Extended Data for
Divergent effects of mindsets on performance trajectory

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This PDF file includes:

Supplementary Table 1 to Supplementary Table 3
Legends for Datasets

Other supporting materials for this manuscript include the following:

Datasets: Can be downloaded from
https://osf.io/5p3xn/?view_only=15046177faad4d4d992db76a293045b2

Supplementary Table 1. The summary statistics of the variables.

Variable	Obs	Mean	SD	Age	Gender	Intake	Mindset	Std. Mind	Term
Age	530	18.20	0.559						
Gender (0=female; 1=male)	915	0.402	0.491	0.090					
Intake (0=Cohort 1; 1=Cohort 2)	915	0.435	0.496	-0.144*	-0.027				
Mindset	915	3.695	1.042	0.021	-0.047	0.039			
Standardized Mindset	915	0.000	1.000	0.021	-0.047	0.039	1.0000*		
Term	915	8.203	0.711	0.071	0.132*	-0.177*	-0.090*	-0.090*	
Final CGA	915	3.018	0.400	-0.076	-0.103*	0.039	0.063	0.063	-0.075

Supplementary Table 2. The estimates of fixed and growth mindsets of Figure 1, and their corresponding 95% confidence intervals.

	Fixed Mindset			Growth Mindset		
Term	Estimates	95% Confidence Interval		Estimates	95% Confidence Interval	
1	2.803	2.763	2.843	2.825	2.785	2.865
2	2.867	2.841	2.892	2.915	2.890	2.941
3	2.924	2.901	2.947	2.989	2.966	3.012
4	2.975	2.950	3.000	3.046	3.021	3.071
5	3.019	2.994	3.045	3.087	3.060	3.113
6	3.058	3.033	3.082	3.111	3.086	3.136
7	3.090	3.065	3.115	3.118	3.093	3.144
8	3.115	3.082	3.148	3.110	3.075	3.145

Supplementary Table 3. Impact of growth mindset by terms at course-level.

Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Course Grade					
Term	0.040***	0.096***	0.097***	0.092***	0.046***	0.041***
	(0.002)	(0.007)	(0.007)	(0.007)	(0.013)	(0.013)
Term Squared		-0.006***	-0.006***	-0.006***	-0.004***	-0.003***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mindset	0.026***	0.026***	-0.010	-0.013	-0.008	-0.011
	(0.004)	(0.004)	(0.015)	(0.015)	(0.015)	(0.014)
Mindset*Term			0.024***	0.024***	0.022***	0.022***
			(0.007)	(0.007)	(0.007)	(0.007)
Mindset*Term Squared			-0.003***	-0.003***	-0.003***	-0.003***
			(0.001)	(0.001)	(0.001)	(0.001)
Gender (0=female, 1=male)				-0.094***		-0.087***
				(0.008)		(0.008)
Intake (0=Cohort 1, 1=Cohort 2)				0.043***		0.040***
				(0.008)		(0.008)
Constant	2.820***	2.724***	2.723***	2.749***	2.886***	2.907***
	(0.009)	(0.015)	(0.015)	(0.016)	(0.029)	(0.030)
Course fixed effect	No	No	No	No	Yes	Yes
Observations	33,607	33,607	33,607	33,607	33,519	33,519
R-squared	0.016	0.018	0.019	0.023	0.114	0.118

Legends for Datasets

Dataset used in "Divergent effects of mindsets on performance trajectories"

This dataset is a processed data from a major university in Asia tracking students over the four years from when they first joined the university to when they graduated.
The two datasets are student-term panel and course-student-term panel. The main variables are students' surveyed mindset variable, their performances (term GPA and course grade), gender identifier, cohort identifier, and course identifier.
Students provided consent and completed the measure at the beginning of their first term as part of an intake exercise that helped them reflect on their learning goals and make plans for the coming years.

Description of the data and file structure

There are two main datasets used in the paper.

Final_Term_Data is a student-term panel dataset.
AssignedID is a student identifier (same as in the other dataset, Final_Course_Data).
TermGPA_c is a student's term performance (Term GPA_c).
Q1, Q2, and Q3 are the responses to the mindset survey questions. The questions are: Q1 "You have a certain amount of intelligence, and you can't really do much to change it. 1 (Diagree) 6 (Agree)"; Q2 "Your intelligence is something about you that you can't change very much. 1 (Diagree) 6 (Agree)"; and Q3 "You can learn new things, but you can't really change your basic intelligence. 1 (Diagree) 6 (Agree)"
mQ is the mindset variable which is a reversed score of the variable Q1, Q2, and Q1. It is calculated as 7-(average of Q1, Q2, and Q3).
semester is the term identifier.
CumulativeGPA is the final cGPA at the completion of the program.
male is a gender identifier which equals to 1 if a student is male, and 0 if a student is female.
mTerm is the number of terms at the completion of the program.
zmQ is a standardized mindset score, it is standardized locally among 915 students in the final sample.
AGE is a age identifier. Note that some data points are missing due to the unavailable student birth date information.
admit is a cohort identifier which equals to 0 if a student is admitted in Cohort 1, and 1 if a student is admitted in Cohort 2.
zmQp1 is a left-centered (fixed mindset) mindset variable, zmQ+1.
zmQm1 is a right-centered (growth mindset) mindset variable, zmQ-1.

Final_Course_Data is a student-course-term panel dataset.
AssignedID is a student identifier (same as in the other dataset, Term_Data_masked_2).
Grade is a student's course performance. The original letter grade is converted to GPA scale: A+ = 4.3, A = 4.0, A- = 3.7, B+ = 3.3, B = 3.0, B- = 2.7, C+ = 2.3, C = 2, C- = 1.7, D = 1, F = 0.
semester is the term identifier.
male is a gender identifier which equals to 1 if a student is male, and 0 if a student is female.
zmQ is a standardized mindset score, it is standardized locally among 915 students in the final sample.
admit is a cohort identifier which equals to 0 if a student is admitted in Cohort 1, and 1 if a student is admitted in Cohort 2.
same is a course-major identifier which equals 1 if the course subject and the student's major are the same, and 0 if the course subject and the student's major are different.
CourseIDmasked is a course identifier.

Sharing/Access information

Do not use the data to identify any individual in the sample.
Do not use the data other than for replication purposes.

Code/Software

We provide a STATA code to replicate all the numbers shown in the paper.

```
global data       C:\Data /* Change it to the folder that has "Final_Term_Data" and "Final_Course_Data"*/
global table      C:\Table /* Change it to the folder where you want to export the log and tables */

global data       D:\Dropbox\UG_Data\FinalFiles /*C:\Data*/ /* Change it to the folder that has "Final_Term_Data" and "Final_Course_Data"*/
global table      D:\Dropbox\UG_Data\FinalFiles /*C:\Table*/ /* Change it to the folder where you want to export the log and tables */

log using "$table\log_final", replace


* Table 1
set more off
import excel using "$data\Final_Term_Data.xls", first clear
duplicates drop AssignedID, force
reg CumulativeGPA zmQ male admit
outreg2 using "$table\Table1", replace  dec(3) excel
import excel using "$data\Final_Term_Data.xls", first clear
reg TermGPA_c zmQ semester
outreg2 using "$table\Table1", append  dec(3) excel
reg TermGPA_c zmQ c.semester##c.semester
outreg2 using "$table\Table1", append  dec(3) excel
reg TermGPA_c c.zmQ##c.semester##c.semester
outreg2 using "$table\Table1", append  dec(3) excel
reg TermGPA_c c.zmQ##c.semester##c.semester  male admit
margins, at(semester = (1(1)8) zmQ =(-1(2)1)) vsquish /* Table S2 */
marginsplot, name(model_5, replace) x(semester) title("Term GPA over time (standardized Growth Mindset)")
outreg2 using "$table\Table1", append  dec(3) excel
reg TermGPA_c c.zmQm1##c.semester##c.semester  male admit
outreg2 using "$table\Table1", append  dec(3) excel
reg TermGPA_c c.zmQp1##c.semester##c.semester  male admit
outreg2 using "$table\Table1", append  dec(3) excel
import excel using "$data\Final_Course_Data.xls", first clear
reghdfe Grade c.zmQ##c.semester##c.semester  male admit, a(CourseIDmasked)
outreg2 using "$table\Table1", append  dec(3) excel

* Table 2
set more off
import excel using "$data\Final_Course_Data.xls", first clear
reg Grade zmQ male admit if semester!=.
outreg2 using "$table\Table2", replace  dec(3) excel
reg Grade zmQ male admit  if same==0 &semester!=.
outreg2 using "$table\Table2", append  dec(3) excel
reg Grade zmQ male admit  if same==1  &semester!=.
outreg2 using "$table\Table2", append  dec(3) excel
reghdfe Grade zmQ male admit if semester!=., a(CourseID)
outreg2 using "$table\Table2", append  dec(3) excel
reghdfe Grade zmQ male admit  if same==0 &semester!=. , a(CourseIDmasked)
outreg2 using "$table\Table2", append  dec(3) excel
reghdfe Grade zmQ male admit  if same==1 &semester!=. , a(CourseIDmasked)
outreg2 using "$table\Table2", append  dec(3) excel
```

```
*Table 3
set more off
import excel using "$data\Final_Term_Data.xls", first clear
duplicates drop AssignedID, force
reg CumulativeGPA c.zmQ##c.zmQ male admit
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
outreg2 using "$table\Table3", replace  dec(3) excel
import excel using "$data\Final_Term_Data.xls", first clear
reg TermGPA_c c.zmQ##c.zmQ
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
outreg2 using "$table\Table3", append  dec(3) excel
reg TermGPA_c c.zmQ##c.zmQ c.semester
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
outreg2 using "$table\Table3", append  dec(3) excel
reg TermGPA_c c.zmQ##c.zmQ c.semester##c.semester
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
outreg2 using "$table\Table3", append  dec(3) excel
reg TermGPA_c c.zmQ##c.zmQ c.semester##c.semester  male admit
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
margins, at(zmQ = (-3(1)3)) vsquish
marginsplot, name(model_5, replace) x(zmQ) title("Term GPA and standardized Growth Mindset")
outreg2 using "$table\Table3", append  dec(3) excel
import excel using "$data\Final_Course_Data.xls", first clear
reghdfe Grade c.zmQ##c.zmQ c.semester##c.semester  male admit, a(CourseIDmasked)
dis -_b[zmQ]/2/_b[c.zmQ#c.zmQ]
outreg2 using "$table\Table3", append  dec(3) excel

* Table S1
import excel using "$data\Final_Term_Data.xls", first clear
duplicates drop AssignedID, force
tabstat AGE male admit mQ zmQ mTerm CumulativeGPA, c(s) s(n mean sd)
pwcorr AGE male admit mQ zmQ mTerm CumulativeGPA, star(.01)

* Table S2
import excel using "$data\Final_Term_Data.xls", first clear
reg TermGPA_c c.zmQ##c.semester##c.semester  male admit
margins, at(semester = (1(1)8) zmQ =(-1(2)1)) vsquish

* Table S3
set more off
import excel using "$data\Final_Course_Data.xls", first clear
reg Grade zmQ semester
outreg2 using "$table\TableS3", replace  dec(3) excel
reg Grade zmQ c.semester##c.semester
outreg2 using "$table\TableS3", append  dec(3) excel
reg Grade c.zmQ##c.semester##c.semester
outreg2 using "$table\TableS3", append  dec(3) excel
reg Grade c.zmQ##c.semester##c.semester  male admit
outreg2 using "$table\TableS3", append  dec(3) excel
reghdfe Grade c.zmQ##c.semester##c.semester , a(CourseID)
outreg2 using "$table\TableS3", append  dec(3) excel
reghdfe Grade c.zmQ##c.semester##c.semester  male admit, a(CourseIDmasked)
outreg2 using "$table\TableS3", append  dec(3) excel

log close
```