

## **FIT and Academic Performance**

*This FIT Report shows that individuals FIT scores are predictive of their subsequent academic performance and this is independent of IQ. This is important because FITness can be trained suggesting that increases in FITness could aid performance.*

Assessing the determinants of performance at work is very difficult due to the many hundreds of factors that confound any relationships. In a previous FIT Report (*FIT and Sales Performance*) we have shown that FIT Science measures are predictive of how well a person performs in their job. This FIT Report looks at academic performance since this serves to remove many of the uncertainties about the factors that might contribute to enhanced performance.

Academic performance in universities is assessed formally and standards are highly quality controlled. As such, the marks given to work — either during unseen examinations or for project and coursework — have a high degree of robustness and objectivity. In this regard the marks given represent very object measures of performance. It is not unusual in UK universities, for example, to have up to two independent markers assessing anonymised scripts that are then given internal and external moderation. In the world of business and commerce there are no similarly objective measures where the performance outcome is so clearly attributable to the individual — people work in teams on large projects, the out-turns of which are influenced by market factors and many other uncontrollable variables. To research the link between performance and FIT Science measures, academic performance provides a relatively ‘clean’ measure of how well an individual has done.

The academic performance of an individual can be influenced by many different factors. Being able to identify the person-based factors that directly determine academic achievement is important because these are transferable to different situations and over time. These can also serve as an indicator for future performance in different circumstances. Psychometric tests are often used by companies and other organisations to measure some of these person-based factors. Unfortunately the majority of these tests measure things that cannot be changed (e.g. intelligence, verbal/numeric reasoning, and personality traits). The evidence linking many of these

to performance is often very poor or non-existent. The FIT framework is different - it reliably measures person-based factors and ones that can be trained or that the individual can change. This FIT Report looks at whether there is any link between FIT measures and performance, using university marks as the performance metric.

This report also considers whether FIT Science factors and intelligence are linked. If performance on a psychometric test is linked to intelligence this would make it less useful for two reasons. First, the test measures would not be useful or relevant for a wide variety of jobs requiring all different levels of intelligence. Second, it would question the very point of using the non-intelligence test itself.

The FIT framework identifies the core aspects of a person's thinking and behaviour that determine perceptions and interactions in different situations. There are two broad dimensions to FIT Science: Inner FITness, or FIT cognitions, and Outer FITness, or Behavioural Flexibility. Inner FITness is measured by 5 cognitive dimensions or Constancies (Awareness, Balance, Conscience, Fearlessness and Self-responsibility). Outer FITness determines the extent to which an individual is able to respond to different situations. Being behaviourally flexible will enable the individual to respond appropriately and efficiently to the demands of the situation.

Study 1 is an in-depth study of examination performance and FITness over two examination periods. Study 2, on a very large sample of students, looks to confirm any FIT-performance relationship, but also seeks to examine the role of IQ in this.

### **Participants**

**Study 1:** Participants were 44 final year students from a U.K. university. In the sample there were 34 females and 8 males. Participants' age ranged from 20-31 years (mean age = 21.95). Participants' performance was assessed for 5 different exams.

**Study 2:** There were 342 undergraduates, 158 females and 184 males, in their second year of degree studies at a U.K. university.

### **Procedure**

Both studies were longitudinal in nature. All participants agreed to information about their exam performance being used.

Study 1 used a longitudinal design and involved two phases of data collection. In phase 1, participants were briefed about the study and completed The FIT Profiler and a demographic questionnaire.

In phase 2, information about participants' exam performance during two exam sessions was collected. Participants also completed a second FIT Profiler.

Exam grades and FIT Profiler scores were matched for each student. The FIT Profiler scores collected during phase 1 of the study (pre-trial) were matched to exam performance in the preceding January exam session (session 1). Post-hoc FIT Profiler scores collected during phase 2 of the study were matched to exam performance during the May/June exam session (session 2).

In Study 2, all participants completed The FIT Profiler, a measure of general intelligence called the *Ravens Advanced Progressive Matrices* (RAPM), and a measure of styles of learning called the *Approaches and Study Skills Inventory for Students* (ASSIST). This measures learning in terms of how Surface, Deep and Strategic it is. The questionnaires were given at the beginning of the academic year and the examinations were completed 8 months later.

## **Outcomes**

### **Study 1:**

The data for exam performance are presented as Grade Point Averages (GPAs) and degree classification. *Lower scores indicate better performance* and therefore higher marks and academic achievement.

FITness was predictive of exam performance. Overall FITness and Behavioural Flexibility were the strongest predictors and accounted for 12% and 14% of the variance in GPAs (which is a way of saying they contributed one-tenth and one-sixth to GPAs respectively). Behavioural Flexibility was therefore the largest contributor to academic performance and had a substantial influence. Considering the many factors that determine performance — e.g. exam questions, learning done, personal

circumstances of the participant, exam conditions, stress, intelligence etc. — FIT factors seems to be exerting a substantial effect.

To establish the magnitude of effect FITness has on academic performance, the GPAs of participants categorised into high and low FIT groups were compared. Participants with FIT scores above the mean were assigned to the *high FIT* group and participants with FIT scores below the mean were assigned to the *low FIT* group. This is a conservative examination of the influence of FIT factors.

Table 1 displays the session 1 GPAs for low and high FIT groups where there are statistically significant differences. GPA scores were lower for participants in the high FIT group and this indicates better academic performance. The difference in GPAs between FIT groups equates to a 1 level change in degree classification, e.g. achieving a 2:2 or a 2:1.

**Table 1: Exam session 1 GPAs for pre-trial low and high FIT groups.**

<b>FIT variable</b>	<b>Pre-trial FIT group</b>	<b>Average GPA</b>
<b>Overall FIT</b>	<b>Low n = 24</b>	7.2
	<b>High n = 18</b>	5.5
<b>Integrity</b>	<b>Low n = 21</b>	6.9
	<b>High n = 21</b>	6.0
<b>S-Responsibility</b>	<b>Low n = 23</b>	7.1
	<b>High n = 19</b>	5.7
<b>Balance</b>	<b>Low n = 22</b>	7.1
	<b>High n = 20</b>	5.8
<b>Behavioural</b>	<b>Low n = 26</b>	7.1
<b>Flexibility</b>	<b>High n = 16</b>	5.5

Session 2 GPAs showed a similar relationship with FITness. Participants in the high FIT groups had lower GPAs and therefore higher exam marks. Behavioural Flexibility was the strongest discriminator and was responsible for a substantial difference in GPAs between FIT groups. Again, the differences in GPAs between FIT groups equated to a 1 level change in degree classification.

**Table 2: Exam session 2 GPAs for post-trial low and high FIT groups.**

<b>FIT variable</b>	<b>Pre-trial FIT group</b>	<b>Average GPA</b>
<b>Overall FIT</b>	<b>Low n = 22</b>	6.1
	<b>High n = 11</b>	4.6
<b>Behavioural</b>	<b>Low n = 20</b>	6.2
<b>Flexibility</b>	<b>High n = 13</b>	4.8

FITter participants were more likely to be awarded higher degrees compared to less FIT participants. To put this in terms of odds ratios, participants in the high FIT group were 8 times more likely to achieve a 2:1 or higher compared to participants in the low FIT group (see Table 3).

**Table 3: Number of participants achieving 2:1 or above or 2:2 or below degree classifications according to FIT group.**

<b>FIT group</b>	<b>Degree classification</b>	
	<b>2:1 or above</b>	<b>2:2 or below</b>
<b>Low</b>	2	14
<b>High</b>	21	18

### **Study 2:**

As in Study 1, FITness was related to examination performance. There was a significant correlational relationship overall between average grade and FIT scores across all students. To put this in sharper relief, when comparing the top 10% of FIT scorers with the other students showed that, on average FITter students scored nearly 8% more in the unseen examinations (58.7% vs. 51.1%).

An examination of the ASSIST results (see Table 4), confirmed by statistical analysis, revealed that FITter students tend to use more meaningful and deeper learning strategies. The Support Learning differences shows that FIT students also preferred lecturers to make them think rather than spoon-feed them.

**Table 4: Scores on ASSIST for high and lower FIT groups:**

	<b>High FIT Group</b>	<b>Low FIT Group</b>
<b>Deep Approach</b>	44.4	40.3
<b>Strategic Approach</b>	44.1	40.6
<b>Surface Approach</b>	33.5	37.1
<b>Support Learning</b>	15.5	13.6

One major contributor to examination performance is intelligence. It is necessary to rule out the possibility that the relationship between FITness and exam performance is due to intelligence rather than FITness per se. This is the main focus of Study 2 which uses a large enough sample to examine even weak relationships that might be present between IQ and FIT.

There was a significant association between IQ and examination performance in this group (the correlation was  $r = 0.316$ ), as one might expect — brighter people do better at examinations.

However, the results showed that FITness is not related to IQ as measured by the RAPM (see Table 5). The correlation values were all near zero indicating no relationship at all. This is a key ‘non-result’. In other words, a person does not need to be bright to be FIT. This also means that intelligence levels do not moderate the effect of FITness on exam performance (which we also examined in other more complex statistical ways). Instead, FITness has a direct and substantial effect that is independent of intelligence. This is a very positive result since it also suggests that FITness can compensate for intelligence in performance — a person may not be able to change their intelligence, but we have previously shown they can alter their FIT levels.

**Table 5: Relationships between FIT variables and scores on the RAPM.**

<b>FIT variable</b>	<b>r</b>
<b>Overall FIT</b>	0.056
<b>Integrity</b>	0.008
<b>Awareness</b>	-0.018
<b>Self-responsibility</b>	0.044
<b>Conscience</b>	0.002
<b>Fearlessness</b>	0.014
<b>Behavioural Flexibility</b>	0.058

## **Conclusions**

The effect of FITness on academic performance was positive and substantial. FITter individuals not only achieved higher exam grades, they also accomplished higher degree classifications overall. This in turn puts them in a good position for future job prospects and earning potential. Study 2 also confirmed that IQ differences were not responsible for the higher examination performance effects observed in the FITter students. Study 2 also showed that FITter people adopt more strategic and deeper modes of learning. Developing FIT — which is easily trainable — therefore offers the opportunity for individuals to realise their untapped potential and improve their performance further.

FIT training would bring long-term benefits for both the individual and academic institution. As the current study has shown, the effect of FIT on exam performance is not transitory but enduring over time. Improving FITness — via FIT training — would not only improve performance in the short-term but also in the longer term too.