

# Learning Science Deepdive Performance Report

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## Introduction

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This report presents an analysis of participant performance in a learning science training program, comparing results from Day 1 and Day 2. The primary objective is to identify performance changes, highlight key insights, and provide recommendations for future program improvements. The analysis is based on data extracted from two Excel files, focusing on the "Final Scores" sheet for both days.

## Attendance Summary

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- Total participants on Day 1: 45
- Total participants on Day 2: 41
- Participants present only on Day 1: 30
- Participants present only on Day 2: 26
- Participants present on both days: 15

## Performance Summary

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This section summarizes the overall performance of participants who attended both days of the training program. The key metrics include mean scores for Day 1 and Day 2, and the mean score change between the two days.

- Mean Score Day 1: 4395.67
- Mean Score Day 2: 7507.87
- Mean Score Change: 3112.20

## Individual Performance Overview

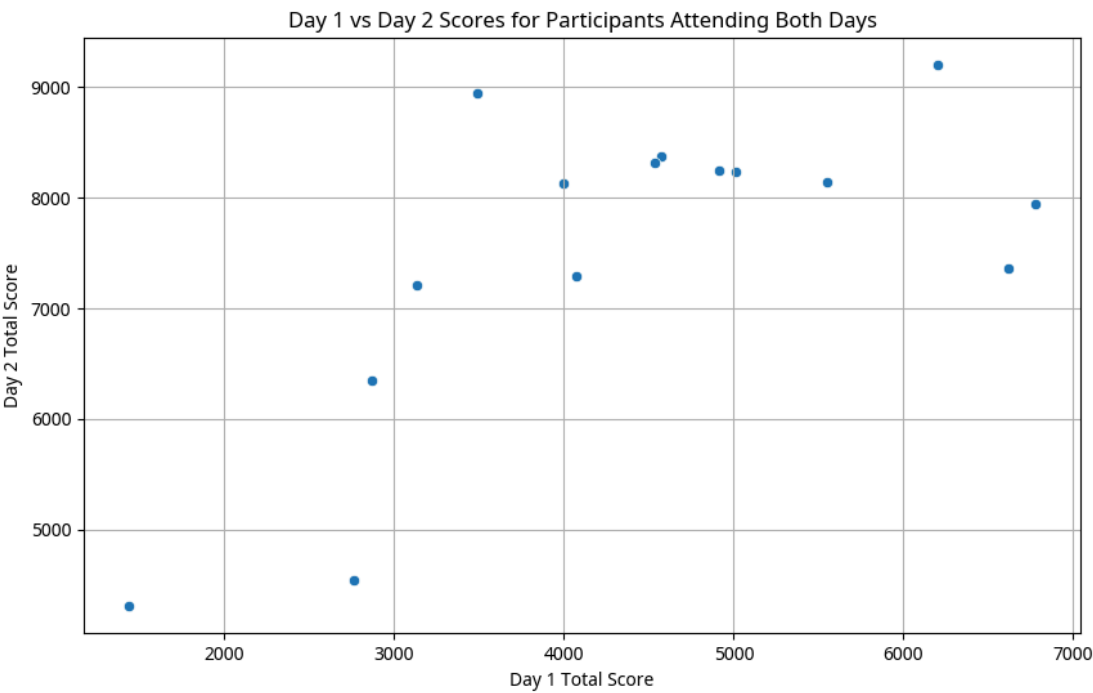
The following table presents the individual performance of participants who attended both days, including their total scores for Day 1 and Day 2, and the calculated score change.

Player	Day 1 Total Score	Day 2 Total Score	Score Change
Kabz	6775	7944	1169
Lilian	6621	7357	736
L	6198	9203	3005
Josef	5548	8146	2598
Liz	5008	8240	3232
Juliet Mutinda	4916	8252	3336
Cyrille	4573	8375	3802
Emma	4534	8323	3789
Elvis	4072	7290	3218
Edith	3995	8134	4139
Victor	3492	8951	5459
Respah	3130	7209	4079
Bari	2871	6348	3477
Lena	2764	4538	1774
Nelius	1438	4308	2870

## Visual Insights

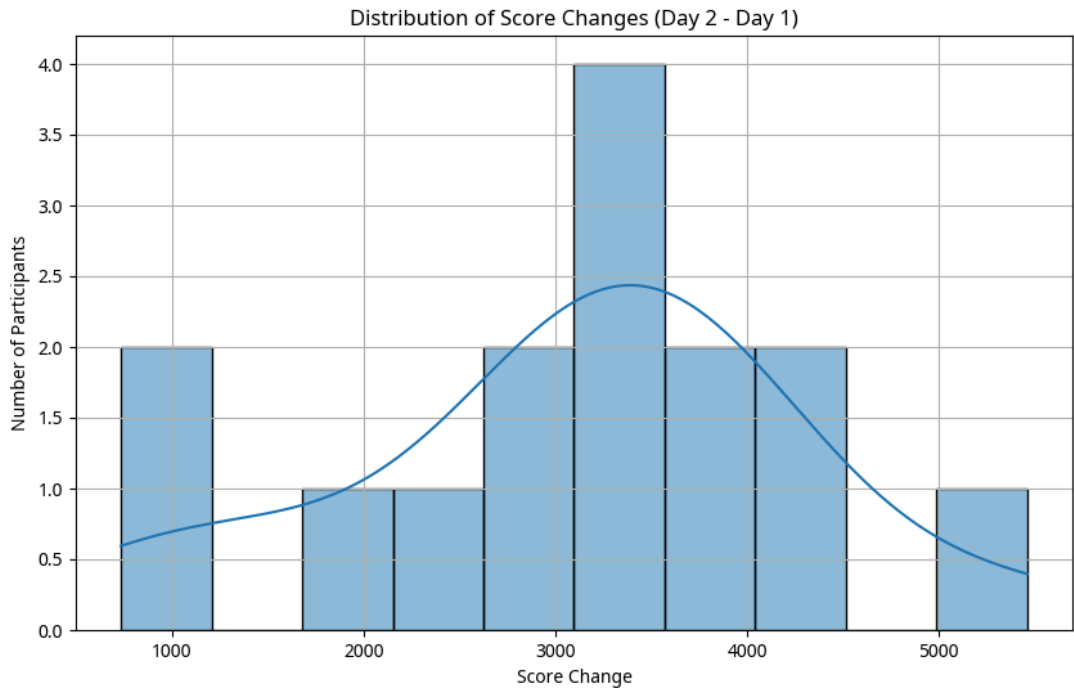
To provide a clearer understanding of the performance changes, two key visualizations were generated: a scatter plot comparing Day 1 and Day 2 scores, and a histogram illustrating the distribution of score changes.

### Day 1 vs. Day 2 Scores (Scatter Plot)



The scatter plot visually represents the performance of each participant on Day 1 versus Day 2. Each point corresponds to a participant, with the x-axis representing their Day 1 score and the y-axis representing their Day 2 score. A point above the diagonal line ( $y=x$ ) indicates an improvement in performance from Day 1 to Day 2.

Distribution of Score Changes (Histogram)



The histogram displays the distribution of the score changes (Day 2 score - Day 1 score). This visualization helps to understand the magnitude and frequency of performance improvements or declines across the participant group.

Insights & Recommendations

Overall Improvement Trends

The analysis reveals a general positive trend in participant performance from Day 1 to Day 2, as indicated by the mean score increase. The scatter plot further supports this by showing most data points above the diagonal line, signifying improved scores on Day 2. The histogram of score changes is skewed towards positive values, reinforcing the observation of overall improvement.

Outlier Detection

Based on the current analysis, no significant outliers (large positive or negative changes beyond two standard deviations from the mean) were detected. This suggests a relatively consistent improvement across the participants who attended both days.

Potential Reasons for Performance Drops (General Considerations)

While no specific outliers indicating performance drops were identified in this dataset, it is important to consider general reasons that could lead to such occurrences in similar training programs:

- **Missing data for some quizzes:** Incomplete data can skew results and might hide actual performance issues.
- **Participant fatigue or lack of engagement:** Extended training sessions can lead to reduced focus and performance.
- **Technical issues during the quiz:** Unforeseen technical difficulties can unfairly impact participant scores.
- **Misinterpretation of questions:** Ambiguous or poorly phrased questions can lead to incorrect answers, regardless of participant knowledge.

Areas for Future Evaluation or Training Improvement

- **Investigate individual performance:** While overall trends are positive, a deeper dive into individual participant learning paths could reveal specific areas of struggle or excellence.
- **Review quiz content and difficulty:** Analyze the quizzes for clarity, relevance, and appropriate difficulty levels to ensure they accurately assess learning outcomes.
- **Consider training duration and breaks:** Optimize the length of training sessions and incorporate sufficient breaks to mitigate fatigue.
- **Implement feedback mechanisms:** Gather participant feedback on the training program and quizzes to identify areas for improvement directly from the learners.

Optional Quiz Analysis (Skipped)

Analysis of optional quizzes (9 Quiz to 12 Quiz) from Day 2 was attempted but could not be completed due to inconsistencies in the data format of these specific sheets, preventing accurate extraction of player scores. Further investigation into the structure of these optional quiz sheets would be required to include their analysis in future reports.

Appendix: Full Data Table

Rank_Day1	Player	Total Score_Day1	Correct Answers_Day1	Incorrect Answers_Day1	nan_Day1	Rank_Day2	Total Score_Day2	Correct Answers_Day2	Answers_Day2
1	Kabz	6775	8	0	1	14	7944	9	
2	Lilian	6621	8	0	1	19	7357	9	
4	L	6198	8	0	1	3	9203	12	
7	Josef	5548	7	1	1	12	8146	9	
10	Liz	5008	7	1	1	11	8240	10	
11	Juliet Mutinda	4916	6	2	1	10	8252	9	
15	Cyrille	4573	6	2	1	7	8375	10	
16	Emma	4534	6	2	1	8	8323	10	
22	Elvis	4072	6	2	1	21	7290	10	
24	Edith	3995	5	3	1	13	8134	9	
28	Victor	3492	5	3	1	4	8951	10	
30	Respah	3130	4	4	1	22	7209	9	
33	Bari	2871	4	4	1	26	6348	8	
35	Lena	2764	4	4	1	37	4538	7	
39	Nelius	1438	2	6	1	38	4308	6	