Supplementary Material

Measures

Online Social Norms

Table S1. *Descriptive Prosocial Norms.*

How many of your friends…	*M*	*SD*	Skew	Kurtosis
…are friendly to other people on social media. (DPN1)	3.6	0.9	−0.5	−0.0
…help other people on social media. (DPN2)	2.9	1.0	−0.1	−0.5
…support other people on social media. (DPN3)	3.2	1.0	−0.2	−0.4
…encourage other people on social media. (DPN4)	3.2	1.0	−0.3	−0.2

Note. Answer format: 1 “none of my friends” to 5 “all of my friends”.

Table S2. *Descriptive Antisocial Norms.*

How many of your friends…	*M*	*SD*	Skew	Kurtosis
…deceive other people on social media. (DAN1)	1.8	1.0	1.1	0.8
…spread rumors about other people on social media. (DAN2)	1.9	0.9	0.8	−0.1
…are nasty to other people on social media. (DAN3)	1.8	0.9	1.1	0.8
…offend other people on social media on purpose. (DAN4)	1.8	0.9	1.1	0.6

Note. Answer format: 1 “none of my friends” to 5 “all of my friends”.

The CFA for descriptive norms showed acceptable fit values $\chi^2(df)$ = 34.97(19), p = .014, CFI = .988, TLI = .983, RMSEA = .045.

Descriptive prosocial norms: DPN1, DPN2, DPN3, DPN4 (α = .84, *M* = 3.2, *SD* = 0.8).

Descriptive antisocial norms: DAN1, DAN2, DAN3, DAN4 (α = .82; *M* = 1.8, *SD* = 0.7).

Table S3. *Injunctive Prosocial Norms.*

How many of your friends…	*M*	*SD*	Skew	Kurtosis
…think it is good to be friendly to other people on social media. (IPN1)	3.6	1.0	−0.4	−0.3
…think it is good to help other people on social media. (IPN2)	3.5	1.0	−0.4	−0.1
…think it is good to encourage other people on social media. (IPN3)	3.6	1.0	−0.3	−0.4
…think it is good to support other people on social media. (IPN4)	3.5	0.9	−0.4	−0.4

Note. Answer format: 1 “none of my friends” to 5 “all of my friends”.

Table S4. *Injunctive Antisocial Norms.*

How many of your friends…	*M*	*SD*	Skew	Kurtosis
…think it is okay to deceive other people on social media. (IAN1)	1.7	0.9	1.2	1.0
…think it is okay to be nasty to other people on social media. (IAN2)	1.7	0.9	1.3	1.5
…think it is okay to spread rumors about other people on social media. (IAN3)	1.7	0.9	1.2	1.0
…think it is okay to offend other people on social media. (IAN4)	1.7	0.9	1.3	1.1

Note. Answer format: 1 “none of my friends” to 5 “all of my friends”.

The CFA for the injunctive norm constructs showed non-acceptable fit values: $\chi^2(df)$ = 131.18(19), p = <.001, CFI = .939, TLI = .909, RMSEA = .119.

Inspection of the modification indices showed that 2 items need to be deleted (IPN1 & IAN2), resulting in a final fit value of $\chi^2(df) = 12.30(8)$, $p = .138$, CFI = .996, TLI = .993, RMSEA = .036.

Injunctive prosocial norms: IPN2, IPN3, IPN4 (α = .86; *M* = 3.5, *SD* = 0.8).

Injunctive antisocial norms: IAN1, IAN3, IAN4 (α = .83; *M* = 1.7, *SD* = 0.8).

Interpersonal Communication

Table S5. *Talking With Friends About Online Social Behavior.*

Item	*M*	*SD*	Skew	Kurtosis
I often talk with my friends about what I do with other people on social media. (TAL1)	3.6	1.0	−0.6	−0.1
My friends and I talk about how we treat other people on social media. (TAL2)	3.4	1.1	−0.5	−0.5
My friends and I talk about incidents that happened to other people on social media (TAL3)	4.0	0.9	−1.0	1.4
My friends and I talk about our individual experiences on social media. (TAL4)	3.8	0.9	−0.8	0.8

Note. Answer format: 1 "strongly disagree" to 5 "strongly agree".

The CFA for talking with friends about online social behavior with all described items showed low fit values: $\chi^2(df) = 38.83(5)$, $p = <.001$, CFI = .944, TLI = .888, RMSEA = .127.

Inspection of the modification indices showed that the fit could be significantly improved, when deleting 1 item (TAL2), resulting in a final fit of $\chi^2(df) = 0.03(2)$, $p = .983$, CFI = 1.00, TLI = 1.02, RMSEA = .000; α = .77, *M* = 3.8, *SD* = 0.8.

Exposure to Online Content

Table S6. *Exposure to Prosocial Contents*.

When you are together with your friends, how often do you see contents on social media (e.g., texts, videos, or pictures) showing…	*M*	*SD*	Skew	Kurtosis
…people helping another person? (EPC1)	2.2	0.8	0.1	0.6
…people standing up for another person? (EPC2)	2.0	0.8	0.1	0.6
…people comforting another person? (EPC3)	2.0	0.8	−0.1	0.6
…people cheering up another person? (EPC4)	2.2	0.8	−0.3	0.8
…people who confess their love to another person? (EPC5)	1.8	1.0	0.2	−0.1

Note. Answer format: 0 "never" to 5 "very often".

Table S7. *Exposure to Antisocial Contents.*

When you are together with your friends, how often do you see contents on social media (e.g., texts, videos, or pictures) showing…	*M*	*SD*	Skew	Kurtosis
…people destroying someone else's belonging? (EAC1)	1.3	1.0	0.5	−0.1
…people shooting another person? (EAC2)	1.2	1.1	0.8	−0.2
…people stealing? (EAC3)	1.0	0.9	0.9	0.6
…people fight? (EAC4)	1.6	1.0	−0.0	−0.6
…people who drink (too much) alcohol? (EAC5)	1.2	1.1	0.7	−0.1

Note. Answer format: 0 "never" to 5 "very often".

The CFA for the communication measures (two dimensions: exposure to prosocial contents, exposure to antisocial contents) with all described items showed low fit values: $\chi^2(df) = 124.79(34)$, $p = <.001$, CFI = .931, TLI = .908, RMSEA = .080.

Inspection of the modification indices showed that the fit could be significantly improved, when deleting 1 item (EAC5), resulting in a final fit of $\chi^2(df) = 76.37(26)$, $p = <.001$, CFI = .956, TLI = .940, RMSEA = .068.

Exposure to prosocial contents: EPC1, EPC2, EPC3, EPC4, EPC5 (α = .77, *M* = 2.1, *SD* = 0.6).

Exposure to antisocial contents: EAC1, EAC2, EAC3, EAC4 (α = .78, *M* = 1.2, *SD* = 0.8).

Social Online Behavior

Table S8. *Prosocial Online Behavior.*

Item	*M*	*SD*	Skew	Kurtosis
I complimented or congratulated someone. (POB1)	2.5	1.0	−0.4	0.0
I helped someone with his/her school work. (POB2)	2.1	1.0	−0.2	−0.0
I helped someone or offered to help. (POB3)	2.0	1.0	−0.3	−0.2
I said nice/friendly things about someone. (POB4)	2.4	0.9	−0.2	0.1
I let someone know that I like him/her. (POB5)	1.0	1.1	0.9	−0.1
I let someone know that I like something s/he posted (e.g., like something, send a smiley). (POB6)	2.2	1.1	−0.3	−0.5
I cheered up someone. (POB7)	2.2	1.0	−0.2	0.0
I comforted/consoled someone. (POB8)	2.0	1.0	−0.2	0.1
I said nice/friendly things to someone. (POB9)	2.4	0.9	−0.4	0.5
I supported someone. (POB10)	2.3	1.0	−0.2	−0.0

Note. Answer format: 0 “never” to 5 “always”.

The CFA confirmed acceptable fit values for the one-factor solution with all ten items described above: $\chi^2(df) = 138.12(35)$, $p = <.001$, CFI = .954, TLI = .941, *RMSEA* = .084; α = .90; *M* = 2.1, *SD* = 0.7).

Table S9. *Antisocial Online Behavior.*

Item	*M*	*SD*	Skew	Kurtosis
I said nasty things to someone or called them names. (AOB1)	0.5	0.7	1.8	3.6
I spread rumors about someone else. (AOB2)	0.4	0.7	2.1	4.7
I created a fake account, pretending to be someone else (e.g. on Facebook or IG). (AOB3)	0.2	0.6	3.3	11.6
I altered and shared pictures or videos of another person. (AOB4)	0.6	1.0	1.7	1.9
I hacked into someone’s account and pretended to be them (e.g. through instant messaging or social networking accounts). (AOB5)	0.1	0.6	4.1	15.9
I hacked into someone’s account and stole personal information (e.g. through email or social networking accounts). (AOB6)	0.1	0.5	5.1	27.5
I posted someone else’s personal information. (AOB7)	0.2	0.6	3.3	10.4
I told other people nasty things about someone. (AOB8)	0.4	0.7	2.2	5.1
I threatened someone. (AOB9)	0.1	0.5	4.9	27.0
I excluded or ignored someone. (AOB10)	0.8	0.9	0.8	−0.3

Note. Answer format: 0 “never” to 5 “always”.

The CFA for antisocial online behavior showed non-acceptable fit values: $\chi^2(df) = 68.96(35)$, $p = .001$, CFI = .935, TLI = .916, RMSEA = .073.

Inspection of the modification indices showed that one item needed to be deleted (AOB2) to significantly improve the model fit: $\chi^2(df) = 49.47(27)$, $p = .005$, CFI = .955, TLI = .941, RMSEA = .063; α = .81; *M* = 0.3, *SD* = 0.4).

Social Outcome Expectations

Table S10. *Prosocial Outcome Expectations.*

Item	*M*	SD	Skew	Kurtosis
Being nice and helpful on social media makes me popular. (POE1)	3.6	1.0	−0.4	−0.1
Being nice and helpful on social media makes me likeable. (POE2)	3.8	0.9	−0.7	0.4
Being nice and helpful on social media is rewarding. (POE3)	3.7	1.0	−0.8	0.5
Being nice and helpful on social media does not make any difference in my life. (POE4)	2.0	1.2	1.1	0.2

Note. Answer format: 1 "strongly disagree" to 5 "strongly agree"

Table S11. *Antisocial Outcome Expectations.*

Item	*M*	SD	Skew	Kurtosis
Being nasty and mean on social media makes me likeable (AOE1)	1.4	0.8	2.2	5.0
Being nasty and mean on social media is rewarding. (AOE2)	1.4	0.7	1.8	2.7
Being nasty and mean on social media makes me popular. (AOE3)	1.5	0.8	1.8	3.1
Being nasty and mean on social media does not make any difference in my life. (AOE4)	2.7	1.2	0.2	−0.9

Note. Answer format: 1 "strongly disagree" to 5 "strongly agree"

The CFA for the social outcome expectation constructs showed non-acceptable fit values: $\chi^2(df) = 80.24(19)$, $p = <.001$, CFI = .940, TLI = .912, RMSEA = .088.

Inspection of the modification indices showed that 2 items need to be deleted (POE4 & AOE4) to significantly improve the model fit: $\chi^2(df) = 6.16(8)$, $p = .629$, CFI = 1.00, TLI = 1.04, RMSEA = .000.

Prosocial outcome expectations: POE1, POE2, POE3 (α = .83; *M* = 3.7, SD = 0.8).

Antisocial outcome expectations: AOE1, AOE2, AOE3 (α = .82; *M* = 1.4, SD = 0.7).

Perceived Group Identity

Table S12. *Perceived Group Identity.*

Item	*M*	SD	Skew	Kurtosis
It is important for me to be a part of this group of friends. (PGI1)	4.1	0.9	−0.9	0.9
I'm proud to be a part of this group of friends. (PGI2)	4.2	0.8	−0.7	0.5
If I would not be a part of this group of friends, I would feel lonely. (PGI3)	3.8	1.1	−0.7	−0.2
I feel connected to the other members of this group of friends. (PGI4)	4.1	0.8	−0.7	0.8
I would feel insecure if I would not be a part of this group of friends. (PGI5)	3.4	1.1	−0.2	−0.9
I'm happy to be a part of this group of friends. (PGI6)	4.3	0.7	−0.4	−0.6
If I would not be a part of this group of friends, I would be unhappy. (PGI7)	3.6	1.1	−0.4	−0.5
I'm happy to be described as a member of this group of friends. (PGI8)	4.1	0.7	−0.5	0.3

Note. Answer format: 1 "strongly disagree" to 5 "strongly agree"

CFA confirmed not-acceptable fit values for the one-factor solution with eight items: $\chi^2(df)$ = 376.32(20), p = <.001, CFI = .796, TLI = .714, RMSEA = .206.

Inspection of the modification indices showed that 2 items need to be deleted: PGI12 & PGI8.

Inspection of the modification indices further confirmed a final model with two subdimensions: $\chi^2(df)$ = 25.84(8), p = .001, CFI = .981, TLI = .965, RMSEA = .073.

Affective Identification: PGI1, PGI4, PGI6 (α = .74, *M* = 4.2, *SD* = 0.6).

Need for Identification: PGI3, PGI5, PGI7 (α = .83, *M* = 3.6, *SD* = 0.9).

Correlation Matrix

Table S13. *Correlation Matrix.*

	FEM	AGE	SM	TAL	EPC	EAC	POE	AOE	AGI	NFI	DPN	IPN	DAN	IAN	POB	AOB
FEM	—															
AGE	.08	—														
SM	.02	.07	—													
TAL	.04	−.03	**.16****	—												
EPC	−.01	−.01	.07	**.36****	—											
EAC	−.01	.01	.01	**.17****	**.46****	—										
POE	−.03	−.01	.07	**.24****	**.21****	.02	—									
AOE	**−.13***	−.08	.00	−.01	.06	**.32****	−.11*	—								
AGI	−.02	.07	**.24****	**.49****	**.26****	.02	**.32****	−.14*	—							
NFI	.00	−.01	**.19****	**.40****	**.16****	**.13***	**.19****	.03	**.59****	—						
DPN	.04	**.19****	.06	**.36****	**.42****	**.10***	**.38****	.01	**.33****	**.17****	—					
IPN	.06	**.18****	.07	**.32****	**.37****	.04	**.37****	**−.13***	**.32****	**.15****	**.72****	—				
DAN	−.07	−.06	.00	.08	**.19****	**.38****	.00	**.41****	−.05	.04	**.15****	.00	—			
IAN	−.09	−.02	.01	.03	**.11***	**.34****	−.07	**.47****	−.05	.05	.07	−.01	**.70****	—		
POB	.01	.07	**.11***	**.38****	**.45****	**.10***	**.46****	−.07	**.34****	**.18****	**.63****	**.59****	**.13***	.04	—	
AOB	−.13	−.07	.07	**.11***	**.22****	**.39****	−.02	**.48****	−.06	.10	**.10***	.01	**.53****	**.53****	**.19****	—

Note. FEM = female; AGE = age; SM = social media use frequency; TAL = frequency of talking with friends about online social behavior; EPC = exposure to prosocial contents; EAC = exposure to antisocial contents; POE = prosocial outcome expectations; AOE = antisocial outcome expectations; AGI = affective group identification; NFI = need for identification; DPN = descriptive prosocial norms; DAN = descriptive antisocial norms; IPN = injunctive prosocial norms; IAN = injunctive antisocial norms; POB = prosocial online behavior; AOB = antisocial online behavior; bivariate correlation coefficients (*r*) are indicated; ** = $p < .01$, * = $p < .05$.

Structural Equation Model

Table S14. *Structural Equation Model – Factor Loadings.*

Construct	Item	Factor Loading
TAL	TAL1	.68
	TAL2	.74
	TAL3	.78
EPC	EPC1	.64
	EPC2	.71
	EPC3	.71
	EPC4	.70
	EPC5	.50
EAC	EAC1	.75
	EAC2	.54
	EAC3	.81
	EAC4	.68
POE	POE1	.77
	POE2	.89
	POE3	.70
AOE	AOE1	.82
	AOE2	.83
	AOE3	.69
AGI	PGI1	.74
	PGI4	.72
	PGI6	.67
NFI	PGI3	.79
	PGI5	.76
	PGI7	.80
DPN	DPN1	.56
	DPN2	.81
	DPN3	.83
	DPN4	.82
DAN	DAN1	.61
	DAN2	.78
	DAN3	.83
	DAN4	.74
IPN	IPN2	.75
	IPN3	.84
	IPN4	.88
IAN	IAN1	.64
	IAN3	.86
	IAN4	.89

POB	POB1	.71
	POB2	.64
	POB3	.74
	POB4	.79
	POB5	.36
	POB6	.45
	POB7	.80
	POB8	.78
	POB9	.84
	POB10	.84
AOB	AOB1	.59
	AOB3	.53
	AOB4	.48
	AOB5	.70
	AOB6	.57
	AOB7	.72
	AOB8	.69
	AOB9	.66
	AOB10	.47

Note. TAL = frequency of talking with friends about online social behavior; EPC = exposure to prosocial contents; EAC = exposure to antisocial contents; POE = prosocial outcome expectations; AOE = antisocial outcome expectations; AGI = affective group identification; NFI = need for identification; DPN = descriptive prosocial norms; DAN = descriptive antisocial norms; IPN = injunctive prosocial norms; IAN = injunctive antisocial norms; POB = prosocial online behavior; AOB = antisocial online behavior.

Table S15. *Structural Equation Model – Covariances.*

	FEM	AGE	SM	TAL	EPC	EAC	POE	AOE	AGI	NFI	DPN	DAN	IPN	IAN
FEM	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AGE	.08	—	—	—	—	—	—	—	—	—	—	—	—	—
SM	.02	.07	—	—	—	—	—	—	—	—	—	—	—	—
TAL	.06	−.03	**.18****	—	—	—	—	—	—	—	—	—	—	—
EPC	−.03	−.03	.07	**.45****	—	—	—	—	—	—	—	—	—	—
EAC	−.02	.02	−.00	**.20****	**.56****	—	—	—	—	—	—	—	—	—
POE	−.03	−.01	.06	**.28****	**.26****	.00	—	—	—	—	—	—	—	—
AOE	**−.13***	−.08	.00	−.03	.06	**.42****	**−.15****	—	—	—	—	—	—	—
AGI	−.03	.08	**.27****	**.63****	**.33****	.01	**.40****	**−.18****	—	—	—	—	—	—
NFI	−.00	−.01	**.21****	**.47****	**.18****	**.14***	**.21****	.03	**.75****	—	—	—	—	—
DPN	.03	**.20****	.05	**.43****	**.50****	.13	**.44****	.03	**.37****	**.18****	—	—	—	—
DAN	−.07	−.04	.01	.08	**.19****	**.44****	−.00	**.50****	−.07	.03	**.21****	—	—	—
IPN	.06	**.20****	.08	**.40****	**.41****	.05	**.46****	**−.13***	**.39****	**.18****	**.80****	.02	—	—
IAN	−.08	−.01	.01	.02	.12	**.41****	−.07	**.55****	−.07	.04	.09	**.78****	−.00	—

Note. FEM = female; AGE = age; SM = social media use frequency; TAL = frequency of talking with friends about online social behavior; EPC = exposure to prosocial contents; EAC = exposure to antisocial contents; POE = prosocial outcome expectations; AOE = antisocial outcome expectations; AGI = affective group identification; NFI = need for identification; DPN = descriptive prosocial norms; DAN = descriptive antisocial norms; IPN = injunctive prosocial norms; IAN = injunctive antisocial norms; POB = prosocial online behavior; AOB = antisocial online behavior; standardized covariances are indicated; ** = $p < .01$, * = $p < .05$; significant covariances are marked bold.

Table S16. *Structural Equation Model – Results.*

	Prosocial Online Behavior			Antisocial Online Behavior		
	B(SE)	*p*	β	*B(SE)*	*p*	β
Control Variables						
FEM	−.01(.05)	.872	−.01	−.06(.04)	.105	−.07
AGE	−.01(.03)	.747	−.01	−.01(.02)	.673	−.02
SM	.02(.03)	.454	.03	.04(.02)	.050	.09
TAL	.12(.08)	.132	.12	.05(.04)	.274	.07
EPC	**.22(.11)**	**.044**	**.21**	.08(.06)	.180	.12
EAC	−09(.07)	.174	−.10	.04(.05)	.490	.06
Predictors						
DPN	**.38(.15)**	**.012**	**.32**	−.01(.09)	.960	−.01
DAN	.11(.12)	.349	.10	.16(.09)	.075	.23
IPN	.17(.09)	.076	.19	.04(.06)	.482	.07
IAN	−.02(.11)	.831	−.02	.11(.07)	.139	.16
POE	**.17(.05)**	**.001**	**.19**	−.01(.03)	.862	−.01
AOE	−.07(.06)	.255	−.08	**.15(.05)**	**.001**	**.29**
AGI	−.01(.12)	.966	−.01	−.18(.10)	.082	−.30
NFI	−.01(.08)	.932	−.01	.11(.08)	.152	.20
R^2		.61			.53	

Note. FEM = female; AGE = age; SM = social media use frequency; TAL = frequency of talking with friends about online social behavior; EPC = exposure to prosocial contents; EAC = exposure to antisocial contents; POE = prosocial outcome expectations; AOE = antisocial outcome expectations; AGI = affective group identification; NFI = need for identification; DPN = descriptive prosocial norms; DAN = descriptive antisocial norms; IPN = injunctive prosocial norms; IAN = injunctive antisocial norms; unstandardized coefficients (B), standard errors (SE) and standardized coefficients (β) are indicated; significant effects are marked bold

Fit Values of the Interaction Models

Table S17. *Fit Values of the Interaction Models.*

	$\chi^2(df)$	*p*	CFI	TLI	RMSEA	SRMR
M1: DPN*IPN & DAN*IAN	2.18(2)	.336	1.000	.999	.008	.003
MEXP1: DPN*IAN & DAN*IPN	2.12(2)	.346	1.000	.986	.023	.004
M2a: DPN*POE & DAN*AOE	0.26(2)	.877	1.000	1.057	.000	.001
MEXP2a: DPN*AOE & DAN*POE	5.12(2)	.077	.999	.891	.006	.007
M2b: IPN*POE & IAN*AOE	0.91(2)	.634	1.000	1.030	.000	.002
MEXP2b: IPN*AOE & IAN*POE	0.58(2)	.749	1.000	1.106	.000	.003
M3a: DPN*AGI & DAN*AGI	1.10(2)	.578	1.000	1.029	.000	.002
M3b: IPN*AGI & IAN*AGI	5.47(2)	.065	.999	.916	.053	.005
M4a: DPN*NFI & DAN*NFI	6.59(2)	.037	.998	.885	.061	.005
M4b: IPN*NFI & IAN*NFI	13.35(2)	.001	.997	.791	.082	.007
M5a: DPN*TAL & DAN*TAL	2.03(2)	.362	1.000	1.011	.000	.003
M5b: IPN*TAL & IAN*TAL	0.06(2)	.969	1.000	1.082	.000	.001

Note. CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square; DPN = descriptive prosocial norms; DAN = descriptive antisocial norms; IPN = injunctive prosocial norms; IAN = injunctive antisocial norms; POE = prosocial outcome expectations; AOE = antisocial outcome expectations; AGI = affective group identification; NFI = need for identification; TAL = Frequency of talking with friends about online social behavior