

SOCIAL NETWORK SITE USE AND ACADEMIC ACHIEVEMENT

FOUR META-ANALYSES

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BACKGROUND

- Negative relationship:
 - *Time displacement hypothesis* (Nie, 2001; Putnam, 2000; cf. Tokunaga, 2016)
 - Multitasking
 - Sleep deprivation



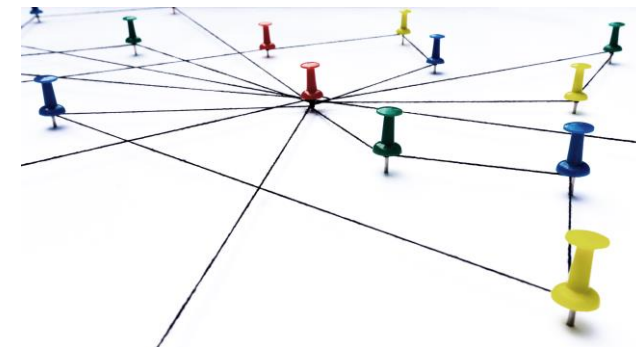
BACKGROUND

- Evidence is heterogeneous
 - Negative relationship (e.g., Kirschner & Karpinski, 2010)
 - No relationship (e.g., Hargittai & Hsieh, 2010)
 - Positive relationship (e.g., Khan, Wohn, & Ellison, 2014)

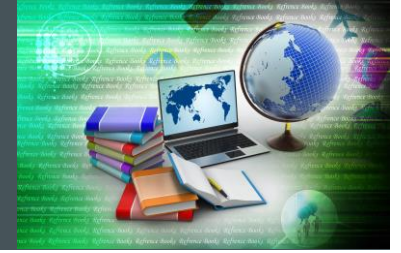


BACKGROUND

- Positive relationship
 - e.g., *Social Capital* (e.g., Ellison, Steinfeld, & Lampe, 2007; Resnik, 2001)



METHOD

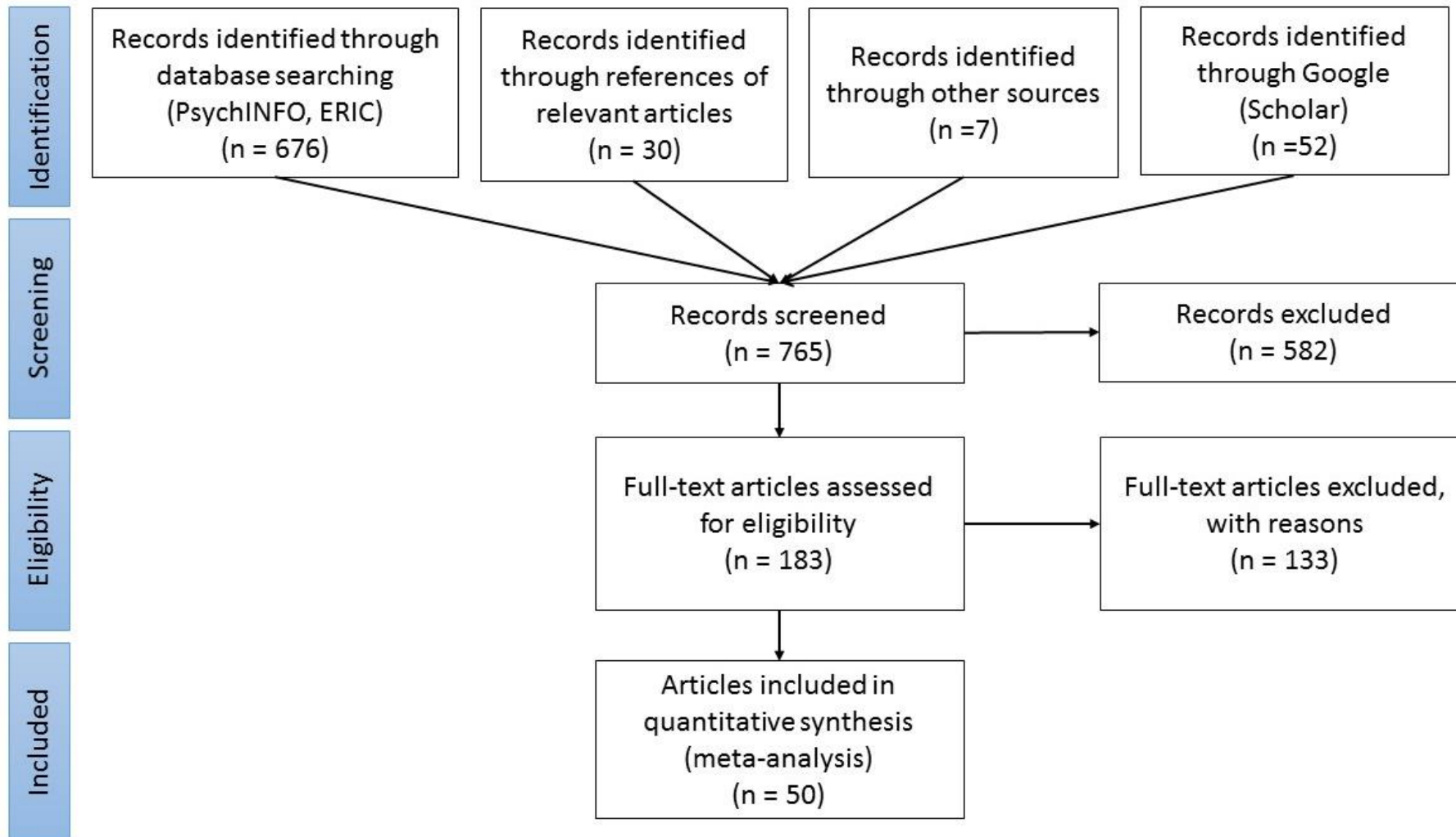


- Literature search
 - Databases: PsychINFO, ERIC, Google Scholar
 - References of relevant articles
 - Request for unpublished data through different psychological associations
- Selection criteria
 - SNS use (e.g. frequency, intensity, etc.)
 - Measure of academic achievement (e.g. GPA)
 - Correlational data or comparable information about the results
 - Exclusion of non-SNS activities (e.g. blogging, e-learning), evaluations of SNS use, student engagement

765 possibly relevant articles

50 articles
included

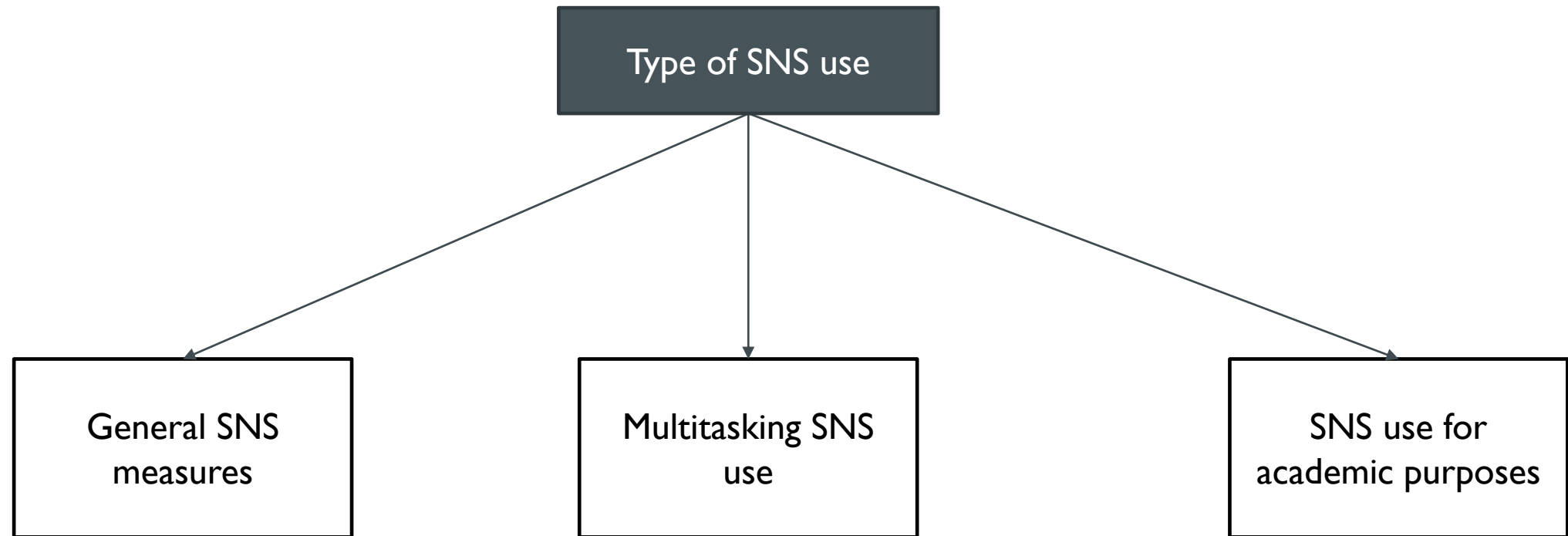
METHOD



METHOD



Coding process and meta-analytic procedure



METHOD



Sensitivity analyses

- Publication type
 - Published
 - Unpublished
- Developmental status the country of study conduction
 - Very high developed countries
 - High developed countries
 - Medium developed countries
 - Low developed countries

METHOD



- Academic achievement measure
 - Self-reported grades
 - Documented grades
- Type of effect size
 - Zero-order correlation
 - Regression weight (transformed with the formula by Peterson and Brown, 2005)
- Sample type
 - Adolescents
 - Undergraduates

RESULTS



Meta-Analyses for Different Types of SNSs Use

	Average Effect						Heterogeneity					
	k	N	Effect Size (ρ)	95% CI	Z	p	Q	df (Q)	p	I^2	τ^2	SE_{τ^2}
General SNS use and												
Academic achievement	55	25,432	-0.071	[-.121; -.020]	-2.73	.006	805.95	54	<.001	93.30	.033	.009
Learning time	10	3130	-0.025	[-.109; -.059]	-0.58	.562	48.68	9	<.001	81.51	.015	.009
Multitasking SNS use and												
Academic achievement	15	7,615	-0.103	[-.161; -.045]	-3.46	.001	83.40	14	<.001	83.21	.010	.006
SNS use for academic purposes and												
Academic achievement	10	2,589	0.075	[.015; .135]	2.45	.014	19.37	9	.022	53.53	.005	.004

RESULTS



High heterogeneity

Meta-Analyses for Different Types of SNSs Use

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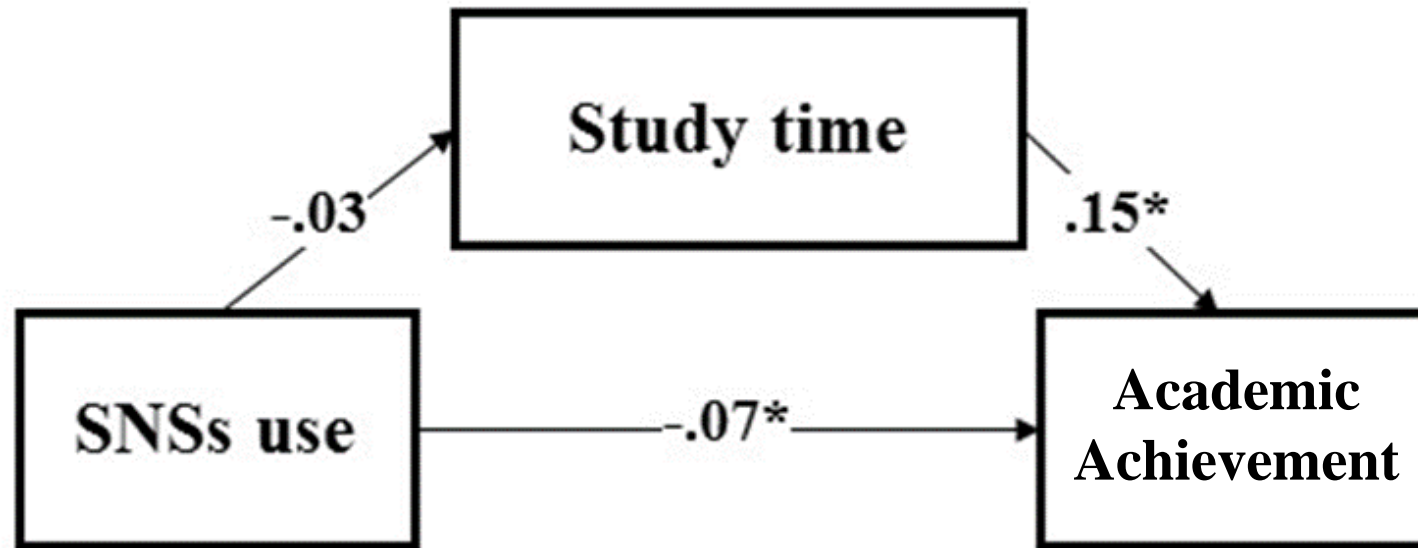
RESULTS



Sensitivity analyses on general SNS use

Variable	K	Between-groups analysis Subgroup Effect Size	By Group Analysis
Academic achievement measure		$Q(1) = 7.226, p = .007$	
Self-reported achievement	41	$\hat{\rho} = -.09$ (95%CI = -0.15; -0.03, $Z = -2.72, p = .007$)	$Q(40) = 772.09, p < .001$
Documented achievement	14	$\hat{\rho} = .01$, (95%CI = -0.02; 0.04, $Z = 0.52, p = .604$)	$Q(13) = 9.24, p = .755$
Type of effect size		$Q(1) = 7.273, p = .007$	
Correlation	41	$\hat{\rho} = -.11$ (95%CI = -0.17; -0.05, $Z = -3.48, p = .001$)	$Q(40) = 538.73, p < .001$
Regression weight	14	$\hat{\rho} = .03$, (95%CI = -0.05; 0.11, $Z = 0.75, p = .453$)	$Q(13) = 170.05, p < .001$
Sample type		$Q(1) = 4.678, p = .031$	
Adolescents	11	$\hat{\rho} = .01$, (95%CI = -0.05; 0.06, $Z = 0.232, p = .817$)	$Q(10) = 21.57, p = .017$
Undergraduates	44	$\hat{\rho} = -.08$ (95%CI = -0.14; -0.02, $Z = -2.66, p = .008$)	$Q(43) = 744.73, p < .001$

TIME DISPLACEMENT?



Meta-analytic test of the time displacement hypothesis. Standardized regression parameters ($*p < .05$) are presented.



PUBLICATION BIAS

For all three SNS use types

- Sensitivity analyses for publication type showed no significant differences
- Egger's regression test was not significant
- Funnel Plots showed no assymetry



CONCLUSION

Results of our meta-analyses show that

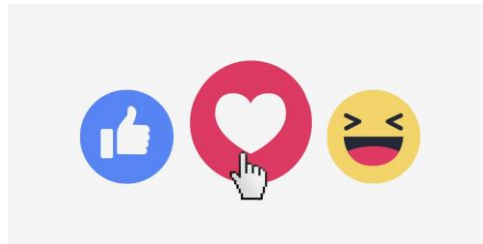
- SNS use and academic achievement is positively related as long as SNS use is school-related
- SNS use unrelated to school is associated with poorer academic achievement
- The meta-analytic correlations are weak, only a small part of students academic achievement co-varies with SNS use
- Time displacement is not the main mechanism behind the negative relationship

LIMITATIONS



- Cross-sectional design
 - Do SNS lead to poorer grades or people with poorer grades use more SNS?
 - Longitudinal evidence: positive effect of SNS on grades (e.g., Leung, 2015)
- Linear relationship
 - Medium use vs. no use or excessive use?
- Heterogeneity
 - How to deal with limited information on possible moderators?
 - Problem of measures in media psychology?

Thank you!



Marker, C., Gnambs, T., & Appel, M. (in press). Active on Facebook and failing at School? Meta-analytic findings on the relationship between online social networking activities and academic achievement. *Educational Psychology Review*. <https://doi.org/10.1007/s10648-017-9430-6>

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