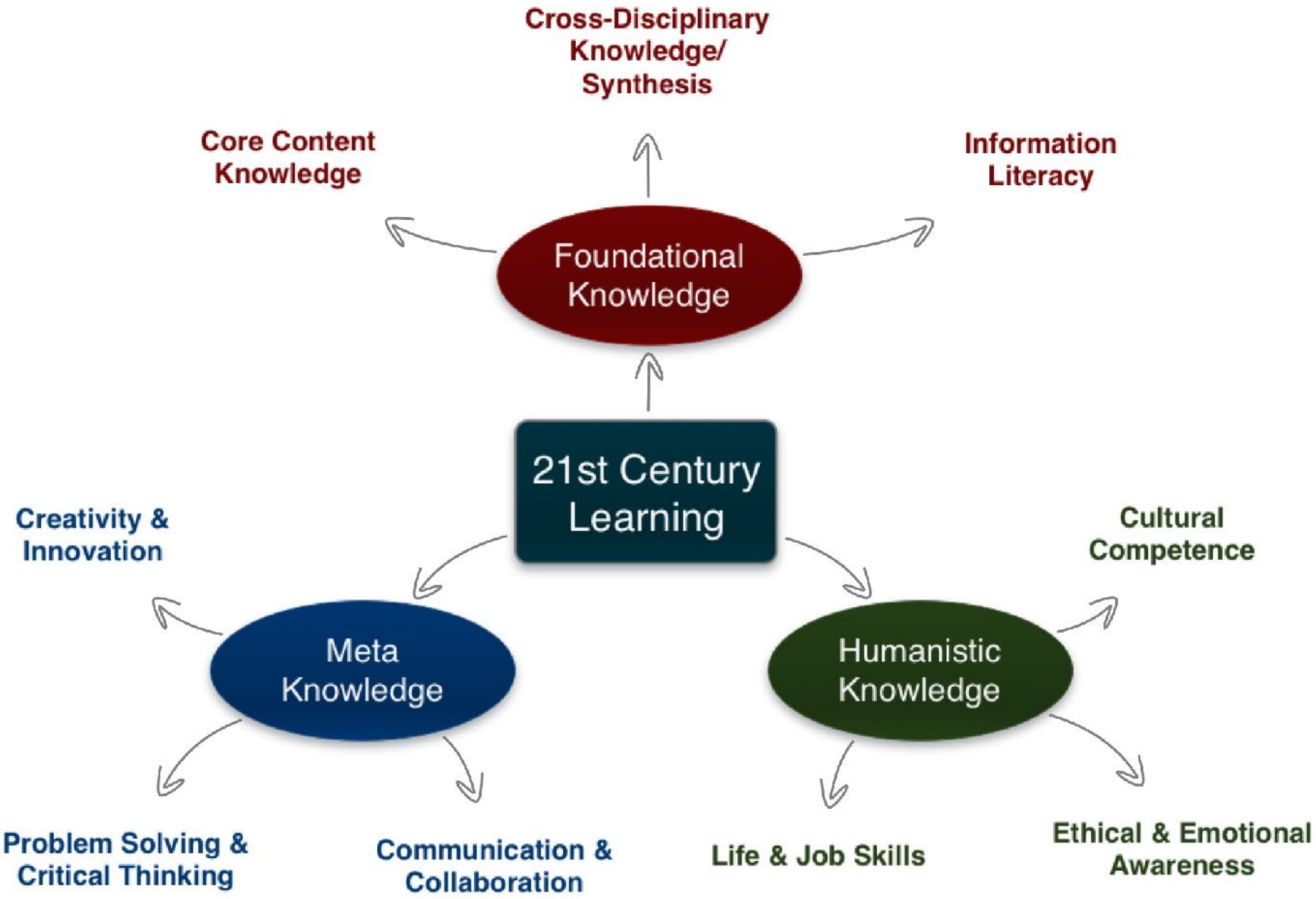
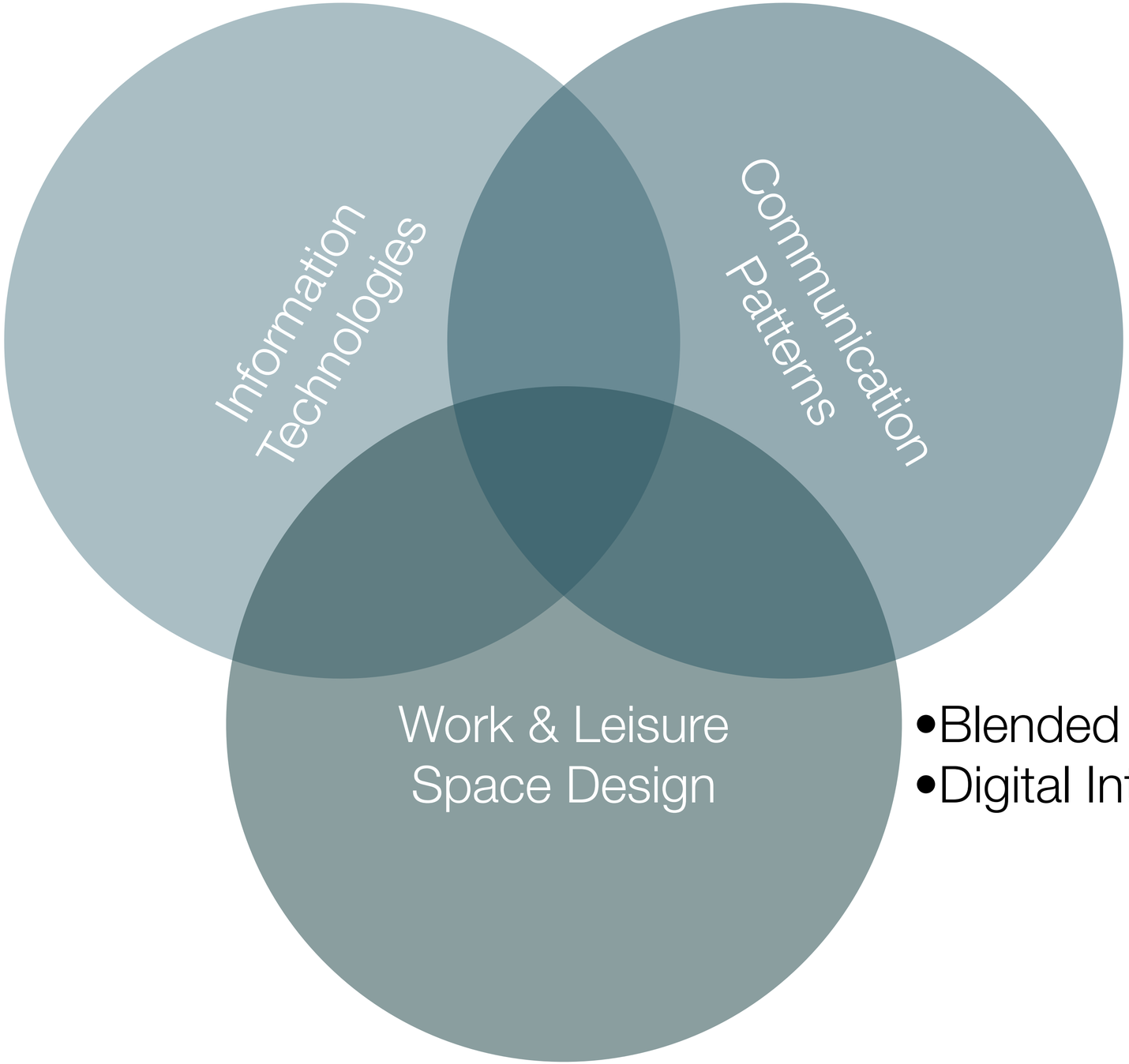
Action Research in an Unpredictable Era

Ruben R. Puentedura, Ph.D.



Kristen Kereluik, Punya Mishra, Chris Fahnoe, and Laura Terry, "What Knowledge Is of Most Worth: Teacher Knowledge for 21st Century Learning". *Journal of Digital Learning in Teacher Education (29)* 4 (2013)

- Computing Power
- Machine Learning

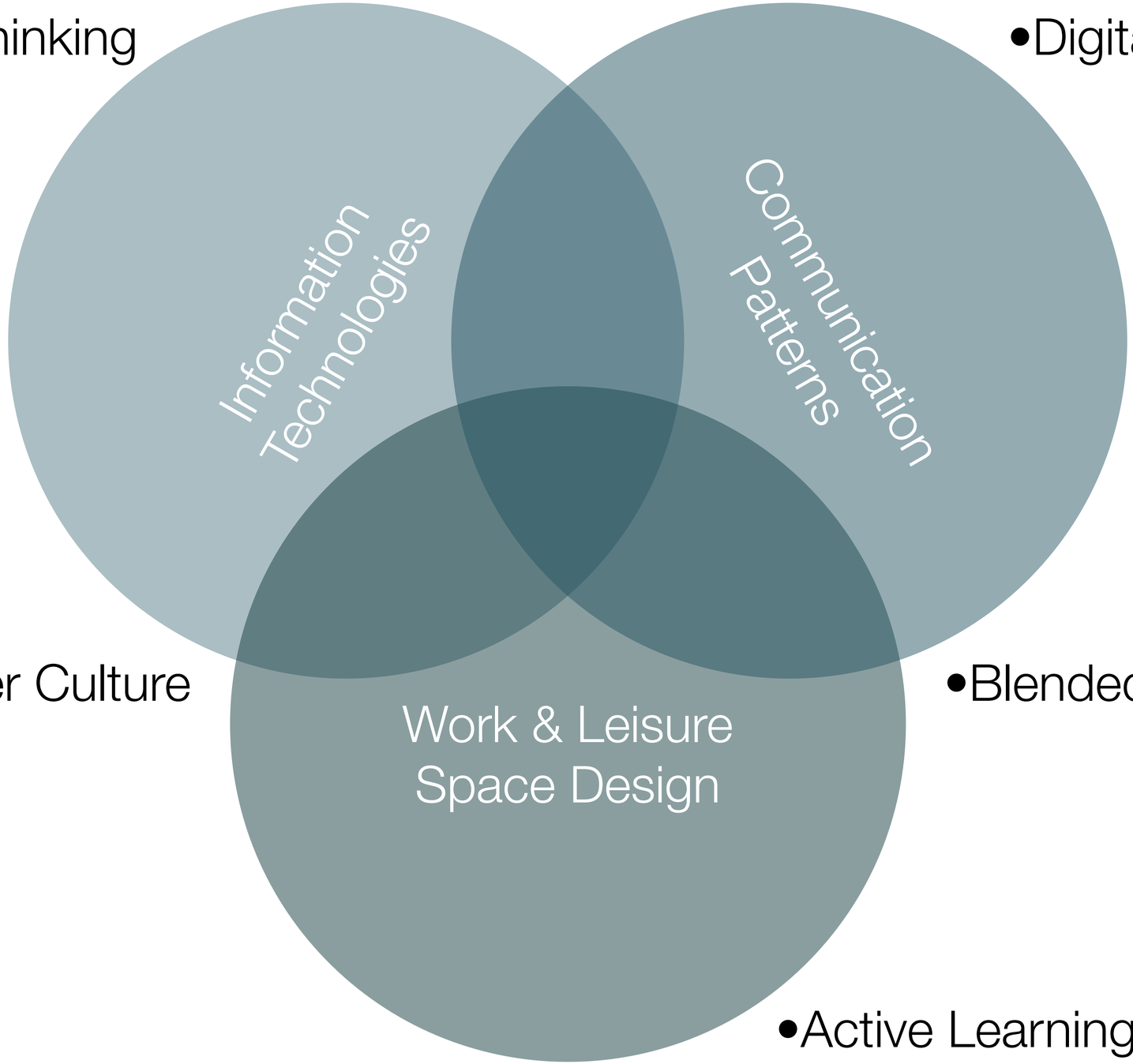


- Mobile Devices
- Social Media

- Blended Spaces
- Digital Integration

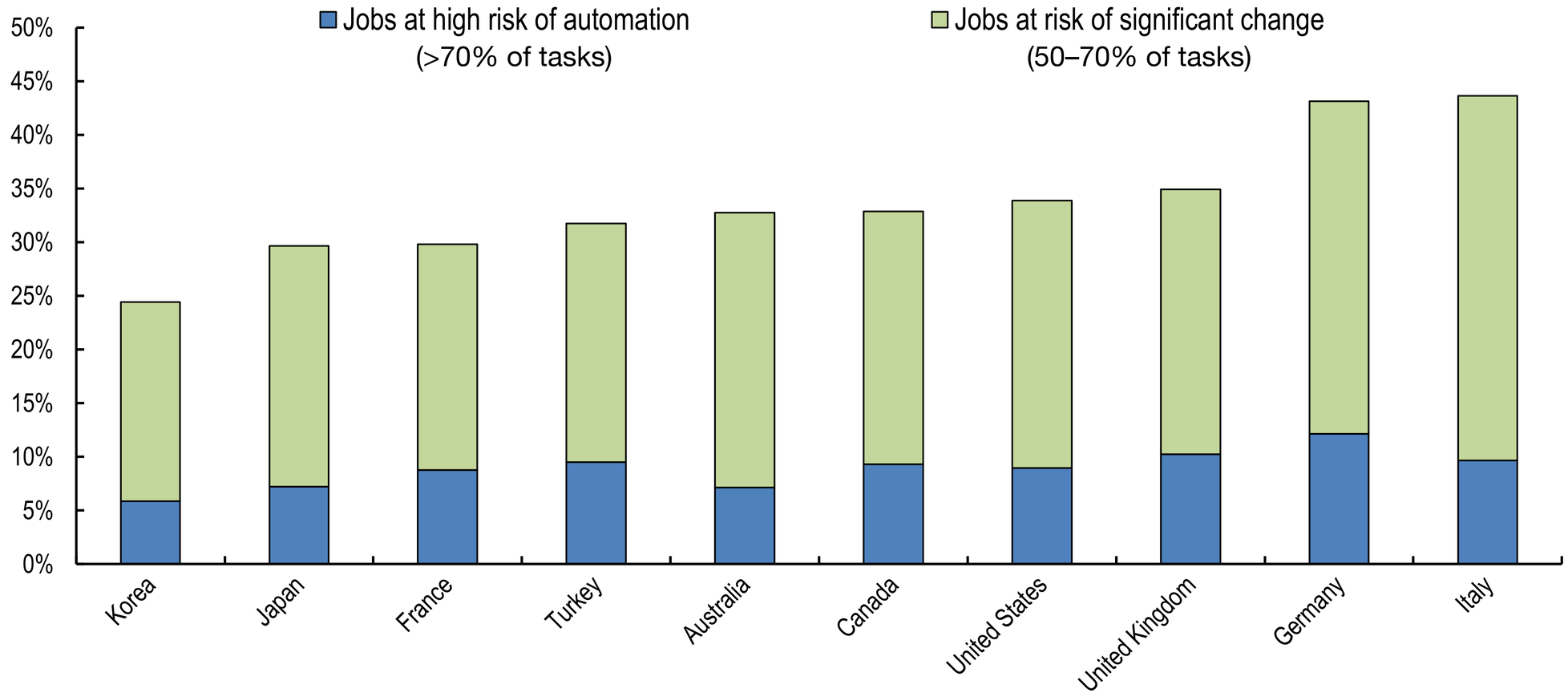

tab
caps lock
shift
control
fn
alt
option
command
enter
shift
command

- Computational Thinking
- Digital Citizenship



- Maker Culture
- Blended Learning
- Active Learning Design

Advanced G20 Countries: Jobs at High Risk of Automation



Organisation for Economic Co-operation and Development (OECD), *Future of Work and Skills*. Paper presented at the 2nd Meeting of the G20 Employment Working Group, Hamburg, Germany. (2017)

“*Gakushiryoku* - ability required for university graduates for an unpredictable era including the education, knowledge and experience to make correct decisions in the face of unexpected difficulties.”

MEXT - *Summary of Report: Towards a Qualitative Transformation of University Education for Building a New Future - Universities Fostering Lifelong Learning and the Ability to Think Independently* (2012)

Four Defining Characteristics of Action Research

- Practical Nature
- Change-Oriented
- Part of a Cyclical Process
- Teachers are Active Researchers and Participants

Martyn Denscombe. *The Good Research Guide: For small-scale social research projects (6th Edition).* McGraw-Hill Education (UK). (2017).

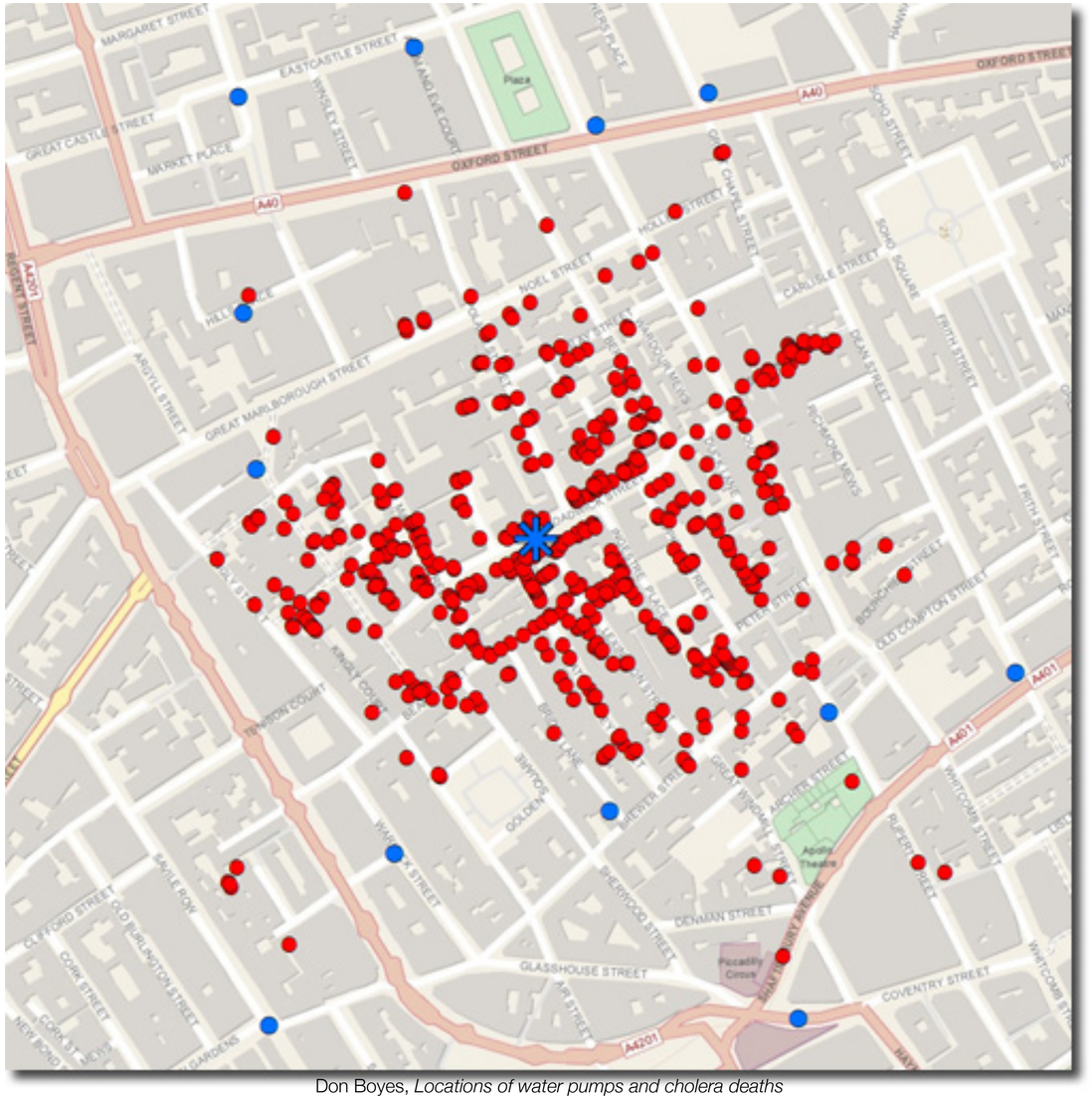
Three Approaches to Action Research	
Technical Action Research	Improve the effectiveness or efficiency of educational practice
Practical Action Research	Improve the teacher's understanding and professional development
Emancipatory Action Research	Improve the educational organization or system and remove obstacles to change

Wilfred Carr and Stephen Kemmis. *Becoming Critical: Education, Knowledge, and Action Research.* Deakin University Press. (1986).

Why Clusters Matter: John Snow and Cholera

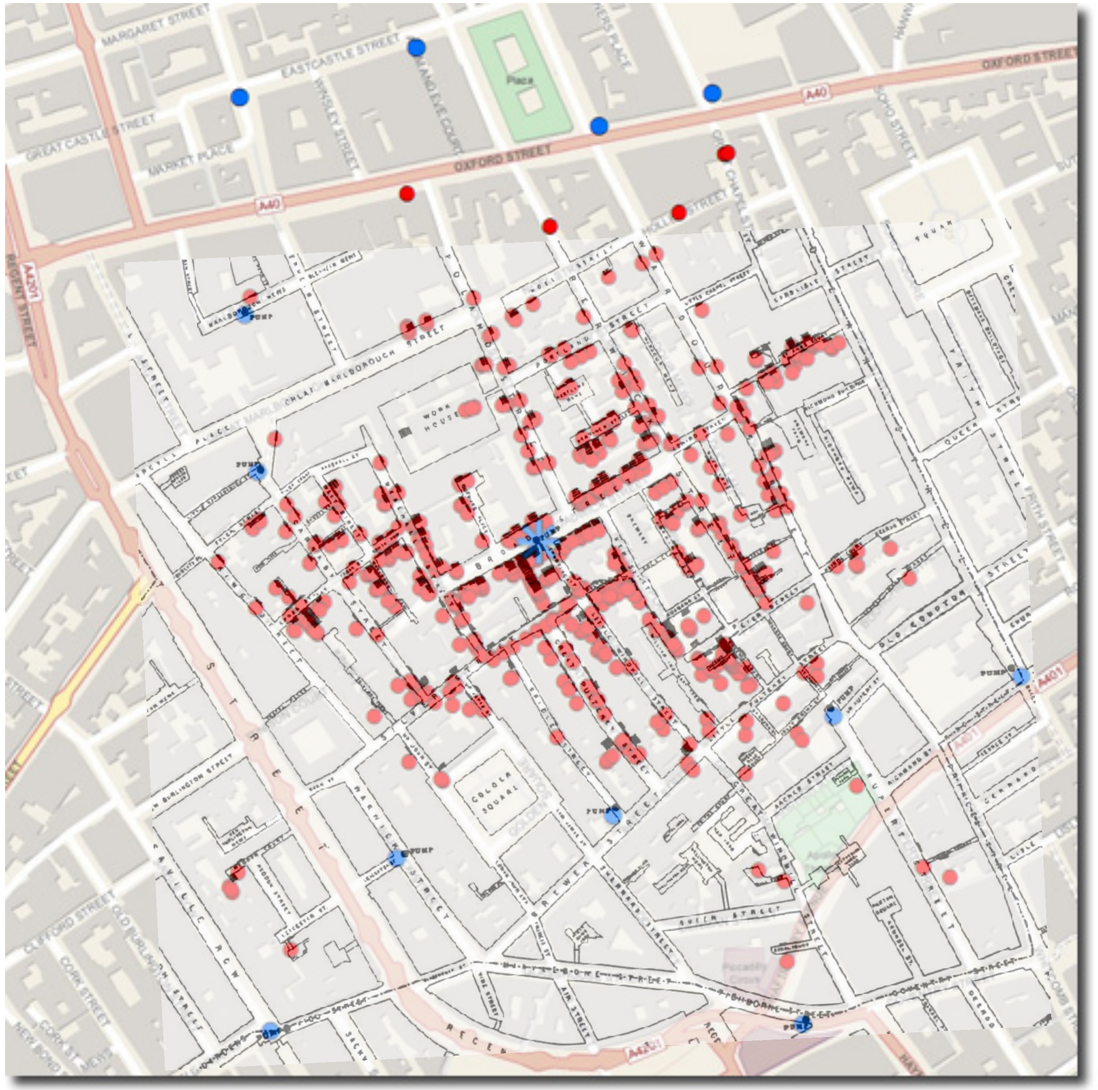
John Snow, *On the Mode of Communication of Cholera (1855)*

Why Clusters Matter: John Snow and Cholera



Don Boyes, *Locations of water pumps and cholera deaths*
http://donboyes.com/2011/10/14/john-snow-and-serendipity/pumps-and-deaths-drop/

Why Clusters Matter: John Snow and Cholera

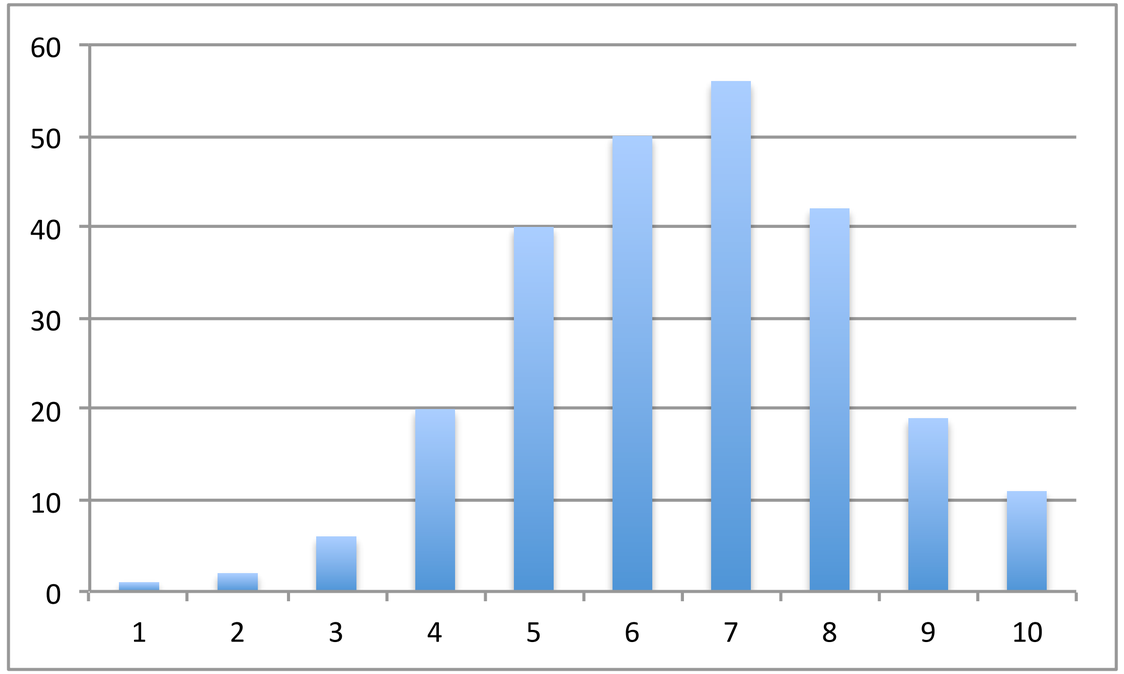


DEATH'S DISPENSARY.

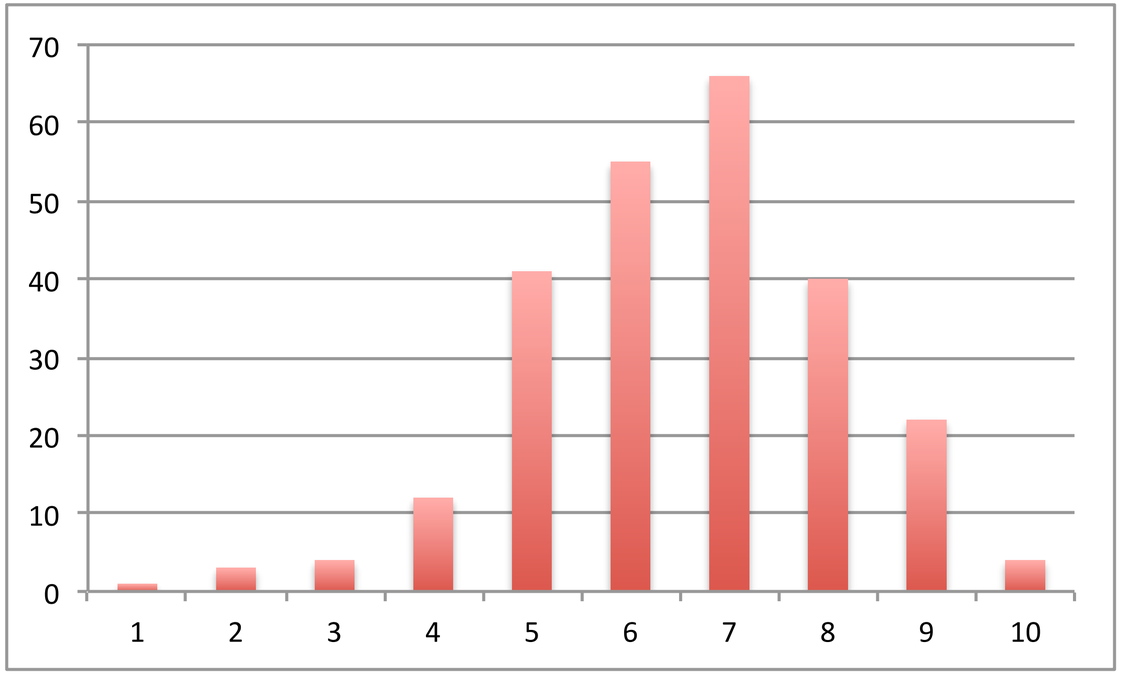
OPEN TO THE POOR, GRATIS, BY PERMISSION OF THE PARISH.

Image Credit: Justin Cormack

Some Simple Data…

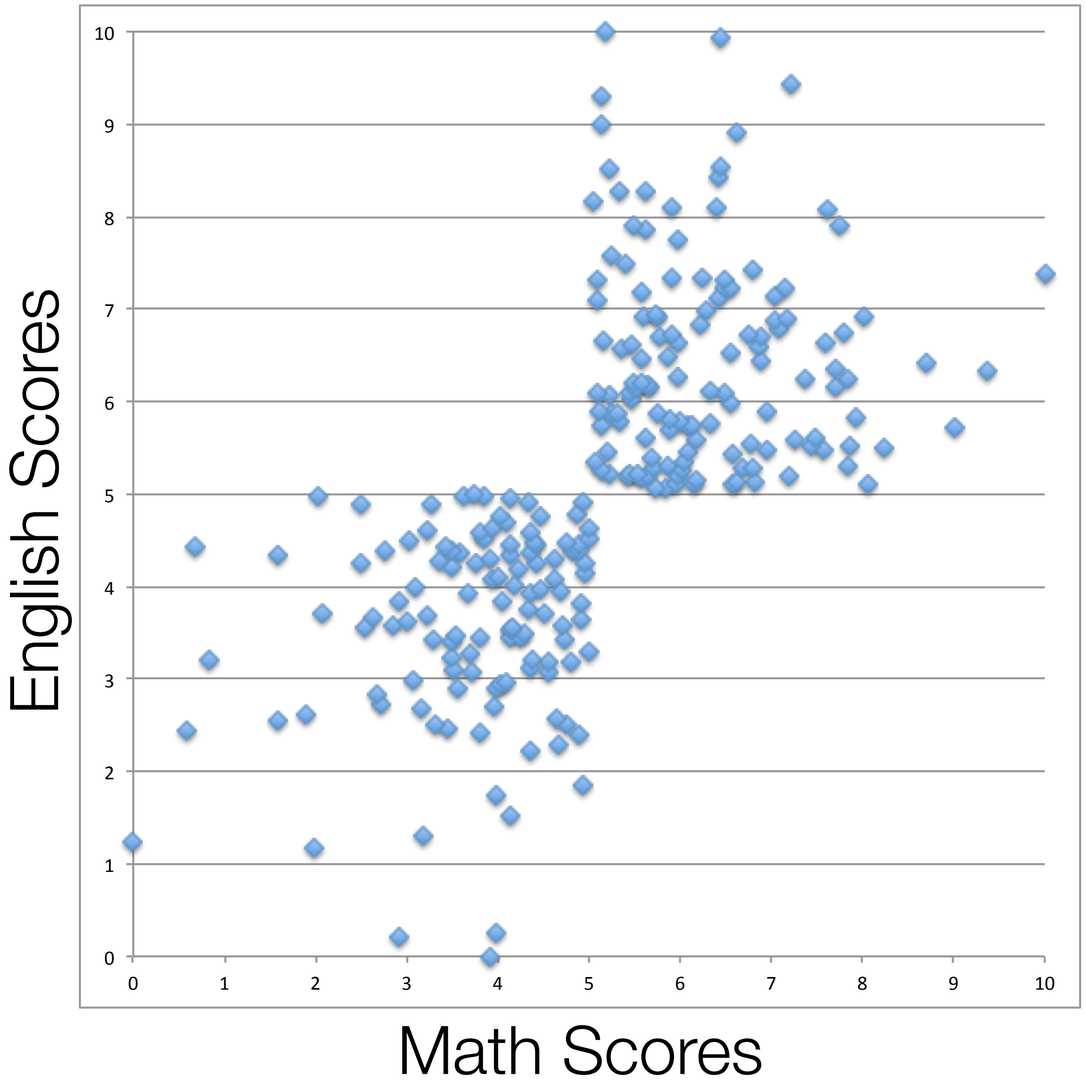


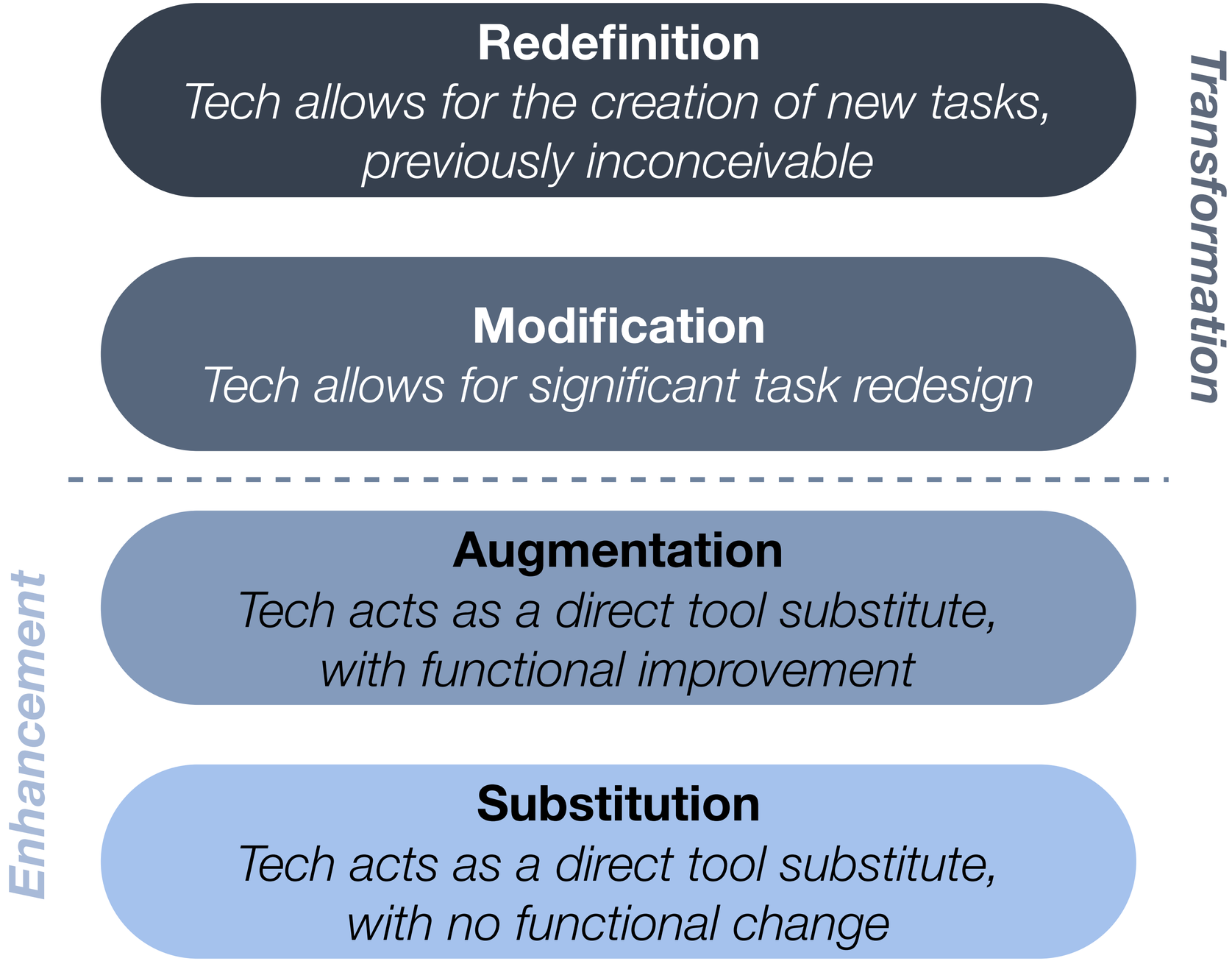
English Scores



Math Scores

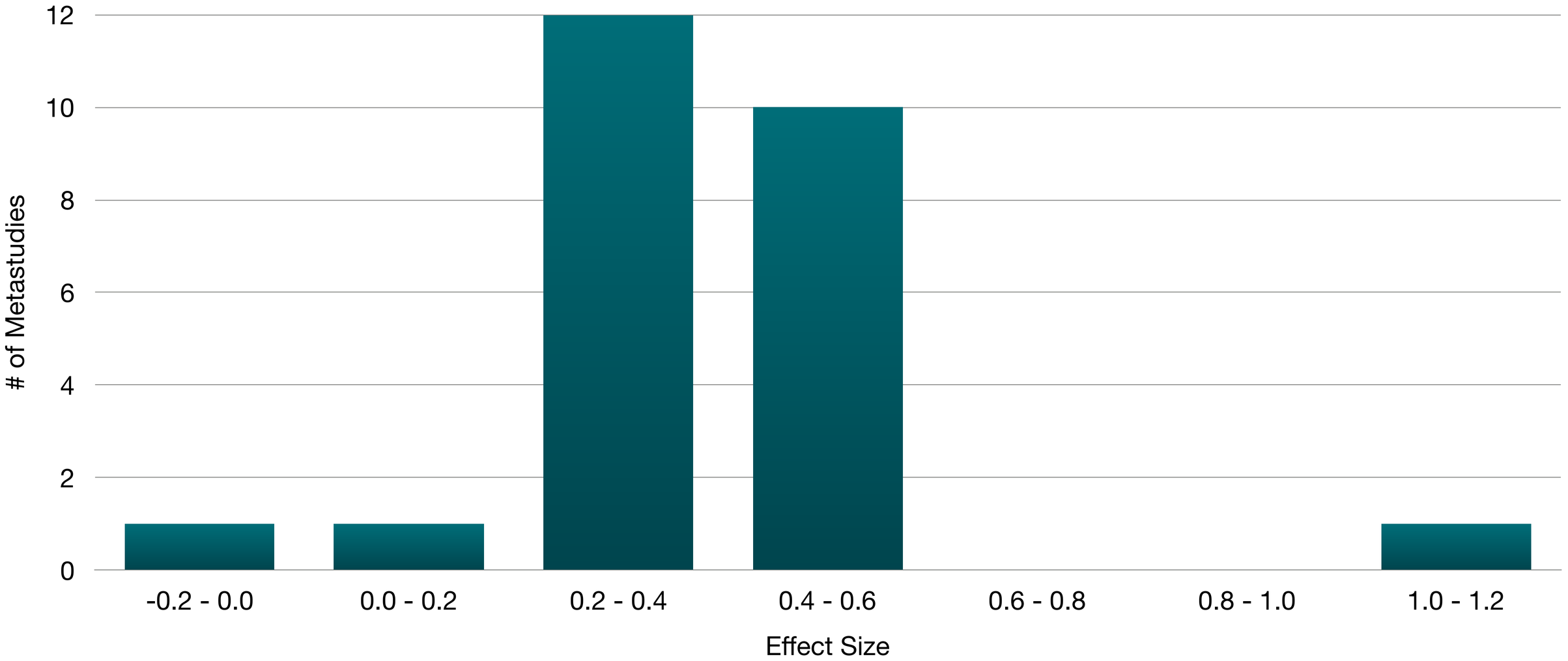
…That Isn't That Simple





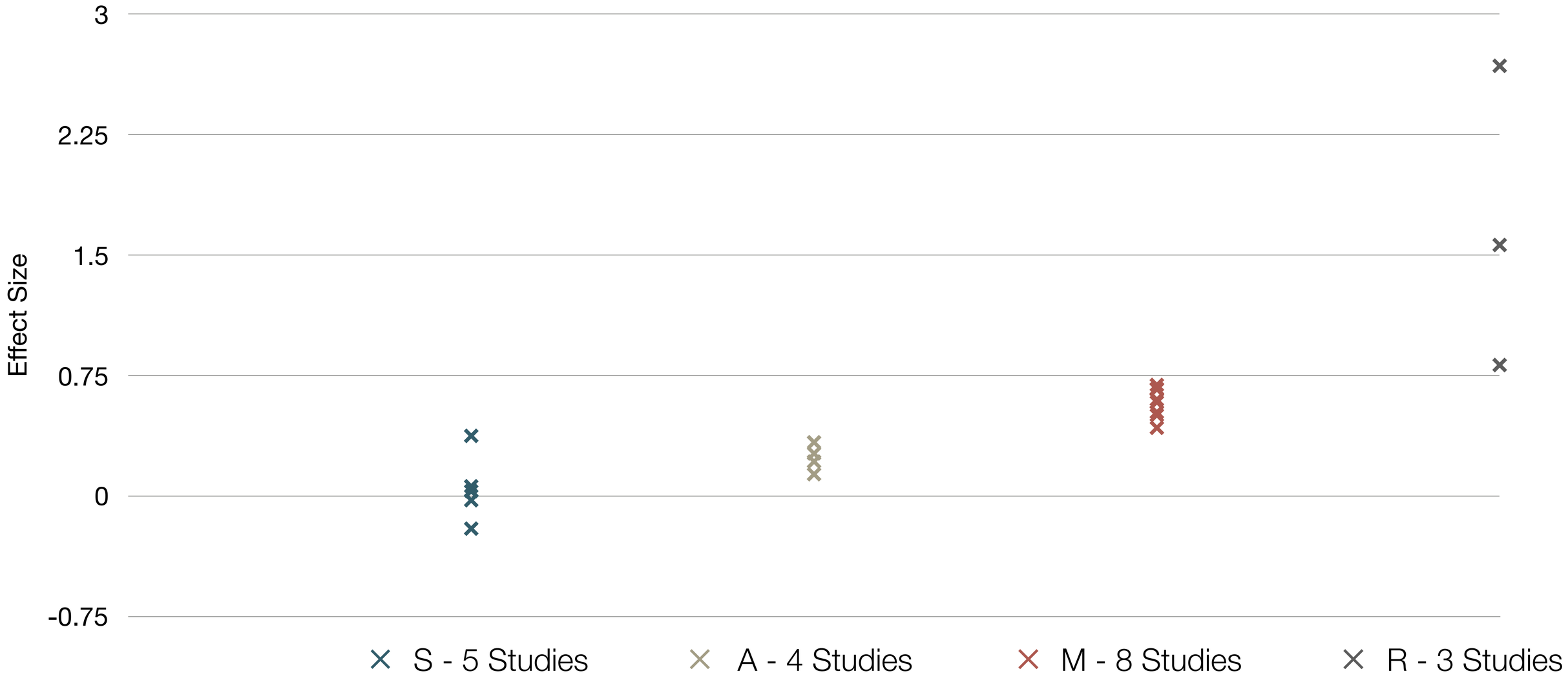
Ruben R. Puentedura, *As We May Teach: Educational Technology, From Theory Into Practice*. (2009)

The Research: 1,097 Studies, 25 Metastudies, 19 Years



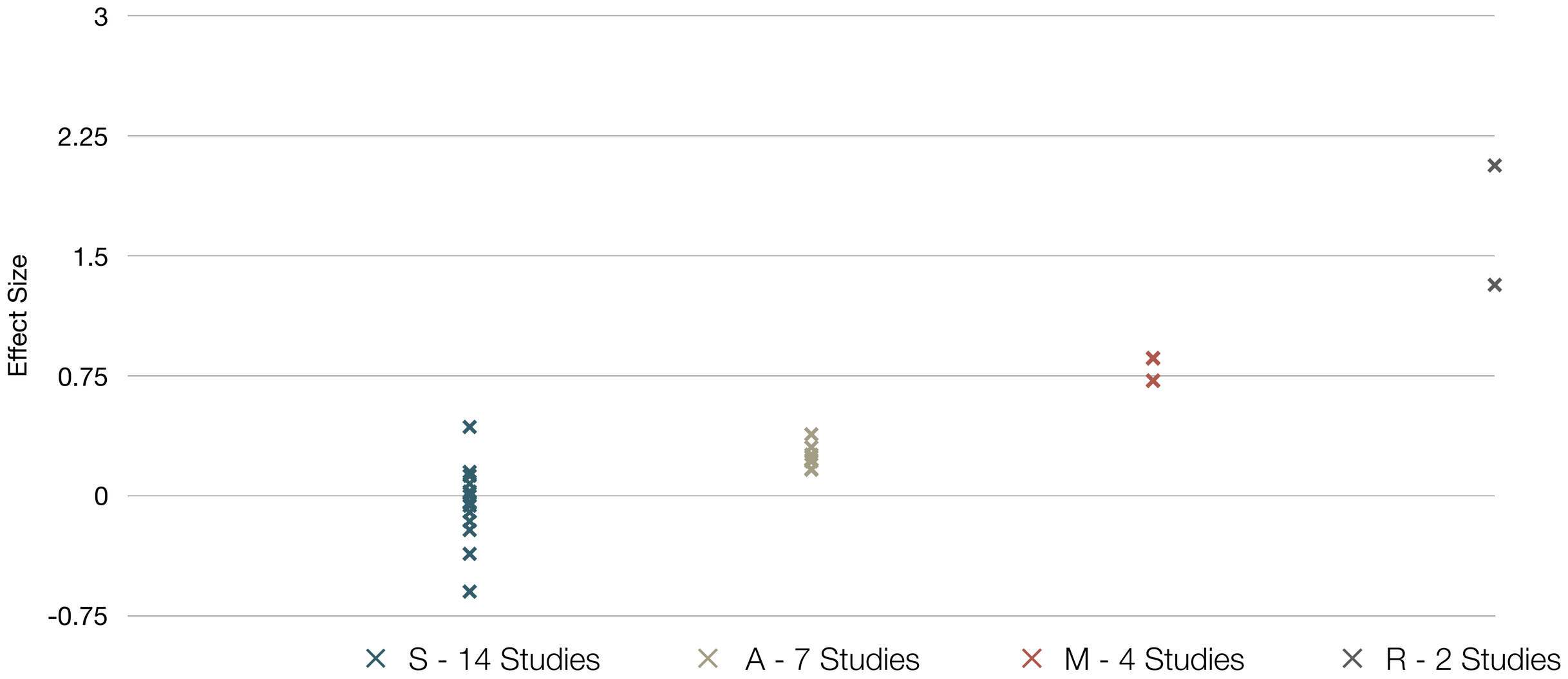
Tamim, Rana M., Robert M. Bernard, Eugene Borokhovski, Philip C. Abrami, and Richard F. Schmid. "What forty years of research says about the impact of technology on learning a second-order meta-analysis and validation study." *Review of Educational Research 81*, no. 1 (2011): 4-28.

SAMR and the Use of Technology to Enhance Reading Performance in Middle School



Pearson, P.D., Ferdig, R.E., Blomeyer Jr, R.L., & Moran, J. "The Effects of Technology on Reading Performance in the Middle-School Grades: A Meta-Analysis With Recommendations for Policy." *Learning Point Associates/North Central Regional Educational Laboratory (NCREL)* (2005).

SAMR and the Use of Tablets in Education



Tamim, R.M., Borokhovski, E., Pickup, D., Bernard, R.M. & El Saadi, L. “Tablets for Teaching and Learning: A Systematic Review and Meta-Analysis." *Commonwealth of Learning (COL)* (2015).

Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years

Ruben R. Puentedura, “Technology In Education: The First 200,000 Years” *The NMC Perspective Series: Ideas that Matter*. NMC Summer Conference, 2012.

The EdTech Quintet – Associated Practices	
Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

PISA 2015 Results

EXCELLENCE AND EQUITY IN EDUCATION

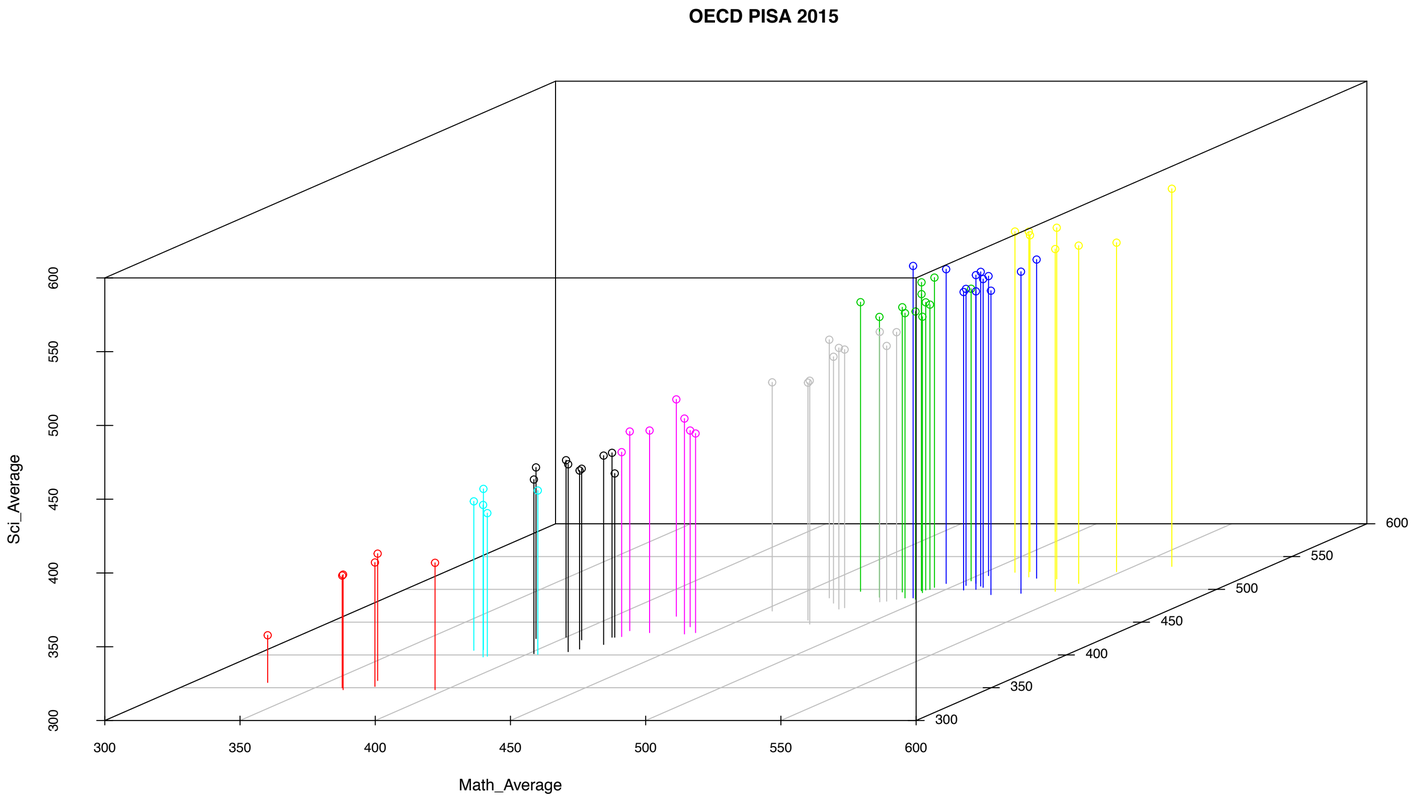
VOLUME I

OECD

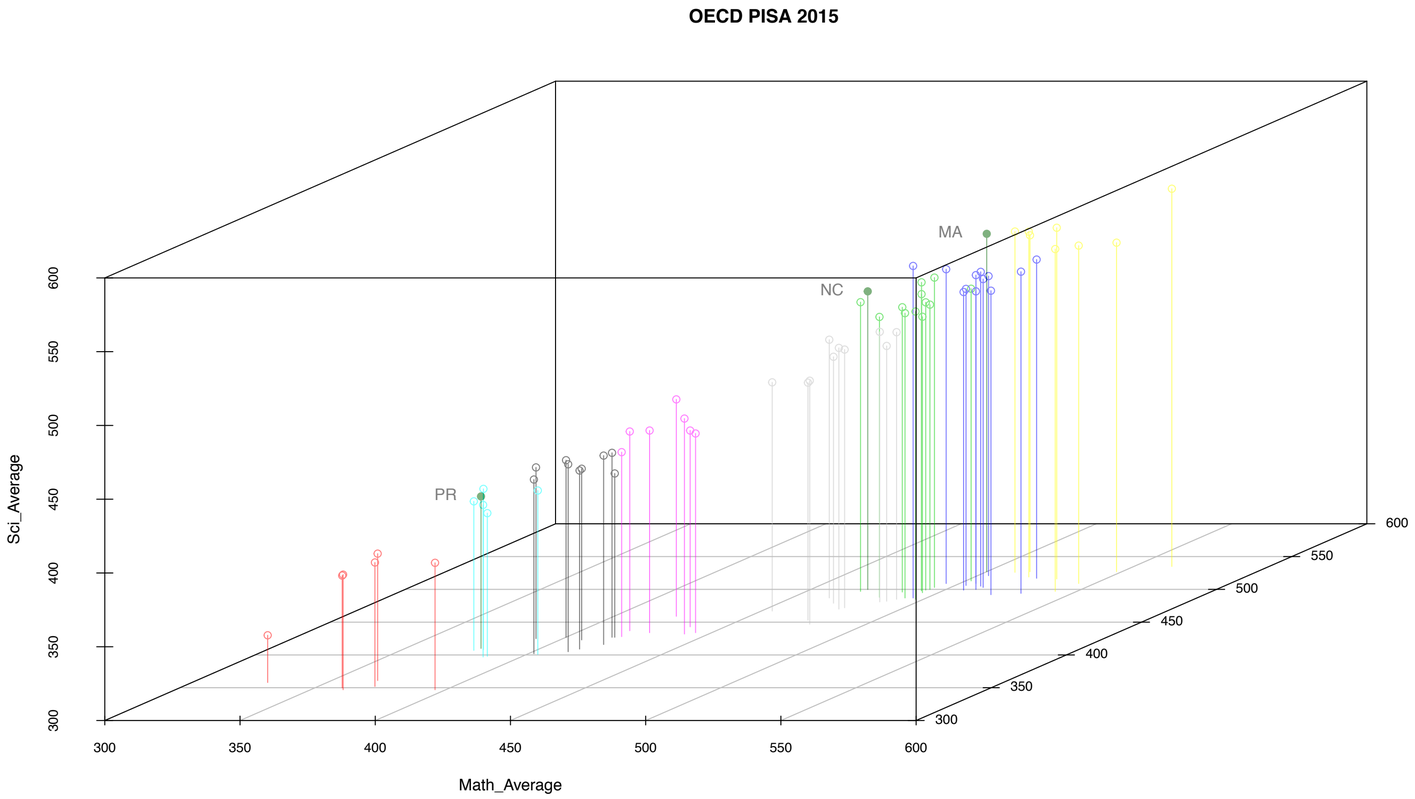
Country	Math	Read.	Sci.
Albania	413	405	427
Algeria	360	350	376
Australia	494	503	510
Austria	497	485	495
B-S-J-G - China	531	494	518
Belgium	507	499	502
Brazil	377	407	401
Bulgaria	441	432	446
Canada	516	527	528
Chile	423	459	447
Chinese Taipei	542	497	532
Colombia	390	425	416
Costa Rica	400	427	420
Croatia	464	487	475
Cyprus	437	443	433
Czech Republic	492	487	493
Denmark	511	500	502
Dominican Republic	328	358	332
Estonia	520	519	534
Finland	511	526	531
France	493	499	495
FYROM	371	352	384
Georgia	404	401	411

Country	Math	Read.	Sci.
Germany	506	509	509
Greece	454	467	455
Hong Kong - China	548	527	523
Hungary	477	470	477
Iceland	488	482	473
Indonesia	386	397	403
Ireland	504	521	503
Israel	470	479	467
Italy	490	485	481
Japan	532	516	538
Jordan	380	408	409
Korea	524	517	516
Kosovo	362	347	378
Latvia	482	488	490
Lebanon	396	347	386
Lithuania	478	472	475
Luxembourg	486	481	483
Macao - China	544	509	529
Malta	479	447	465
Mexico	408	423	416
Moldova	420	416	428
Montenegro	418	427	411
Netherlands	512	503	509

Country	Math	Read.	Sci.
New Zealand	495	509	513
Norway	502	513	498
Peru	387	398	397
Poland	504	506	501
Portugal	492	498	501
Qatar	402	402	418
Romania	444	434	435
Russia	494	495	487
Singapore	564	535	556
Slovak Republic	475	453	461
Slovenia	510	505	513
Spain	486	496	493
Sweden	494	500	493
Switzerland	521	492	506
Thailand	415	409	421
Trinidad and Tobago	417	427	425
Tunisia	367	361	386
Turkey	420	428	425
United Arab Emirates	427	434	437
United Kingdom	492	498	509
United States	470	497	496
Uruguay	418	437	435
Viet Nam	495	487	525

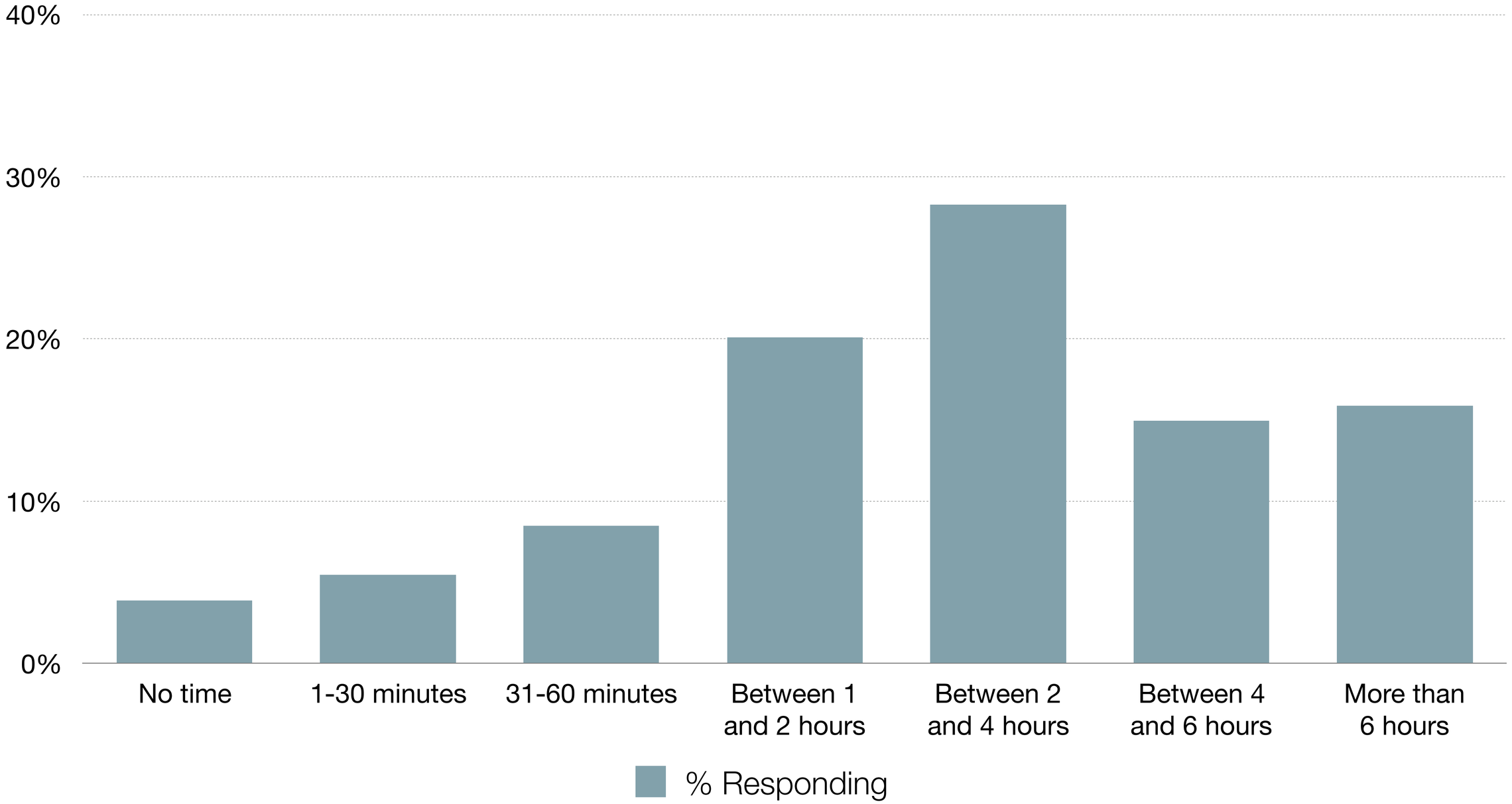


	Canada, Chinese Taipei, Estonia, Finland, Hong Kong (China), Japan, Macao (China), Singapore
	B-S-J-G (China), Belgium, Denmark, Germany, Ireland, Korea, Netherlands, New Zealand, Poland, Slovenia, Switzerland, Viet Nam
	Australia, Austria, Czech Republic, France, Latvia, Norway, Portugal, Russia, Spain, Sweden, United Kingdom, United States
	Croatia, Greece, Hungary, Iceland, Israel, Italy, Lithuania, Luxembourg, Malta, Slovak Republic
	Bulgaria, Chile, Cyprus, Romania, Turkey, United Arab Emirates, Uruguay
	Albania, Colombia, Costa Rica, Mexico, Moldova, Montenegro, Qatar, Thailand, Trinidad and Tobago
	Brazil, Georgia, Indonesia, Jordan, Peru
	Algeria, Dominican Republic, FYROM, Kosovo, Lebanon, Tunisia

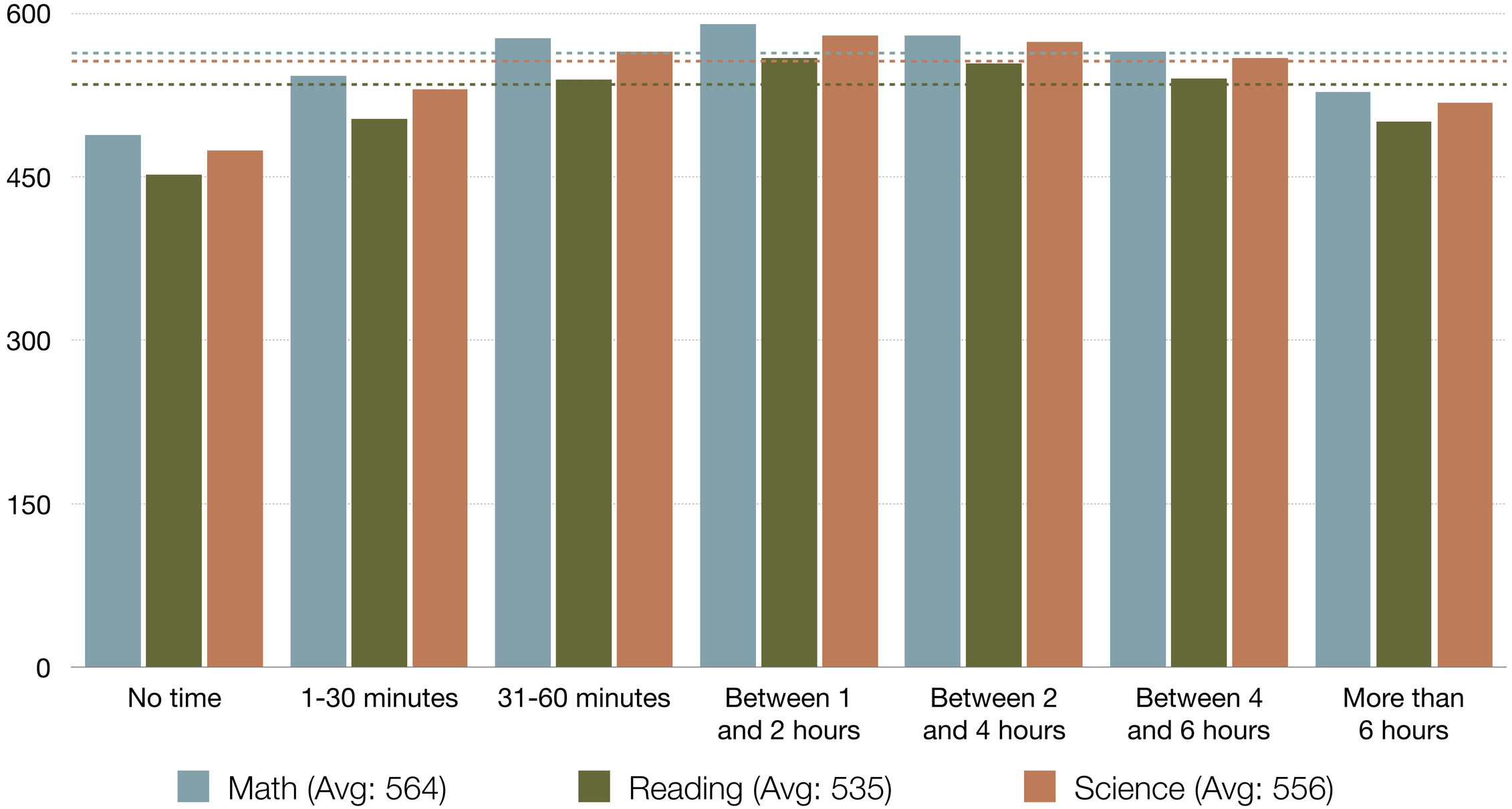


	Canada, Chinese Taipei, Estonia, Finland, Hong Kong (China), Japan, Macao (China), Singapore
	B-S-J-G (China), Belgium, Denmark, Germany, Ireland, Korea, Netherlands, New Zealand, Poland, Slovenia, Switzerland, Viet Nam; ***MA***
	Australia, Austria, Czech Republic, France, Latvia, Norway, Portugal, Russia, Spain, Sweden, United Kingdom, United States; ***NC***
	Croatia, Greece, Hungary, Iceland, Israel, Italy, Lithuania, Luxembourg, Malta, Slovak Republic
	Bulgaria, Chile, Cyprus, Romania, Turkey, United Arab Emirates, Uruguay
	Albania, Colombia, Costa Rica, Mexico, Moldova, Montenegro, Qatar, Thailand, Trinidad and Tobago
	Brazil, Georgia, Indonesia, Jordan, Peru; ***PR***
	Algeria, Dominican Republic, FYROM, Kosovo, Lebanon, Tunisia

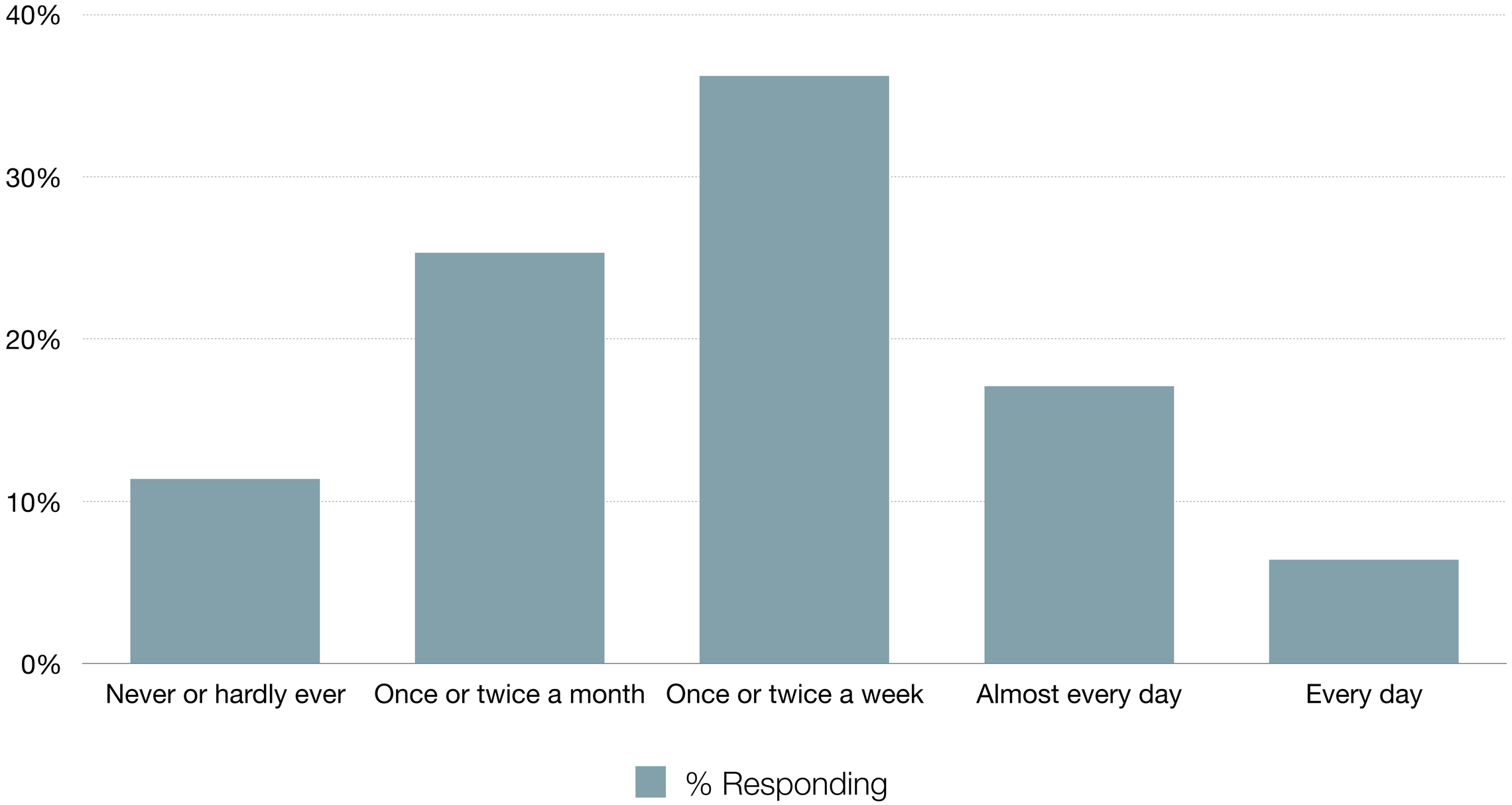
Singapore: During a typical weekday, for how long do you use the Internet outside of school?



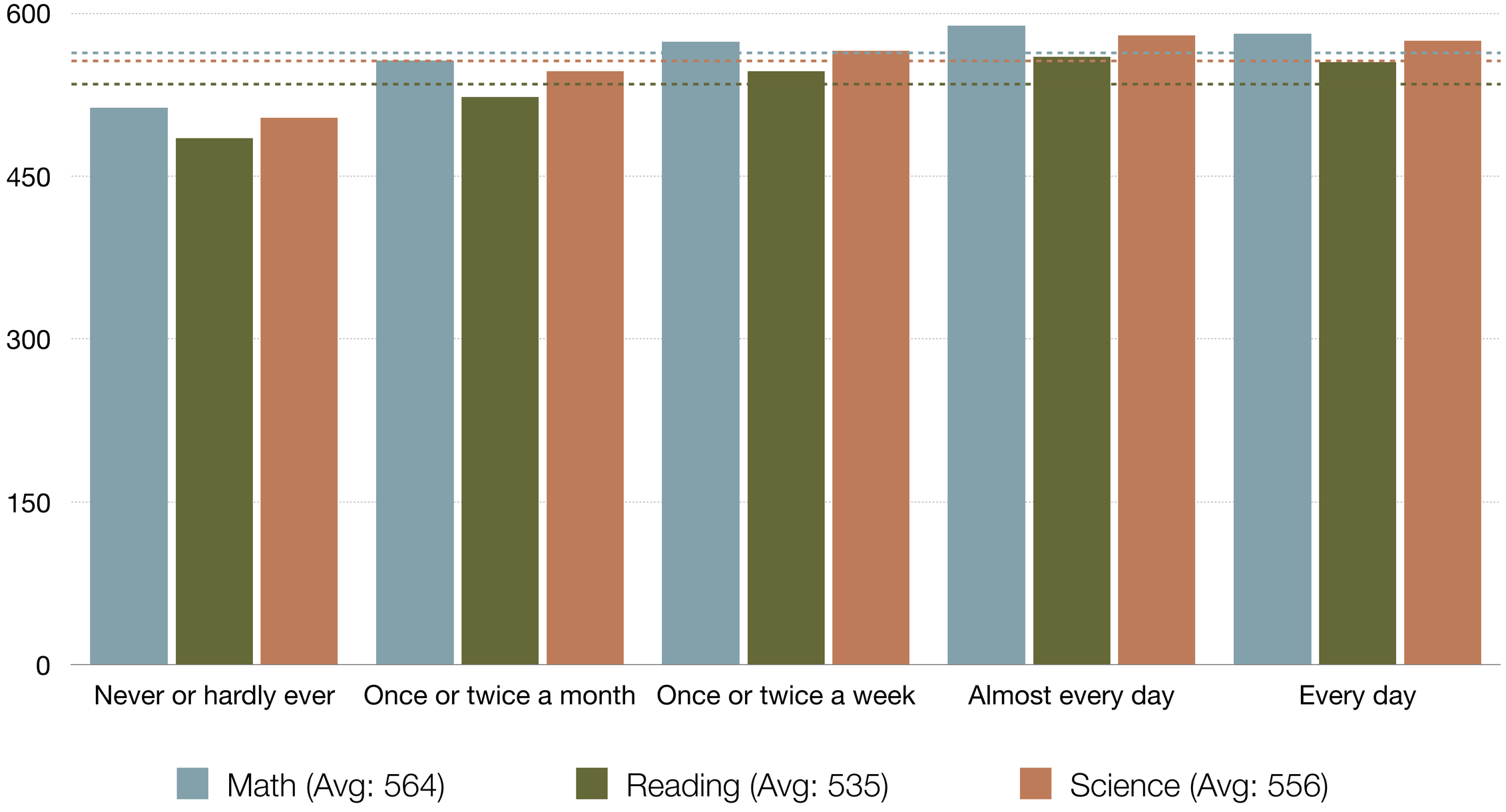
Singapore: During a typical weekday, for how long do you use the Internet outside of school?



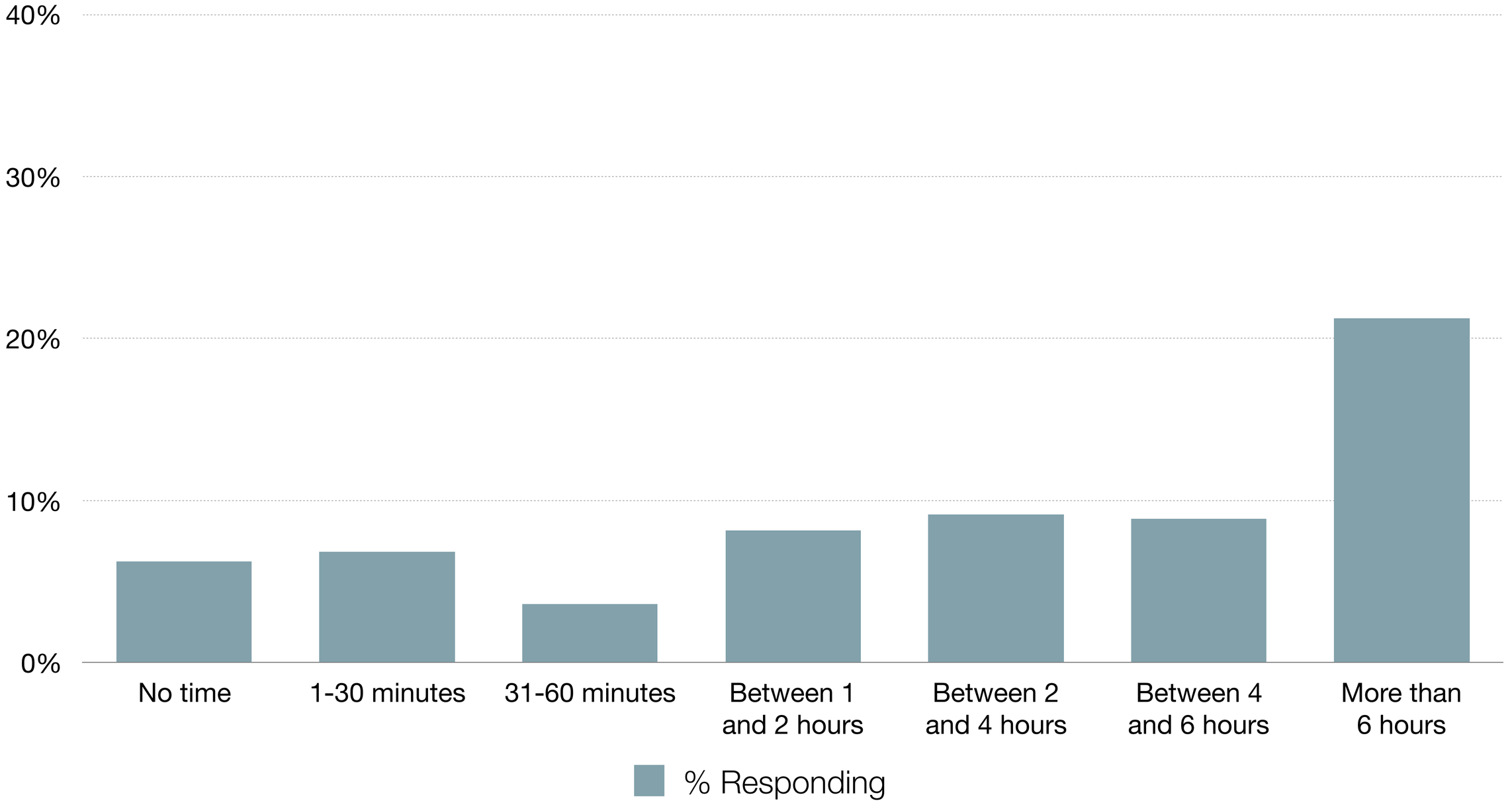
Singapore: How often do you use a computer for browsing the Internet for schoolwork outside of school?



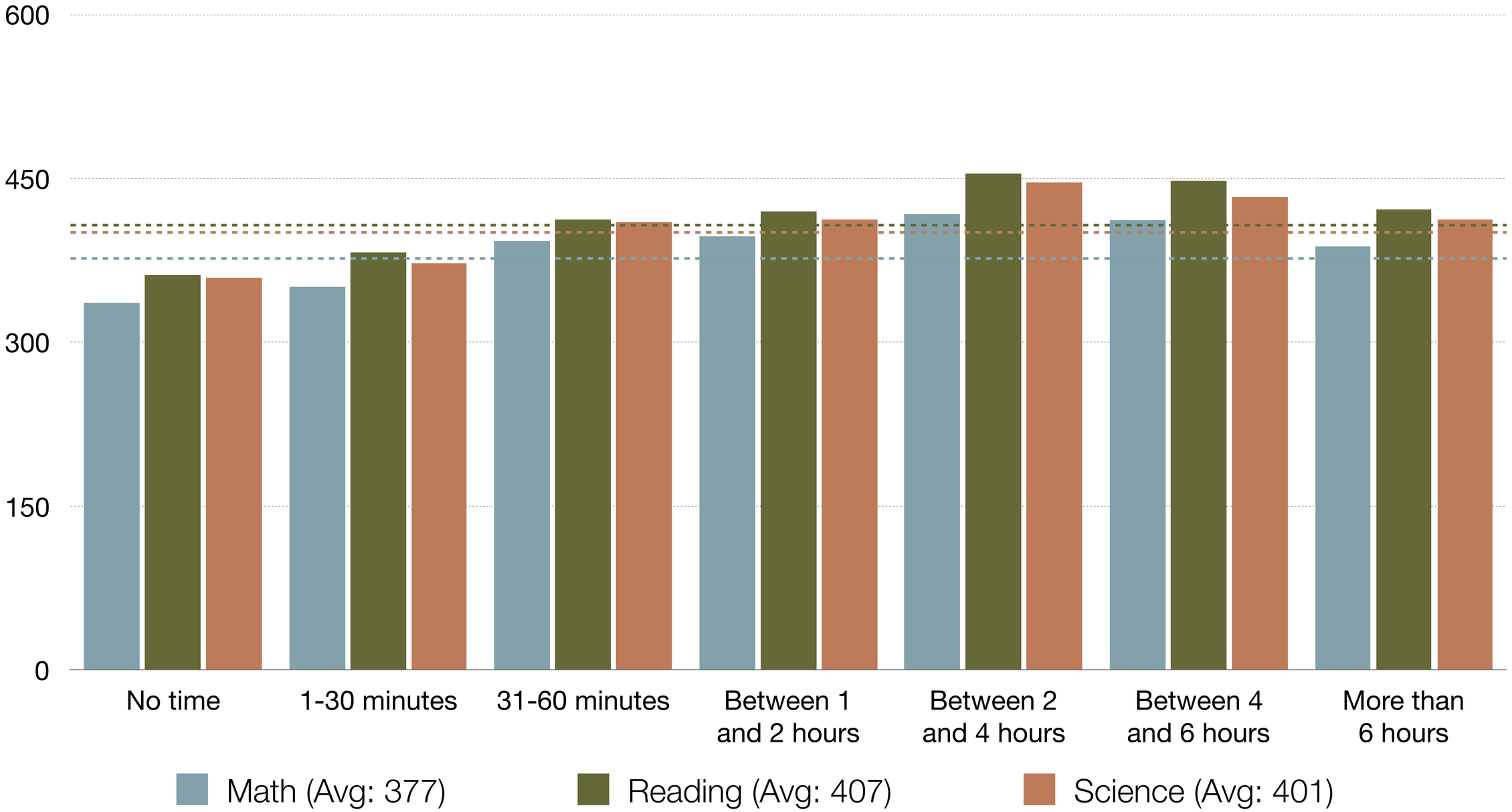
Singapore: How often do you use a computer for browsing the Internet for schoolwork outside of school?



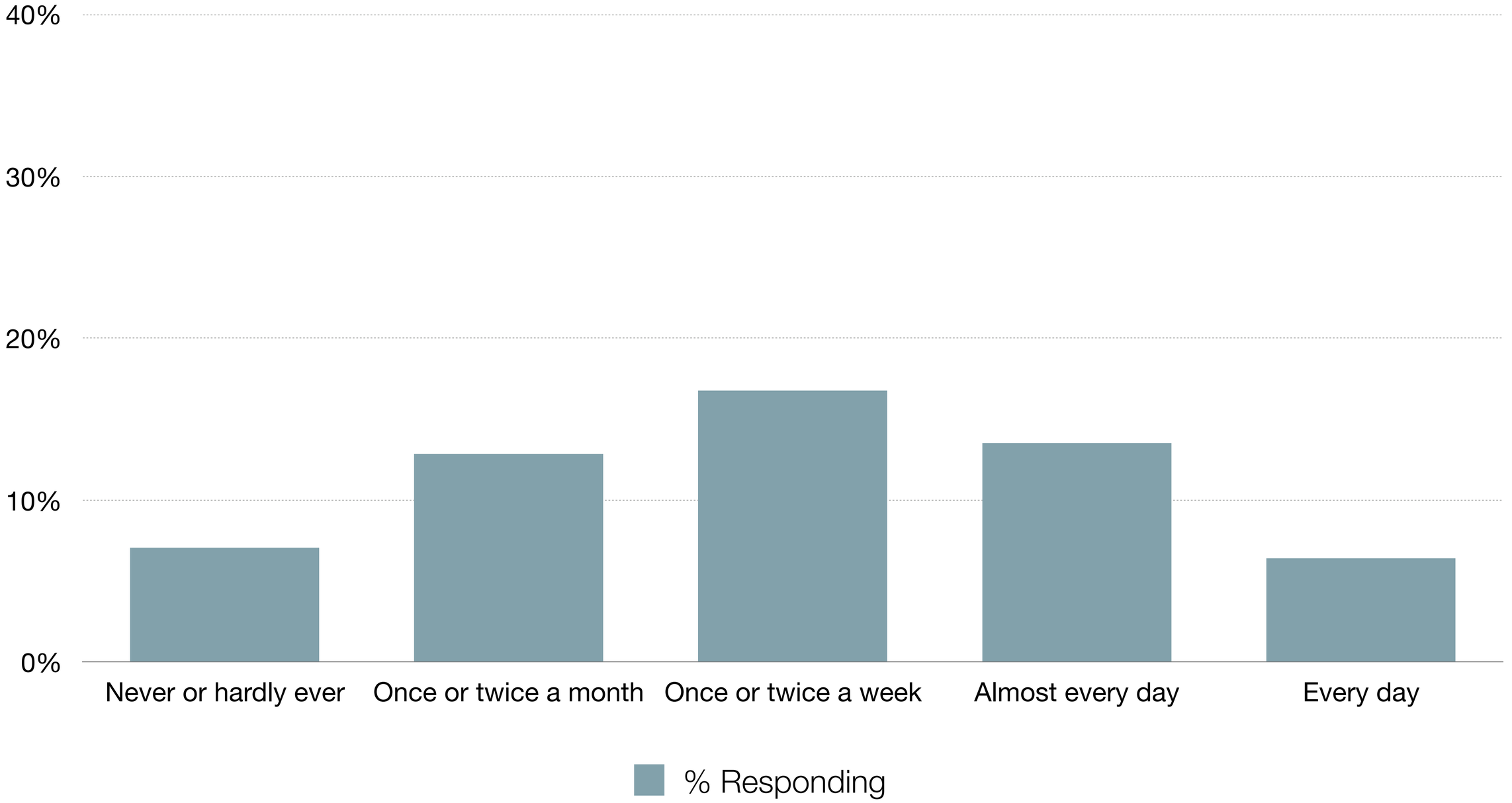
Brazil: During a typical weekday, for how long do you use the Internet outside of school?



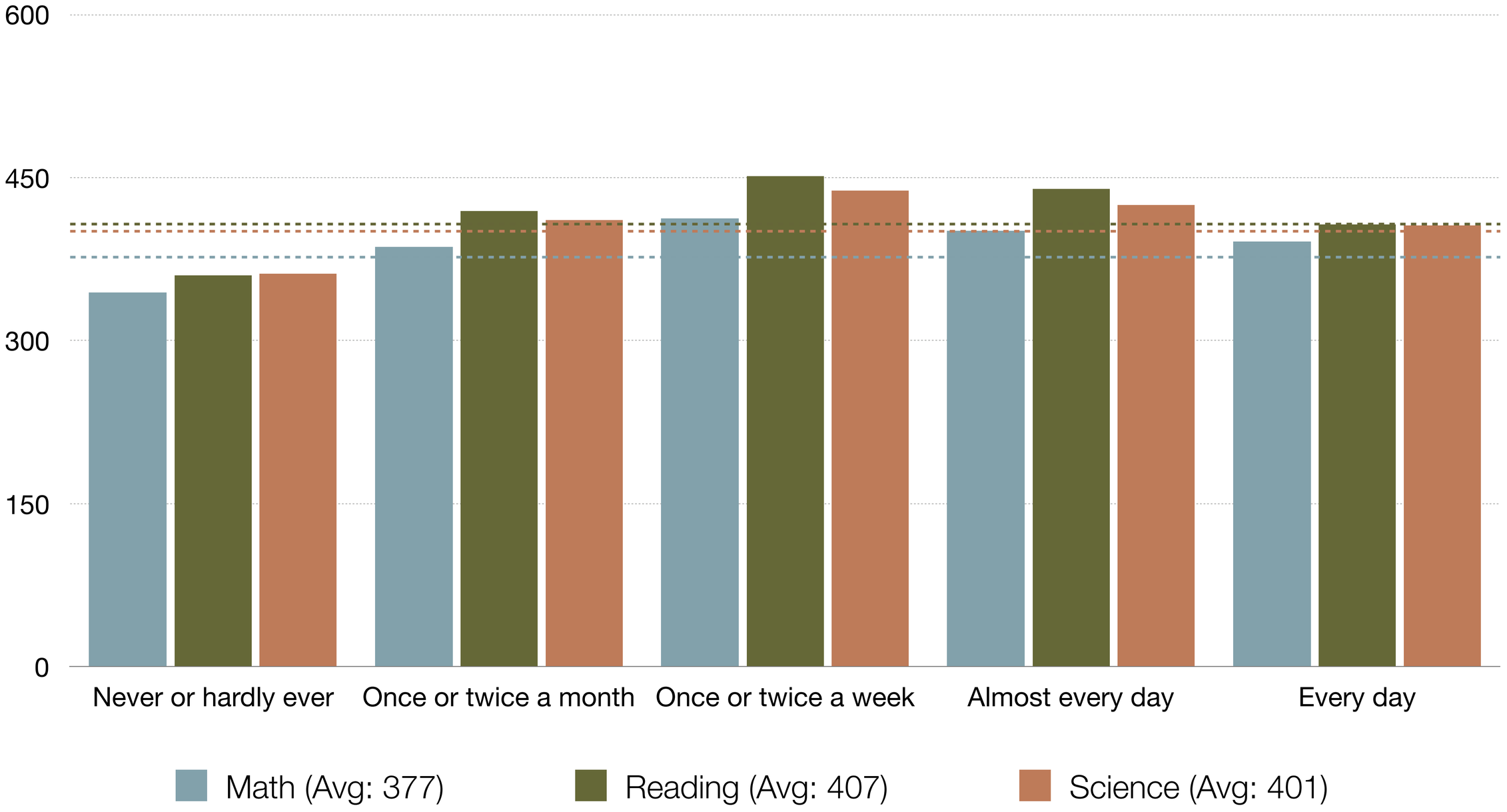
Brazil: During a typical weekday, for how long do you use the Internet outside of school?

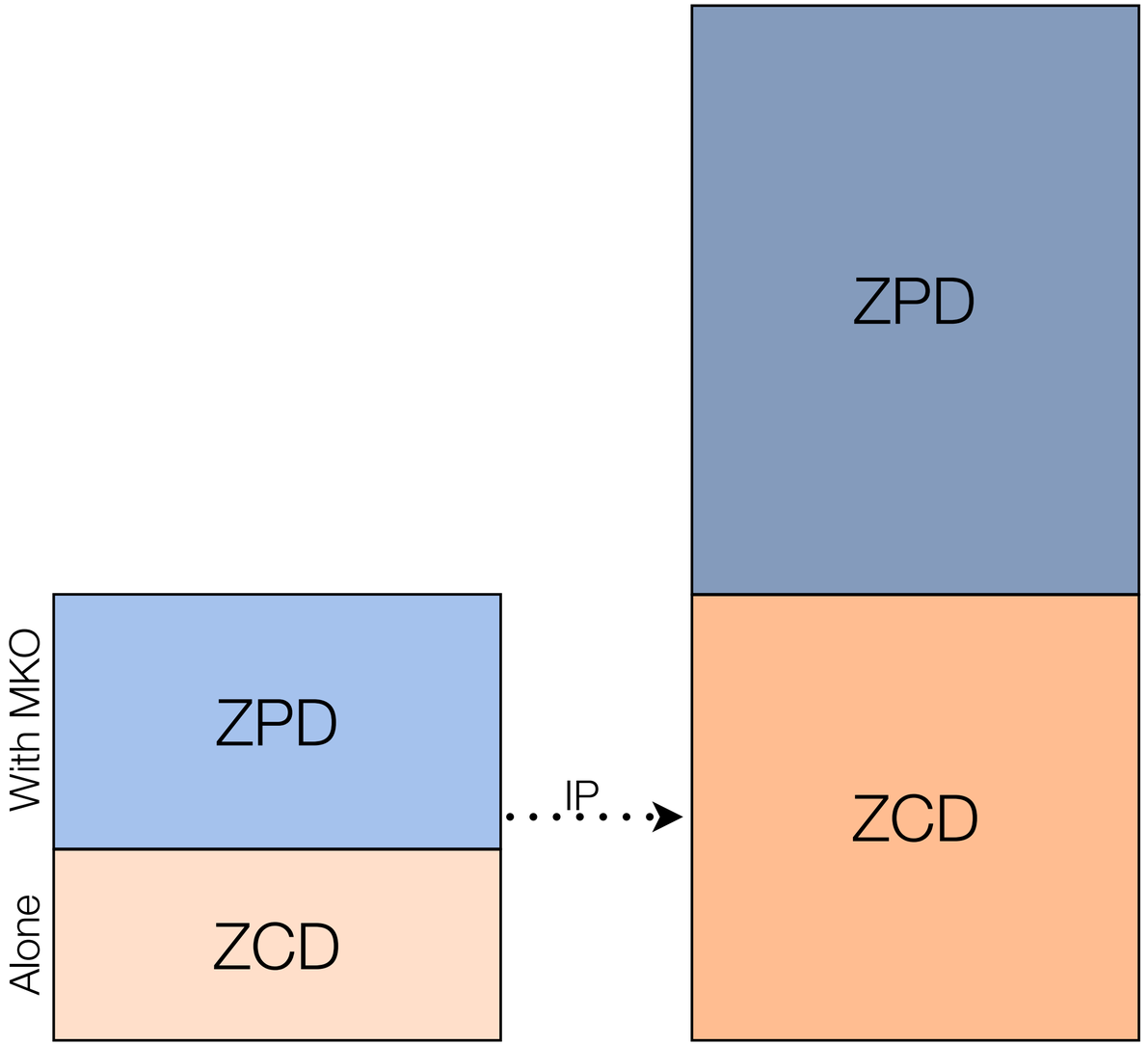


Brazil: How often do you use a computer for browsing the Internet for schoolwork outside of school?

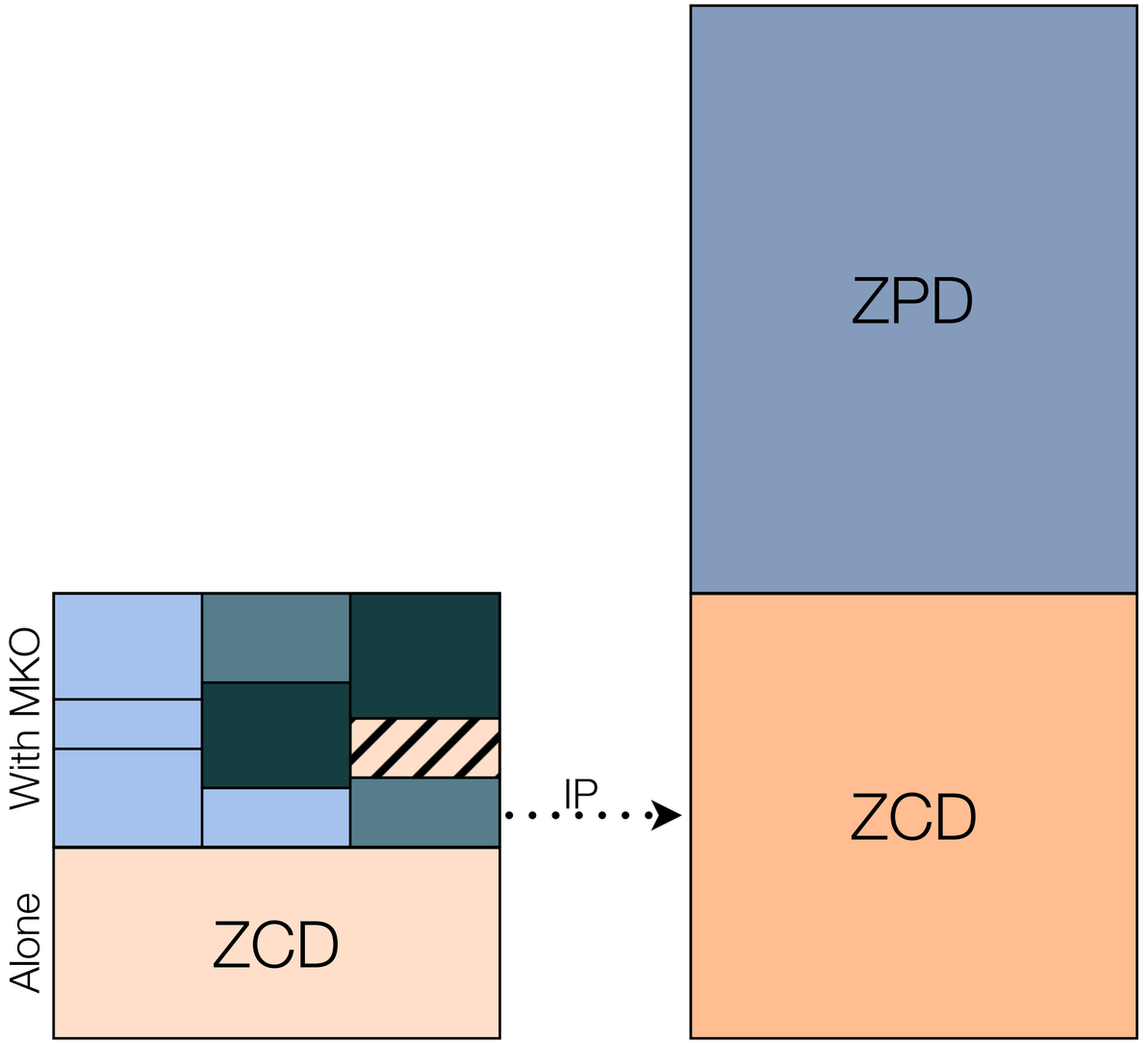


Brazil: How often do you use a computer for browsing the Internet for schoolwork outside of school?





Lev Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press. (1978)

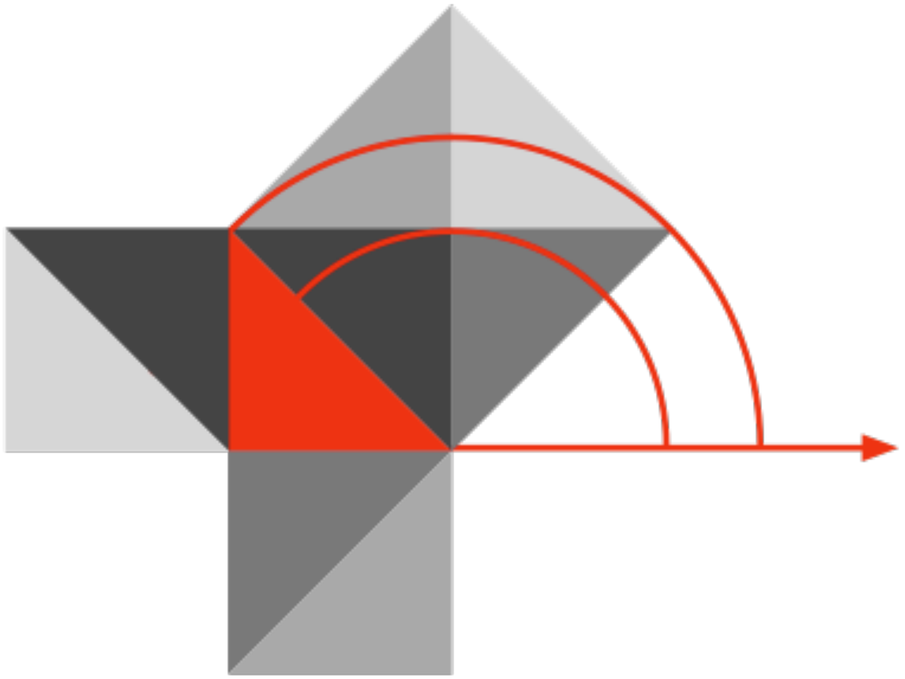


Galperin, P.Ia. “Stage by Stage formation as a method of psychological investigation”. *Journal of Russian and East European Psychology, 30*(4), 61-80 (1992)
Van Geert, Paul. "Vygotsky’s dynamic systems." *Lev Vygotsky: Critical assessments* 4 (1997): 3-21.

The EdTech Quintet – Associated Practices	
Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

The EdTech Quintet – Associated Practices	
Social	Provides diversity to the ZPD
Mobility	Creates the context for the process
Visualization	Aids in segmenting ZPD, bridging gaps
Storytelling	Aids in the integration of the ZPD
Gaming	Provides frameworks for independent practice

Hippasus



Blog: http://hippasus.com/blog/
Email: rubenrp@hippasus.com
Twitter: @rubenrp