A new longitudinal study of undergraduate students: the BOOST cohort

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MiSoC ESRC Research Centre on Micro-Social Change

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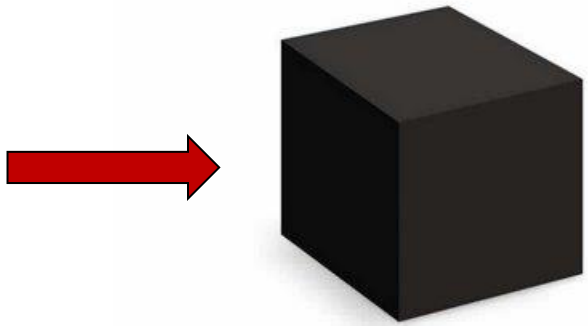
Why a new cohort study?

Time at university



What can we observe?

Time at university

Gender
Tariff score
Field of study
Big5 personality traits

Growth mindset
Grit
Planning efficacy
Goal performance
Need for cognition

Attendance
Virtual learning methods
Study time
Study habits

What can we intervene on?

Time at university

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Field o
Big5 pe onality aits

Growth mindset
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Need for cognition

SKILLS

Attendance
Virtual learning methods
Study time
Study habits

INPUTS

Our research questions

- Can we measure university inputs?
  - Not clear what matters (i.e. virtual learning methods?)
  - Issues of self-reporting or measurement error
  - May differ during term and revision period

- What are the skills that matter?
  - Cognitive but also non-cognitive
  - Non-cognitive: vast range, lots of overlap

Our research questions

1. How are skills related to inputs?
2. Do skills have a direct effect on outcomes?

- Policy question: should we intervene on skills?
  - Universities already do quite a lot on inputs
  - Skills affect a range of inputs at the same time
  - Changes in skills could be long-term
  - But ... need to identify the skills that truly matter and that are malleable

BOOST2018

- **First year undergraduate** students at a UK university starting in academic year 2015/16
- Out of a cohort of 2621, **1978 enrolled (75%)**
- Series of **online surveys**, **lab** sessions linked with **administrative** data

First survey year

	First year
November	**Wave 1** Online (45m) - £10 study hours, study habits, attendance, non-cog. skills **~1200 respondents**
December	
January	**Wave 2** Lab (1h) - £30 cognitive test, non-cognitive traits **~1000 participants**
February	
March	**Wave 3** Online (1h) - £20 study hours, study habits, attendance, non-cog. skills **~1200 respondents**
April	
May	**Wave 4** Online (8 min) - £8 study hours, study habits, attendance **~900 respondents**
June	

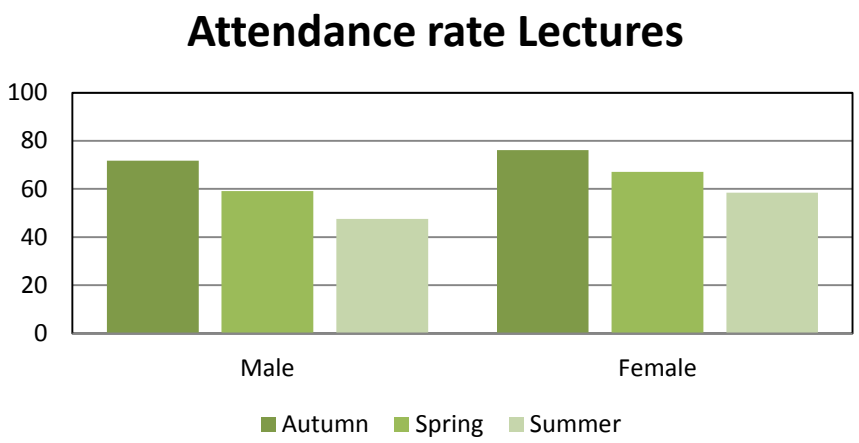
Autumn term

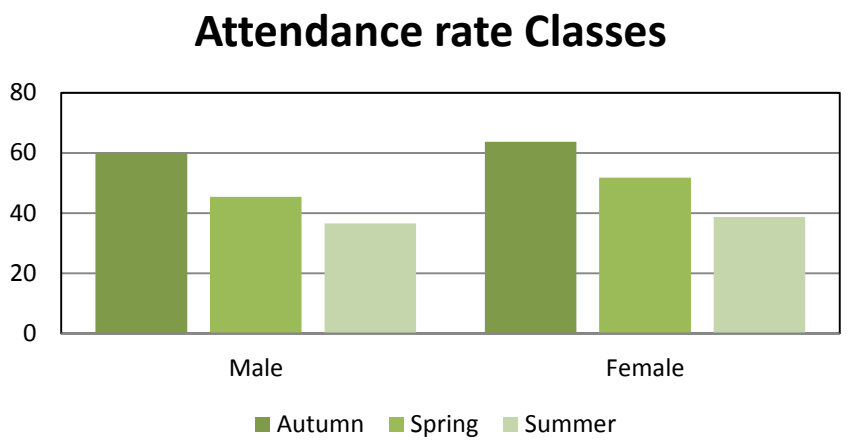
Spring term

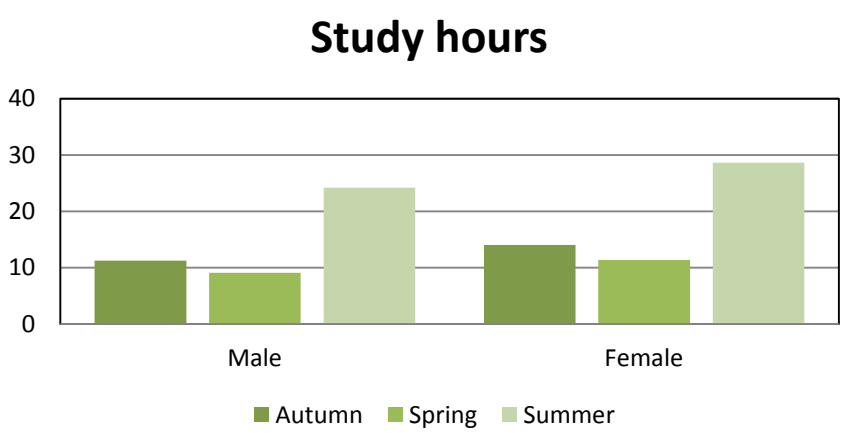
Summer term

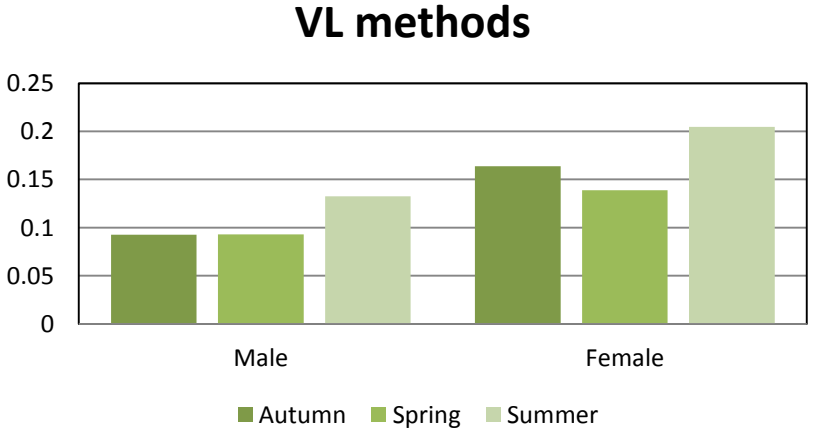
1590 students have taken at least

Inputs - quantity









Inputs - quality

- **Composition of study time**
  - % spent compulsory
  - % spent reading
  - % spent taking notes
  - % spent testing
- **Study strategies**
  - Study next what … I am worst at
  - Study next what … I have not studied the longest
  - Study next what … is overdue
  - Study next what … I am most interested in
  - Study with friends
  - Cramming
  - Focus on one thing at the time

Non cognitive skills

Growth mindset The belief that intelligence is malleable rather than fixed, so that it can be grown through dedication and hard work – **4 items**

Planning efficacy The ability to and effectiveness at planning ahead – **4 items**

Grit The ability to strive for long-term goals and respond positively to setbacks – **12 items**

Goal performance Motivation for ‘learning’ as opposed to ‘grades’ – **4 items**

Need for cognition The extent to which the individual is motivated by challenges and effortful activities – **18 items**

Growth mindset

Your brain grows with exercise!

Measures of Growth Mindset

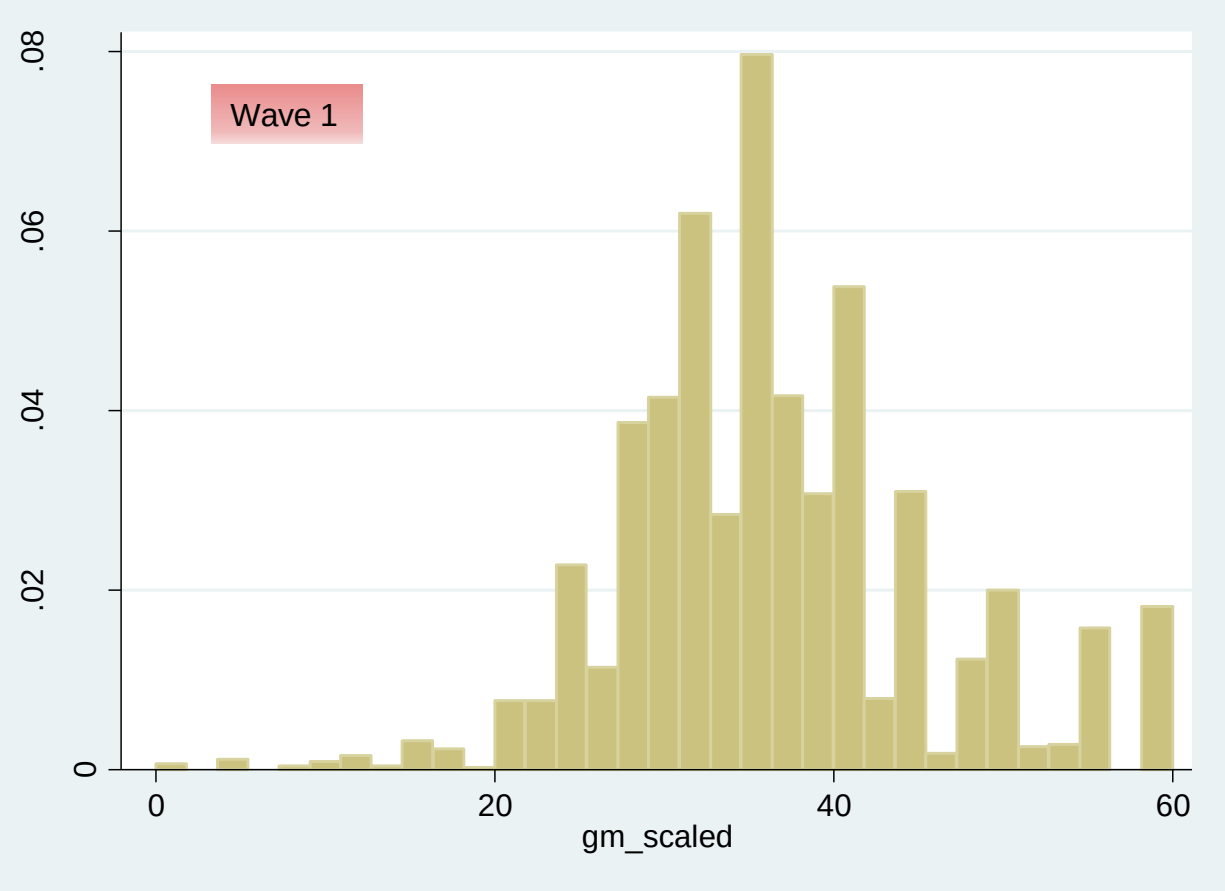
- Measure used in a ‘pilot’ survey
  - Your academic ability is more or less fixed – some people will always struggle and others will always thrive

- Measure validated in the literature (4 items)
  - You can learn new things, but you can’t really change your basic intelligence
  - You have a certain amount of intelligence and you really can’t do much to change it
  - No matter how much intelligence you have, you can always change it quite a bit
  - You can change even your basic intelligence level considerably

Using the following scale:

Scale:	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

GM measure in our data



Research Q1:

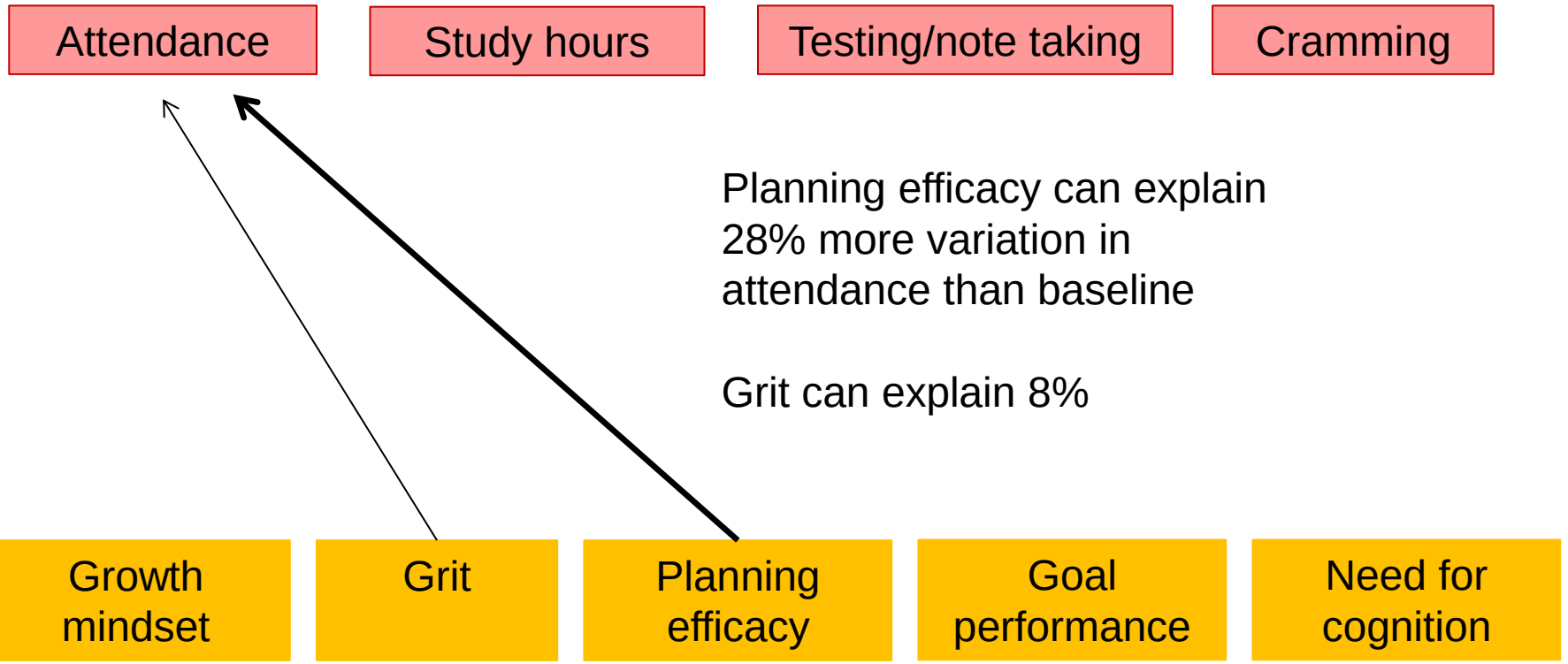
How are skills related to inputs?

Skills → Inputs

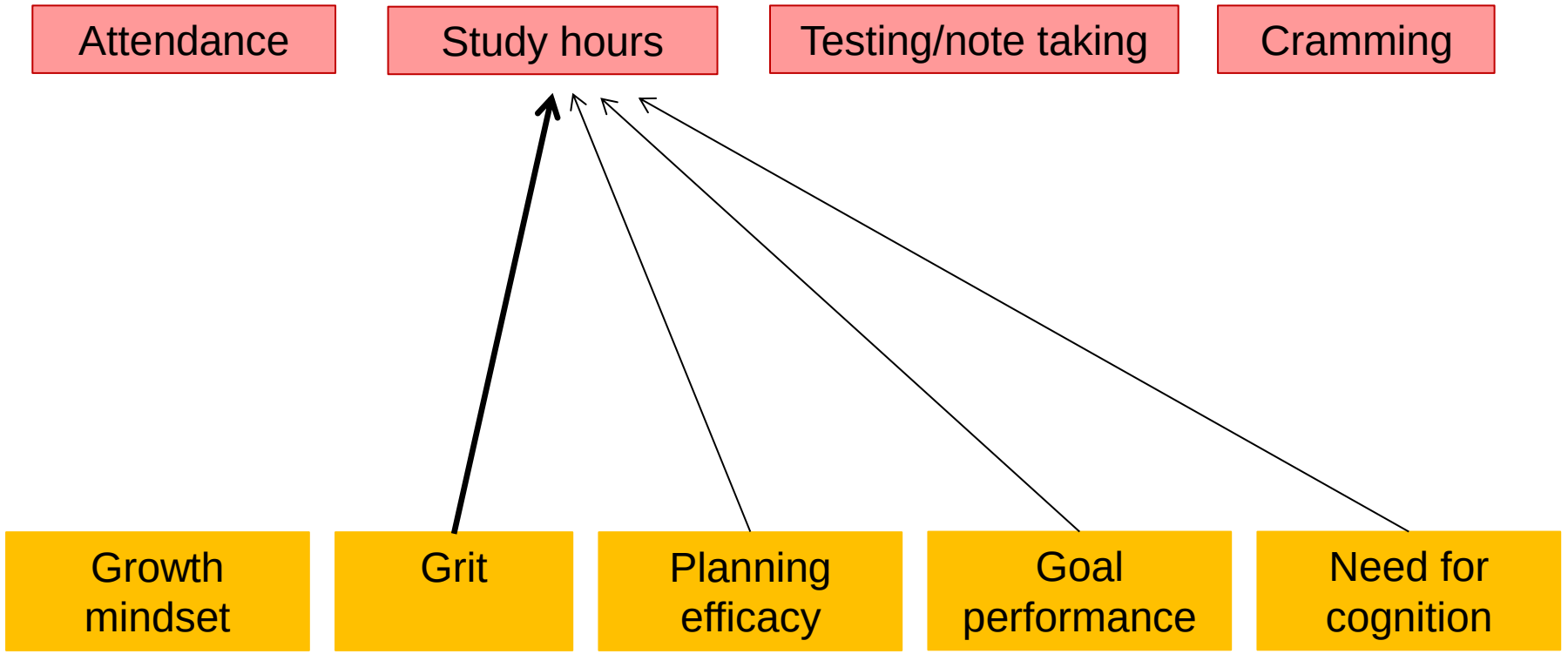
- Attendance
- Study hours
- Testing/note taking
- Cramming

- Growth mindset
- Grit
- Planning efficacy
- Goal performance
- Need for cognition

Skills → Inputs



Skills → Inputs



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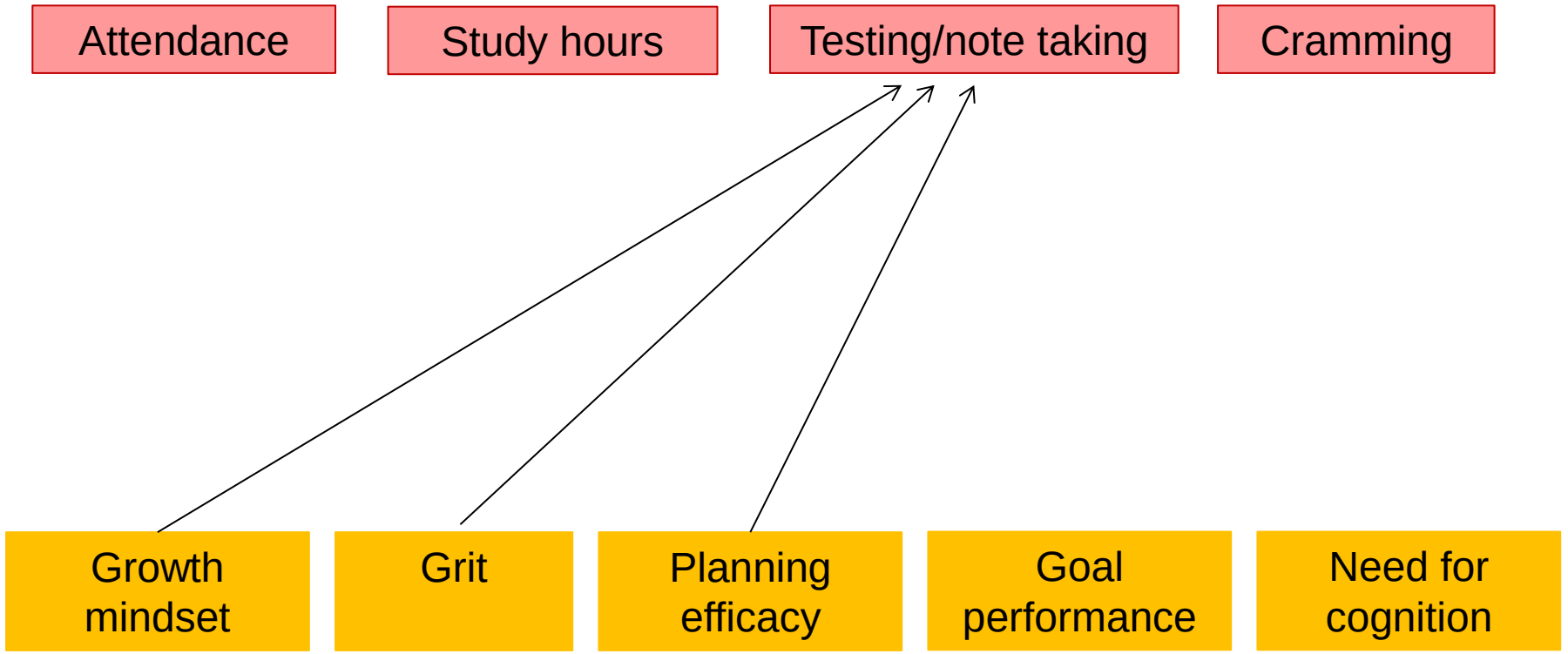

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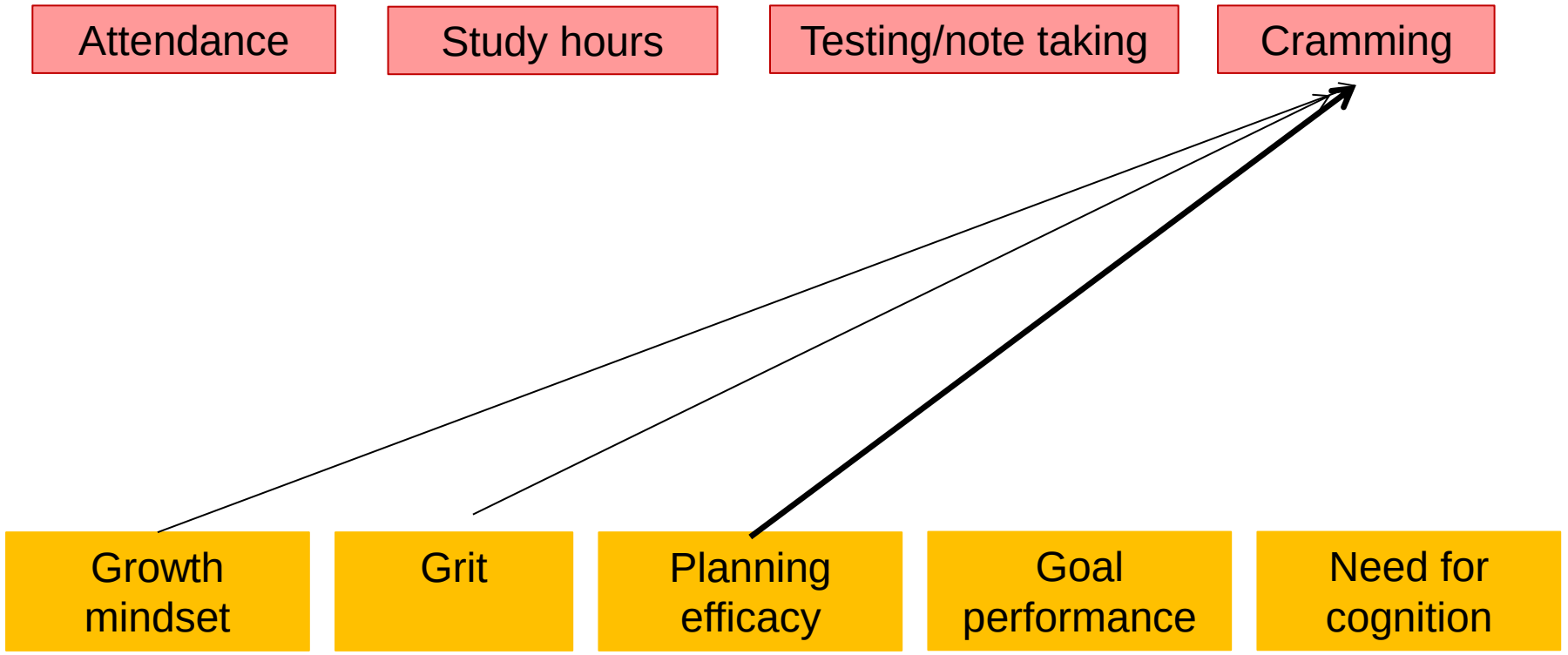

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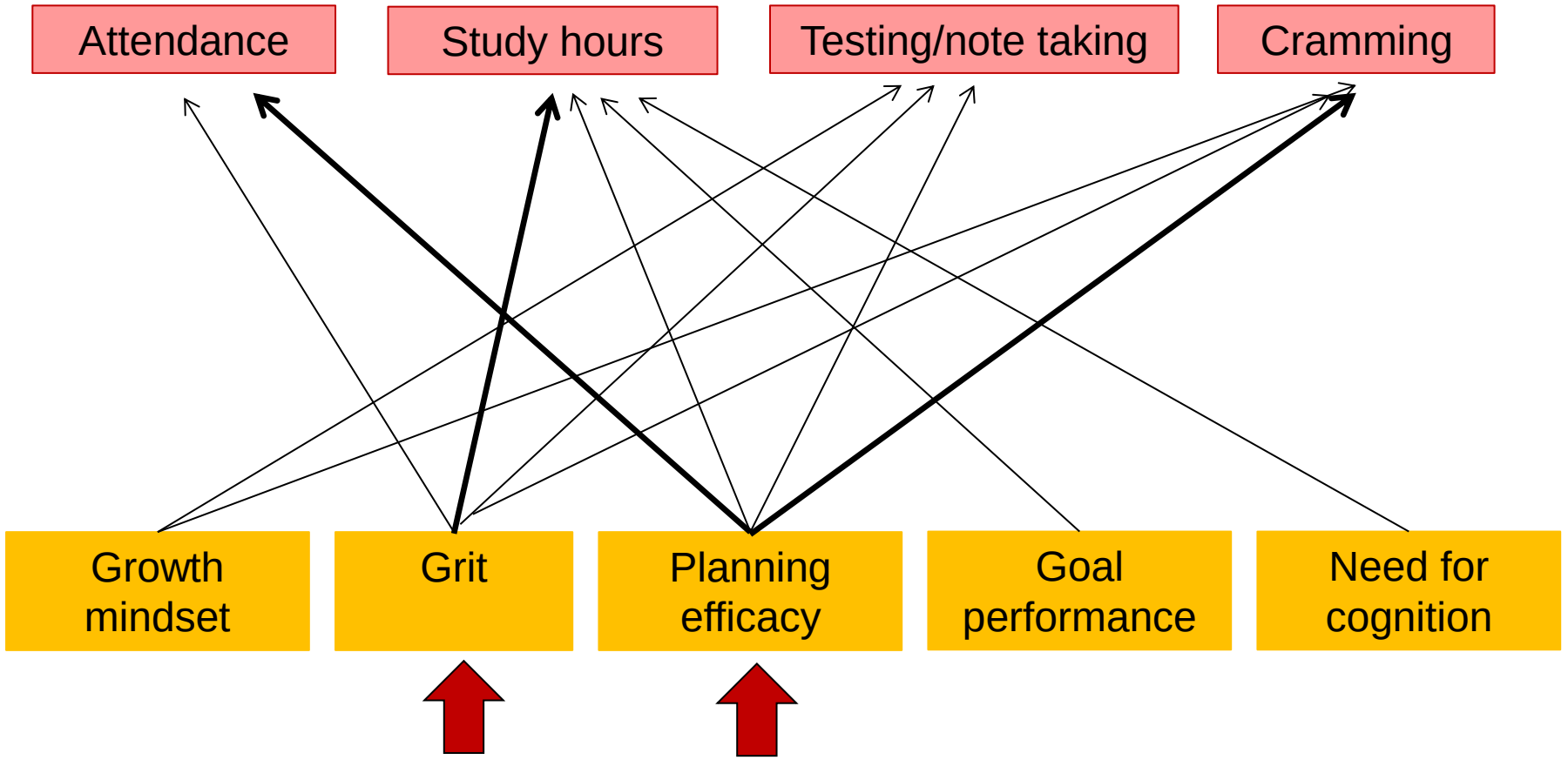
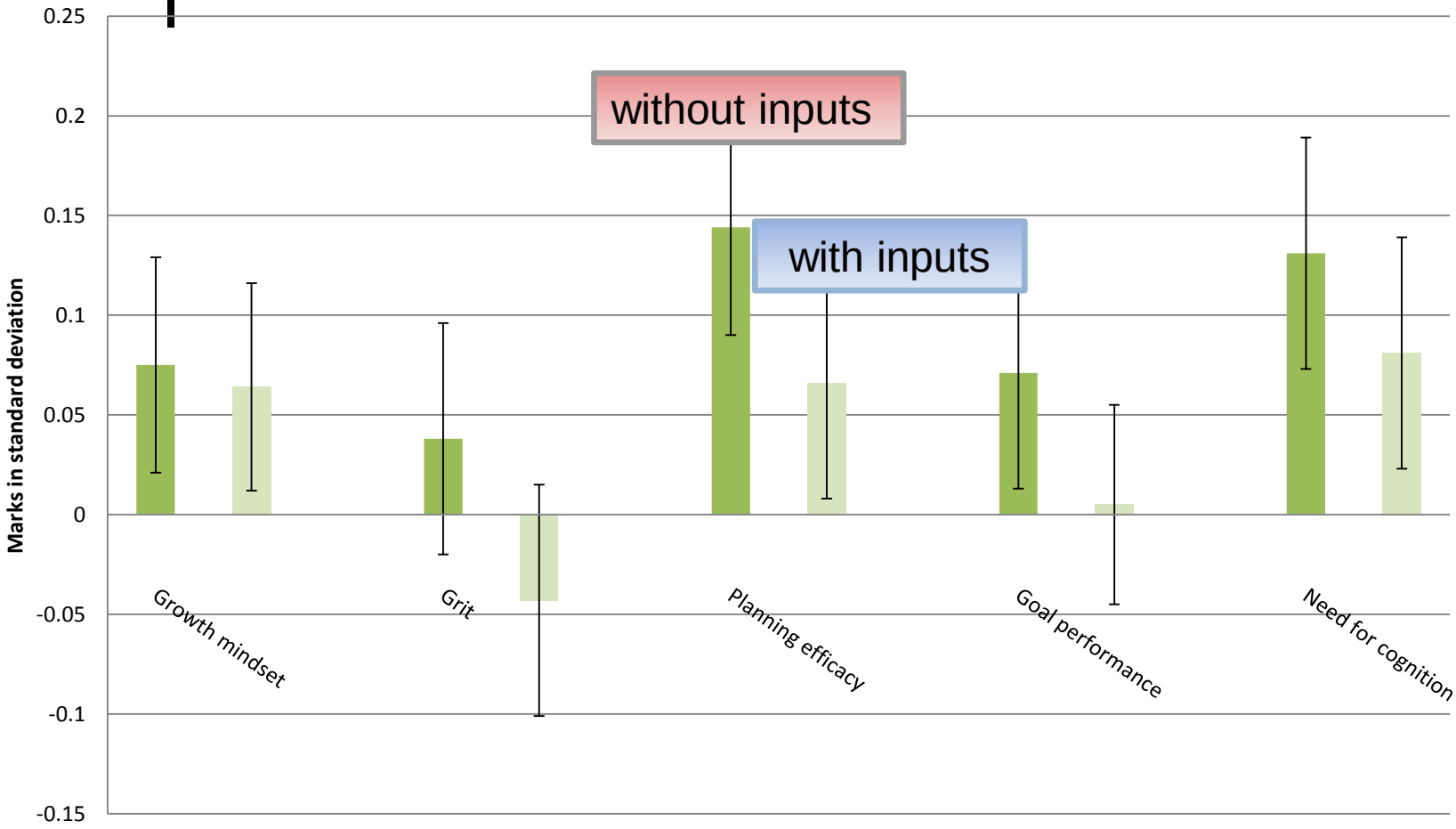


These 2 skills seem to be what matters most in explaining the inputs

Research Q2:

Do skills directly affect marks?

Direct effect of skills on first year marks



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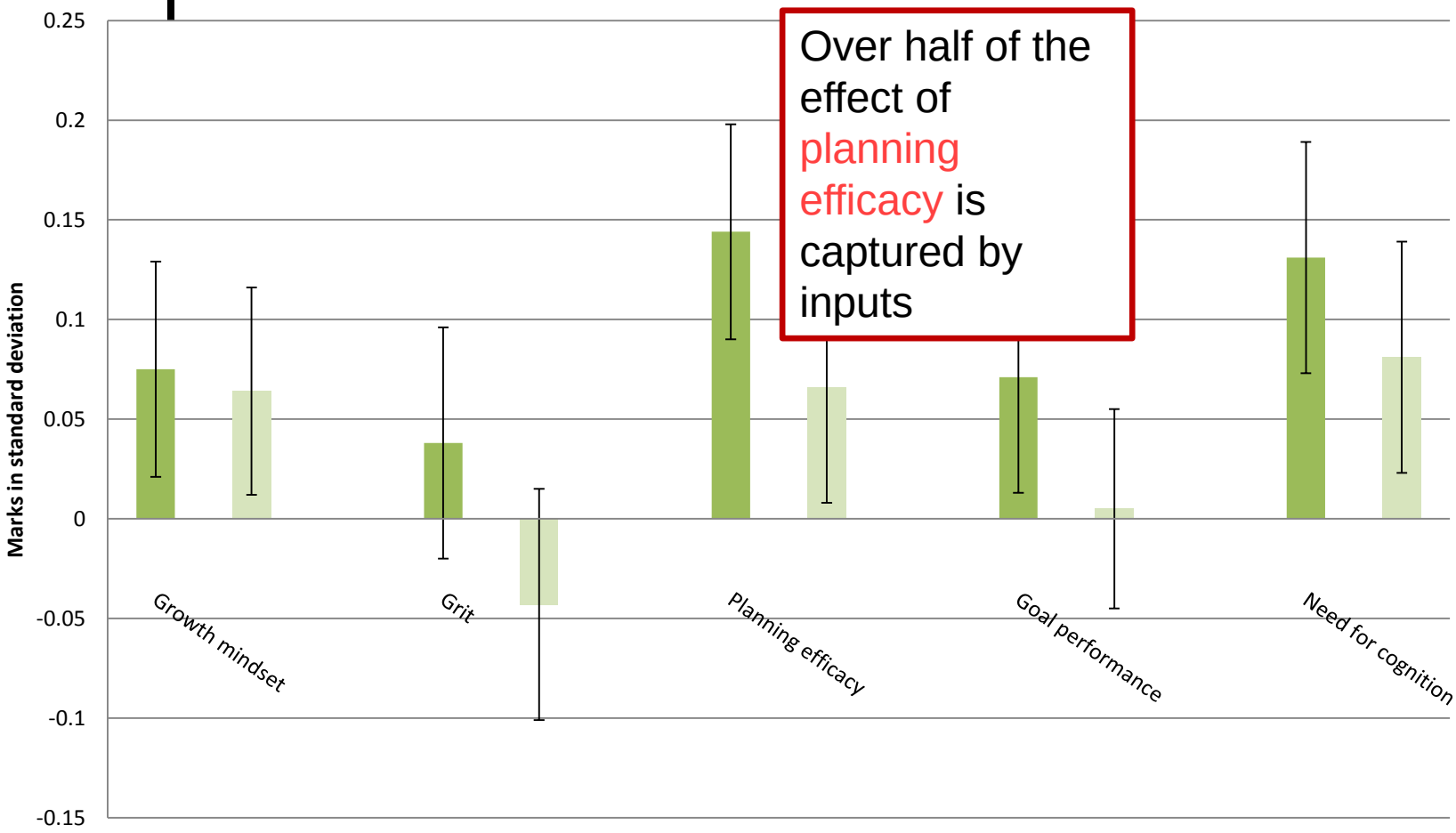

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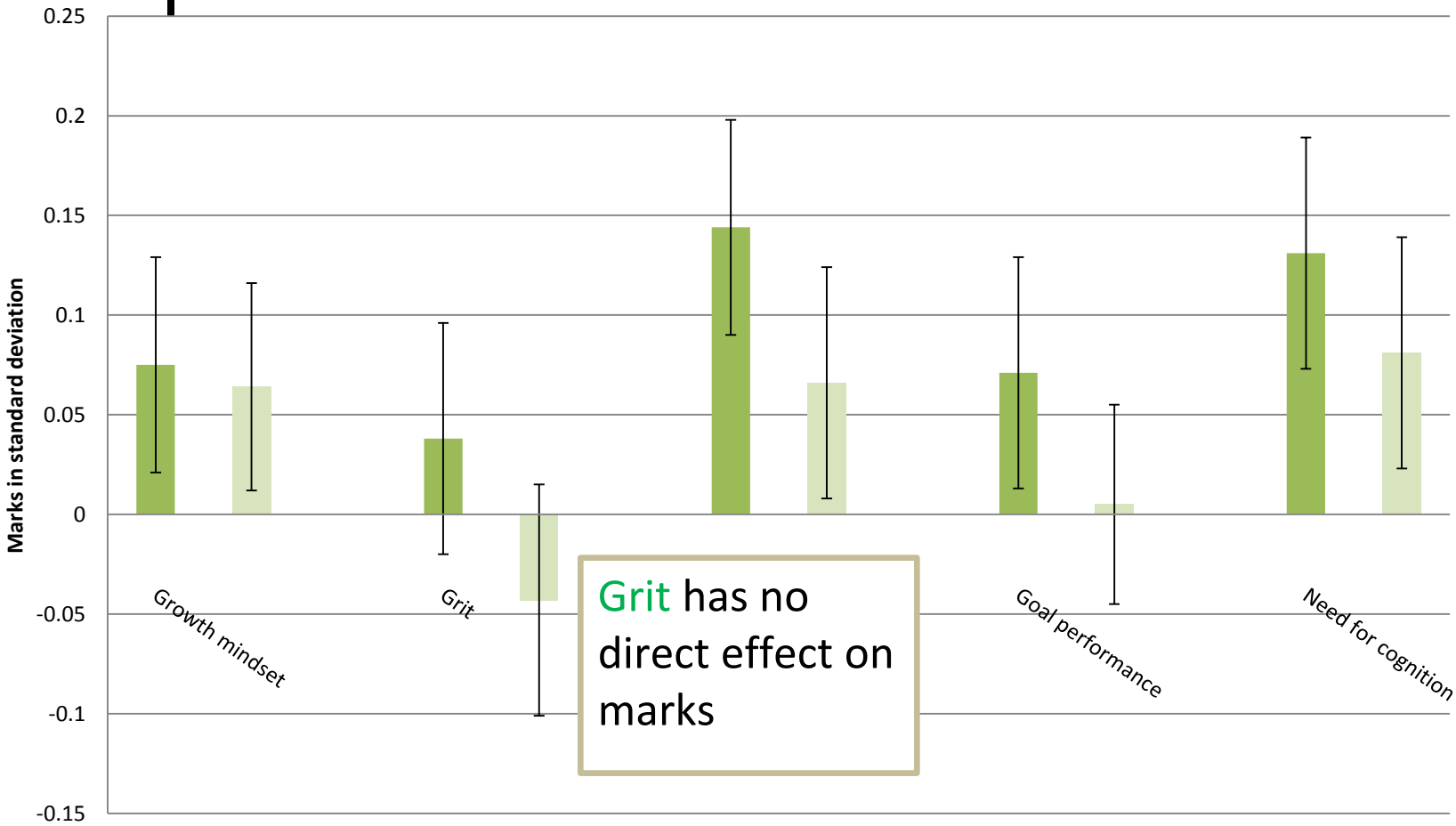
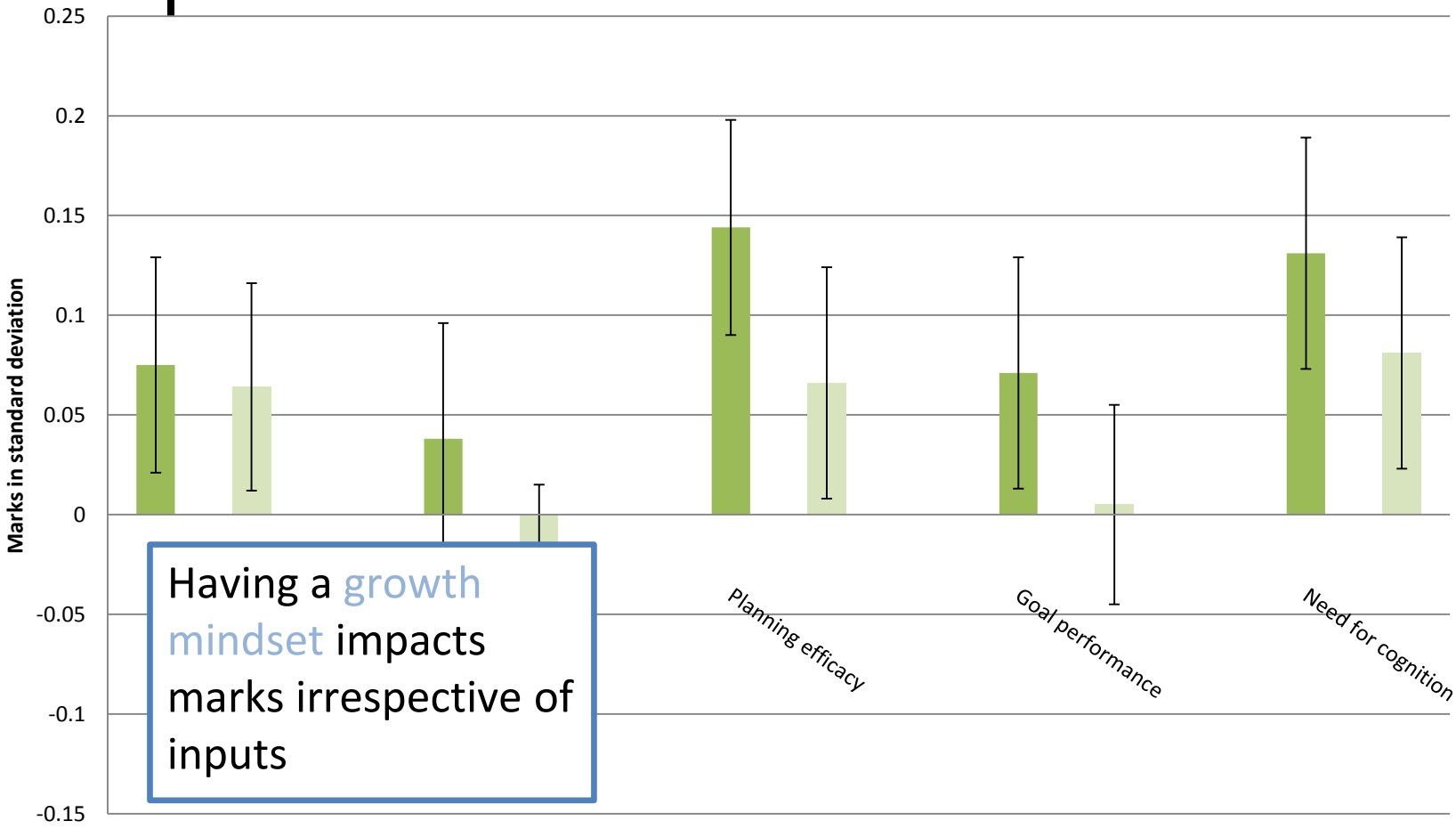


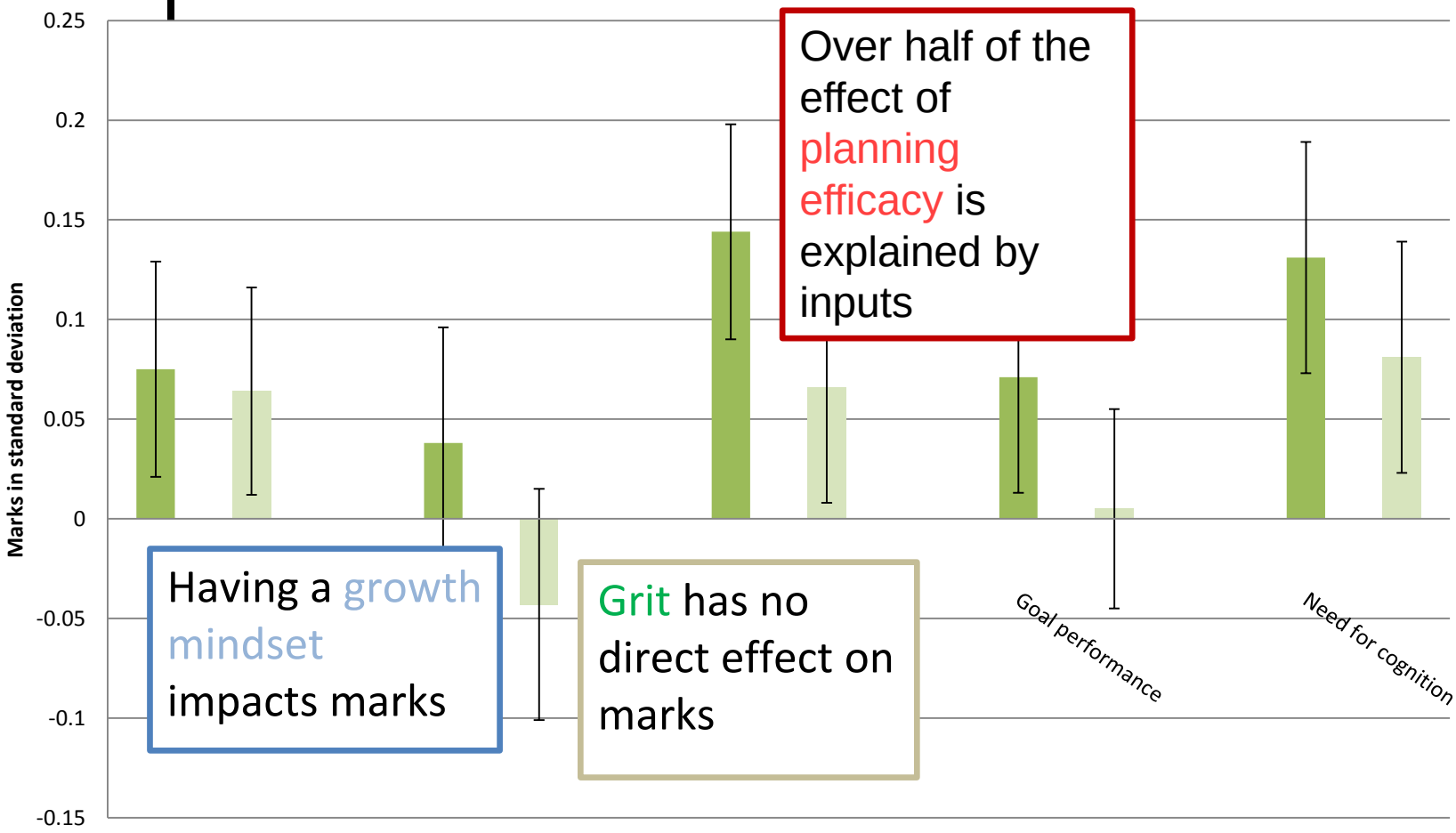
Grit has no direct effect on marks

Direct effect of skills on first year marks



Having a growth mindset impacts marks irrespective of inputs

Direct effect of skills on first year marks



Over half of the effect of planning efficacy is explained by inputs

Having a growth mindset impacts marks

Grit has no direct effect on marks

Discussion

- New & rich information on students' skills and inputs
- Helpful to explain differences in university attainment
- We focus here on whether non-cognitive skills are good predictors of (i) inputs and (given inputs) of (ii) first year grades
  - Not all skills matter for inputs
  - Some have an effect on outcomes but not on inputs (e.g. growth mindset)
  - What are the possible channels? (mental health?)
  - Do we know how to change skills?

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