr>
<tr>
<td>It's just horrible.</td>
<td>1.5</td>
</tr>
<tr>
<td>It can’t do any harm.</td>
<td>6.9</td>
</tr>
</tbody>
</table>
Thurston Scale

Suppose that there was reasonable consensus among our judges for the above items. When administering the scale, we’d ask individuals to indicate which of the above they agreed with (the average level that our judges had agreed upon would not be indicated on the scale when administered to individuals). Finally, the average of those checked would be calculated to determine the individual’s attitude.

Problems with developing Thurstone scales include 1) it can be quite time consuming and expensive, and 2) examples for the mid-points of the scale for which there is consensus among the judges can be difficult to obtain.
Different Direct Scales for Assessing Attitudes toward the Church

1. Thurstone Scale (Adapted from Thurstone & Chave, 1929)

Check the statements with which you agree:

1. I enjoy the church because there is a spirit of friendliness there. (3.3)

2. I respect any church members’ beliefs, but I think it is all “bunk.” (8.8)

3. I think the organized church is an enemy of science and truth. (10.7)

4. I believe in what the church teaches but with mental reservations. (4.5)

5. I feel that church services give me inspiration and help me to live up to my best during the following week. (1.7)

6. I feel the need for religion but do not find what I want in any one church. (6.1)
Step 3. Originally, judges were asked to sort the statements into eleven (11) stacks representing the entire range of attitudes from extremely unfavorable (1) to extremely unfavorable (11). The middle stack is for statements which are neither favorable nor unfavorable (6). Only the end points (extremely favorable and extremely unfavorable) and the midpoint are labeled. The assumption is the intervening stacks will represent equal steps along the underlying attitude dimension. With a large number of judges, for example, using a class or some other group to do the preliminary ratings, it is easier to create a paper-and-pencil version.

Rate each of the following statements indicating the degree to which the statement is unfavorable or favorable to marijuana use. Do not respond in terms of your own agreement or disagreement with the statements; rather, respond in terms of the judged degree of favorableness or unfavorableness. Place an X in the interval that best reflects your judgment. For example: Marijuana is OK for most people, but a few people, may have problems with it.

1. If marijuana is taken safely, its effect can be quite enjoyable.

2. I think it is horrible and corrupting.

3. It is usually the drug people start on before addiction.

Remind the judges to rate favorability with regard to the target (marijuana), not to give their opinion as whether they agree or disagree with the statement.

Step 4. Each statement will have a numerical rating (1 to 11) from each judge, based on the stack in which it was placed. The number or weight assigned to the statement is the average of the ratings it received from the judges.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average rating from 20 judges</th>
</tr>
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<tbody>
<tr>
<td>If marijuana is taken safely, its effect can be quite enjoyable.</td>
<td>8.9</td>
</tr>
<tr>
<td>I think it is horrible and corrupting.</td>
<td>1.6</td>
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<tr>
<td>It is usually the drug people start on before addiction.</td>
<td>4.9</td>
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</table>
Administering the scale

Here is the final form. The respondents check only the statements with which they agree. The average ratings by the judges are shown in parentheses. These would not be included on the actual form given to respondents. Note that the more positive statements have a higher weight.

This is a scale to measure your attitude toward marijuana. It does not deal with any other drug, so please consider that the items pertain to marijuana exclusively. We want to know how students feel about this topic. In order to get honest answers, the questionnaires are to be filled out anonymously. Do not sign your name.

Please check all those statements with which you agree.

1. I don’t approve of something that puts you out of a normal state of mind. (3.0)
2. It has its place. (7.1)
3. It corrupts the individual. (2.2)
4. Marijuana does some people a lot of good. (7.9).
5. Having never tried marijuana, I can’t say what effects it would have. (6.0)
6. If marijuana is taken safely, its effect can be quite enjoyable. (8.9)
7. I think it is horrible and corrupting. (1.6)
8. It is usually the drug people start on before addiction. (4.9)
9. It is perfectly healthy and should be legalized. (10.0)
10. Its use by an individual could be the beginning of a sad situation. (4.1)

Scoring

The weights (favorability rating) for the checked statements are summed and divided by the number of statements checked.

A respondent who selected #3, #7, and #8 would have an attitude score of $2.2 + 1.6 + 4.9 = 8.7/3 = 2.9$. Dividing by the number of statements checked (3) puts the score on the 1-11 scale. A score of 2.9 indicates an attitude that is definitely unfavorable to marijuana.
Likert Scales: Advantages
(summated rating = real name)
Rensis Likert, 1903–1981

- Easy for respondents to complete, most people familiar with the scale
- Relatively easy to construct
- Most popular attitudinal measure
- Easy to score and analyze
- Each item considered to be of equal attitude value (weight) -- homogeneous items
Likert Scale Construction

- Identify the attitudinal object and delimit it quite specifically.
- Compose a series of statements about the attitudinal object that are half positive and half negative and are not extreme, ambiguous, or neutral.
- Establish (a minimum of ) content validity with the help of an expert panel.
- Pilot test the statements to establish reliability (Cronbach’s alpha) for each domain.
- Eliminate statements that negatively affect internal consistency.
- Construct the final scale by using the fewest number of items while still maintaining validity and reliability; create a balance of positive and negative items [Remember to reverse-code when summing].
- Administer the scale and instruct respondents to indicate their level of agreement with each statement.
- Sum each respondent’s item scores to determine attitude.
Likert Scale Instrument Construction

- Use the general criteria for attitude statements.
- Begin with non-threatening, easy items first; demographics last.
- Have clear instructions with an example.
- Anticipate data entry and analysis.
- Anticipate missing data on items.
- Use approved layout techniques (see Dillman).
Scaling of Statements

Response scales vary. Recommend to use an even number of response categories (no neutral category) and a N/A response for agreement scales. Label all response categories.

Since this is a summated rating scale, the scale of measurement of the sum or mean is interval. Never analyze by item. Scale of measurement of any one item is ordinal.

Anchored scales: frequency, importance, etc. (Odd # = OK)

Pictures, thermometers, etc., may be used as scales. Multiple scales per item may be used.

Greater range in the scales produce more variability in the data: 8 better than 6, 6 better than 4, etc. (Correlations work better.)
### Likert Scaling

- Even Number of Response Categories
- Label all categories
- Use N/A if appropriate [No neutral/undecided]
- Frequency, Importance, etc. [Anchored]

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<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Slightly Disagree</td>
<td>Slightly Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
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Costa Rica is a good location for the AIAEE conference.

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</tr>
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Costa Rica is a good location for the AIAEE conference.
Likert’s Method of Summated Ratings

• Items based on theoretical understanding of the construct (attitude toward the AO) - Does not require pre-sorting/evaluation by a panel of judges.
• Respondents indicate the extent to which they endorse the statements (e.g., agree / disagree).
• Each response option is assigned a value (e.g., -2 to +2; 1 to 7). Individuals score is the sum of answers across all items.
• Scale homogeneity – items-items and items-global score correlations (not necessarily + correlations).
2. Likert Scale

For each statement, check the extent to which you agree.

1. I believe that the church is the greatest institution in America today.
   (+2) _____ strongly agree
   (+1) _____ moderately agree
   ( 0) _____ neutral
   (-1) _____ moderately disagree
   (-2) _____ strongly disagree

2. The church represents shallowness, hypocrisy, and prejudice.
   (-2) _____ strongly agree
   (-1) _____ moderately agree
   ( 0) _____ neutral
   (+1) _____ moderately disagree
   (+2) _____ strongly disagree