Accelium

TALENT INSIGHTS

2024 Study

INSIDE

Accelium Talent Insights- 2024 Study

This document presents the latest findings from our 2024 research, conducted over the past year using data and insights from system users. The analysis highlights key trends in usability, the most popular skills assessed, and the reliability of various tests. By showcasing this diverse and insightful data, we aim to provide a comprehensive understanding of user interaction with the system.

These findings are not only a reflection of the system's performance but also serve as a foundation for identifying areas of improvement and enhancing our capabilities to meet user needs more effectively.

Part One: Research Methodology Overview

This section provides an overview of the methodology employed in our study. It describes the approach we took to collect and analyse the data, ensuring a comprehensive and accurate examination of the 23 skills available in the Accelium Plus system.

Over the past year, we conducted a comprehensive and in-depth study to evaluate the skills available for assessment within the Accelium Plus system.

This was involved:

- **9662 examinees** from diverse backgrounds who completed a full test, composed of different skill tests,

- Spanning **10 countries** across **4 continents**,

- A testing period of **1 year**

- Assessment of a total **23 skills**, and

- Representation from a wide variety of population groups.

This study provides valuable insights into the scope and depth of the Accelium Plus system, offering a strong analysis of how these skills manifest across different demographics and contexts.

To conduct this study, we leveraged the extensive database of information and raw data that had accumulated in the Accelium system over the past year. This dataset represented a wealth of real-world performance metrics across the 23 assessable skills. By extracting and analysing this data, we were able to undertake a series of in-depth statistical and qualitative analyses. These analyses enabled us to identify patterns, trends, and insights.

The methodology was rooted in accuracy and precision, encompassing:

- **Data extraction**: Gathering comprehensive data from diverse user interactions within the Accelium system.

- **Analytical frameworks**: Applying advanced statistical techniques and comparative methods to evaluate performance across different demographics, geographies, and skill sets.

- **Validation processes**: Ensuring the reliability and consistency of the results through cross-validation and error analysis.

Part Two: Purpose of the Study

In this section, we detail the key objectives and motivations behind conducting the study. It highlights the goals we aimed to achieve, from system validation to the identification of areas for improvement, and provides insight into the broader impact of our findings.

The study was made to achieve several critical objectives:

1. **System Validation**: To assess the reliability and strength of the Accelium assessment system in accurately measuring the 23 skills.

2. **Benchmarking**: To establish performance benchmarks for these skills across different groups and contexts, enabling meaningful comparisons.

3. **Test Improvement:** To evaluate the effectiveness of the current assessment tools and identify opportunities for refinement and enhancement.

4. **Usability Analysis:** To conduct an in-depth study of system usability, ensuring it meets the needs of diverse users and contexts.

5. **Insights Generation**: To uncover deeper insights into how individuals from diverse backgrounds and regions engage with the system and demonstrate their skills.

6. **Continuous Improvement**: To identify areas where the assessment tools and methodologies could be refined to enhance accuracy, fairness, and relevance.

7. **Strategic Development**: To guide future developments in skill-building and assessment by understanding global trends and needs in talent development.

This study is a foundational step in validating the Accelium system's capabilities and shaping its future course, ensuring it remains a leading tool for skill assessment and development.
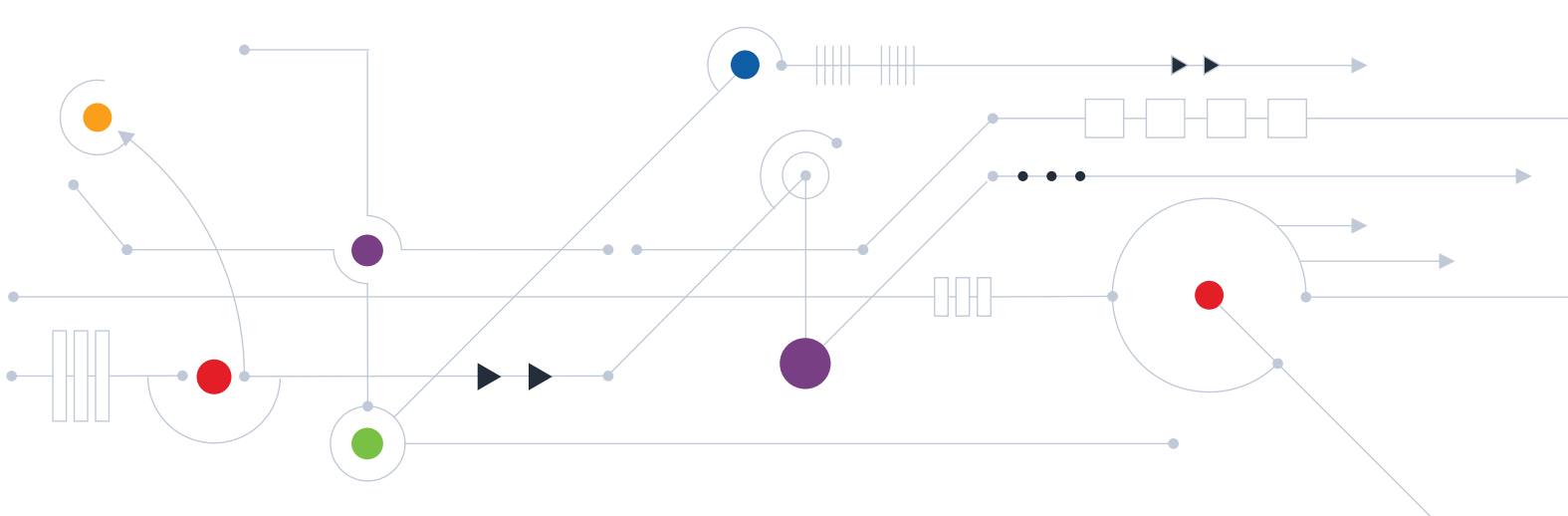
Part Three: 8 Key Areas of Analysis

This section outlines the eight primary research areas that were the focus of our analysis. It details the specific aspects we examined, including internal validity, usability, and other key metrics, to provide a thorough understanding of the study's scope.

1- Internal Validity: 'Split-Half' Correlation Testing

2- Internal Validity : Compatibility with Other Tests

3. Scores Distribution

4- Examination of Test Times

5- Gender-Based Analysis of Test Performance

6- International Benchmark Update

7- Skills Popularity and Usability

8- Comparative Analysis of Skill Performance Across Different Population Groups

1- Internal Validity: 'Split-Half' Correlation Testing

One of the main research areas was checking the internal validity of the Accelium assessment system using the 'Split-Half' Correlation Testing. This test measures how well different parts of a test work together to assess the same skill.

A split-half test is a method used to measure the reliability of a test, particularly its internal consistency. Reliability factors range from 0 to 1, where higher values indicate better reliability.

In this approach:

- The test is divided into two halves (e.g., odd vs. even questions or first vs. second half).

- The scores from these two halves are then compared to assess how consistent the test items are with each other.

Here's an example: One of the most popular skills in our system is Planning, meaning it is one of the most commonly used skills in assessments.

We wanted to ensure that users consistently achieve similar results when solving different levels of the Planning test over time. **High reliability of 0.73 was observed,** with many users consistently receiving similar scores across various levels of the test

High reliability of 0.73 was observes with a high correlation between the 2 parts of the test.

The value **0.73** is a strong indicator that the test is performing well in terms of reliability.

What This Means:

- **Good Consistency**: A reliability score of 0.73 shows that the test is mostly free from random errors and provides dependable results. This means that the majority of the variation in scores reflects actual differences in the planning ability of participants, making the test a solid tool for evaluation.

Why It's Encouraging:

- **Strong Foundation**: A reliability score above 0.7 is commonly accepted as good in the fields of education and psychology. This shows the test is already reliable and can confidently be used for assessments.

- **Room for Optimisation**: While the current reliability is already positive, there's still the opportunity to fine-tune and enhance it even further. By improving certain aspects, such as question clarity or test length, this already reliable tool can become even stronger.

2- Internal Validation: Compatibility with Other Tests

In this research area, we examined the correlation between different skills in Accelium plus.

Correlation tests are essential in a system like this because they help us understand how different skills are related to one another. By examining the relationships between skills, we can assess whether they align with our theoretical understanding of how these abilities interact and contribute to overall performance.

What Do We Expect to See in a Correlation Test?

1. **Identifying Overlap**:

   o   Some skills may share common underlying traits or competencies. For example, **Planning** and **Time Management** might be strongly correlated because both involve organisational and strategic thinking.

2. **Ensuring Distinction**:

   o   At the same time, we expect certain skills to have low or no correlation, confirming that they measure distinct abilities. For example, **Coping with Changes** might strongly correlate with **Flexible Thinking**, indicating that they assess related cognitive or behavioural domains, while showing low correlation with unrelated abilities such as **Task Management** or **Pattern Recognition**, which confirms distinctiveness.

3. **Enhancing Predictive Accuracy**:

   o   Understanding correlations between skills can improve the predictive power of the system. For instance, if success in one skill reliably predicts success in another, it might help refine recommendations, benchmarks, or personalised insights for users.

4. **Practical Implications for Users**:

   o   These correlations can also guide how we design development plans or assessments. For example, if certain skills are highly correlated, training in one area may also benefit the other, providing a more efficient approach to skill development.

This type of analysis allows us to continually refine and improve the system's design and usability.

Here are some interesting findings and outcomes

We examined the correlation of **planning skills** with the rest 22 skills available in Accelium Plus. We expected to see a mix of correlations:

- **High correlations** between skills that rely on similar cognitive processes or behaviours.

- **Low correlations** for skills that are distinct from one another.

High correlations:

| Skill	Corr
Complex Problem Solving	0.52
Developing a Plan	0.51
Learning Aptitude	0.47
Efficiency	0.46
Systematic Thinking	0.43
Analysis and Deduction	0.43
Dealing with Time Pressure	0.39
Logical Thinking	0.38
Flexible Thinking	0.35
Systemic Vision	0.33
Resourcefulness	0.32

A high correlation between **Planning skills** and the listed skills indicates a strong relationship, suggesting that individuals proficient in Planning are also likely to excel in these related areas.

This outcome highlights that these skills share underlying cognitive, behavioral, or personality traits. For instance, both **Complex Problem Solving** and **Planning** involve structuring tasks and adjusting strategies to address challenges, whereas **Systematic Thinking** and **Planning** focus on organisation and maintaining logical progression

Low correlations:

Skill	Corr
Accuracy	0.09
Taking Initiative	0.17
Quick Thinking	0.22
Pattern Recognition	0.23
Time Management	0.26
Persistence	0.28
Calculation	0.28
Identify Opportunities	0.29
Resource Management	0.29
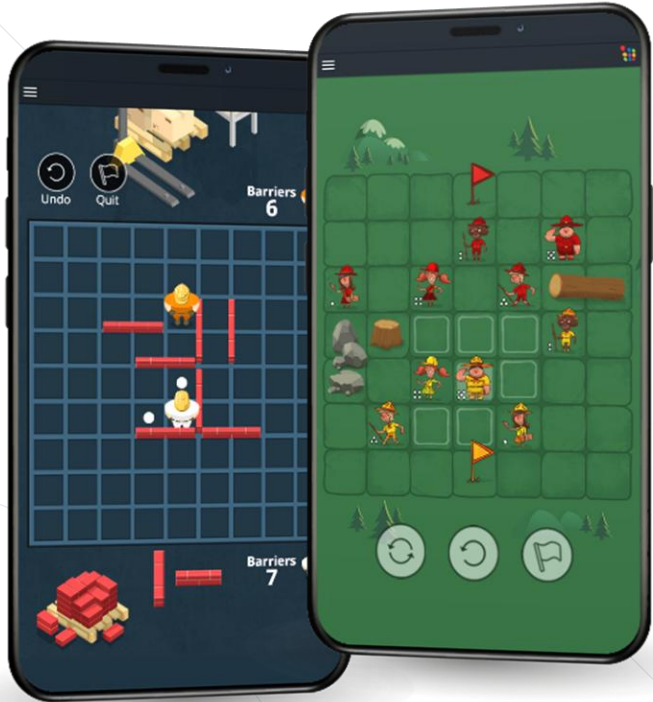
A relatively low (non-negative) correlation between the Planning skill and the listed skills suggests that while there is some relationship between them, they are largely distinct abilities.

This means that individuals who are good at **Planning** may not necessarily excel in skills like **Taking Initiative**, **Identify Opportunities**, **Resource Management**, or **Quick Thinking**, as these skills are more about acting in the moment or managing resources rather than organising and preparing for the future. Similarly, skills like **Persistence**, **Time Management**, **Accuracy**, and **Pattern Recognition** are related to different cognitive or behavioural domains and do not directly depend on one's ability to plan ahead. The non-negative correlation indicates that while these skills may show some positive connection, improving one doesn't necessarily lead to improvement in the other. This suggests that each skill requires specific, targeted development and that training for one does not automatically enhance the others.

3. Scores Distribution

In the following research area, we analyse the distribution of scores across the tests in the Accelium Plus system, aiming to confirm that the scores exhibit a normal distribution. A normal distribution is characterised by most data points clustering around the mean, with fewer scores as you move away from the center. We also check for the presence of degenerate scores, which are extreme outliers that could skew the results and distort the analysis.

This analysis is important because it helps ensure the reliability and fairness of the test results. By confirming that the data follows a normal distribution, we can be confident that the scores represent the general population accurately, without being influenced by outliers. It also helps us maintain the integrity of the data by identifying any degenerate scores, which could indicate errors or anomalies that might compromise the findings. This allows us to make informed decisions about the effectiveness of the Accelium Plus system in assessing key skills.

The histogram for the Efficiency skill, shown in the below graph, reveals a clear peak at the center, with fewer scores as we move away from the average. This pattern indicates a normal distribution, which aligns with our expectations. The mean score for Efficiency is 76, with a standard deviation of 8.33, reflecting the typical spread of scores.

Similar trends were observed for the Planning and Resourcefulness skills, where the distributions also showed a central concentration of scores, confirming a consistent pattern across the tested areas.

Mean = 75.97

STD = 8.33

Users
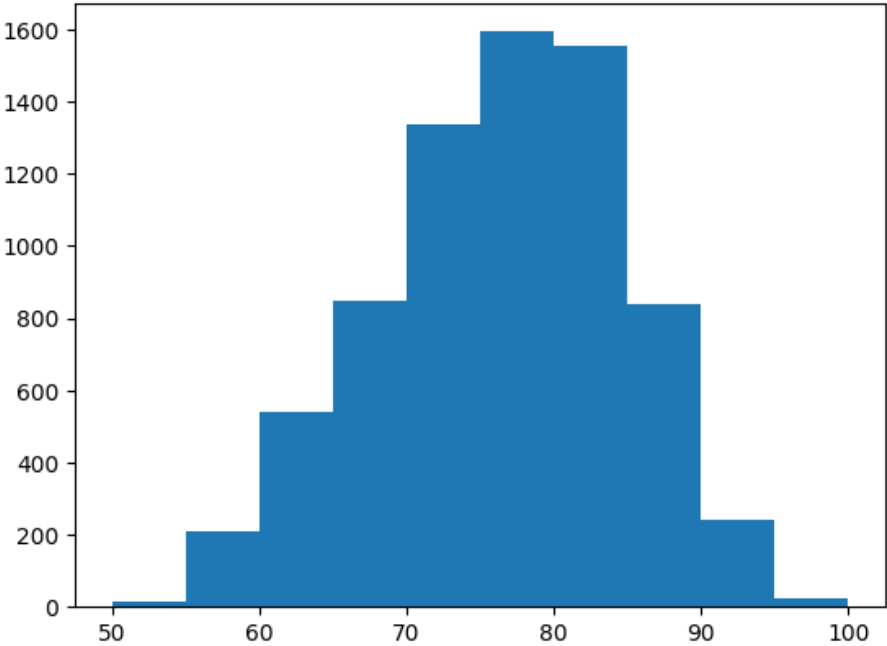
Scores

4- Examination of Test Times

Understanding the time it takes users to complete various levels of the assessments is a critical aspect of evaluating the system's usability and effectiveness. Test completion times provide valuable insights into:

1. **Cognitive Demand**: Whether the difficulty and complexity of each level are appropriate for the intended skill measurement.

2. **User Engagement**: Ensuring the test duration is neither too short (lacking depth) nor too long (risking disengagement).

3. **Skill Expression**: Allowing users enough time to demonstrate their abilities without undue pressure.

To illustrate this, let's examine the data collected from another popular test in the system—**Efficiency**. The Efficiency test involves solving 10 "Move-It" game positions, each designed to evaluate the user's problem-solving **speed** and **accuracy**.

A user's score for each level depends on two factors:

   o   Their **relative speed** compared to the time limit.

   o   Their **distance from the optimal solution**.

Skipping a level result in no points awarded.

The final score is calculated based on the total points the user accumulates out of a maximum possible score. The test has a **15-minute time limit**, encouraging both efficiency and precision.

We expected that the efficiency test would challenge users to balance speed and accuracy, leading to varying results across the population.
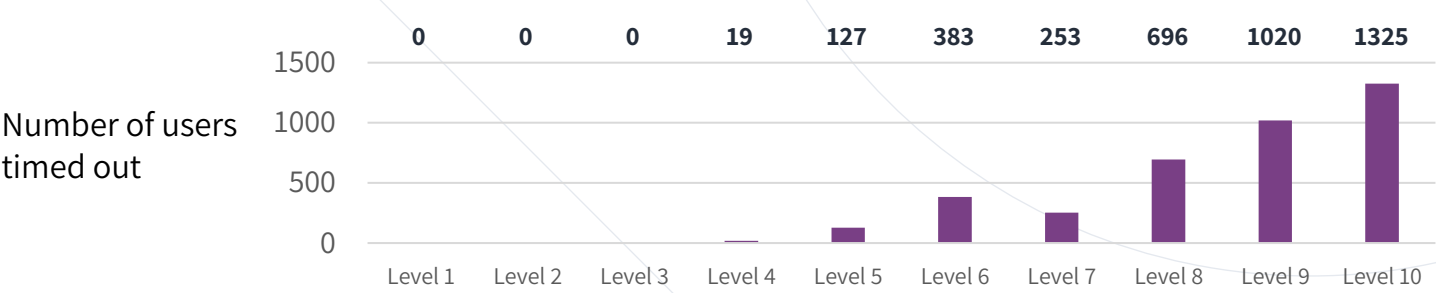
The test consists of game levels with increasing difficulty, designed to assess the users' ability to complete as many levels as possible. The more levels they complete, the higher their score will be. We expect that not all users will finish all available levels, but there should be noticeable differences in performance. As the difficulty of the levels increases, more users will run out of time and be unable to complete them.

The graph above illustrates this trend, showing that as the challenge level rises, an increasing number of users fail to complete the level within the allotted time.

Another important aspect of the test timing is verifying that our time estimates align with the actual time taken by users. For instance, if we estimated that completing a specific test would take approximately 10 minutes, we wanted to ensure that this closely matched the average time measured during the test.

Why is this test important?
It helps us accurately plan the duration of each test and ensure that candidates are properly informed about the estimated time required to complete the tasks. By validating our time estimates, we can build more balanced tests, manage time expectations, and ensure users can complete the tests within a reasonable timeframe.

Our analysis confirmed that our time estimates are reliable. For example, in the Coping with Changes test, we estimated a duration of 8 minutes to complete the test, and the actual time taken by users was, on average, 6:50 minutes. The median time, which represents the midpoint of the data, was even lower, at just 5 minutes, indicating that the task was completed faster than we had anticipated.

5- Gender-Based Analysis of Test Performance

The importance of this research lies in its demonstration that the Talent Plus assessment evaluates both men and women fairly, ensuring that gender does not influence the outcomes of skill assessments. By comparing the scores of men and women in skills such as Logical Thinking and Accuracy, and Coping with Change, and finding no significant differences in their average scores, we confirm that the system provides an equal platform for all users.

Gender testing is essential in this context because it assures that the system is designed to be impartial, free from biases that could skew results or provide an unfair advantage to one gender over the other. Ensuring that both men and women are equally evaluated not only supports the scientific integrity of the Accelium system but also reinforces its reliability and validity. This type of testing guarantees that the Accelium system accurately reflects the abilities of each individual, based solely on their skills and not influenced by gender stereotypes.

In a broader context, this analysis underscores the commitment to equality and fairness, providing confidence to all users, stakeholders, and institutions that the system can be trusted as an unbiased and effective tool for skill development.

We specifically compared the scores of men and women in the skill of Coping with Change and found no significant difference in their average scores. This indicates that the test assesses this skill equally for both genders, with neither men nor women showing a systematic advantage. The results suggest that the system is gender-neutral in evaluating the ability to adapt to change, demonstrating its fairness, consistency, and reliability in measuring this particular skill for all users.

The graph below illustrates the near-complete overlap between the scores of men (in blue) and women (in orange).

The average score for men in this test, dealing with change, is 76.7, while the average score for women is 75.95.

The significant overlap in the scores indicates that there were no notable differences in performance between the two groups.

The graph displays the distribution of scores for the skill of coping with change, comparing two equally sized groups of women and men.
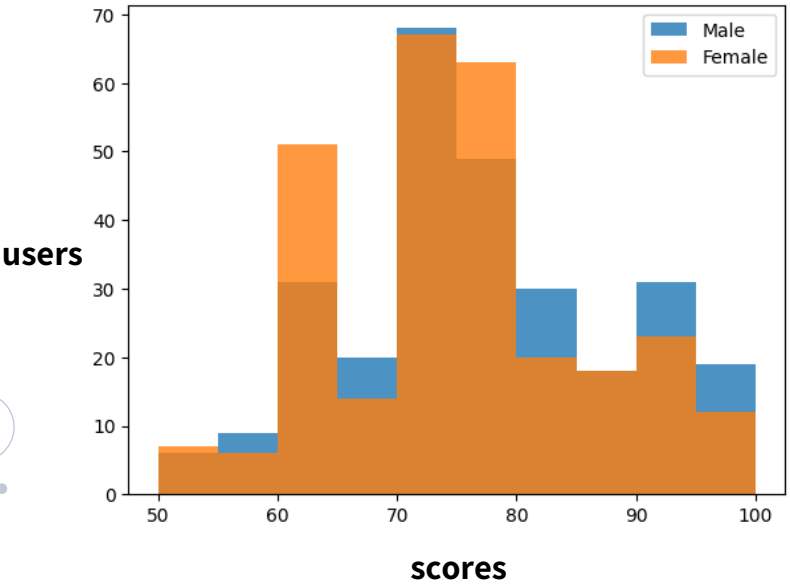
6- International Benchmark Update

This research focused on analysing data across various cross-sections of countries and continents. By examining performance metrics from diverse populations, we were able to update the system's comparison groups, ensuring they reflect the latest global trends and regional nuances.

These updates allow us to offer more accurate and relevant benchmarks, providing users with a clearer understanding of their performance relative to others in their country, continent, or globally. This ensures that our assessment system remains a reliable tool for meaningful skill evaluation across different cultural and geographic contexts.

7- Skills Popularity and Usability

We analysed the usage patterns of the 23 skills currently available in the system to identify which are most commonly selected for assessment tests. By examining how frequently each skill is utilised, we gained valuable insights into their popularity and relevance across different user groups. This breakdown highlights the skills that are most in demand, helping us better understand user preferences and ensuring that the system remains aligned with the needs of diverse populations.

List of skills based on their popularity

1	Flexible Thinking	13	Systemic Vision
2	Coping with Changes	14	Taking Initiative
3	Efficiency	15	Complex Problem Solving
4	Time Management	16	Persistence
5	Planning	17	Resourcefulness
6	Systematic Thinking	18	Quick Thinking
7	Analysis and Deduction	19	Identify Opportunities
8	Learning Aptitude	20	Accuracy
9	Logical Thinking	21	Calculation
10	Resource Management	22	Pattern Recognition
11	Developing a Plan	23	Task Management
12	Dealing with Time Pressure		

The popularity of the top five skills—**Flexible Thinking**, **Coping with Changes**, **Efficiency**, **Time Management**, and **Planning**—provides valuable insights into current market demands and workforce priorities. Here's what these preferences reveal:

1. **Adaptability as a Core Competency**:

   o The high demand for **Flexible Thinking** and **Coping with Changes** reflects the growing need for individuals who can adjust their strategies and approaches when faced with new challenges or shifting circumstances. These skills are particularly valuable in industries experiencing rapid technological advancements or frequent market disruptions.

2. **Focus on Productivity**:

    o   The popularity of **Efficiency** highlights the importance of achieving optimal results with minimal waste of time or resources. Similarly, **Time Management** is critical for ensuring that tasks and projects are completed on schedule, which is essential in fast-paced and competitive work environments.

3. **Strategic and Organisational Abilities**:

    o   The inclusion of **Planning** among the top skills underscores the value of being able to set priorities, anticipate potential obstacles, and design effective action plans. This skill is vital for both short-term task management and long-term goal achievement.

4. **Alignment with Modern Work Trends**:

    o   In remote and hybrid work settings, **Time Management** and **Planning** are particularly crucial for maintaining structure and productivity. Similarly, **Coping with Changes** is essential for navigating the uncertainties and adjustments inherent in these flexible work environments.

5. **Implications for Learning and Development**:

    o   The emphasis on **Flexible Thinking**, **Coping with Changes**, and **Efficiency** suggests that organisations should focus on training programs that enhance adaptability and productivity. This ensures that their workforce is well-equipped to thrive in dynamic, fast-evolving industries.

8- Comparative Analysis of Skill Performance Across Different Population Groups

Comparing data between different groups in the population involves analysing how different subsets of people (e.g., age groups, job roles, educational backgrounds, or other demographic factors) perform on various skills.

This type of analysis helps us to **validate or refine our hypotheses**, ensuring that our predictions about success and skill performance are accurate. It can reveal whether the skills we are assessing are universally important or whether their significance varies depending on group characteristics.

For this study, we compared the performance of two distinct groups: senior managers and high school students. The focus was on assessing their abilities in critical cognitive skills such as logical thinking, pattern recognition, and mental flexibility. These skills were chosen for their universal relevance across various professional and academic settings, as well as their importance in problem-solving and decision-making.

The findings of the study confirm our initial hypothesis. For instance, in the Logical Thinking test, senior managers (Group 1) achieved an average score of 87.4, significantly higher than the average score of 77.2 achieved by high school students (Group 2). These results demonstrate the impact of experience, professional development, and advanced cognitive training on performance.

Senior managers exhibit a more refined ability to analyse, interpret, and solve complex problems compared to high school students, who are still in the early stages of their cognitive development.
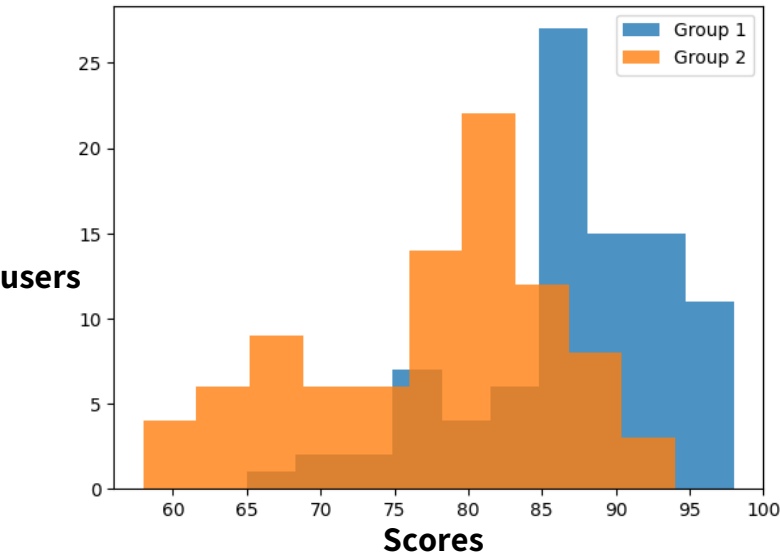
A visualisation of the data clearly shows that the scores of senior managers (Group 1) are predominantly positioned to the right of the scores of high school students (Group 2) on the performance scale, indicating higher overall achievement.
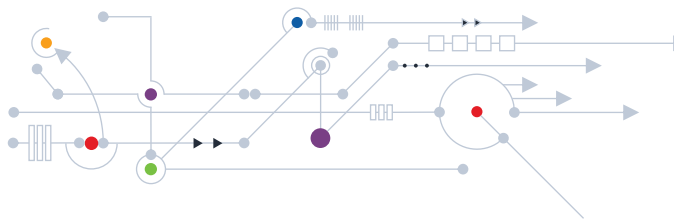
Similarly, significant differences were found between the groups in Flexible Thinking and Pattern Recognition skills, where senior managers consistently scored higher than high school students. This suggests that professional experience and advanced cognitive development contribute to enhanced performance in these areas.

Future Directions in our Research

While the data collected over the past year provides valuable insights and reinforces the reliability of the system and the tests, the field of research remains vast and full of opportunities for exploration. To ensure continuous improvement and adaptability, it is essential to expand our research efforts and further enrich our understanding of the system's impact.
Moving forward, our research will focus on several key areas.
First, we will undertake numerical expansion by increasing the volume of measured data, allowing for more robust statistical analysis.

Second, we will test existing hypotheses on larger and more diverse populations to enhance the generalisations of our findings.

Third, we aim to conduct a deeper analysis of skill coverage, providing a more nuanced understanding of the factors influencing performance and skill development.

Additionally, we will explore new research segments, such as analysing the influence of test takers' age, which may reveal important demographic trends.
Another critical direction will involve learning from customers and their unique use-case scenarios to ensure the system remains aligned with real-world needs. These efforts, combined with ongoing data collection and analysis, will help identify emerging trends, refine our methodologies, and uncover new opportunities for system enhancement.

About Accelium Group

Chess masters use the game as a mentoring tool that helps their students develop both cognitively and emotionally, taking away useful strategies that can be applied in various problems and domains.

In 1994 a team of game experts decided to extend the chess-mentoring experience to a variety of strategy games, creating a powerful learning tool that is universally accessible. The innovative methodology born out of this venture was soon being taught in 12 languages and over 40 countries around the world. More than 4,000,000 learners and 10,000 teachers have embraced the Accelium Method to date.

The innovative game-based training and assessment tools inspired by the method combine personal coaching, team workshops, and mobile learning to develop strategic thinking and resilience. They create an engaging experience that inspires learners to continually practice effective strategies, to reflect, and improve their skills and performance.

Accelium