Suggestions for Improving assessments of learning/ training effectiveness

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lfe | **LEADERSHIP FOR EQUITY**

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Introduction

In the current world, data is believed to be the fuel for all kinds of research, decision making, and policy designing. It is a well-known fact that research needs to be designed, conducted, and reported transparently, honestly, and without any deviation from the truth. Research that is not compliant with the basic principle of transparency leads to doubts about the **reliability and validity** of the study outcomes. Such studies may create distorted impressions and lead to false conclusions and thus impacts decision-making. One of the reasons as a result of which the study outcomes may get distorted is the **introduction of biases** directly or indirectly at every step of the research study.

Much of the research in social sciences is heavily dependent upon the data from various sources like surveys, focused group discussions, in-depth interviews, etc., which can all be summed up to be called self-reports from the respondents and data collectors ([Weijters. B., et. al., 2010](#)). A good number of these self-reports use questionnaires/survey forms consisting of close-ended, agree-disagree items. Unfortunately, such measures are often biased by response styles, defined as behavioral tendencies/individual attitudes of the respondents that may lead to disproportionately selecting a subset of the available response options. There are a variety of styles in which the individuals respond to survey questionnaires, which contributes to the addition of a significant amount of bias to the data. Previous studies have raised concerns about the quality of data due to these variations in response styles.

There are usually some common styles of responding that have attained a lot of attention in the research world, these are - **the acquiescence response style, extreme response style, social desirability responding, careless responding**, etc. (Fischer. R., et.al., 2009). **Acquiescence response style (ARS)** refers to the disproportionate use of positive response options and **Extreme response style (ERS)** is the disproportionate use of extreme response options. While, **Social desirability responding (SDR)** is a tendency to respond in a socially desirable way, a style that amounts to responding in a way that is expected to get approval by significant others. **Careless responding** is a style in which participants tend to respond to questions without reading the context of the questionnaire. These responding styles may be affected by various background factors such as education, gender, income, family background, position at the workplace, occupation type, marital status, social background, etc.

Starting with an assumption that any kind of data collected is subject to bias, due to some or the other forms of responding styles, the study aims toward understanding, analyzing, and devising new ways to reduce this bias in the data in a specific context. For organizations that mainly depend on data from such feedback surveys to design programs and interventions to fulfill targets, the biased data acts as a misleading source of information. Hence, impacting the decision-making process of the organization.

[Leadership for Equity](#) (LFE), conducts a variety of trainings, focusing on professional development of officers, teacher mentors and teachers from the government sector, all aiming to achieve equity in public education. As a general practice, feedback responses from all these participants of training and sessions are collected at the end of the training, with the help of **feedback forms**. Once the feedback responses are collected, a basic analysis of the feedback responses is conducted, which helps the team in designing and structuring the content of the upcoming training sessions.

An overall observation of the data shows a skewed distribution with a highly positive clustering of responses in the data. The prevalence of prolonged skewed distribution of positive responses made us highly curious about the reliability and validity of the data. **Can there be a possibility that our data is biased?** The next question is **what could be the factors influencing our data quality?** Another important question here would be, **Is our style of asking feedback questions leading them to respond in a particular way?**

This leads us to investigate these questions about the reliability and validity of the data as well as the style used for asking questions. Therefore, we designed a study that aims to understand the degree and source of bias in all the kinds of data received from the surveys as well as analyze and devise ways in which the bias in the data can be reduced or controlled, as well as recommend models to control the bias both at internal level among teams within the organization and promote those models to be followed outside the organization for the sector as a whole.

Literature Review

Previous research studies have provided enough evidence about the impact of various response styles on survey research. Among the various response styles, the most highlighted are the Acquiscenece response style (ARS) and Extreme response style (ERS). Acquiescence Response Style (ARS), is the tendency to agree with attitude statements disproportionately with positive words/responses irrespective of the item content. This style of responding adds bias directly or indirectly to the data by disguising true relationships between attitude items and falsely heightening the correlations among items (Bradburn & Sudman, 1979; Cronbach, 1960). Survey researchers have long argued that such responding styles have actively impacted the validity and reliability of questionnaire-based data, it can specifically affect mean levels in item responding, thereby yielding misleading mean differences. Moreover, it also affects the factorial structure of the questionnaire by biasing item variances and co-variances (Rammstedt, Goldberg, & Borg, 2010; Soto, John, Gosling, & Potter, 2008).

Literature suggests that there are certain presumed determinants of acquiescence, both at the individual and country level that lead the respondents to agree or disagree with specific item contents. At the individual level determinants like age, gender, level of education, and degree of conservatism play the role in adulterating
the data. At the Country level, the predictors are Corruption, Degree of collectivism, and Economic Development (Rammstedt, B. et. al., 2017). While some studies suggest that age is positively related to acquiescence, some have failed to find evidence. Regarding gender also there are both contrasting views about women representing higher degrees of acquiescence than men (e.g., Weijters et al., 2010). Results of several studies have indicated that acquiescence appears to be more frequent among persons with a lower level of educational attainment. It has been suggested that persons with relatively low education have less clear self-concepts, smaller vocabularies, and less developed verbal comprehension skills than more highly educated persons (e.g., Goldberg, 1963).

At the country level, various research experiments on the responding styles for different countries showed that the Mediterranean countries scored higher on acquiescence than those in the Northwestern European countries. A worldwide investigation of acquiescence in 80 countries conducted by Meisenberg and Williams (2008) highlighted that response styles were most prevalent in less developed countries and that—at the country level—acquiescence could best be explained by the country's corruption level. There is a broad consensus that response styles are systematically related to cultural variables and

they are more prevalent in traditional cultures ([Hofstede, 2001; Schwartz, 1994](#); [Javeline, 1999](#)).

A review of the literature revealed that biases in the data can be introduced by both the participants while responding as well as researchers during coding and analysis of data. Resources mention other factors which may also cause the respondent to respond in a particular way are the format of the questionnaire (Question or statement), Design of the questionnaire (Structured or unstructured) i.e., use of open-ended or close-ended questions, Points on the rating scale, mid-point of the rating scale, type of rating scale or use positive and negatively worded statements ([Youn (Yonnie)., S., et.al., 2018](#)).

Some studies have used a few measures to control acquiescence response bias through conscious designing of the questionnaire. A strategy commonly employed to reduce the acquiescent response bias is the inclusion of negatively worded items in a questionnaire ([Anastasi, A., 1982](#), [Anderson, A. B., et. al.,1983](#)) as they force attentive respondents to disagree with some statements. Under the assumption that negative and positive items are essentially equivalent and by reverse scoring the negative items, the resulting composite score should have reduced acquiescence bias ([Jeff, S., & Lewis, J., 2011](#)). More recently, however, there is evidence that the strategy of including a mix of positively and negatively worded items creates more problems than it solves ([Barnett, J. J. 2000](#)). Such problems include lowering the internal reliability and distorting the factor structure ([Pilotte, W. J., & Gable, R. K. (1990)](#), [Schriesheim, C.A., & Hill, K.D. (1981)](#)) and increasing interpretation problems with cross-cultural use ([Wong, N., Rindfleisch, A., & Burroughs, J. 2003](#)). Again there was more research that proved that using a mix of both positive and negative worded items in a questionnaire causes the addition of more bias as there may be the indirect introduction of data by the researchers during item coding of negatively worded statements, therefore they suggested that it is safe to use an all positive questionnaire ([Sauro, J. & Lewis, J. 2011](#)).

Important Definitions

Bias - Bias is any trend or deviation from the truth in data collection, data analysis, interpretation, and publication that can cause false conclusions. Bias can occur either intentionally or unintentionally. The most common styles of responding that add biases to the data would be that of Acquiescence response style, Extreme response style, Social Desirability Responding, Careless responding style, etc.

Acquiescence Response Style (ARS) - in common understanding ARS is the disproportionate use of positive words/responses irrespective of the content of the questionnaire. Such a response style can give highly positive results about any issue/product in the survey. This responding style is independent of item content.

Extreme Response Style (ERS) - The ERS is the tendency to respond in the extreme style, for example very poor or very good response. It is the disproportionate use of extreme options. Irrespective of item content, individuals either agree or disagree with an item content strongly or they tend to use only the middle categories (modesty style).

Social Desirability Responding (SDR) - This is a tendency to respond in a socially desirable way, which amounts to responding in a way that is expected to get approval by significant others of the respondent. This style of responding is highly dependent upon the

Careless Responding - this style of responding refers to when the respondents answer without reading, sometimes randomly and most of the time replicating similar responses from starting to the end of the questionnaire. There are two types of careless responding -

Random careless responding - Selection of items haphazardly without reading the content and purpose of the questionnaire.
Non-Random Careless Responding - When the respondent reads the first few items/content of the questionnaire to evaluate content. Also known as long string responding.
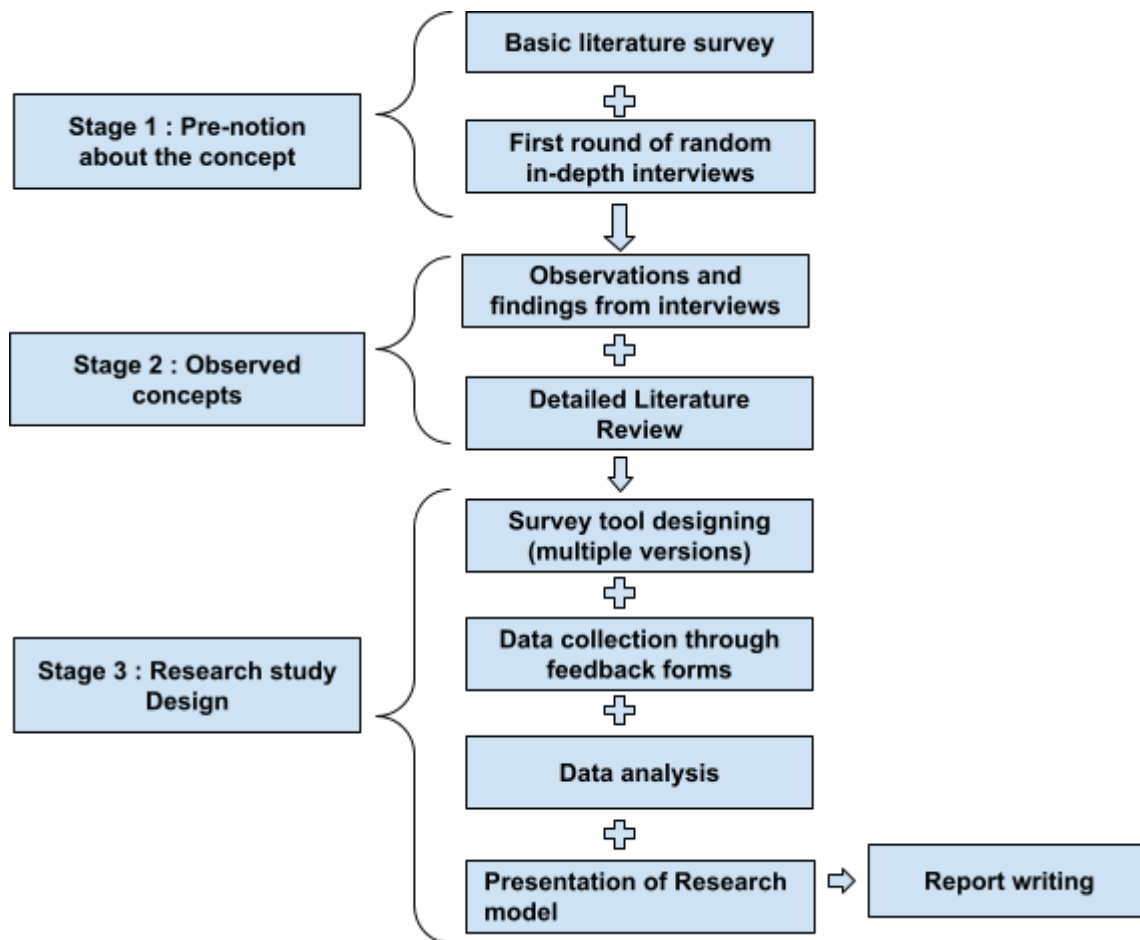
Objectives of the study

1. Ascertain the presence of bias in the data and compare the effectiveness of strategies to address the bias

   1.1. What is the causal relationship between background variables and factors causing bias?

2. Suggest changes/improvements to the LFE Feedback collection process to improve program design

Conceptual Framework

The study design of the particular research study indicates that it was initiated with the thought and assumption that whenever data is collected, there is a certain amount of bias added to the data knowingly or unknowingly by the respondents and the researchers both. This kind of response bias in the data is known as Acquiscenece Bias as already defined above. Therefore the study was started with the initial round of inquiry with the participants from our training sessions as to how they see the feedback forms and our mechanism to collect feedback responses from the participants, as well as a round of surveys with the internal LFE members involved in facilitating the training sessions. This stage was also supported by the basic review of the literature.

Based on the initial surveys with the training participants and LFE team members, the assumption of bias in the data was concretized, which led us to conduct a more detailed review of the literature to measure the bias in the data, as well as define the constructs to be measured. Keeping the bias in the data, in the first phase of the study, some additional questions were added to the existing feedback tools in four versions to check the variations in the responses received when the questions change in the tool. The data collected through the four versions of the tool will be cleaned, analyzed, and interpreted to understand the level of bias in the data and then understand the various measures to reduce the visible bias in the data.

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                    │  findings from interviews│
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│ Stage 2 : Observed│  │   Detailed Literature   │
│     concepts     │  │        Review           │
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                    │  Survey tool designing   │
                    │   (multiple versions)    │
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                    │     feedback forms       │
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Methodology

The methodology used for fulfilling the objectives of our research can be categorised into two parts, which are as follows. We used mixed methods of both qualitative and quantitative analysis.

Qualitative Analysis - We started with a qualitative analysis, where we conducted interviews with both the attendees of the training and internal team members of LFE. The interview observations and interpretation of the data have been presented in the sections below.

Quantitative Analysis - Once we understood the pattern of responding and suggestions were taken from the external and internal members of the training, we designed the different versions of the tools. (A kobo toolbox feedback form has been attached in the Annexure for reference). The data received can be analysed using 3 measures –
1. Means
2. Reliability test
3. Correlation

Starting with the mean of all the data collected will help us understand the average response pattern of the respondents concerning varying responding styles as per tool variations. After the means for all the questions are computed, we ran a reliability analysis of the data to study the consistency in responding styles of all the respondents for different questions and

varying response options. Finally, we studied the correlation between the variables to study which variables influence the response patterns.

The next section discusses the findings from our first phase of interviews as well as our findings from the observations about the existing research and patterns arising out of the data.

Findings from Phase 1

Following the survey of literature for the initial understanding of the concept of Acquiescence bias and the various sources that led to the introduction of bias into the data. We conducted initial surveys through in-depth interviews with the two groups - Participants from the training sessions and LFE internal members responsible for facilitating the training sessions. The findings from the in-depth interviews with both the groups have been elaborately explained below -

Interviews with Participants of the training - A random sample of 17 respondents of the feedback form who have been participants in the training sessions within the organization was taken for the phase 1 survey. These participants were either government school teachers or government officers. The responses were collected through phone calls with the participants. A pre-conceptualization tool was created, it would help us in interviewing the teachers and officers, that attend our training sessions.

The pre-conceptualization tool consisted of questions about the quality of the content of the training, what may have been particular responses of the participants, and why. What were the ratings they provided about the three sections of Usefulness, Engagement, and Doubts cleared, How and why did a particular rating on the NPS scale? Whether the respondents provided ratings on the quality of content or their level of understanding of the content?

> **Observations from the survey -** It was observed that the participants of the training mainly take the survey feedback form as a formality, therefore the responses resulting from the surveys become mainly overall in rating, and preferences for points on the scale are also affected by biases. Good memories arising out of the training/sessions affect the feedbacks that follow. The positive memories cause the respondents to give positive responses even if the recent experience may not qualify the mark. It would only reflect by showing a fall by one point on the rating scale.

- Ratings also largely depend upon the facilitation style, the content of the training, and the value created out of the training. If it was presented by the best facilitators then the respondents also keep in mind that they do not want to hurt the sentiments of the facilitator. They relate the value created from training with that of its utilization in their career prospect.

- The level of growing hierarchy and power also affects the responding style, as it was seen that the Kendra Pramukhs and the teachers all settled with only positive responses. The reason is very similar to not affecting the relationship between themselves, and facilitators, as well as helping, to present their good picture to seniors.

- Our next finding can be backed with data findings from the literature reviewed. The level of education is indirectly proportional to the tendency to respond with bias. A higher level of education along with a higher position in the hierarchical structure at the

workplace leads to higher levels of critical thinking and reduced bias. It was observed that as the cadre of the officers rose from Kendra Pramukhs to Extension officers or Block education officers, the level of responding with acquiescence goes on reducing.

- The macro approach of collecting the feedback data may lead to overlooking the micro discrepancies in the tool such as recognition of problems, etc. A good majority of the respondents agreed that they gave ratings based on their understanding of the content of the training and not upon the quality/facilitation of the training. The chances of low ratings arise in two situations when the respondents couldn't understand the content of the training or the facilitation of the training was poor. The feedback received is highly affected by the environment created by the training facilitators for the participants.

- The respondents also highlighted that there may be a lot of bias added to the data due to fatigue from attending training followed by a survey feedback form. The fatigue may lead to careless responses as a result of the time taken in the training.

   Observations upon the structure of the feedback tool - The respondents added a few things about the feedback tool as suggestions, which can help us in improving the feedback tool.

- A good majority of the respondents said that the form covers only the major aspects of the training provided, it does not have questions about the micro spaces where the data about various sections of the training can be collected. The feedback form uses a neutral wording structure with a mixture of close-ended question format as well as rating points. This format does not provide much scope for the respondents to present their views in a detailed manner.

- While many of the respondents mentioned that the rating scale 1-4 didn't provide much space to provide detailed feedback, instead a 1-10 scale would be a better option. The other respondents felt that using multiple response styles instead of the rating scale can be comparatively good. Most of the respondents were also of the view that rating scales are the most important source of introduction of bias into the data.

- The feedback can be disintegrated into many sub-sections to capture feedback from all sections of the study. The tool doesn't have any questions about content, it can include more about the understanding of the training, rather than only overall feedback collection. The structure of the feedback form can be held largely responsible for overall data collection.

Interviews with the Internal Members of LFE - This stage of the study included interviews with the LFE program teams who are responsible for conducting and facilitating training for our stakeholders. They were project associates, senior associates, and managers of various teams like the Content creation (LEAD program), Pune, Nashik, Akola, and Nagpur teams. The aim of the survey with the internal members of LFE was to understand the use of the feedback data for the teams, how helpful is the feedback responses for the teams in designing the content of the training, make structural changes in the training session such as facilitation, pace, and activities conducted during the trainings, etc.

A total of 10 LFE members from the LFE team were interviewed. The tool used for the survey had questions about, how the team uses the feedback tool data, how often they see the data from the tool, what kind of information they usually receive from the data, what are

the views of the team about the quality of data and suggestions to improve the feedback collection after the training sessions.

Observations from the interviews - The discussions with the teams revealed that they see the feedback data as an opportunity to make changes and update the otherwise unrecognized underlying problems in the training sessions.

- The most important observation from the interviews was that they are all interconnected with each other, right from training to feedback data collection. While the point of the whole study is to improve the quality of the feedback data collected, one way of doing that can be done by improving the way the questions are asked through the feedback tool. That is possible by improving the style of facilitating of the training (training content).

- Most of the teams maintain this practice of checking the feedback data at least once a month during the review meetings. While other teams check the feedback data after every training session is over, some also informed us that they check the data before structuring the upcoming training sessions.

- The teams said that they usually study the feedback data for two kinds of information -

    i) Net Promoter Score (NPS) used to rate the session quality and the rate at which the participants would recommend the trainings.

    ii) Subjective feedback responses regarding the facilitator's style, pace, content quality, etc.

- For some teams, the feedback data is helpful only for the ratings and the subjective responses. The teams do not stress much with filling up the forms as they know that the respondents are already pressurized about the outcomes of giving critical feedback about the trainings. The teams also informed us that they receive all the critical feedback over a phone call.

- The sections on engagement and doubts cleared helped them to improve the pace as well as the facilitation style in the session. The team is concerned with the quantitative feedback mostly as that helps them to track the attendance and follow-ups with the participants for the sessions.

- Teams informed us that they know that the data received through the feedback forms are biased, as the participants know that their personal information is tracked, and they always end up saying good about the training sessions.

- There is a difference in the responses received from the officers when compared to that of the teachers. As the officers are more critical in providing feedback than the teachers. The teams also mentioned that they saw a visibly changing trend in the attendance of the participants for the sessions and the subjective feedback helped them improve upon the problems highlighted by the participants.

- Suggestions provided by the team members to improve the feedback collection practice are that the batch number of the participants can be taken, instead of names, which will help in feedback collection also and also reduce bias. Adding open-ended questions can be made non-compulsion questions. Also, there can be separate forms for post-test and

feedback.

Phase 2

Tool design

Based on the findings from the phase 1 interviews, we designed four versions of the tool that the addition of some open-ended questions and modifications in the options to some questions that vary across the four versions of the tools. By altering the questions and options we are trying to study the variations in the way the respondents answer any particular question. These alterations and open-ended questions will provide the respondents with the scope to respond in a better and more detailed manner. The four versions of the tools can be understood in table 1 below.

Table 1: Classification of tool characteristics in 4 tool versions -

Tool Version 1	Tool Version 2	Tool Version 3	Tool Version 4
Original questions (existing question)	Original questions (existing question)	Original questions (existing question)	Original questions (existing question)
Open-ended Questions	Forced Choice Response	10 point rating scale	Reversed Scored Items
Background Information	Background Information	Background Information	Background Information

Open-ended questions - Open-ended questions are free-form survey questions that allow respondents to answer in open text format so that they can answer based on their complete knowledge, feeling, and understanding. It means that the response to this question is not limited to a set of options.

Forced Choice Response - Forced choice refers to a specific format for response options in survey questionnaires where the responses are defined. In a forced choice format, respondents are not given a specific option to reflect a "nonresponse" type choice, such as "no opinion," "don't know," "not sure," or "not applicable."

10-point rating scale - The responses of the survey are on a 1-10 point scale, where the respondents are allowed to rate between 1-10.

Reversed Scored Items - The reverse scored items responses category is one where the respondents are given options in a reverse way than the usual way. for example, if 1-10 meant poor to Excellent. then presenting it as 1 - 10 meaning excellent to poor

Background Information - The tools were added with a set of background information questions such as Age, Gender, designation, Place of the jurisdiction (rural or urban), the highest level of education attained, the reason behind attending, How they were introduced to LFE, relationship with LFE and years of contact with LFE.

Once all the tools were structured, the four different versions of the tools were designed

using the Kobo toolbox (KoBoToolbox is a free and open-source toolkit for data collection and analysis). Kobo Toolbox helped us in releasing four different question versions of the tool randomly to different participants. This means that every participant will receive a different version of the tool, aiming to collect the same information. The questions and the answers were coded as per the different tool versions in the Kobo toolbox, the Kobo template of the tool can be accessed from here.

The tools contained questions on the four aspects of the training - Usefulness, Doubts cleared, Engagement and ratings.

Important steps before Data Collection

Step 1: Once all the tools were structured and designed using Kobo Toolbox, the feedback questions with added questions or modified structures/option styles were added to the post-test form. An additional section of personal details as background variables was also added to the tools. As this section could be helpful for us in studying the various factors influencing the response styles. Most importantly the feedback tool had a consent section, that informed the respondents about the research study and that all the data collected will be used for research purposes only. It will be completely confidential and the data will be used internally only. A snapshot of the consent form in the tool has been attached below for reference.

Pune - DIET PD Canva - Post-test June 2022

लीडरशिप फॉर इक्विटी फीडबॅक कलेक्शन फॉरमॅट सुधारण्यासाठी सर्वेक्षण करत आहे. हे आम्हाला LFE द्वारे आयोजित प्रशिक्षणात सहभागी झालेल्या प्रतिसादकर्त्यांकडून अधिक चांगला आणि अधिक तपशीलवार डेटा संकलित करण्यात मदत करेल. फॉर्ममध्ये आपल्या पार्श्वभूमीच्या माहितीबद्दल अतिरिक्त ९ प्रश्न आहेत आणि आपला अतिरिक्त ५ मिनिटांचा वेळ घेईल. या सर्वेक्षणाचा भाग होण्यास इच्छुक असल्यास कृपया खालील प्रश्नांची उत्तरे द्या

◯ Yes
◯ No

→ Next

Back

↺ Return to Beginning   Go to End   →|

Due care was taken in designing the tool in such a way that would redirect the respondents to the last page of the questions if they chose 'No' i.e., didn't want to share their personal information.

Step 2: Our next step was communication with all the teams regarding the four versions of the tool and our attempt to study the bias in the data. The teams were asked to inform all their participants about the additional questions in the tool and that it was completely voluntary. That this exercise will help us to collect data in an improved way, that is free of any kind of bias so that the team can better understand the needs of the participants and serve those needs more efficiently. The data from the feedback will also help in designing the upcoming sessions in a better way.

Step 3: The teams shared the post-test questions as well as their requirements from the training, where the members of the Monitoring and Evaluation team would add the feedback questions using the Kobo toolbox template. After the tool was ready two rounds

of proofreading by the project team and the research team would be done. Post which the forms were ready to be shared with the participants after the training was conducted.

Data Collection

The data collection started in April and continued till July. As the data could only be collected whenever training would be conducted, the data collection was dependent upon other teams' training as and when they were planned. The study tool was mainly focused on collecting data from PD sessions and PLC sessions. Whereas all our data was collected using the PD session tool format as most of the PLC sessions were over by April (when we started our data collection). Therefore, all the data collected was based on the PD session formats.

Data Cleaning

A total of 25 forms from different trainings/sessions were collected. All these 25 forms were checked for discrepancies in the data. All dummy and incomplete entries were discarded. Finally, after all the data was cleaned, only 16 forms were used for the study. The data was segregated as per the four tool versions and placed into four different sheets. An overall sheet with all four versions of the tool was also prepared.
Table 2: Total number of forms sorted for data analysis -

S.no.	Training Location	No. of Forms
1	Akola	4
2	Nagpur	1
3	Pune	5
4	Satara	6
	Total	16

While cleaning the data, the open-ended responses were excluded from the quantitative responses as they were mostly one-word responses and majorly constituted about the quality of the training. Therefore the qualitative data was analysed and combined with the findings in the initial analysis section.

Data Coding

The now cleaned data were coded into variables and the response options were also coded into different categories as per the requirements of the questions. The variable codes were sub-coded as per the various options versions of the tool. This coding would help us in the final analysis of the data.

Data Analysis

The well-cleaned and coded data was now ready for analysis. For analysis, we used the IBM SPSS software. Different data sets were prepared for being processed on the SPSS software.

Using the software all the types of descriptive statistics, as well as the comparative analysis, were done. As discussed above in the methodology section, we have used simple averages for the data sets, compared the differences in those data sets as well as studied the reliability and validity of the means.

Findings of the Data

Basic Information

To understand our data we are starting with the basic descriptive statistics of the data, which include the frequencies and percentages for all the questions in our tools. This section presents the basic background information of the respondents, like, sex, age, place of jurisdiction, the highest level of education attained, and designation.

From a total of 16 forms, we have 486 responses that were used in the analysis of our data, after the data was cleaned and checked for any discrepancies in each tool version. The data is from four district training, namely Akola, Nagpur, Pune, and Satara. The responses are distributed throughout the different versions as 127, 126, 129, and 104 respectively in every tool version. The data distribution across districts and tools can be seen in table 3 below.

Table 3: Total number of responses per tool version by district –

Total responses	Tool Version 1	Tool Version 2	Tool Version 3	Tool Version 4	Total
Akola	1	1	2	6	10
Nagpur	48	69	61	47	225
Pune	45	27	35	25	132
Satara	33	29	31	26	119
Total	127	126	129	104	486

From a total of 486 responses, 299 respondents gave their consent to be a part of the study. Among the total consent giving respondents 55.9% (n=167) are males and 44.1% (n=132) are females in the data. The analysis henceforth for the background variables would use n=299. As per our table, there is almost a 10% gap in the representation of males and females in the data. The distribution of the responses by sex of respondents who chose to answer the background questions can be seen in table 4 below.

Table 4: Male-female distribution of the consent responses by all tool versions.

Sex of the respondents	Version 1 (n=127)	Version 2 (n=126)	Version 3 (n=129)	Version 4 (n=104)	Total	Percent
Male	33	47	50	37	167	55.9
Female	46	26	32	28	132	44.1
Total	79	73	82	65	299	100

In our tools we asked our respondents whether their place of jurisdiction falls into which category of (rural or urban) area. We found that majority of the respondent's pace of jurisdiction belonged to the rural area of the districts included in the studies. We have 63.9% responses from rural and 36.1% from Urban areas. The rural-urban gap in the data is 27% from each other. The most number of respondents from rural areas have answered the tool version 3. Whereas, the highest number of respondents from the urban areas answered the tool version 1.

Table 5: Rural-urban distribution of consent responses by all tool versions.

Place of Jurisdiction	Version 1 (n=127)	Version 2 (n=126)	Version 3 (n=129)	Version 4 (n=104)	Total	Percent
Rural	45	51	54	41	191	63.88
Urban	34	22	28	24	108	36.12
Total	79	73	82	65	299	100.00

The data was classified into four categories 'Less than 25 years', '25 to 34 years, '35-44 years', and '45 years and above'. The highest number of respondents belong to the age groups 35-44 years (28.19%) and more than 45 years (26.9%). Therefore, we can say that majority of our respondents are from the upper part of the working age group. Here, age in the study plays an important role in studying the correlation between background variables and other dependent variables.

The following Figure 1. presents the data for the highest level of education attained by the respondents, which has been classified into 4 categories of Graduation, B.Ed-D.Ed, Post-graduation, and Ph.D. We observed that majority of our respondents have completed Post- Graduation (43.81%), followed by those who have completed till B.Ed-D.Ed (including graduation). As we know that our respondent's officers from the different cadres, B.Ed-D.Ed and more are the required qualification for the designations they are currently serving.

Figure 1: Distribution of responses by the highest level of education attained in the four tool versions -
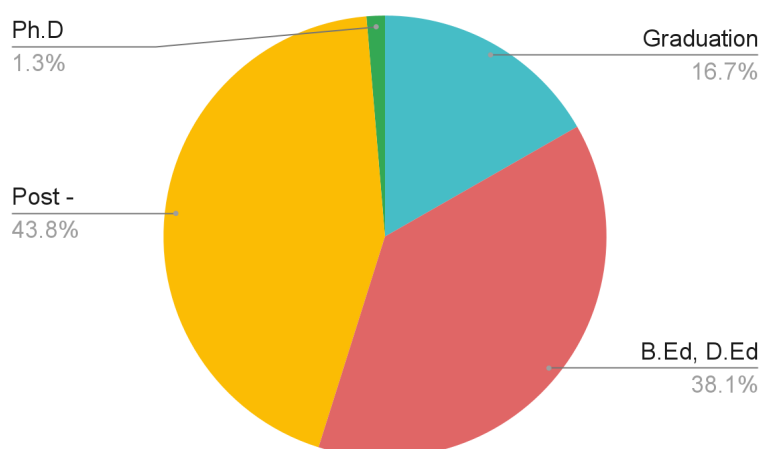
We also studied the designation of the respondents to understand the cadre-wise attendants of our training. This data was collected even before the study, therefore this was

not included in the consent part of the tool. This information could be very helpful for us to understand the distribution and responding styles of the respondents at various levels of the administration. Our data has responses from all the cadres, right from Cluster heads to Counselors. The highest proportion of respondents who attended the training are Block Resource Persons (BRPs), Cluster heads, Sadhan vyakti's, and subject experts. The respondents from all the other cadres show very less participation below 5%. The designation data has been computed for the total number of responses (n=486). Figure 2 represents the distribution of respondents by the different cadres who attend our training.

Figure 2: Distribution of responses by the Designation of the respondents in the four tool versions –
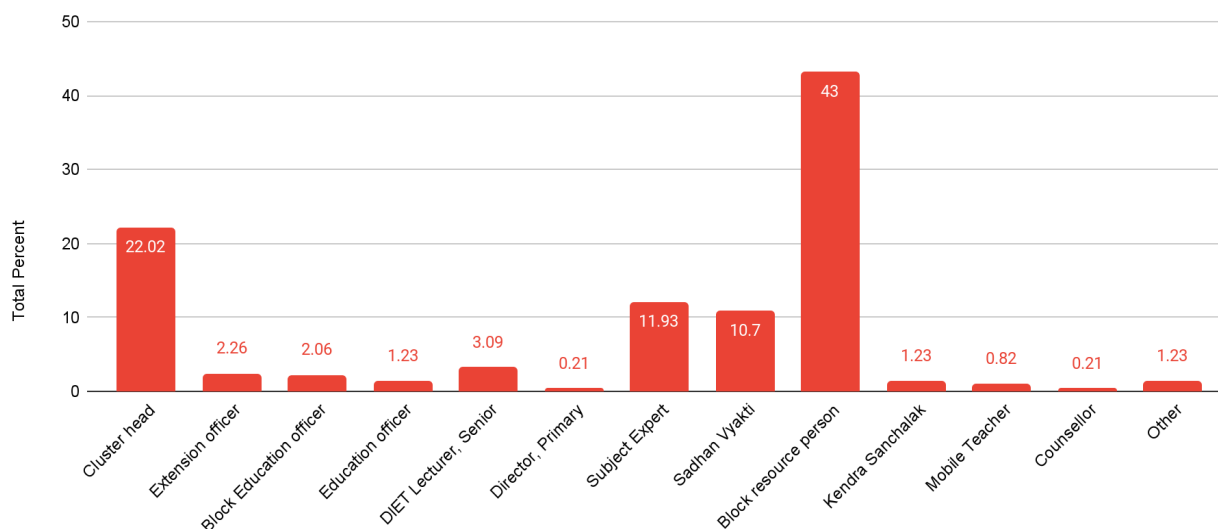
While studying the basic characteristics of the respondents in our data, as per the literature review we also found that it is important to study the factors affecting the way the respondents answer the questions. Therefore we included questions like the respondent's relation, time, and conditions to attend the training. Figure 3, below presents the three most important reasons, such as mandatory, interested, mandatory, and interested. An observation here is that a good majority of respondents (56.5%) said they attended the training because they were interested in the content of the training. Another more observable proportion here is the mandatory and interested (33.1%) option. This particular option sounds safe instead of just mentioning that the training was mandatory to attend. Even if the respondents chose to attend the training, it could also be because it had a mandatory angle to it.

Figure 3: Distribution of reasons to attend the training by respondents in the four tool versions –
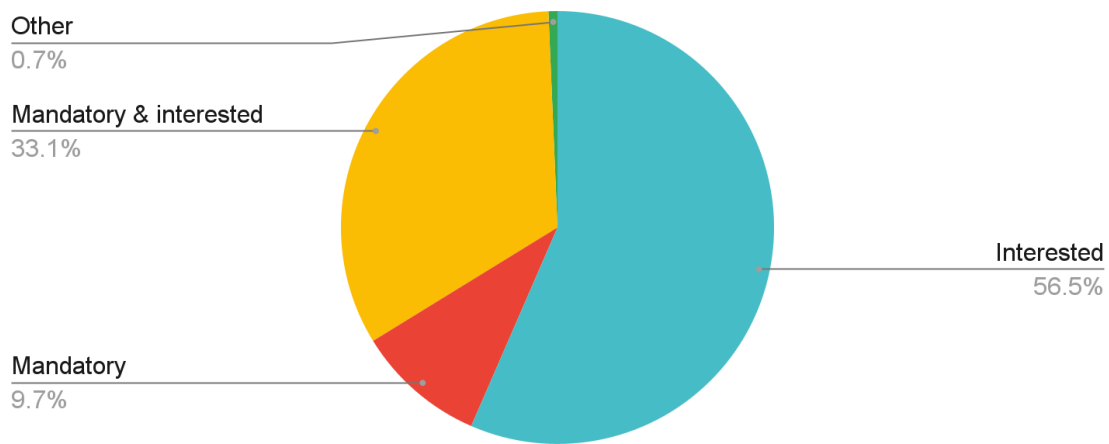
We then asked the sources through which the respondents were introduced to LFE, as we feel this represents our stretch and connections with our stakeholders. This can also be backed by literature as the source of information can hugely impact the respondent's style of answering any type of question. If a respondent knows LFE through a senior officer, then that will be represented in their style of responding and vice versa. In our data, the maximum proportion of respondents knows LFE through their senior teachers/officers (44.1%). The sources look visibly similar for the two groups Fellow officers/teachers and seniors. Noticeably a good 16.7% of respondents said that they came to know about LFE from 'Other sources, which may be beyond the office and usual network links. These other sources of communication can be explored to study the variations in the relations with our organisation. The distribution can be understood from the Pie-chart below in figure 4.

Figure 4: Distribution of sources of connection LFE to the officers/teachers -
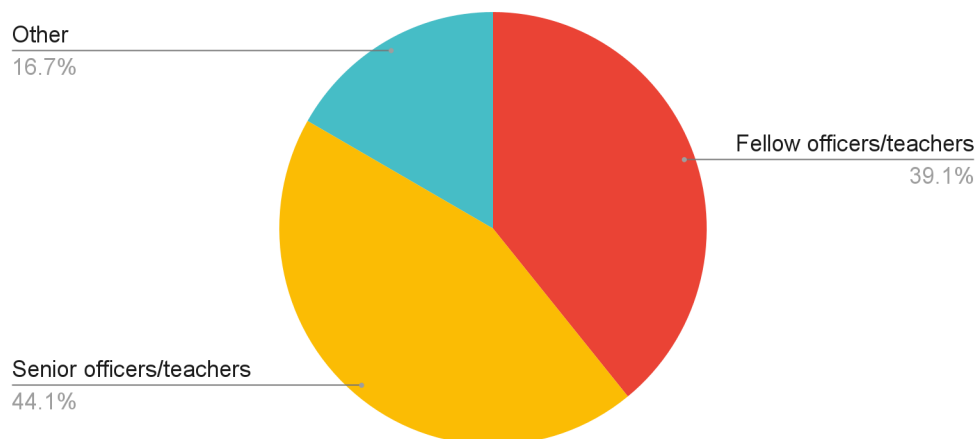
After we saw the different sources through which the respondents were introduced to LFE, we studied the Type of relationship of the respondents with LFE. The type of relationship has been classified into 3 groups attended training, attended and co-worked, and co-worked with LFE members. Figure 5 shows a pie chart where all these 3 categories are almost equally distributed, with the highest proportion being, co-worked with LFE members and attended training provided by LFE teams.

Figure 5: Distribution of type of relationship of the respondents with LFE -
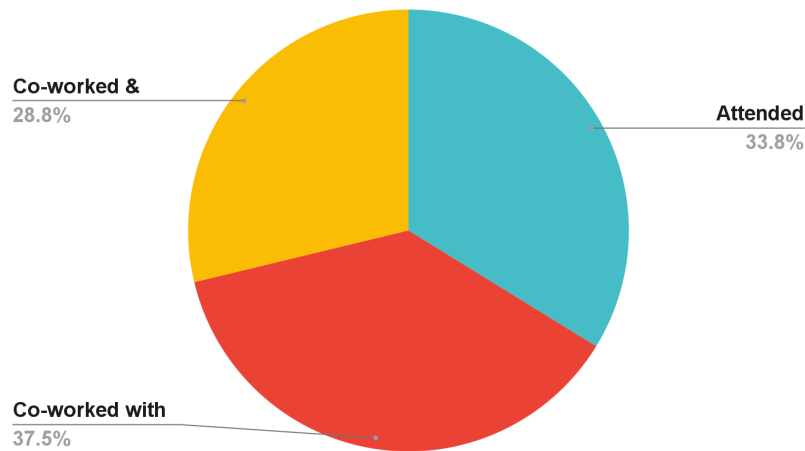
Leadership for Equity has been working, with the government stakeholders for over 5 years now. In order to understand the type of relationship and how this relationship was built, it is essential to understand the time span our respondents have been in connection with us. As we all know it takes years to build a strong foundation for a prolonged relationship. The data were classified into three categories 0-6 months, 6-12 months, and more than 1 year. It was worth noticing that the majority of our respondents have been in contact with LFE for 0-6 months (54.2%), followed by more than 1 year (35.1%). Given the time span of the relation of the respondents with LFE, we are expecting that the time might act differently in influencing the response style. This distribution can be well understood from the pie chart below in figure 6.

Figure 6: Distribution of time span of the relationship of respondents with LFE -
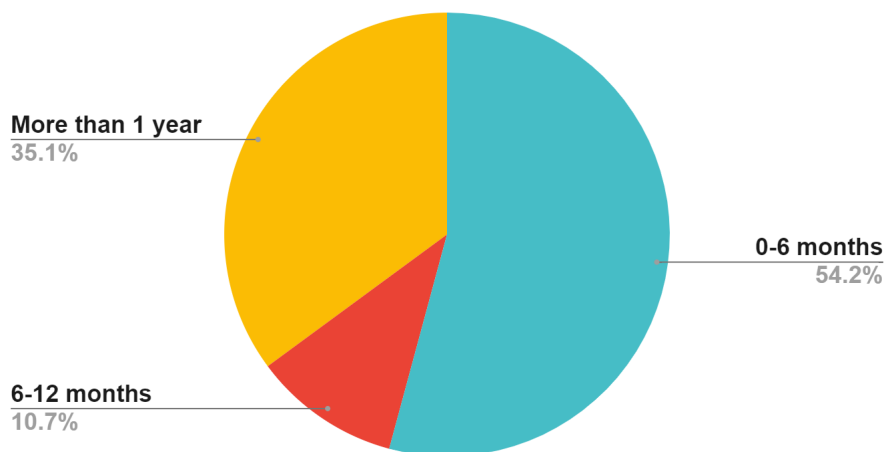
All the tables and figures helped us understand the data representation in a cross-sectional manner. It shows all the percentages for all the tool versions, based upon which the rest analysis for the study can be conducted. The next section of the report presents the analysis of the data in relation to the existence of bias in the data.

Distribution of Responses

In order to understand the distribution of all the responses in the four tool versions we decided to check the average responding style of the respondents for the four tool versions, which will help us understand the general pattern.

1. **Average responses for all tool versions -** We want to study the average responding style of the respondents when the response options in the tools are changed for every version. This will help us understand if the respondents are behaving differently when the same question is asked in a different manner. This will also help us study the presence of bias in the data if there is a high fluctuation in the responding styles of the respondents.

   We study the average responding style of the respondents in 3 parts -
   a. Responses to Usefulness, Engagement, and Doubts cleared (Session)
   b. Responses to Delivery (Facilitators)
   c. Response to Rating scores for NPS and overall session

   a. **Responses to Usefulness, Engagement and Doubts cleared (Session) -** We computed the means for all the questions in our tools pertaining to Usefulness, Engagement, and Doubts cleared, in the 4 tool versions. Table 6 presents the means for the construct questions, in tool 1 from 1-4, the average response scores vary between 3.46 to 3.71, Which shows fairly high average response scores.

   In version 2, where the response options were forced choices on a 1-4 scale, We see that the responses range from 3.39 to 3.52, Which shows a slight reduction in the average responding style when compared to that of the original tool version.

   In tool version 3, where the scale was 1-10, the average responses vary between 7.11 to 8.05, which again remains in the upper part of the response scale. As per the literature, this type of response is called a balanced response style when the respondents maintain a good response rate which is neither very bad nor good.

   Comparatively, in the fourth tool version when the respondents had to answer as per the 1-4 scale with reverse coded options, the responses mainly ranged from 1.61 to 1.77. As per the scale, the response range shows a similar response range as the tool version 1.

   Therefore, an important finding here is that there is a **slight variation in the average responding style** of the respondents when the response choices are explained/forced choices. This provides us with evidence that the responses change when the option styles are forced. While a 1-10 provides a high average response.

Table 6 : Means of the tool versions for Responses to Usefulness, Engagement and Doubts cleared (Session) -

Constructs	Version 1 (n=127)	Version 2 (n=126)	Version 3 (n=129)	Version 4 (n=104)
Doubts cleared	3.54	3.44	7.70	1.72

Doubts cleared	3.54	3.39	7.11	1.77
Engagement	3.46	3.41	7.49	1.72
Engagement	3.66	3.52	7.86	1.61
Usefulness	3.65	3.44	8.05	1.63
Usefulness	3.71	3.52	7.86	1.68

b. **Responses to Session facilitation (Facilitators) -** We asked another question where we tried to understand the delivery and clarity of the presentation by the facilitator. Table 7 presents the means for the responding style for Session facilitation, Session rating, and Net promoter score (NPS). These 3 questions used the old response options where the respondents are seen marking ratings between 3.21 and 3.31. Contrastingly for tool version 4, the respondents have marked a very low score of 1.91.

An important finding from the tool 4 average response score is that after responding to questions on the reverse coded scale, the respondents answered the following question in the same 1-4 reverse coding, which resulted in a very low average score for session facilitation which had a positive rating for 1-4. This shows that the respondents in our data are **"Carelessly responding"**, trying to maintain high scores on a rating scale. This again provides us evidence of the presence of Acquiescence bias in the data.

Table 7: Means for session facilitation, rating, and NPS across all tools.

	Version 1 (n=127)	Version 2 (n=126)	Version 3 (n=129)	Version 4 (n=104)
Session facilitation	3.31	3.25	3.21	1.91
Session Rating	3.53	3.61	3.60	3.56
NPS	8.42	8.27	8.36	8.09

c. **Response to Rating scores for NPS and overall session -** The average ratings for the sessions and Net promoter scores as shown in table 7 are observed to be high on a 1-4 and 1-10 scale. The net promoter score remains at a high between 8.09 to 8.42, the reverse score tool version shows a slightly lower average response.

The above comparison of means informed us that there is a variation in the responding styles with modification of the response options. We have studied the means of the data, and now a reliability test for these three constructs namely usefulness, doubts cleared and engagement will help us understand how consistently the respondents have answered the questions across the four versions of the tools.

2. Reliability Analysis - The reliability test/analysis of a dataset allows the researcher to understand the consistency in the average responding style of the respondents. It will help us to study the overall response pattern in the dataset. This study started with an assumption that our feedback data is biased and a majority of the responses are high.

We ran a Cronbach's Alpha with the help of SPSS, where we tested the four datasets for Reliability analysis. The results of Cronbach's Alpha for the four versions and overall data sets showed the consistency of the ratings in data.

Table 8: The reliability test for all four tool versions.

Tool Versions	Cronbach's Alpha (n=6)
Version 1	0.919
Version 2	0.967
Version 3	0.936
Version 4	0.965

The reliability test for the 6 questions in the 4 tool versions shows an Alpha values ranging from (0.919 to 0.967) for the 4 versions. The high alpha values show that the respondents have been highly consistent in responding to the rating scales across the four versions of the tool. An important finding from the reliability analysis is that the respondents consistently follow a similar pattern of responding, which can be seen as similar to the **extreme responding style** earlier discussed in the Literature**.**

3. Correlation Analysis - Once all the data was run to study if it is reliable or not we now study how the various variables - Usefulness, Doubts cleared, Engagement, Session Facilitation, Rating, and NPS are affected by the background factors. Hence, we ran correlation analyses for all the variables of the different tool versions.

We computed the correlation for all the questions and found a significant relationship between some variables, that may be acting as influencing factors in responding to those particular questions. Literature suggests that there is some correlation between background factors like age, gender, level of education, designation, relation with hosts, etc. The tool-wise correlations have been presented below -

Tool version 1: The correlation of the construct variables with the background variables in tool version 1 shows that there is a negative significant correlation between doubts cleared and the age of the respondent. This means that the age of the respondent and the respondent's choice of options for the doubts cleared have an inverse relation.

- The correlation analysis of session rating with reason to attend the training and sources of connection with LFE show a positive correlation. This means that the reasons behind attending the training (interested, mandatory, or both) highly influence the response on the rating scale for the session. And the sources of information also show a positive correlation with session rating.

- The correlation for NPS with reason to attend shows a significant positive correlation, but it shows a significant negative correlation with sources of connection with LFE.

Tool version 2: in tool version 2 there is a positive correlation between session facilitation and the reason to attend the training sessions. This means that the reasons to attend the

training influence the way respondents think about the session facilitation and rate accordingly.

- There is a positive correlation between session rating and age of the respondents, as well as the highest level of education attained for the respondents.

   Tool version 3: in this version, there are significant positive correlations between the construct variables and the age of the respondents as well as a rural or urban place of jurisdiction.

   The ratings for the NPS positively correlate with the respondents' designation, place of rural or urban jurisdiction, and time span for connection with LFE.

   It was also seen that session rating and session facilitation significantly correlate with rural or urban jurisdiction and years of contact with LFE. More years of contact with LFE may lead to higher NPS scores.

   All the positive correlations indicate that these background variables influence the way respondents mark ratings for the construct variables.

   Tool version 4: The variables in tool version 4 show correlations with many other background factors. The variables show a positive significant correlation between session facilitation and construct variables. Another positive correlation could be seen between the Designation of the officers and the District of the officers.

Discussion

The study was conducted with the respondents of the training sessions conducted by Leadership for Equity on various topics. The study started with the assumption that feedback data is usually spiked with some sort of biases both on the part of the participants and the researcher. This kind of bias is addressed as acquiescence bias when the respondents choose to answer assertively in a manner that is balanced and may sound pleasing to the receiver's end. Our team observed the feedback data after the trainings, we found that almost all the feedback data shows high ratings on all the scales. This caused us to design a study that aims to understand if there is any bias in the data and understand the correlation between various variables in causing that bias on behalf of the participants.

Literature helped us recognize the various sources, types, and causes of bias in the data. This kind of bias in the data may lead to distortion of results, which in turn may influence decision-making. For this purpose, we studied the Means of the datasets for all the versions of the tool, compared the means with all the datasets, and computed the consistency in responding styles by the respondents.

Our first objective was to ascertain the presence of bias in the data, To study this we computed and compared the means of the datasets. The results showed that the average responding style for any rating questions became more refined with forced response choice (tool 2). This slight change in the average responding styles shows that the respondent's behavior changes when they are forced to choose between options. We also gathered evidence from tool version 4 (reverse coded ratings), here the respondents are using one pattern of responding, the majority of respondents were confused and marked session rating (not reverse coded) with very low scores.

While designing the tools we added open-ended questions in each version, that would allow the respondents to provide detailed feedback and suggestions about each session (based on the suggestions from the phase 1 interviews with the stakeholders). We noticed that the respondents provided only one or two-word feedback, e.g., "*Chaan*", "*khub chaan*", "*Changla Satra ghetla*", etc. (meaning *"good", "Very good", "good session").* This shows that the respondents respond to the open-ended questions only because they are mandatory. Here a sense of fatigue can be seen in the responses.

While the above proves that there is a presence of bias in feedback data, the correlation analysis also showed that there are significant correlations between the respondent's background and responding style. Even though we started with the assumption that our data may be affected by acquiescence bias, we observed that there is the presence of other types of biases in the data as well. On the basis of the study, some prominent responding styles highlighted in the data are-

- A good majority of the respondents unconsciously followed the **Extreme response style,** where they chose to rate well throughout the tool.

- When connected the respondent's response to open-ended questions and construct ratings, the respondents were seen using the **Socially Desirable responding style.**

- Most importantly we observed that the respondents feel **gratitude** towards **LFE** for providing them with training and support at all times, hence willing to respond in an assertive way - **Acquiescence responding style.**

Causes of Various types of Bias in Data -

The data and available literature helped us to arrive at the causes of the addition of bias in the data -

- **Response Fatigue** - A sense of fatigue to fill in the feedback tool, as right after a long session the respondents felt tired to answer a survey tool.

- **Formality** - The respondents clearly showed that they share important feedback over call hence the feedback form was mostly a formality for them.

- **Gratitude** - The respondents felt gratitude towards LFE, which is one of the reason's that even if the respondents felt fatigued they filled in the forms.

- **Careless responding** - This fatigue in the respondents led a good majority of respondents to seem confused with the reverse codes and gave very low ratings for performance questions across districts.

- **Influence of background variables** - The reasons to attend the training, either interested or mandatory. As well as the sources of connection played an important role in influencing the officer's choices of options.

Suggestions

The second objective of our study was to suggest a tool, where the items in the tool capture less bias as compared to our old practice. On the basis of the data analysis, we arrived at a mix of structures that can be combined together to design a tool to obtain meaningful data.

1. **Forced Choice Response -** The tool should include forced-choice response options where all the options are explained.

2. **Likert Type Scale -** Based on the observations, it also seems safe to use Likert-type questions, which makes it easier for respondents to answer questions.

3. **4-point Scale -** Analysis shows it is safe to use a 4-point scale, as it avoids the chance of balanced ratings by the respondents.

4. **Mix of open-ended and rating questions -** The tool should contain both open-ended and rating questions in the tool, that will allow respondents to elaborately explain their opinions.

5. **Anonymous responding -** Other than the study, the tools collect some sort of background information to track attendance, this also causes respondents to add bias. The feedback tool should be completely anonymous.

6. **Both facilitation and theme-based questions -** Our team can now take one step ahead from only collecting feedback for facilitation to collecting data for the content-based feedback for each training session.

Limitations of the study

1. **Time-span of data collection -** Almost all the courses and trainings were coming towards the end while we started the data collection therefore the study had to be concluded with limited data.

2. **Inter-team dependence for data -** The study was totally dependent on other teams for data, as we could only receive data if a training session was conducted by the team.

3. **Population size -** It was also highly dependent on the cadre and group the trainings were conducted for, as the number of officers varied with every training session. Sometimes the trainings were attended by only 2-3 officers given the size off their departments.

4. **Dependence on Communication -** Even though the feedback forms had a consent section, it was tollay voluntary to take the background questions. This might also be influenced by the way the teams communicates the purpose of the study with the participants. If there is any misunderstanding in the communication it might result into reduction in data.

5. **Technical Glitches -** The study data was analysed using the SPSS software, where

the data had to be coded into variables and value labels. It became tedious when the data showed error due to some software glitches and we had to redo all the steps of data cleaning and coding.

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Annexure

Pune - DIET PD Canva - Post-test June 2022

जिल्हा शिक्षण आणि प्रशिक्षण संस्था, पुणे आणि LFE टीम द्वारे तंत्रज्ञान कार्यशाळा आयोजित करण्यात येत आहे. आपण या शिक्षण प्रवाहात कुठे आहात व विविध मुद्द्यांवर आपली मते घेण्या हेतूस्तव हा फॉर्म आहे. कृपया हा पूर्व-फॉर्म भरुन सहकार्य करावे.

प्रश्नावली

खालील पैकी कोणते app वापरून आपण पोस्टर, निमंत्रण पत्रिका, प्रेसेंटेशन ई. तयार करता येवू शकते. *

○ Google Drive

○ YT Studio

○ Canva

◉ Google Photos

"Canva हे app वापरण्यासाठी Email गरज नसते" हे विधान चूक कि बरोबर ते ठरवा *

○ चूक

◉ बरोबर

Canva app चा वापर करून खालीलपैकी कोणत्या गोष्टी करता येतात. *

◉ Social Media Poster

○ Invitation Cards

○ Newsletter

○ वरीलपैकी सर्व

Canva app वर एखादे पोस्टर तयार करत असताना विविध आकार (Shapes) घ्यायचे असल्यास खालीलपैकी कोणत्या पर्यायाचा वापर *

○ Text

◉ Elements

○ Background

○ Shapes

Canva पोस्टर तयार करताना तुम्हाला एका किंवा अधिक सहकाऱ्यांची मदत घेता येवू शकते. *

◉ हो

○ नाही

Feedback

1-10 च्या स्केलवर कृपया खालील प्रश्नाचे मूल्यांकन करा, जिथे

1 - अजिबात शंका सोडविण्यास सक्षम नाही
10 - पूर्णपणे शंका सोडविण्यास सक्षम"

सत्राच्या आपल्या एकूण अनुभवाच्या आधारे, कृपया खालील घटकांवर आपले मत नोंदवा:		1	2	3	4	5	6	7	8	9	10
सत्राच्या सुरूवातीलाच उद्दिष्टांबद्दल स्पष्टता देण्यात आली?	*	○	○	○	○	○	○	○	○	◉	○
सत्रात घेण्यात आलेला विषय तुमच्या कामात कितपत उपयोगी वाटला?	*	○	○	○	○	○	○	○	○	◉	○
सत्रादरम्यान तुम्हाला सहभागी होण्याची संधी मिळाली का?	*	○	○	○	○	○	○	○	◉	○	○
एकंदरीत सर्व सत्र आपणास कितपत गुंतवून ठेवणारे होते?	*	○	○	○	○	○	○	○	○	◉	○
सत्रातील कृती अर्थपूर्ण व नवे शिकण्यासाठी उद्युक्त करणाऱ्या होत्या?	*	○	○	○	○	○	○	○	○	◉	○
सत्रामध्ये घेतलेल्या विषयांचा आणि संकल्पनांबद्दल मला स्पष्टता आली?	*	○	○	○	○	○	○	○	◉	○	○

सुलभकांची स्पष्टीकरण पद्धती कशी होती? *
- ○ अतिशय असमाधानकारक
- ○ काहीसे असमाधानकारक
- ◉ बहुतांश समाधानकारक
- ○ अतिशय समाधानकारक

Please give a score of 1 to 4 where,
1 - means सर्वात कमी वा वाईट and **4 - means सर्वात जास्त किंवा चांगली**

For the items below, please select your rating		1	2	3	4
एकूणच हे सत्र आपणास कसे वाटले ते १ ते ४ च्या दरम्यान रेटींग द्या	*	◉	○	○	○

Please give a score of 0 to10 where,
0 - means अजिबात शक्यता नाही and **10 - means खूप शक्यता**

आपण आपल्या सहकाऱ्यांना या सत्राची शिफारस करण्याची किती शक्यता आहे? *
◉ 0	○ 1	○ 2
○ 3	○ 4	○ 5
○ 6	○ 7	○ 8
○ 9	○ 10	

सत्रात आपल्याला आवडलेली एक गोष्ट
इतर अभिप्राय

Personal Details

Salutation	*
○ श्री.	
◉ श्रीमती	

आपले पहिले नाव *	आपले आडनाव *
b	hv

आपले पद	*
◉ शिक्षणाधिकारी	
○ सहायक शिक्षणाधिकारी प्राथमिक	
○ सहायक शिक्षणाधिकारी माध्यमिक	
○ शाळा निरीक्षक	
○ इतर	

इतर पद	*

आपला जिल्हा *	इतर जिल्हा *
◉ नागपूर	
○ इतर	

लीडरशिप फॉर इक्विटी फीडबॅक कलेक्शन फॉरमॅट सुधारण्यासाठी सर्वेक्षण करत आहे. हे आम्हाला LFE द्वारे आयोजित प्रशिक्षणात सहभागी झालेल्या प्रतिसादकर्त्यांकडून अधिक चांगला आणि अधिक तपशीलवार डेटा संकलित करण्यात मदत करेल. फॉर्ममध्ये आपल्या पार्श्वभूमीच्या माहितीबद्दल अतिरिक्त ९ प्रश्न आहेत आणि आपला अतिरिक्त ५ मिनिटांचा वेळ घेईल. या सर्वेक्षणाचा भाग होण्यास इच्छुक असल्यास कृपया खालील प्रश्नांची उत्तरे द्या	*
○ Yes	
○ No	

Part 3

वयोगट *	लिंग *
○ २५ पेक्षा कमी	○ पुरुष
○ २५-३४	○ स्त्री
○ ३५-४४	
○ ४५ आणि वरील	

कार्यक्षेत्राचे ठिकाण *	पूर्ण झालेल्या शिक्षणाची पातळी *
○ ग्रामीण	☐ ग्रॅज्युएशन
○ शहरी	☐ बी.एड, डी.एड.
	☐ पोस्ट-ग्रॅज्युएशन
	☐ पीएच.डी