

The Use, Misuse and Abuse of Likert scales in Advertising, Public Relations and Marketing Communications Research

¹James A. Ashiekpe, ²Musa Balka Maina

1. Department of Mass Communication, University of Jos-Nigeria

2. Department of Mass Communication, Federal University of Kashere-Nigeria

ABSTRACT

The Likert scale is a widely utilized tool in advertising, public relations, and communications research for measuring attitudes, opinions, and perceptions. Its simplicity and versatility make it a popular choice for researchers seeking to quantify complex subjective data. However, the scale's widespread adoption has also led to various forms of misuse and abuse, undermining the validity and reliability of the data collected. Grounded in the theory of measurement and scaling, with systematic literature review (SLR) as the methodical approach, this paper explores the proper use of Likert scales in the fields of advertising, public relations, and marketing communications research, highlighting best practices for designing effective and unbiased surveys. It also examines common pitfalls, such as the confusion in the interchangeable use of attitudes, opinions and perceptions; poorly worded questions, unbalanced response options, and the inappropriate treatment of ordinal data as interval data. Additionally, the paper addresses ethical considerations, including issues related to respondent bias, cultural differences, and data interpretation with the broad aim of showcasing how the strengths of Likert scales can be leveraged, while avoiding the common mistakes that can compromise research outcomes. The study concludes that researchers must make more informed and conscientious use of Likert scales, in order to promote rigorous standards that can improve the accuracy and relevance of research findings in advertising, public relations, and marketing communications. It recommends that advertising, public relations and marketing communications scholars should pay more attention to the several prerequisites for the use of Likert scale in order to overcome the challenge of data bias.

KEYWORDS:

Likert Scale, Use & Abuse, Advertising, Public Relations, Marketing Communications

Introduction

Surveys have become indispensable in communication research especially in advertising and public relations due to their ability to provide detailed, quantifiable insights into audience attitudes, behaviours, and preferences. Their utility help practitioners design more effective campaigns, measure outcomes, and make data-driven decisions, ultimately leading to more strategic and impactful communication efforts (Thompson, 2020). In Nigeria, the popularity of surveys as the preferred research design with the Likert Scale as favourite measurement parameter in design of instrument for data collection amongst advertising, public relations, media and marketing communication researchers. Taherdoost (2021) identifies four main reasons for the increasingly

widespread use of quantitative surveys above other research methods in the field of advertising, public relations, journalism and media studies across the globe. Firstly, surveys are relatively cheap to design and administer. Compared to other research methods, surveys can be relatively cost-effective and can reach a wide audience at a lower cost especially when using online platforms. This is an advantage that has made surveys an increasingly favourite research design. Secondly, surveys are extensive and can be used to describe the characteristics of a large population. This data helps in making informed decisions based on empirical evidence rather than assumptions. Thirdly, the method is flexible and the versatility of surveys help researchers in addressing a wide range of research questions and can be administered in various formats (online, face-to-face, telephone, etc.), making them highly adaptable. Fourthly, surveys can generate dependable data because their anonymity allows responses which are more candid and valid. Pelzer (2019) notes that it is difficult to envisage any alternative research method in the field of media and communication offering such extensive capabilities.

One of the most popular response scales used in survey design is the Likert scale introduced in 1932 by Rensis Likert, an American social psychologist, as a five-point psychometric scale for measuring a series of attitude related propositions. The wording used in the initial Likert scale was: 'Strongly Approve', 'Approve', 'Undecided', 'Disapprove', and 'Strongly Disapprove'. Over time, the wording changed from Approve to Agree, which resulted in the Likert scale we know today: Strongly Agree and Agree on one side, and Disagree and Strongly Disagree on the other side, with a midpoint in the middle (Bandalos, 2018). Due to its simplicity and popularity, the traditional Likert scale expanded into many variations of Likert-type scales that are commonly used in survey as instruments designed for measuring opinion, perception, preference, attitudes and behaviours in communications research, marketing research, political opinion research, and psychometric research (Alabi & Jelili, 2023).

However, the popularity of Likert scale does not necessarily equate to the validity of data collected using it as debates over validity arise from the variations in Likert-type scales in the context of its applications. Also, the very ease of the survey method and simplicity of the Likert scale may lead to its abuse by ill-prepared researchers who are often unaware of the serious problems and pitfalls they face in designing reliable data collection instruments for their surveys. Interpretation of data after surveys have been conducted also poses another serious challenge for students and novice practitioners in the field. These problems are best illustrated by the Likert scales which are often used in the measurement of opinions and attitudes by advertising, public relations, media and marketing communication researchers (Tanujaya, Prahmana & Mumu, 2022). When Likert scales are properly constructed and the collated data is analyzed correctly, they may yield rich and reliable data for researchers. On the other hand, when the Likert items are shoddily designed and the analysis of the data is mishandled, findings and conclusions lack both internal and external validity. More often than not, survey researchers who misuse or abuse Likert

scales tend to report research findings that are both meaningless and nonsensical.

The aim of this paper is three-fold. The first is to clarify the differences between attitudes, opinions and perceptions, three key concepts which are often confused with each other in the course of crafting Likert scales questionnaires. A mistake which is common among media and communication scholars engaged in advertising, public relations and marketing communications research that employ Likert scales when the variables they are measuring have nothing to do with attitudes. Even in studies where attitudes are involved, the Likert items (statements) employed to measure them often focus on views, opinions, perceptions and values rather than attitudes. The second aim is to discuss the uses, misuses and abuses of Likert scale with the a view to showcasing the correct ways of constructing Likert items and scales to be used in questionnaires. The internal validity of a research project depends on the quality of the instruments it uses for data collection. The researcher needs to be sure that questions posed in the questionnaire actually measure the variable or variables s/he is studying, not something else. Lastly, the paper aims to discuss the problems of analyzing Likert scale data using the correct statistical measures of central tendency.

The paper is philosophically grounded in systematic literature review (SLR) method based on the theory of measurement and scaling. A Systematic Literature Review (SLR) is an independent academic methodical and comprehensive approach to identifying, evaluating, and synthesizing existing relevant literature on a topic in order to derive conclusions about the question under consideration (Xiao & Watson, 2019). It is particularly useful for empirical research that relies on secondary data that involves the exploration, analysis, and argumentation of philosophical concepts, theories, or problems with the aim of presenting a clear, reasoned, and critical examination of a specific philosophical issue, often contributing to ongoing debates within the field (Følstad&Kvale, 2018).

Theoretical Framework

The Theory of Measurement and Scaling proposed by Louis Leon Thurstone in 1931, which provides fundamental principles for developing and employing measurement instruments is used as the theoretical lens for this paper in understanding the use, misuse, and abuse of Likert scales in advertising, public relations, and marketing communications research. This framework aims to illuminate best practices in the use of Likert scales while identifying strategies to mitigate common pitfalls. Ultimately, it seeks to enhance the reliability and utility of research outcomes in informing advertising strategies, shaping public relations campaigns, and guiding marketing communications efforts.

Theory of Measurement and Scaling

The Theory of Measurement and Scaling is a fundamental concept in the field of social sciences, particularly in psychology, sociology, and marketing research. It provides frameworks and principles for developing and using measurement instruments, including scales like Likert scales, to quantify and

assess abstract constructs such as attitudes, beliefs, and perceptions. The theory provides a foundation for understanding the appropriate use of Likert scales in research contexts, and emphasizes the importance of scale development, validity, and reliability in ensuring that Likert scales accurately measure the constructs they intend to assess (Anjana (2021).

Although the theory of measurement and scaling has evolved over time with contributions from various scholars in different disciplines, thereby making it not to have a single specific propounder, its central idea resonates around the work of Louis Leon Thurstone (1931). Based on Thurstone's original idea, this theory guides researchers in designing Likert scales that effectively capture respondents' perceptions and attitudes in advertising, public relations, and marketing communications research (Perrin, 2022). The primary goal of the Theory of Measurement and Scaling is to ensure that measurement instruments are reliable, valid, and accurate in capturing the underlying constructs they intend to assess. It emphasizes the importance of developing scales and measures that yield consistent and meaningful data.

The theory encompasses various types of scaling methods, including nominal, ordinal, interval, and ratio scales. The theory includes techniques for scaling, such as Likert scales, semantic differential scales, and Thurstone scales, each designed to capture varying degrees of respondent attitudes or perceptions. These methods provide different levels of precision and allow researchers to categorize and quantify data appropriately based on the nature of the variables being studied (Korhonen, Axelin, Grobler & Lahti, 2019). Central to the theory is the concept of reliability, which refers to the consistency and stability of measurement over time and across different conditions. Validity, on the other hand, pertains to the accuracy and appropriateness of the measurement instrument in assessing the intended construct. Overall, the Theory of Measurement and Scaling serves as a critical tool for researchers seeking to quantify and understand human attitudes, behaviours, and perceptions systematically. Its application supports the development of robust research methodologies and contributes to evidence-based decision-making in both academic and practical settings.

Contextualising Attitudes, Opinions and Perceptions

Scholars from various academic disciplines especially philosophy, sociology, psychology and political science were attracted to media and communication studies when the field emerged in the 1920s to 1950s due to effects of the media on the behaviours of individuals and groups in society. Each discipline enriched the new field with its repertoire of concepts, constructs and research preferences. Political studies focused on the role of the media in molding, reinforcing or changing public opinions regarding politics and political issues; sociological and psychological studies focused on attitudes and perceptions (Kagerbauer & Magdolen, 2024). Attitudes, opinions and perceptions as important attributes in explaining human behaviour have therefore become key variables in advertising, public relations and marketing

communications research. Although data on attitudes, opinions and perceptions can be collected in the social sciences using qualitative survey methods; quantitative surveys often yield more reliable data from which attitudes, opinions and perceptions as behavioural attributes can possibly be derived (Fishman, Yang & Mandell, 2021; Jafari, 2022; Perrin, 2022).

The distinctions between the concepts of attitudes, opinions, perceptions and values were not based on idiosyncratic preferences, but reflected the disciplinary orientation of political science, sociology and psychology scholars who introduced them into media and communications research. However, these concepts are now often used indiscriminately and even interchangeably, creating confusion and misleading theoretical propositions and empirical research results (Thompson, 2020). Attitude is probably one of the most used words in social psychological studies with an enormous and growing body of theoretical and empirical literature.

Fishman, Lushin and Mandell (2020, p. 3) have described attitudes as the subject matter of social psychology and provide a working definition, describing an attitude as “an inferred factor within the individual which involves a tendency to perceive and react in a particular manner toward some aspect of his environment.” Kagerbauera and Magdolen (2024) refer to attitude as a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object. An attitude object may be physical objects, issues, ideas, events, people, or places. They identify three basic parts or components of an attitude – Cognitive (perceptions and beliefs about an attitude object); Affective (feelings about an attitude object); Behavioral intentions (how the person wants to behave and what a person says about an attitude object.) An attitude is thus a mental, neural state although not necessarily innate as it is usually learned. An attitude is an inferred entity, something which is not measured directly but rather deduced from other observable data (Kagerbauera & Magdolen, 2024).

Opinion refers to a personal belief or judgment about something that can be subjective and reflect an individual's thoughts, feelings, or views on a particular matter. Opinions can also vary from person to person and are influenced by personal experiences, values, and biases (Alabi & Jelili, 2023). While the emotive component of attitude is emphasized, Hair Jr., Marcelo, da Silva and Braga Jnr. (2019) argue that an opinion is an unemotional statement about an object, while an attitude is an emotional evaluation of an object. Exploring the empirical contours of the term 'public opinion,' Jebb, Vincent and Tay (2021) state that the operational definition of public opinion as the aggregated attitudes of a population (has) gained wide, indeed nearly universal acceptance. It is thus conceptually difficult to distinguish between attitudes and opinions. This may explain why Thompson (2020) rejected the practice of distinguishing attitudes from opinions on the basis of the presence or absence of affect, preferring to consider the terms attitudes and opinions as synonymous. However, an attitude may be operationalized by emphasizing its emotive/affective and especially its behavioural dispositions to distinguish it

from mere views and opinions.

Perception refers to the cognitive processes which enable a person to make sense of stimuli from the environment. Perception affects all the senses of sight, touch, taste, smell, and hearing, and shapes how someone sees and understands a situation, issue or event. As such perception is an individual's point of view or the way they perceive and interpret the world around them. It involves considering various factors such as knowledge, background, cultural influences, and personal experiences (Oskamp & Schultz, 2014). According to Pimentel (2019), perception includes inputs to a person and choice of inputs to which the person attends. People, events, physical objects as well as ideas are regarded as stimulus sources which help the individual to adapt to a changing environment. Perception is thus clearly distinguishable from attitude. Nevertheless, perception is a component of attitude because there is always a cognitive element in the latter, while attitude itself may interfere with our perceptions as discovered and studied by a host of other cognitive dissonance theorists.

Over the years, the use of Likert scale by advertising, public relations and marketing communications practitioners as a core instrument in their research endeavours has dramatically increased. The trend is also common not only amongst media and communication scholars and students but also among students of other social science disciplines including sociology, psychology, social work, political science and criminology & Security Studies in Nigeria. However, most of such research projects are not really attitudinal studies, though they often mistakenly rush to adopt Likert scales as their main measurement instruments in the design of questionnaire for data collection (Abiodun, 2023). Responses to arbitrary and often unrelated statements made out of the researcher's viewpoints, opinions and assessments are compressed into Likert style tables and wrongly subjected to statistical analysis, with spurious and dubious conclusions.

In order to avoid the fundamental mistake of using an attitudinal scale to collect data and measure constructs and concepts that are clearly not attitudes, researchers need to clearly define the variables they are studying. Time must be expended examining research questions and/or hypotheses, isolating the variables, and providing operational definitions for the constructs involved. For example, a study which seeks to evaluate the effectiveness of a radio or television advertisement on product or brand performance in a particular market segment is obviously not an attitudinal study. It is not just mistaken but quite ridiculous to rely on respondent's responses to a series of Likert scale items (statements) to reach a conclusion that the advertisement is effective or not effective in meeting its objective of enhancing product or brand performance.

To Scale or Not to Scale? Differences between Scale and Response Scale

The subheading begins with a wrong question deliberately posed to draw attention to the common mistake of confusing the idea of a scale and a response scale. DeCastellarnau (2018) calls out one of her major 'pet peeves': the misuse of the term 'Likert-type' scale. She finds it nauseating when researchers hide behind this label to mask 'hasty, slipshod research,' where there is no empirical proof that

the scale items measure the same underlying attitude or that they are effective and discriminative. A variety of scales have been developed over time to measure attitudes, opinion, perception, values and behaviours, however, the Likert scale gained prominence due to its simplicity, ease of use and focus on attitudes, opinion and perceptions as attributes of behaviour. Although a Likert scale and a response scale are both tools used to measure attitudes, opinions, or behaviors in surveys and research, they have distinct characteristics and applications. According to Heo, Kim, Park and Back (2022), a Likert scale is a specific type of response scale that measures the extent of agreement or disagreement with a series of statements, while a response scale on the other hand is a broader term that refers to any scale used to record responses to survey questions. This can include Likert scales as well as other types of scales such as Linear Numeric Scale, Multiple Rating Matrix, Forced Ranking Scale, Semantic Differential Scale, Comparative Intensity Scale etc. Also, Likert scales are specifically designed to measure attitudes, opinions and perceptions by capturing the intensity of respondents' feelings towards each statement; and response scales are commonly used in social sciences, and market research to assess values, norms and behaviours. Darnton (2023) adds that Likert scale yield ordinal data, as it measures the rank order of responses but not the precise difference between them, while response scales can produce nominal, ordinal, interval, or ratio data, depending on the type of scale used. For example, a dichotomous scale provides nominal data, and a 1 to 10 rating scale provides interval data.

Highlighting the differences between Likert scale and response scales, Alabi and Jelili (2023, p. 1339) note that:

A Likert scale is a specific type of response scale designed to measure levels of agreement, while a response scale is a general term for any scale used to record responses; Likert scales have a specific format focusing on agreement levels, whereas response scales can vary widely in format and measure different dimensions; Likert scales typically produce ordinal data, whereas response scales can produce various types of data depending on their design; Likert scales are primarily used for measuring attitudes, opinions and perceptions, while response scales are used for a broader range of measurement purposes in surveys and research.

The use of quantitative data in research inherently involves scaling. However, it is crucial to distinguish the term "Likert scale" from other response scales to avoid confusion. Taherdoost (2021) notes that scaling is the assignment of objects to numbers according to a rule, adding that four types of data are usually generated in social research. The first type of data indicates a difference in the properties being studied. A **nominal scale** is used to measure categorical and discrete data such as sex of respondents (Male/Female). The second type of data shows a difference in the properties and also identifies the direction of the difference. An **ordinal scale** is used to measure this type of data which reveal a 'more than or less than' relationship or a 'rank ordering' between properties being studied. The third type of data indicates a difference, identifies the direction of difference and also weighs the amount of the difference in equal intervals. An

interval scale is used for this type of measurement. Fourthly, we have data which indicate a difference, identify the direction of the difference, weigh the amount of difference and also indicate an absolute zero. **Ratio scales** are used for this type of data.

Pornell and Saldaña (2016) uses an example involving a survey about customer satisfaction with a new product to illustrate the differences between nominal, ordinal, interval, and ratio scales and concludes that nominal scale categorizes responses without any order or ranking. Each option is a distinct category without implying any sort of hierarchy or quantitative difference between them; while ordinal scale ranks responses in a specific order but does not indicate the exact difference between each level. For instance we may know that "Satisfied" is better than "Neutral," but we may not know how much better. Interval scale provides ordered responses with equal intervals between each value, allowing for the measurement of the difference between responses. However, there is no true zero point (a rating of 0 does not mean an absence of quality). The ratio scale has all the properties of an interval scale, but it also has a true zero point, which allows for the measurement of absolute quantities. Zero means no usage, and we can compare the absolute number of uses between respondents.

In analyzing data collected from field work, it is important to always remember that the four types of data identified are subject to different statistical rules and conventions. The following table shows how these types of data yield themselves to analysis using the three common measures of central tendency – the mode, the median and the mode.

Table 1: Types of Data and Measures of Central Tendency

MEASUREMENT LEVEL	USE OF MEASURES OF CENTRAL TENDENCY		
	MODE	MEDIAN	MEAN
Nominal Scale Data (Indicates a difference)	Yes	No	No
Ordinal Scale Data (Shows a difference, and identifies the direction of the difference)	Yes	Yes	No
Interval Scale Data (Indicates a difference, identifies the direction of difference and also weighs the amount of the difference in equal intervals)	Yes	Yes	Yes
Ratio Scale Data (Indicates a difference, identifies the direction of the difference, weighs the amount of difference and also indicates an absolute zero)	Yes	Yes	Yes

The table shows that it is statistically wrong to use median and mean calculations when analyzing nominal data, while ordinal data can be subjected to both mode and median calculations. Nominal and ordinal scales produce non-continuous categorical data. Categorical data can best be summarized using simple contingency tables or graphically presented in charts. In contrast, both interval and ratio scales yield continuous data which can be analyzed using the mean or any of the other measures of central tendency.

Appraising the Use of Likert Scale in Surveys

When surveys are done well they provide important information in a timely and economic way but when poorly conducted surveys can be a productive source of spin and inappropriate use of statistics. The misuse and/or abuse survey research instruments especially the Likert scale has led to the questioning of results of even well conducted surveys. The Likert scale is a crucial rating scale that is often used in surveys and it is very popular in social research. The popularity stems from the fact that its scale can measure latent variables that cannot be measured directly as physical variables. In addition, it is also easy to develop and does not require too complicated requirements. The process of measuring respondents' opinions using a Likert Scale is also straightforward to do as it enables respondents to choose one of several alternatives presented according to their choice. Notwithstanding, constructing a valid and reliable Likert scale is not so easy. In order to create a psychometrically defensible Likert scale, Jebb, Vincent and Tay (2021) note that Likert (1932) provided the necessary steps which include: making all statements expressions of desired behaviour; making statements clear, concise, and straight-forward; have each statement worded in such a manner that a modal reaction occurs; and have approximately half of the statements on the upper end and half on the lower end of the scale. Failure to complete these steps can lead to severe issues with the created scale.

Researchers in media and communication today, especially in the field of advertising, public relations and marketing communications, not only regularly use the Likert scale in their questionnaire design, they also construct various Likert-type scales as well. At the end, Likert-type scales in which respondents are asked to select one of a fixed number of possible options are often used, resulting in purely categorical data. The categorical data is then wrongly used against statistical rules to compute the scores and calculate a mean which is then compared to a so-called 'decision mean' as a basis for accepting or rejecting each item or statement. These statistically inappropriate computations are used as basis of the conclusion which is misleading and an abuse of the Likert scale. It implies that media and communication researchers do not often spend sufficient time in understanding whether the instrument they have developed for their surveys is indeed Likert scale or response scales in order to determine the appropriate statistical tools to employ in analyzing the results. In social psychological research, however, researchers usually use Likert scales which have been meticulously constructed. Because of the rigorous process involved,

data generated from these scales are treated as interval data. Hair Jr., Marcelo, da Silva and Braga Jnr. (2019) sum up the difference by emphasizing that response scales results from a process, referred to a set of items, with each item on the scale having a scale value. On the other hand, 'Likert-type' scale is used to collect responses to a single item which is not associated with a scale value.

Since the steps outlined for proper use of Likert scale are barely mentioned in most advertising, public relations and marketing communications research textbooks, it is easy to understand why researchers in the field often do not perform those additional important scale validity and reliability steps. The important steps are often overlooked in the construction of a Likert scale questionnaire because most research books in the field do a disservice of emphasizing how easy it is to construct a Likert scale without mentioning how Likert scale data are to be analyzed. Juegenheimer, Kelley, Hudson and Bradley (2014) note that the research books in the field of media and communication studies usually mention Likert scale in passing and do not state the differences between interval and ordinal scales as well as what statistical procedures are appropriate for each. As such many researchers in the field do not know that a Likert scale is ordinal and as well do not know the correct statistical methods to use for this type of ordinal data. Therefore, the alleged ease of constructing Likert scales makes most researchers in the field of advertising, public relations and marketing communications to often run amuck with their use and analysis of Likert data. According to Kagerbauer and Magdolen (2024) many researchers are cautious about the potential misuse of the Likert scale, mindful of the fact that misuse or abuse of the Likert scale can undermine the validity and reliability of their study findings. A key concern is whether the data should be treated as interval or ordinal. As evident from succeeding sections of this paper, the Likert scale inherently produces ordinal data, and applying parametric analysis to such data is inappropriate. Therefore, only nonparametric tests should be used.

In view of this, Bandalos (2018, p. 78) notes that it is important to take several precautions to ensure the reliability and validity of the data collected using Likert scale by ensuring that: questions are neutral and do not lead respondents towards a particular answer; language used is straightforward and easily understood by all respondents to avoid confusion; use of a balanced range of responses (e.g., Strongly Disagree to Strongly Agree) with a clear midpoint; each item should measure only one concept or construct to avoid double-barreled questions that can confuse respondents; conducting a pilot study to ensure that the questions are understood as intended and that the scale reliably measures the construct of interest; use of statistical methods to verify that the scale consistently measures what it is supposed to measure across different contexts; the recognition that Likert scale data is ordinal, meaning the intervals between points are not necessarily equal; and use of nonparametric tests when analyzing ordinal data.

Despite this caution, numerous published studies in the field of advertising, public relations and marketing communications still treat Likert scale data as interval and apply parametric analyses. Through the analysis of such

studies, Jebb, Vincent and Tay (2021) point out that there are four common misuses or abuses of the Likert Scale: 1) unwarranted length of the scale, 2) asymmetric verbal labels, 3) unevenly-spaced verbal anchor, and 4) unwarranted interpretation of the mean.

Unwarranted Length of the Scale: Using too many or too few response options in a Likert scale constitutes a misuse or an abuse as it can lead to inaccurate data collection. Scales with too many response options (e.g., 10-point or 11-point scales) can overwhelm respondents, making it difficult for them to distinguish between slight differences, while scales with too few options (e.g., 3-point scales) may not capture the nuance of respondents' attitudes or opinions, leading to oversimplified data that fail to reflect the true variability of responses. This can lead to random or inconsistent responses, as such a 5-point or 7-point scale is generally recommended as it strikes a balance between providing sufficient granularity and being manageable for respondents.

Asymmetric Verbal Labels: Response options that are not symmetrically balanced around a neutral point are viewed as a misuse or an abuse because it can lead to bias responses. Scales that are skewed towards positive or negative responses (e.g., "Strongly Disagree, Disagree, Neutral, Agree, Absolutely Agree") can push respondents towards a particular direction, thus affecting the validity of the data; and a poorly defined neutral or midpoint can confuse respondents about what it truly represents. It is therefore, important to ensure that the scale is symmetric and balanced. For example, "Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree" provides a clear, neutral midpoint and equal intervals between options.

Unevenly-Spaced Verbal Anchors: The use of response options that do not represent equal intervals in terms of intensity or frequency can distort the data and it is also considered a misuse or an abuse. If the steps between options are not perceived as equal by respondents (e.g., "Rarely, Sometimes, Often, Very Often"), it can lead to inaccurate data. The perception of frequency or intensity between these points can vary greatly among respondents. Also, unevenly spaced anchors make it difficult to perform meaningful statistical analysis, as the assumption of equal intervals is violated. Consequently, the use of clearly defined and evenly spaced verbal anchors is ideal. For frequency scales, it is important to consider "Never, Rarely, Sometimes, Often, Always" to provide more consistent intervals.

Unwarranted Interpretation of the Mean: Treating the mean of ordinal Likert scale data as if it were interval data which can lead to incorrect conclusions is identified as one of the key misuses and/or abuses of the Likert scale. The Likert scale data is ordinal, meaning the distances between response options are not necessarily equal, so calculating the mean to assume equal intervals as often used as criteria for accepting or rejecting a statement is not appropriate for ordinal data. Also, using the mean for analysis (e.g., reporting an average satisfaction score of 3.7) can give a false sense of precision and misrepresent the central tendency of the data. Thus, for ordinal data, it is important to consider using the median or mode to represent central tendency.

Using Likert-type Multiple Option Response Formats

Adopting and adapting “Likert-type” response formats in media and communication research may be useful in some ways. The format with five, seven or even nine response options for each question can be used to enrich our data collection efforts rather than relying only on the simple dichotomous 'Yes/No' type which may mask significant differences between individuals being interviewed. We do not need to refer to these Likert-type response formats as Likert scales, and the data we collect may be meaningfully analyzed using contingency tables. Also known as cross-tabulation, these tables are presented in matrix format which display the frequency distribution of the variables. Crosstabs are popular in surveys and scientific research because they often present clear pictures of the relationship between variables. Furthermore, in studies involving sampled populations properly drawn using probabilistic sampling techniques, the statistical significance of the differences in the various cells of a table can be tested using Pearson's chi-squared test or Fisher's exact test (Jugenheimer, Kelley, Hudson & Bradley, 2014).

The following examples of Likert-type response format questionnaire items are presented along with the type of contingency tables (or crosstabs) that could be used for the data generated. Please note that the figures used in these tables are for illustrative purposes only as they do not represent findings from any specific research that has been conducted on the topics.

Table 2: Sample Question 1

Please indicate whether you agree or disagree with the following statement:

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
<i>Nigeria's newly promulgated Freedom of Information Act (FOIA) will help to improve transparency in governance.</i>					

Table 3: Sample Resulting Table for Question 1

	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		TOTAL
Female Journalists	2	1%	12	7%	10	6%	86	49%	65	37%	175
Male Journalists	2	1%	9	2%	17	4%	143	37%	217	56%	388
All Journalists	4	0.7%	21	3.7%	27	4.8%	229	40.7%	282	50.1%	563

Table 4: Sample Question 2

Please indicate whether you believe the FOIA will be an important tool to help Journalists get information more easily than before.

	Not Important at All		Unimportant		Not Sure/ Undecided		Important		Very Important	
<i>Will the FOIA be an important tool that can help Journalists get information more easily than in the past?</i>										

Table 5: Sample Resulting Table for Question 2

	Not Important at All		Unimportant		Not Sure/ Undecided		Important		Very Important		Total
Female Journalists	10	6%	16	9%	61	35%	80	45%	8	5%	175
Male Journalists	23	6%	27	7%	196	51%	125	32%	17	4%	388
All Journalists	33	5.9%	43	7.6%	257	45.7%	205	36.4%	25	4.4%	563

These sample questions are not probing attitudinal variables. They only probe the beliefs or opinions of the journalists studied. A respondent may 'Strongly Agree' with a particular statement, or rate an issue as 'Very Important' without necessarily harbouring any strong positive affections toward the objects which the statements refer to.

Other multiple response formats use Likert-type responses which differ from the 'Strongly Disagree' to 'Strongly Agree' norm. These include ratings ranging from 'Very Dissatisfied' to 'Very Satisfied', 'Not At All Prepared' to 'Very Much Prepared', 'Never' to 'Very Often', 'Very Poor' to 'Very Good' and others depending on which attributes or behaviours are being studied. It is also possible to eliminate the middle value which indicates a neutral response while converting the fifth choice to cover the category of respondents for whom the question or statement may not be applicable. The 'Very Poor / Poor / Undecided / Good / Very Good' range thus becomes 'Very Poor / Poor / Good / Very Good / Undecided-Not Applicable.'

Constructing and Using Likert Scales

Likert scales were developed to accurately measure attitudes in well-controlled social psychological studies. It is sometimes desirable and possible to construct and use Likert scales in media and communication research. Suppose we wish to measure the attitude of journalists towards the Freedom of Information Act (FOIA), we must remember that respondents' attitude towards the Act will consist of cognitive, affective as well as behavioral elements. Our Likert items (statements) should reflect perceptions, beliefs, feelings and behavioral intensions related to the FOIA. There are five basic steps involved as identified by Jebb, Vincent and Tay (2021):

1. Defining the Focus

The attitude being studied must be operationalized with this operational definition guiding the creation of several possible (candidate) items (statements) for inclusion in the scale. It is necessary to clearly define what one is attempting to measure and Jebb, Vincent and Tay (2021) emphasizes the fact that Likert is a uni-dimensional scaling method so the concept being measured must be one-dimensional in nature.

2. Generating the Items

Several potential items must be generated by the researcher working alone or preferably in collaboration with a number of people who understand the subject matter with some degree of intimacy. At this stage, Jebb, Vincent and Tay (2021) recommends the generation of up to 100 possible scale items.

3. Rating the Items

All the items generated are then rated by a group of judges on a five point scale: 1 = strongly unfavourable to the concept; 2 = somewhat unfavourable to the concept; 3 = undecided; 4 = somewhat favorable to the concept; 5 = strongly favorable to the concept. The task of these

judges is to determine how favourable each candidate item is in respect of the concept being measured.

4. **Selecting the Items**

The next step involves the computation of the inter-correlations between all pairs of items as rated by the judges. Jebb, Vincent and Tay (2021) recommends the use of a statistic package (software) to compute the Item-Total correlation, along with a statistical 't-test' to determine the differences between the mean value for each item for the top and bottom quarter of judges. These computations serve as basis for selecting 10 or at most 15 items (statements) to form the scale. This rigorous item analysis is the essential element in Likert scale construction which provides the empirical evidence that the items (statements) are all measuring the same underlying attitude.

5. **Administering the Scale**

Each respondent is then asked to rate each item (statement) on a response scale in which 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree and 5 = Strongly Agree. The response scale could be varied from 1-to-7, 1-to-9 or 0-to-4 format all of which are odd-numbered scales with a middle value often labeled Neutral or Undecided. (Jebb, Vincent & Tay, 2021).

Analyzing the Likert Scale Data

Likert scale data can be scored in a variety of ways. However, Fishman, Yang and Mandell (2021, p.5) warn that “the most common mistake in interpreting data produced by Likert scales is generating mean values for responses.” This is because often times, the numbers given to each response (such as 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral/Undecided, 4 = Agree and 5 = Strongly Agree) are just descriptive codes, devoid of numerical value. What all this means is that adding, multiplying or dividing Likert-type values does not make mathematical sense... Other metrics, such as the median or the mode are more appropriate. It follows that, one should avoid statistical methods that rely on the mean: variability in a Likert scale should be estimated using Range and Inter-Quartile Range, but not Standard Deviation. Parametric tests, such as t-tests, must be avoided, and non-parametric tests such as the Mann-Whitney U-test, the Wilcoxon signed-rank test and the Kruskal-Wallis test might be used in their place. For similar reasons bar charts, rather than histograms, must be used to present data. (Fishman, Lushin & Mandell, 2020).

Also writing on 'Likert scales: how to (ab)use them' Pelzer (2019) insists that the response categories in Likert scales have a rank order, but the intervals between values cannot be presumed equal. The best option for a media and communication researcher is to treat all data from Likert scales and Likert-type response formats as ordinal data. The first column in a resulting contingency table would list the Likert items (statements) while subsequent columns would contain collated data derived from modal calculations of the responses presented as frequencies and/or percentages as illustrated in Tables 3.3 and 3.5 above. It

should be easy to observe variations by comparing these percentages, but serious researchers could introduce more sophistication into their analysis by estimating variability using Range and Inter-Quartile Range along with other specialized non-parametric statistical tests which are considered more appropriate for nominal and ordinal data.

Many researchers in psychology who have gone through the rigorous process of constructing a Likert scale based on properly rated and weighted items prefer to treat their data as interval data. In the unlikely, but quite possible, event that a media and communication researcher wishes to go down this path, the formula for calculating the weighted mean score for each row of the result table is as follows:

(Number of scores $\times$ Weighting for 1st data column) + (Number of scores $\times$ Weighting for 2nd data column) + (Number of scores $\times$ Weighting for 3rd data column) + (Number of scores $\times$ Weighting for 4th data column) + (Number of scores $\times$ Weighting for 4th data column) $\div$ Total Number of Scores for the row.

To illustrate with the data in Table 3.3 above, the weighted mean score for all journalists would be as calculated as follows:

$$\frac{4 \times 1 + 21 \times 2 + 27 \times 3 + 229 \times 4 + 282 \times 5}{563} = 4.36$$

It should be noted that columns displaying percentages in Table 3.3 would not be relevant when the data is analyzed in this manner. Similarly, the last column would display the weighted mean score for each row instead of the total number of responses. Some media and communication researchers proceed to add another column in which they insert the remark 'Accepted' or 'Rejected' on each row depending on whether the weighted mean score for the row is above or below a so-called decision mean of either 3.0 or other such figure. This only adds to the meaninglessness of such analyses – the Likert items (in the form of statements) are not usually the objects of study by themselves, so to accept or reject them makes no sense. If the researcher is interested in measuring the attitude of the respondents towards the object that is the subject of the statements on the scale, then the proper thing to do is to sum up all the averages. Likert scales are summative scales.

Conclusion and Recommendations

There is no doubt that Likert-type response formats have enriched media and communication research. When the intention is to explore and probe respondents' attitudes, opinions and perceptions, the scales can yield very useful ordinal data for analysis. While open-ended questions with free response formats may reveal much more information about attitudes, beliefs and values, the qualitative data they yield are often difficult to quantify for analysis. Likert-type responses, on the other hand, can be easily quantified and the findings visualized. However, mistakes, misuses and abuses are likely to arise when media and

communication researchers attempt to subject their Likert data to analytical methods that are not suitable for nominal and ordinal data.

Although some very well-designed Likert scales can, indeed, produce data that are suitable for calculating means, or running statistical tests that rely on the mean. These scales are the product of careful weighting and extensive testing across large numbers of respondents. Unless one is an experienced statistician, one is advised to not follow their example. Since media and communication researchers are often faced with a choice between using simple contingency tables showing frequencies and percentages and employing complex statistics to compute weighted means for their Likert-type responses, the principle of parsimony or “Occam's razor” should be applied (McFadden, 2023). Occam's razor is a scientific and philosophic rule which states that entities should not be multiplied unnecessarily which is interpreted as requiring that the simplest of competing theories be preferred to the more complex. The simpler method of analysis is often better than the more complex one. According to the Principle of Parsimony, it is pointless to do with more what can be done with less. It is therefore, imperative that researchers must make more informed and conscientious use of Likert scales, in order to promote rigorous standards that can improve the accuracy and relevance of research findings in advertising, public relations, and marketing communications.

As the implementation of the Likert scale in advertising, public relations and marketing communications research continues to increase, it is important that researchers in the field pay attention to the several prerequisites for its use, to guard against misuse or abuse which can result in data bias. Also, researchers in the field of advertising, public relations and marketing communications should pay attention to developing Likert Scales that have symmetric and evenly verbal anchors, and be interpreted using the natural boundaries of the numbers as boundaries for categories to be used in interpreting the mean. This will help in minimizing the problem of coarseness in a Likert scale. This will also help in avoiding the interpretation biases associated with the usual interpretation scheme.

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