

## Tutorial 5

### Activity1

Q1:

Researchers should want to know if LinguaLift software easy of use and effectiveness? It really improve the participants' language skills. Their Aim may want to understand the data performance between satisfaction and learning outcomes to see if the software is successful.

Q2a:

The 13<sup>th</sup> participant scored 1 point in Q1, Q2, Q4 and even only scored 0 points in Q3. I

think this may indicate that: His score will decrease the average of overall satisfaction and effectiveness ratings, resulting in a negative outcome.

Q2b:

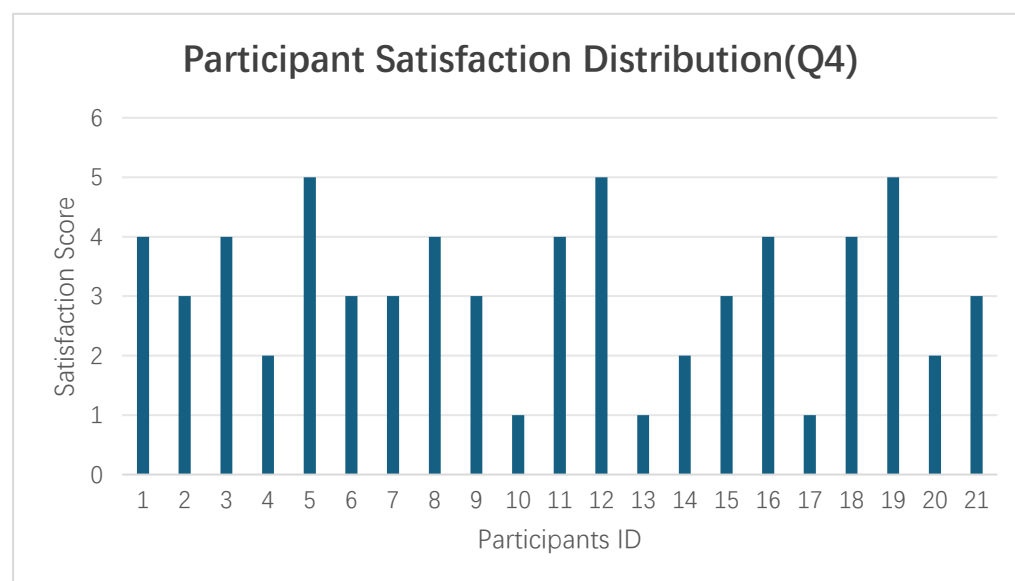
We can use other analysis method such as: use the median method instead of average method to reduce the impact of extreme values on the overall result. Also we can contrast the difference, compare the results with and without outliers.

### Activity2

Q3:

Researchers can use wrappers to create charts, graphs, put key data points to horizontal and vertical axis.

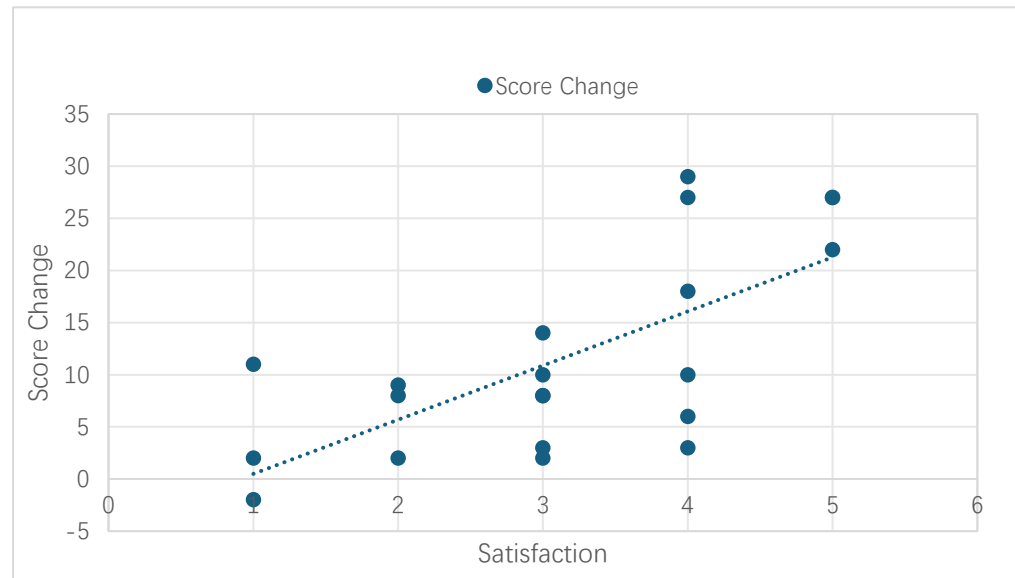
Q4a:



Reason: Can use excel to build bar chart intuitively reflect the satisfaction distribution of each participant and the most common scores.

Trend: Most of people score are 3 to 5, with only a few scoring lower, indicate although there are some differences, overall satisfaction is high.

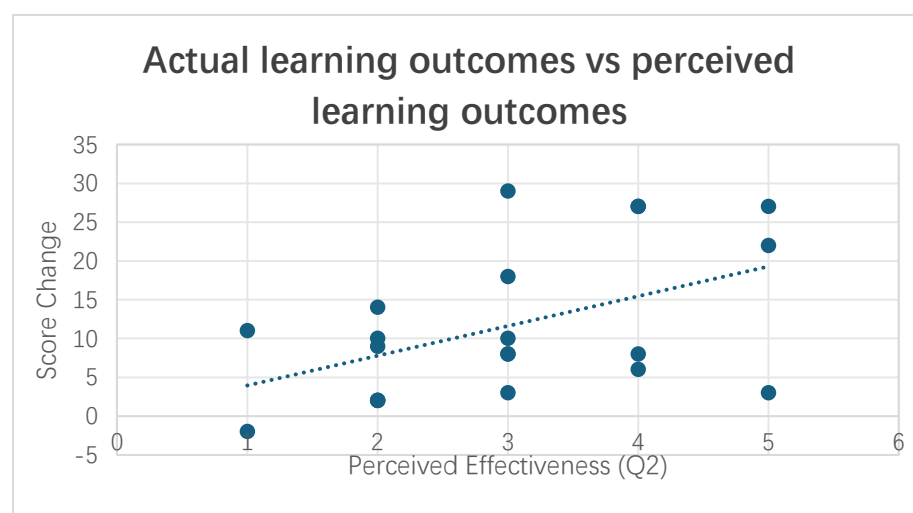
Q4b:



Reason: Scatter plots can easily highlight outliers, and this graph can also include a trend line to examine whether there is a linear relationship between satisfaction and score improvement.

Trend: Overall, although the 13th place is a clear indication of low satisfaction and low improvement. But there is a positive correlation between satisfaction and score improvement.

Q4c:



Reason: The scatter plot shows the relationship between participants' self perception of effectiveness on the x-axis and actual performance improvement on the y-axis.

Trend: Most people's self perception ability is consistent with their actual grades, but the actual score of P10 has decreased by -2.

Activity 3:

Q5:

I grouped the data by using Excel, adding four columns: participant, question q5 or q6, comment, and code.

Participant	Question	Comment	Code
1	Q5	Interactive quiz game	Engagement Features
1	Q6	Occasional crashes during les	Technical Issues
2	Q5	AI conversations	AI Interaction
2	Q6	Complicated navigation	Usability Issues
3	Q5	Personalized learning paths	Learning Effectiveness
3	Q6	Needs more language options	Content Limitations and Diversity
4	Q5	Daily progress tracker	Learning Effectiveness
4	Q6	User interface is not intuiti	Usability Issues
5	Q5	Gamification elements	Engagement Features
5	Q6	Too few examples in foreign l	Content Limitations and Diversity
6	Q5	Quiz game and feedback	Engagement Features
6	Q6	Slow to load new lessons	Technical Issues
7	Q5	Multiple language support	Content Limitations and Diversity
7	Q6	Speech recognition needs impr	AI Interaction
8	Q5	AI-driven practice conversati	AI Interaction
8	Q6	Lacks advanced content for pr	Content Limitations and Diversity
9	Q5	Variety of exercises	Content Limitations and Diversity
9	Q6	Repetitive tasks	Content Limitations and Diversity
10	Q5	AI pronunciation feedback	AI Interaction
10	Q6	Inaccurate translations somet	AI Interaction
11	Q5	Progress tracking and learnin	Learning Effectiveness
11	Q6	Not enough cultural context	Content Limitations and Diversity
12	Q5	Comprehensive lessons	Learning Effectiveness
12	Q6	Nothing, it' s great	Engagement Features
13	Q5	The lessons are engaging and	Engagement Features
13	Q6	A few games were a bit too ea	Engagement Features
14	Q5	Interactive games and quizzes	Engagement Features
14	Q6	Limited number of stories	Content Limitations and Diversity
15	Q5	Grammar tips from AI	Learning Effectiveness
15	Q6	Some lessons are too long	Learning Effectiveness
16	Q5	Real-time feedback	Learning Effectiveness
16	Q6	Occasional technical glitches	Technical Issues
17	Q5	Cultural insights	Content Limitations and Diversity
17	Q6	Frequent crashes	Technical Issues
18	Q5	Learning games	Engagement Features
18	Q6	Some games can be too easy	Engagement Features
19	Q5	Extensive vocabulary lists	Learning Effectiveness
19	Q6	More examples needed in some	Learning Effectiveness
20	Q5	Flashcard game	Learning Effectiveness
20	Q6	Would have loved more flashca	Content Limitations and Diversity
21	Q5	Real-time feedback on pronunc	Learning Effectiveness
21	Q6	A lot of the time AI didn' t	AI Interaction
16	Q6	Occasional technical glitches	Technical Issues
17	Q5	Cultural insights	Content Limitations and Diversity
17	Q6	Frequent crashes	Technical Issues
18	Q5	Learning games	Engagement Features
18	Q6	Some games can be too easy	Engagement Features
19	Q5	Extensive vocabulary lists	Learning Effectiveness
19	Q6	More examples needed in some	Learning Effectiveness
20	Q5	Flashcard game	Learning Effectiveness
20	Q6	Would have loved more flashca	Content Limitations and Diversity
21	Q5	Real-time feedback on pronunc	Learning Effectiveness
21	Q6	A lot of the time AI didn' t	AI Interaction

Q6:

New Themes Beyond 'User Experience':

Personalization&Adaptation

Related code: AI interaction, learning effectiveness

Explanation: Pay attention to whether AI algorithms can dynamically adjust learning paths and content based on the level and goals of different learners.

Q7:

Refine 'Content Limitations and Diversity' → Content Depth & Content Diversity

Reason: Some comments reflect a "lack of advanced content," while others point to issues of diversity. Breaking it down can more accurately reflect user needs.

Q8:

Quantitative data (scores and score improvement for Q1–Q4) shows the overall trend.

Qualitative data (comments from Q5/Q6) reveals specific issues.