

Analysis Aptitude Range (-Rx) 2021 Core Norms Summary Document

Available 2021 (-Rx) Norm Groups

For Swift Analysis Aptitude-Rx, Swift Analysis Verbal & Numerical-Rx Verbal Analysis Aptitude-Rx, Numerical Analysis Aptitude-Rx and Diagrammatic Analysis Aptitude-Rx, the new core norm groups and their sample sizes are:

Norm Group	Sample Size (N)
International	
Graduates - All (INT, IA, 2021)	23,191
Graduates - Recent (INT, IA, 2021)	7,960
Professionals & Managers (INT, IA, 2021)	13,148
Senior Managers & Executives (INT, IA, 2021)	9,484
English as an Additional Language Group (INT, IA, 2021)	5,887
Mixed Occupational Group (INT, IA, 2021)*	27,907
Individual Contributors (INT, IA, 2021)*	8,080
UK	
Graduates - All (UK, IA, 2021)	17,635
Graduates - Recent (UK, IA, 2021)	9,658
Professionals & Managers (UK, IA, 2021)	9,242
Senior Managers & Executives (UK, IA, 2021)	2,164
Mixed Occupational Group (UK, IA, 2021)	10,737
Individual Contributors (UK, IA, 2021)*	5,670
US	
Graduates - All (US, IA, 2021)	2,551
Graduates - Recent (US, IA, 2021)*	845
Professionals & Managers (US, IA, 2021)	1,536
Senior Managers & Executives (US, IA, 2021)	760
Mixed Occupational Group (US, IA, 2021)*	3,075
Individual Contributors (US, IA, 2021)*	1,087

*Norms new for 2021. As these do not have 2015 equivalents, Sten score shift comparisons are not available.

Development of the 2021 Norms

The various new norm groups were sampled from a range of different respondents internationally, who had completed analysis aptitude range tests on the Oasys platform. The biographical data that candidates entered on the Oasys platform were used to classify candidates into the appropriate norm groups.

For 2021 there are new Mixed Occupational Group and Individual Contributors core norms, these give clients flexibility to choose a norm that most closely represents their cohort.

The methodology of creating specific norm groups is described below.

1. **International, Regional, and Country Norms**

The separate suites of international, regional and country norms are created based on candidates' geographical location, rather than the language they completed the test in. Country norms include candidates from a specific country (e.g. the United Kingdom), while regional norms include candidates from countries within a specific region (e.g. European norms include data from the United Kingdom, Denmark, Spain, France, etc.). International norms include various countries around the world, with each country taking up no more than 19%.

2. **Graduates Norms**

Candidates' self-report of their highest qualifications was used to create the Graduates norms. Only candidates who reported having a Bachelor's Degree, a Master's Degree or a PhD/Doctorate were included. The Graduate - Recent norms were restricted further to include candidates that reported having less than 5 years' work experience.

3. **Senior Managers & Executives, Professionals & Managers and Individual Contributors Norms**

The development of these norms was based on candidates' self-report on their level of management responsibility. The Senior Managers & Executives norms include candidates who reported themselves as group managers, enterprise/corporate managers, business managers, functional managers, and senior managers. The Professionals & Managers norms contain candidates who reported themselves as managers, team leaders, supervisors, or who were professional individual contributors, as well as those included in the Senior Managers & Executives norms. The Individual Contributors norms contained candidates who were professional or non-professional individual contributors, or those that specified "not applicable".

4. **English as an Additional Language Group Norms**

Candidates included in these norm groups were those who indicated a language other than English as their first language, but who had completed the test in English.

5. **Mixed Occupational Group**

These norm groups include candidates with all levels of management responsibility, with those that reported themselves as managers taking up no more than 50% of the group.

The detailed composition of individual norm groups can be obtained from Saville Assessment.

2015 and 2021 Norm Comparisons

Random samples of candidates were scored against the 2015 norms and the 2021 equivalents to observe the differences between the old and new norm groups. In general, any differences found were minimal. This provides strong reassurance that the new 2021 norms are suitable replacements for their 2015 equivalents.

For comparisons between the 2015 and 2021 norms in terms of the combined Verbal and Numerical score (Swift Analysis Verbal & Numerical) and the single aptitude scores (Verbal Analysis Aptitude, Numerical Analysis

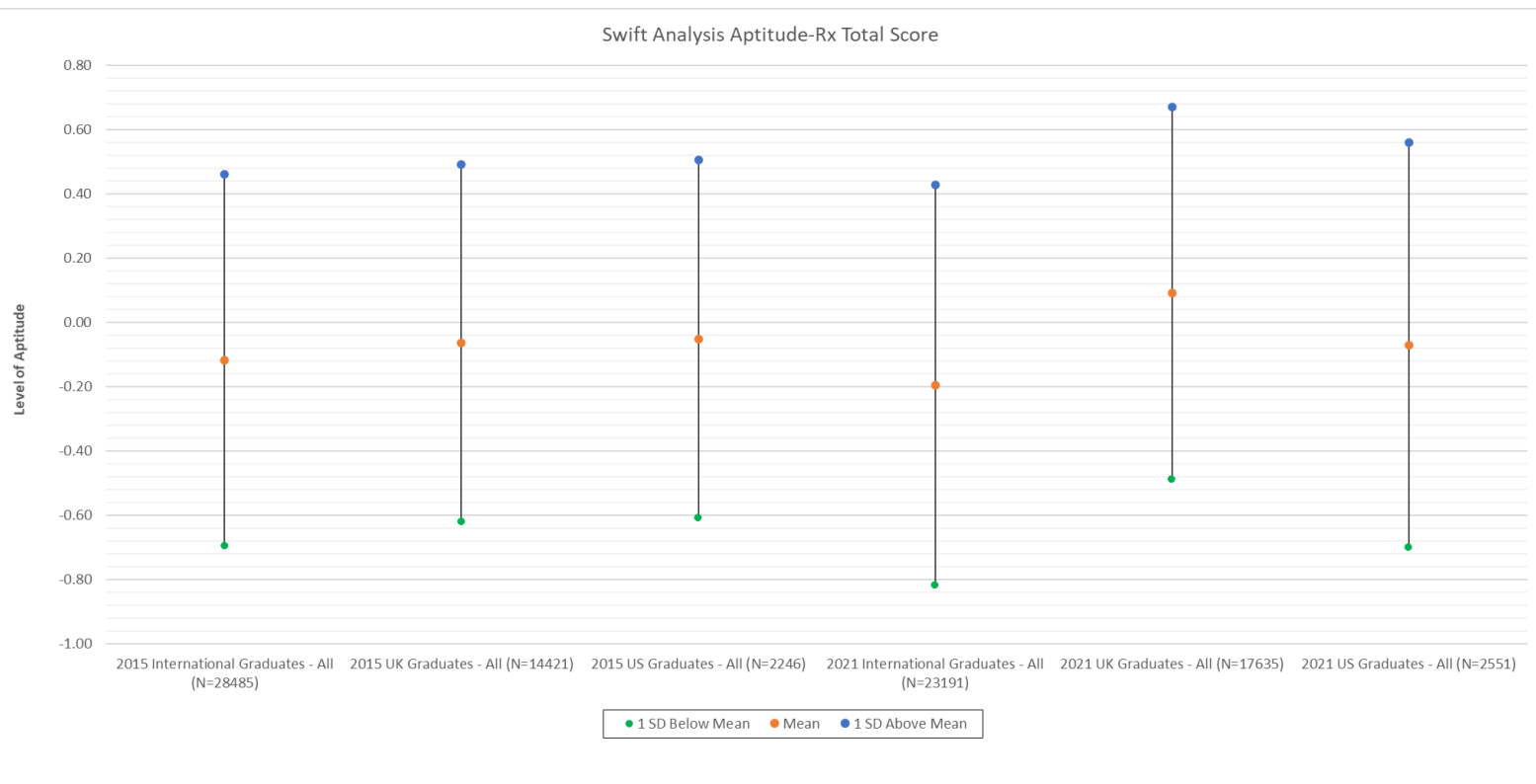
Saville Assessment

Willis Towers Watson 

Aptitude and Diagrammatic Analysis Aptitude), see additional document; 'Analysis Aptitude Range-Rx Norms Comparisons Graphs'.

Graduates - All Norms Comparison – Swift Analysis Aptitude (SAA-Rx)

The graph below displays the average Swift Analysis Aptitude-Rx total scores (in theta units) of the 2015 and 2021 Graduates - All norms.



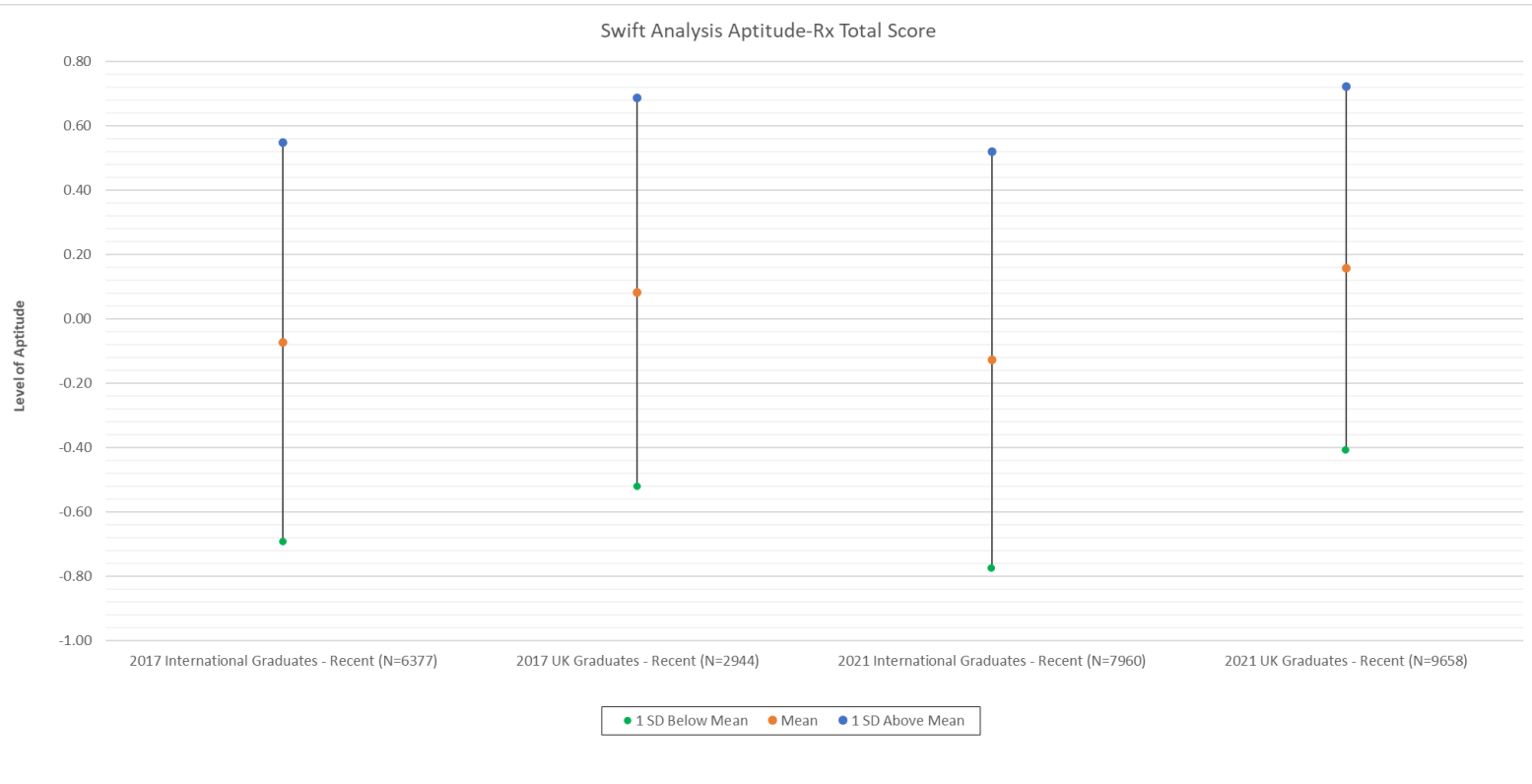
Average Sten Score Shift in a Random Sample (N=100,000)		
Graduates - All	Average Sten Score Shift	Cohen's d
Difference between 2015 and 2021 International Samples	.27	.11 (no effect size)
Difference between 2015 and 2021 UK Samples	.50	.21 (small effect size)
Difference between 2015 and 2021 US Samples	.10	.04 (no effect size)

In a random sample of 100,000 people, the average SAA-Rx Sten score produced using the 2021 International Graduates - All norm, was similar (.27 of a Sten higher) to the average Sten score produced using the 2015 Graduates - All norm. Using the terminology of Cohen's d (1988)¹, this average Sten score shift represents no effect size or no notable difference. The average Sten score produced using the 2021 UK Graduates - All norm was .5 of a Sten lower than when scored against the 2015 norm. This represents a small difference which is also not particularly noteworthy. The difference between the average SAA-Rx Sten score produced using the 2021 US Graduates - All norm was very similar (.1 of a Sten higher) to the 2015 norm, which again is not considered to be a notable difference.

¹ Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. (2nd Ed.). Hillsdale, NJ: Erlbaum.

Graduates - Recent Norms Comparison – Swift Analysis Aptitude (SAA-Rx)

The graph below displays the average Swift Analysis Aptitude-Rx total scores (in theta units) of the 2017 and 2021 Graduates - Recent norms.

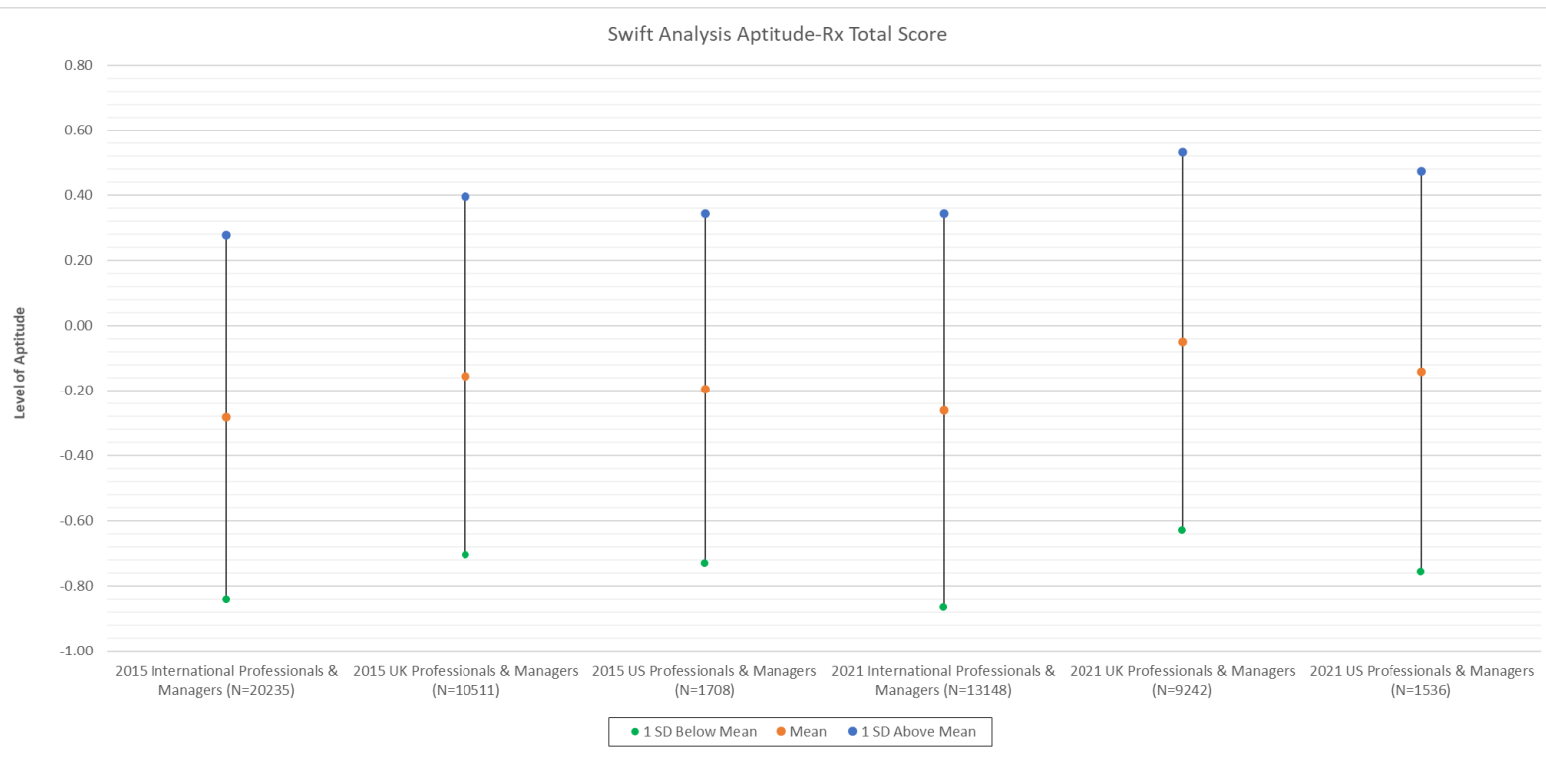


Average Sten Score Shift in a Random Sample (N=100,000)		
Graduates - Recent	Average Sten Score Shift	Cohen's d
Difference between 2015 and 2021 International Samples	.18	.08 (no effect size)
Difference between 2015 and 2021 UK Samples	.28	.12 (no effect size)

In a random sample of 100,000 people, the average SAA-Rx Sten score produced using the 2021 International Graduates - Recent norm, was similar (.18 of a Sten higher) to the average Sten score produced using the 2015 Graduates - Recent norm. This average Sten score shift represents no effect size or no notable difference. The average Sten score produced using the 2021 UK Graduates - Recent norm was .28 of a Sten lower than when scored against the 2015 norm this also represents a difference of no effect size.

Professionals & Managers Norms Comparison – Swift Analysis Aptitude (SAA-Rx)

The graph below displays the average Swift Analysis Aptitude-Rx total scores (in theta units) of the 2015, and the 2021 Professionals & Managers norms.

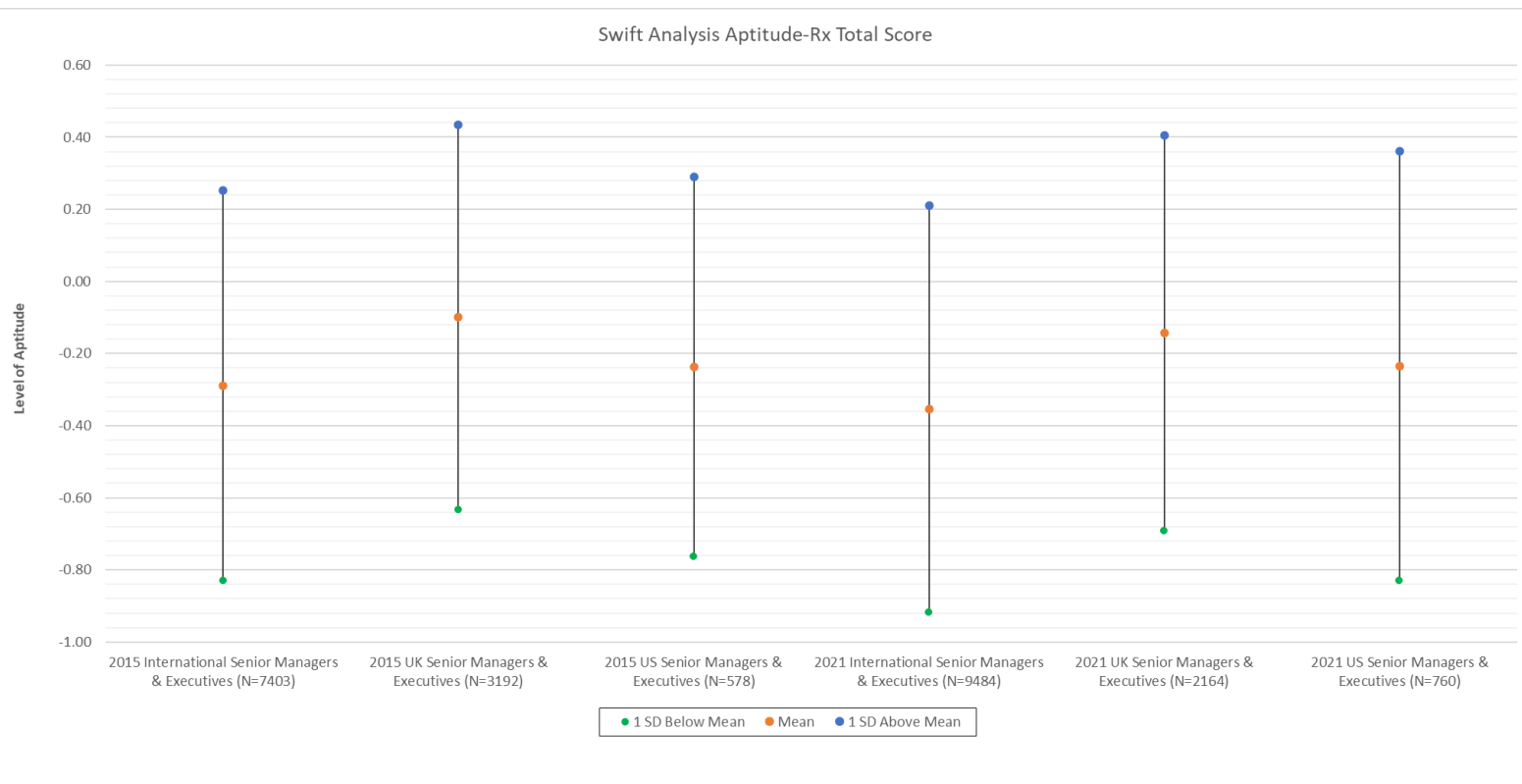


Average Sten Score Shift in a Random Sample (N=100,000)		
Professionals & Managers	Average Sten Score Shift	Cohen's d
Difference between 2015 and 2021 International Samples	.08	.03 (no effect size)
Difference between 2015 and 2021 UK Samples	.35	.14 (no effect size)
Difference between 2015 and 2021 US Samples	.16	.07 (no effect size)

In a random sample of 100,000 people, the average SAA-Rx Sten score produced using the 2021 International Professionals & Managers norm, was very similar (.08 of a Sten lower) to the average Sten score produced using the 2015 Professionals & Managers norm. The average Sten score produced using the 2021 UK Professionals & Managers norm was .35 of a Sten lower than when scored against the 2015 norm. The difference between the average SAA-Rx Sten score produced using the 2021 US Professionals & Managers norm was very similar (.16 of a Sten lower) to the 2015 norm. All three Sten score shifts represent differences of no effect size.

Senior Managers & Executives Norms Comparison – Swift Analysis Aptitude (SAA-Rx)

The graph below displays the average Swift Analysis Aptitude-Rx Total scores of the 2021 and 2015 Senior Managers & Executives norms.

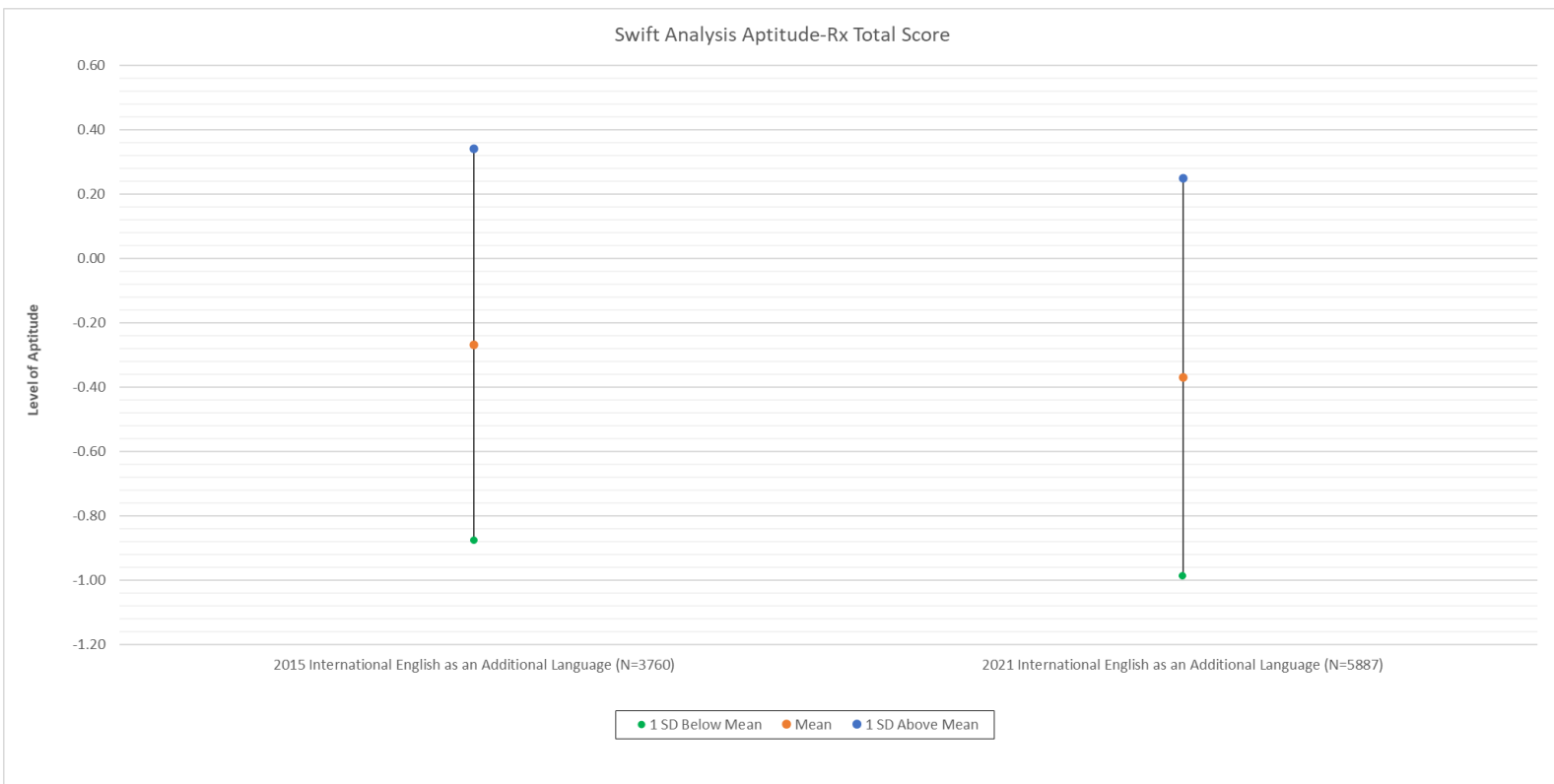


Average Sten Score Shift in a Random Sample (N=100,000)		
Senior Managers & Executives	Average Sten Score Shift	Cohen's d
Difference between 2015 and 2021 International Samples	.21	.08 (no effect size)
Difference between 2015 and 2021 UK Samples	.16	.06 (no effect size)
Difference between 2015 and 2021 US Samples	.02	.01 (no effect size)

Scoring a random sample of 100,000 people on SAA-Rx using the 2021 International Senior Managers & Executives norm produced an average Sten score which was 0.21 of a Sten higher than the average Sten score when using the 2015 norm. Using the terminology of Cohen's d, this average Sten score shift represents a difference of no effect size. The average Sten score produced using the 2021 UK Senior Managers & Executives norm was .16 of a Sten higher than when scored against the 2015 norm. The difference between the average SAA-Rx Sten score produced using the 2021 US Senior Managers & Executives norm was only .02 of a Sten lower than the 2015 norm. Both Sten score shifts represent differences of no effect size.

English as an Additional Language Group Norms Comparison – Swift Analysis Aptitude (SAA-Rx)

The graph below displays the average Swift Analysis Aptitude-Rx Total scores of the 2021 and the 2015 English as an Additional Language Group norms.



Average Sten Score Shift in a Random Sample (N=100,000)		
English as an Additional Language Group	Average Sten Score Shift	Cohen's d
Difference between 2015 and 2021 International Samples	.31	.14 (no effect size)

Scoring a random sample of 100,000 people on SAA-Rx using the 2021 English as an Additional Language Group produced an average Sten score which was .31 of a Sten higher than the average Sten score when using the 2015 norm. Using the terminology of Cohen's d, this average Sten score shift represents a difference of no effect size.