

# Understanding Views on Sentience and Conservation: A Study of Emotional Experiences with Wildlife

## Authors

Cpcc'Tgkm{.'Cpplg'N{pej . 'Mcvk'Tlej ctf u.'P gmg'F qwi rcu. cpf 'Nk{ 'Lghgt {

Gpxkqpo gpvcn'Uwf kgu'Rtqi tco . 'Dquvq'Eqmgi g.'Dquvq. O C.'24689.'WUC

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Igppkgt'Tgdgeec'Uej cwtg.'649'O eI wkpp.'F gr ctvo gpvqh'Uqekmqi {.'Dquvq'Eqmgi g.'Dquvq. O C'24689=[ngm{ clhB deQf w](#)

## Authors' Contributions

CT.'CN.'MT.'P F.'cpf 'NL'f guki pgf 'vj g'r tqlgev'cpf 'eq/y tqvg vj g'o cpwuetkr 0

## Running Title

Xlgy u'qp'Ugpkpeg'cpf 'Eqpugtxcvqp

## Keywords

Ugpkpeg="eqpugtxcvqp="dkqf kxgtuk{ =y kf rkg="eqgz kvgpeg

## Word Count

; 54:

## Article Impact Statement

Vj ku'r cr gt'kf gpvkhgu'cpf 'o gcuwtgu'oj wo cp'r gtegr vqpu qh'cpko cn'ugpkpeg.ö'kpvkpi "cp go qvqpcn'cr r tqcej "v'ghgevkpu'qp'y kf rkg'kpvgtcevkpu. eqpugtxcvqp."cpf "dkqf kxgtuk{0

## Acknowledgements

Vj g'tgugctej gtu'y qwf 'hmg'v'vj cpn'Rtqhguaqt'Igppkgt Uej cwtg.'vj g'Gpxkqpo gpvcn'Uwf kgu r tqi tco . 'Rtqhguaqt'Vcte'RkucpkI ctgcw.'qwt'hgmjy Ugpkqt'Tgugctej "Ugo kpc't'encuo cvgu."cpf "qwt r ctvkr cpw'hqt'vj gk'eqpvtkdvwkqpu'v'qwt'uwf {0



## Problem

Cu'j wo cpu"eqvkw'q"gpctqcej 'w qp"pcwtcrj' cdkcw.

ugpvkpv'dgkpi u'lp'qtf gt'vq'tgeqi pk g'qwt'eqo o qp'r meg'qp'Gctvj 0Y kj lp'y ku'eqo o wpkv'ugvki .  
y g'y cpv'q'hqvg't'o gcpkpi hwn'tghgevkqpu'cdqw'j wo cp/cpk cnkpvgtcevqpu'vj cv'y knkphwpeg  
r ctvek cpw'qy p'nxgu0k'qwt'ecm'hqt'y tkwgp'pcttcvkgu. y g'ctg'j qr kpi 'vq'j cxg'cp'ko o gf kvg  
ghgev'qp'dqy 'vj g'tgugctej gtu'cpf "'vj g'r ctvek cpw0Dwrf kpi 'qh'h'qh'Tlej ctf uqp'kf gcu.'vj g  
tgugctej gtu'dgnkxg'vj cv'y g'y tkkpi 'r tqegu'y knkpkcv'f kueqxt { 'hqt'vj g'r ctvek cpw.'kpv kt g  
eqppgev'qp'dgy ggp'j wo cp'r ctvek cpw'cpf 'ugpvkpv'k'g.'cu'y gml'cu'r tqf weg'o gcpkpi 'cpf 'etgcv  
pgy 'cy ctgpguu'qh'tgcrkv' 'lp'vj g'r tqegu'\*Tlej ctf uqp. 4223-0Vj g'tgugctej gtu'cempqy ngf i g'vj cv  
y tkkpi 'ecppqv'dg'wvckpvgf 'htqo 'vj g'hg'g'zr gtlgpegu qh'vj qug'y d

vq'cempqy rñfi g'cpf 'uj ctg'vj g'r gtuqpcnr gtur gevkgu'qh'cm'tgugctej gtu'kpxqkxgf . 'j g'gk0Gcej  
cwj qt'dtkpi u'wpls w'g'zr gtlgpegu."gf wecvkqp."cpf "go qvqp vq'vj g'vcdrg0Uj ctkpi "vj gug'r gtur gevkgu  
etgcvgu"o qtg'qr gp'cpf 'r gtuqpcnr'eqppgevkvq"dgwy ggp vj g'tgugctej gtu'cpf "vj g'tgcf gtu0k'vj gkt  
y qtm'Vtgxgu'cpf "eqmgi wgu'kpenmf g'c'ugevkvq'y j g'g vj g{'cempqy rñfi g'cpf 'uj ctg'vj gkt'xct{kpi  
qr kpkpu'cpf 'xky r qkpw'qp'vj g'vqr k'qh'r tgugtxcvkvq0Vj g'cwj qtu'uj ctg'vj cv'y j k'vj g{'cm'tg  
r cuukqpcvg'cdqw'vj g'uwdlgev'cpf 'ctg'eqpvtkdwkpi kvmgewcneqpv'vq'vj g'ctveng."vj g{'ctg'pqv  
cm'r gthgevf 'crki pgf 'k'vj gkt'xky u'qh'pqp/j wo cp cpko cn'tki j u'Vtgxgu'gv'cr0"423; +0Uko krcn(.  
y g'j qf 'xct{kpi "qr kpkpu'cpf "dgrkhu'qp'vj g'vqr k'qh'pqp/j wo cp'cpko cn'ugpvkpeg'cpf  
eqpugtxcvkvq0Vj wu."Vtgxgu'cpf "eqmgi wgu'j cxg'kpur k'gf vj ku'ugevkvq."y j k'j 'y g'j cxg'ej qugp'vq  
f gf kecvg'vq'vj g'r gtuqpcnr'pcttcvkgu'qh'vj g'tgugctej gtu0

Lghgt { "dgrkxgu'vj cv'f geqputwevki "vj g'f ggr n{/tqqvgf . j k'ctej kec'n'grvkvpuj k' "dgwy ggp  
j wo cpu'cpf "pqp/j wo cp'cpko cn'ku'guugpv'cr0Grko kpcvki vj gug'r tgeqpegkxgf "pqvkvpu'qh'j wo cp  
uwr gkqtkv'cpf "rcvki "kv'vj g'ugpv'pcwtg'qh'cm'dgkpi u'y kn'cmqy "cm'ur gelgu'vq"eqgzkv'qp  
Gctvj "k'c"eqo r cuukqpcvg'o c'p'p'g'cpf "t'gf weg'vj g'ugxgtg j cdkev'f kutw kvq'cpf "uwdugs wgpv  
dkqf kxgtukv' "m'uu'y g'ewtgpv' "hceg0

F qwi nu'cti wgu'vj cv'ugpvkpeg'ku'vj g'utqpi gu'eqppgevkvq uj ctgf "dgwy ggp"j wo cpu'cpf  
pqp/j wo cp'cpko cn'="vj wu."k'ku'vj g'f w' "qh'j wo cpu vq'tgeqi pk' g'vj cv'uj ctgf "ugpvkpeg'ku'k'f k'gev  
eqph'ev'y k'j "cpvj tqr qegpvtkuo . 'y j k'j 'j cu'f tkxgp'vj g'f gutwekvq'qh'pcwtcn'j cdkcw0Y j k'g  
eqpegr wu'qh'ugpvkpeg'o c { "dg'vq'cdutcev'cpf "h'gtgki p h'qt'uqo g'k'pf k'kf wcu'vq'qr gpn' "go dtceg.  
Tgkm' "ci tggu'y k'j "F qwi nu'vj cv'cwkwf gu'vqy ctf u j wo cp/cpko cn'tgrvkvpu'o wu'dg'tgeqpvk'gtgf  
d { "vj g'eqo o qp'r qr wcvkvq'h'qt'tgcn'eqpugtxcvkvq'vq qeew0Tgkm' "h'ggu'vj cv'cpvj tqr qegpvtkuo "ku'uu  
f ggr n' "kpi tckpgf "k'v'q'c { v'v'qekv'gu'vj cv'k'pf k'kf wcu o c { "pggf "vko g'vq'ceerko cv'v'v'vj g'uj k'kpi

r ctf ki o . "qt "gnug" yj g { "o c { "t glgev" yj gug" kf gcu" qwt ki j 0Vj wu. "T gkm { "hggnu" yj cv" yj g" dguv" cr r tqcej "ku  
vq" gcug" r gqr rg" kp" vq" yj gug" f kuewu kqpu. "gur gekm { kh" yj g { "ctg" vphco kktct" y kj " yj g" vqr leu0

N { pej "ku" eqo r gmgf "vq" f geqpust wevf qo kpcpv" ur gekgu ecvgi qtkgu" cpf " y qtmci clpuv" yj g  
j wo cp" gzege vqpcrkuv" htco gy qtn0 kpur ktf "d { " yj g" y qtmqh" Mkt mug { "cpf " J gm tglej " \*4232+ " N { pej  
j qr gu" vq" dt kpi " kp" r gtur gev xgu" qh" gs wcrk { . " tgr nce kpi yj g" rpi wci g" qh" pqpj wo cp" ur gekgu" y kj  
o wkur gekgu" wpf gtucpf kpi 0Cf f kkpccm { . " k" ku" ko r gtcv xg vq" cf xcpeg" qwt " Y guvtp" r wdrke  
wvf gtucpf kpi " qh" cpko cni' ugpv kpeg" dg { qpf " wkrkct kcp xcncv kqp" qh" ur gekgu. " cpf " vqy ctf u" cp  
wvf gtucpf kpi " qh" o wkur gekgu" cu" i qpf " vq" rixg" y kj . cpf " co qpi " \*Mkt mug { " cpf " J gm tglej . " 4232+0

Tlej ctf u" dgrkxgu" yj cv" yj g" dkpct kgu" yj cv" gzku" vgr ctcv kpi pqpj wo cp" cpko cni' htqo " j wo cpu  
ctg" j cto hwnht " cni' ur gekgu0 k" ku" kp" cni' ur gekgu dguv" kpvgt guv" yj cv" uwej " dkpct kgu" cpf " j kgtctej kgu" ctg  
f kuo cpvrgf " dgecvug" cni' rixgu" j cxg" kpj gtgpv" xcncv0 Tlej ctf u" j qr gu" yj cv" gpi ci kpi " kp" etklecni' cpf  
gptlej kpi " eqpxgtucv kpu" cdqw" cpko cni' ugpv kpeg" ku cp" ko r qtcv pv" uvr " kp" dt gcnkpi " f qy p" yj gug  
vtf kkpccni' dctt kgtu0

### Trends in Existing Literature

Vj g" gzku kpi "dqf { " qh" t' guctej " gzi rqt gu" yj g" tqrg" qh xcncv. " cvkwf gu. " cpf " f kt gev" kpvgtcev kpu  
qp" yj g" tgrv kpuj kr " dgvy ggp" j wo cp" cpf " pqpj wo cp" etgcwt gu. ekki gp" o qpkqt kpi . " cpf  
eqpugt xc vqp" r tcev kgu0 Vj gtg" ctg" c" xctk gv { " qh" t' gpf u gur gekm { " ucrlgpv" vq" hwwt g" t' guctej " qp" yj g  
tqrg" qh" ugpv kpeg" kp" o qvxcv kpu" ht " dgwt " t' gcvo gpv qh" y kf rkhg0 P wo gtqwu" uwf kgu" j ki j rki j v" yj g  
ko r qtcv peg" qh" eqo r cuukap" kp" j wo cp" cvkwf gu" vqy ctf u y kf rkhg. " tgr qt v kpi " go qv kpcni' xctkcdrgu" cu  
yj g" utqpi guv" r tgf kevqt " qh" y kf rkhg" o cpci go gpv" qhj qwug" ur cttqy u= cpf . " yj cv" j wo cp" go r cvj {  
vqy ctf " cpko cni' cpf " utqpi gt " hggri kpi u" cdqw" ugpv kpeg o c { " rgcf " vq" dgwt " t' gcvo gpv" qh" cpko cni  
\*Nctupq" gv" cri0 4238= Eqtpkuj " gv" cri0 423: +0 Go r cvj gve t' gcvo gpv" qh" cpko cni' gzvgpf u" vq



r gtur gevkg" F qnd{ . '4242+0F qnd{ au'go r j cuku'qp'go r cvj { 'kp'j gt'uwwf { 'cpf'j gt'wug'qh'eqmgi g  
uwwf gpw'cu'r ctvkr cpw'ctg'vy q'vj kpi u'y gdf 'hng vq'o kttqt'kp'qwt'uwwf {0Y cmcej 'cpf'eqmgi wgu  
cti wg'hqt'vj g'ko r ngo gpvkvq'qh'eqo r cuukqpcvg'eqpugtxcvkvq. c'hqto 'qh'eqpugtxcvkvq'kp'y j lej 'cm  
pqp/j wo cp'cpko cn'uwldgeu'ctg'tgcvgf 'cu'ugpvkpvdkpi u'cpf'ctg'uggp'hqt'vj gkt'kptkpuke'xcnwg  
\*Y cmcej 'gv'cn0'423: +0Vj g'cwj qtu'uwwf kgf 'xctkqwu ecugu'qh'cpko cn'eqpugtxcvkvq'cpf'etkks wg'vj g  
y c{u'vj g{ 'ki pqtg'cpko cn'ugpvkpeg'cpf'cev'y kj 'cp cpvj tqr qegpvk'ugv'qh'i qcm'\*Y cmcej 'gv'cn0  
423: +0Y j kg'y g'y kn'pqv'dg'cpcn{ | kpi 'ewttgpv'eqpugtxcvkvq ghqtu.'y g'y kn'dg'kpxguki cvkpi 'vj g  
tgrcvkpuj k' dgwy ggp'xkgy u'qp'pqp/j wo cp'cpko cn'ugpvkpeg cu'k'tgrcvgu'vq'cwkfw gu'vy ctf u  
eqpugtxcvkvq00 cphgf q'cpf'eqmgi wgu.'vj tqwi j 'vj gkt cpcn{ ulu'qh'uqekqewwncn'xcnwg'qp'y kf rkhg  
eqpugtxcvkvq.'f ghkg'xcnwg'u{ uvgu u'vj tqwi j 'o cvgtkcnewwtg.'uvtkgu.'xcnwg'u{ uvgu u'cpf' o qtg  
\*4242+0Vj ku'uwwf { 'cuuguu'vj g'ko r cev'qh'xcnwg'u'vy ctf u pqp/j wo cp'cpko cu'qp'y kf rkhg  
eqpugtxcvkvq'dgrgh0Qwt'uwwf { 'y kn'uggm'v'uko krcn{ cuuguu'j qy 'xkgy u'qp'y kf rkhg'ugpvkpeg  
ko r cev'r gtegr vqpu'qh'y kf rkhg'eqpugtxcvkvq'vj tqwi j uvtkgu.'r j qvqu.'cpf'qvj gt'uwej 'o gf kwo u0k  
qwt'f cv'eqmgevkvq'r gtlkf 'y g'cko 'v'huvg't'c'y cto cpf'ceegr vki 'gpxkqpo gpv'hqt'vj g  
r ctvkr cpw'kp'qwt'f kuewukp'i tqwr 'y j gtg'vj g{ 'y kndg'kpxkgf 'v'twn{ 'gZR nqtg'vj gkt'vj qwi j u'cpf  
hgkpi u'cdqw'cpko cn'ugpvkpeg0Uko krcn{ 'v'F qnd{ . y g'y kn'gpeqwtci g'r ctvkr cpw'vq'r ww  
vj go ugrkgu'kp'vj g'qvj gt'dgkpi au'r neg'cpf't{ 'v'kpvgr tgvcpf'tgegk'g'vj gkt'gpgti { 'cpf'go qvkvu0  
Y g'y kn'r tqo r v'vj g'uwwf { 'r ctvkr cpw'vq'vj qwi j vwn{ tghgev'wr qp'vj gkt'kpvgtcevkvqu'y kj  
pqpj wo cp'y kf rkhg'cpko cu0Y g'y cpv'vq'ecm'cwgpvkvq vq'vj g'wpls wg'gpgti gke'dqpf 'vj cv'ku'uj ctgf  
dgwy ggp'vy q'ugpvkpvdkpi u0Y g'y kn'gpeqwtci g'qwt r ctvkr cpw'vq'dtkpi 'cp'gxgt'r tgujpv  
cy ctgpguu'qh'eqpuekvwupguu'vj cv'cm'hkxkpi 'etgcwtgu r quuguu0Y g'j qr g'vj cv'vj ku'j gli j vpgf  
cy ctgpguu'ecp'rgcf 'v'o qtg'o gcpkpi hwnf kuewukp. tghgevkvq.'cpf'eqpvkpwgf 'o wvcm{ 'dgpghkcn



r ctvkr cpw'vj tqwi j "eqpxgplgpeg"uco r npi . "cu'vj g'tgugctej gtu'lwtxg{ gf "cwgpf ggu'vq"cp"cpko cn  
y gntctg'u{o r qukwo "423: +0Kp'dqvj "uwf lgu."r ctvkr cpw j cf "ctgcf { "f go qputcvgf "c'uki pklcepv  
kpvgtguv'lp"cpko cni'cpf "cpko cni'y gmlgkpi . "y j lej 'ko r cevgf tguwu"\*Nctuqp"gv'cni"4238=Eqtpkuj "gv  
cni"423: +0Qwt'uwf { "y km'dg'htqo "c'o qtg'o kzgf "dceni tqwvf qh'r gqr ng'y kj "xctkqu'kpvgtguu."pqv  
lwv'ko kgf "vq'r gqr ng'y j q"ctgcf { "uj qy "ur gekni'kpvgtguv'lp"cpko cni

### Areas for Further Study

Y j kg'vj g'rkgtcwtg"qp'y kf rkg"eqxgtu'dqvj "c'tcpi g qh'uwvqr leu'cpf "eqpukf gtcdrf" f gr vj  
kp'ur gekle"ctgcu."uki pklcepvi cr u'r gtukn0Ur geklecm{ . vj gtg'ku'o wej "vq'dg'uwf kgf "qp'vj g  
r gtegr vkp"qh'cpko cni'ugpvkpeg'd{ "j wo cp'dgkpi u."j qy vj ku'ko r ceu'j wo cp/cpko cni'grvkpuj kr u.  
cpf "y j cv'ghgevu'vj ku'j cu'qp"eqpugtxcvkp"ghqtu cpf "cy ctgpguu0Nctuqp"cpf "eqmgci wgu'cpcni'uku  
qh'gzr gtlgp'kni'hcexqtu'uw r qtu'vj g'dgrkgh'vj cv'gzr gtlgpegu y kj "y kf rkg'utgpi vj gp"chgevkxg"cpf  
go qvkpcni'tgur qpugu'vq'y kf rkg'uko wk"\*Nctuqp."gv'cni"4238+0Vj ku'uwf { "qr gpu'wr "cp"ctgc'ht  
tgugctej "qp'vj g'tqg'qh'wvf gtucpf kpi "cpf "cr r tgekvkq qh'ugpvkpeg'ht"vj g'htto cvkq"qh  
go qvkpcni'f kur quk'kpu'cpf "cvkwf gu'vqy ctf "y kf rkg'0Vj g'y qtn'qh'Eqtpkuj "cpf "eqmgci wgu  
ulo krcni' "etgcvgu'vj g'r qvgv'kni'ht'hw'vj gt'tgugctej qp'y j cv'gzcew' "o qv'xcvgu'r gqr ng'vq"eqppgev'vq  
cpko cni'ugpvkpeg"\*423: +0Y j kg'vj g'tgugctej gtu'gzco kpg f go qi tcr j le'hcexqtu'vj cv'kphwpeg

r t g x l q w u n { ' d g g p ' c w g o r v g f ' k p ' q v j g t ' t g u g c t e j 0 Y g ' y k m l r t q o r v ' j g ' u w f { ' r c t v l e k r c p w u ' v q  
v j q w i j v h w m { ' t g h r g e v ' w r q p ' v j g k ' k p v g t c e v k a p u ' y k j p q p j w o c p ' y k f r k h g ' c p k o c n u 0 Y g ' y c p v ' v q ' e c m  
c v g p v k a p ' v q ' v j g ' w p k s w g ' g p g t i g l e ' d a p f ' v j c v ' k u ' u j c t g f d g w y g g p ' y q ' u g p v k e p v ' d g k p i u 0 Y g ' y k m  
g p e q w t c i g ' q w t ' r c t v l e k r c p w u ' v q ' d t k p i ' c p ' g x g t ' r t g u g p v c y c t g p g u u ' q h ' e q p u e k q w a p g u u ' v j c v ' c m l h k k p i  
e t g c w t g u ' r q u u g u u 0 Y g ' j q r g ' v j c v ' v j k u ' j g k i j v g p g f ' c y c t g p g u u e c p ' r g c f ' v q ' o q t g ' o g c p k p i h w n  
f k u e w u k a p . ' t g h r g e v k a p . ' c p f ' e q p v k p w g f ' o w w c m { ' d g p g h e k e n k p v g t c e v k a p u ' d g w y g g p ' q w t ' u w f {  
r c t v l e k r c p w u ' c p f ' c p { ' p q p j w o c p ' y k f r k h g ' c p k o c n u ' v j g { o c { ' g p e q w p v g t 0

### Research Question

Y j c v ' o q v k c v g u ' r c t v l e k r c p w u ' v q ' e q p p g e v ' v q ' c p k o c n u ' u g p v k e p e g . c p f ' j q y ' e q w f ' v j k u  
o q v k c v k a p ' r g c f ' v q ' d g w g t ' t g c w o g p v ' q h ' y k f r k h g ' A Y g j q r g ' v q ' c f f ' v q ' g z k u k p i ' h v g t c w t g ' d { ' h k k p i ' v j g  
i c r u ' e q p e g t p k p i ' v j g ' g o q v k a p c n i k o r c e v ' q h ' y k f r k h g ' k p v g t c e v k a p c p f ' c e v k a p c d r g ' g h g e w ' v j k u ' j c u ' q p  
j w o c p ' d g k p i u ' v q y c t f u ' e q p u g t x c v k a p ' c p f ' y k f r k h g ' j c d k c v r t q v g e v k a p 0 K g c m { . ' y g ' y k m k f g p v k h {  
r c w g t p u ' c p f ' t g p f u ' k p ' y k f r k h g ' k p v g t c e v k a p u ' v j c v f g o q p u t c v g ' g h g e v k g ' y c { u ' v q ' g p e q w t c i g

qwt'r ctvlek cpwøqxgtcm'gzr gtlgpeg'y kj 'yj g'uwwf {0Dquxqp'Eqrngi g'uwwf gpw'ctg'wpls wg'lp'yj gk  
cdkxv\ 'vq'tghgeev.'eqo o wplkcvg.'cpf "go r cvj k g'y kj qyj gtu0Cm'Dquxqp'Eqrngi g'uwwf gpw'ctg  
tgs wktgf 'vq'eqo r rvg'yj g'Eqtg'Ewtkewnwo 'y j lej 'hquvgtu etklecn'yj kpnkpi 'unkm'cpf 'yj g'cdkxv\ 'vq  
eqo r cuukqpcvgn\ 'eqo o wplkcvg'kf gcu00 qtgqxtg.'yj g'Lguwkvxcnwgur tqo wni cvgf 'yj tqwi j qw  
Dquxqp'Eqrngi g'r ræg'c'utqpi "go r j cuku"qp'ugtxleg vq"qyj gtu'cpf 'y qtnkpi 'vq'o cm



**Data Collection Methods**

Rctvlekr cpwu'y gtg'kpxkxgf "xlc"vzv."go ckn'y qtf/qh'o qwj . cpf "uqekcn'o gf kc"vq'r quv'y gk  
y kf rkhg'kpgtcevkpu"v'y'j g'Hcegdqnmf tqwr 0Rctvlekr cpwu y gtg'cungf "v'uj ctg'pcttcvkgu."r j qvqu.  
xkf gqu."qt"cwf kq'hkgu"cpf "r tqo r vgf "v'tghgeev'qp vj g"go qvqpcn'gzr gtlgpegu"qh'y gk'y kf rkhg  
kpgtcevkpu0C"eqo o qp"dcttkgt "hqt"ekkl gp"uekgpeg tgugctej "ku'uwvckpgf "gpi ci go gpv'cpf  
eqo o ko gpv'qh'r ctvlekr cpwu"Rcrgeq'gv'cn0"4243+0Y g'clo "v'cf f tguu'v'j ku'ej cmgpi g'd{ "qhhgtkpi  
o wvkr ng'r tqlgv'gpv{ "r qkpu"cu'y gm'cu'o wvkr ng y c{ u"vq'r ctvlekr cvg"cvf khhgtgpv'rgxgnu'qh  
eqo o ko gpv'lp'y'j g'Hcegdqnmf tqwr "Rcrgeq'gv'cn0"4243+0Gzco r ngu'qh'r ctvlekr cvkqp"dg{ qpf  
r qukpi "kpenmf g'kpgtcevkpi "y kj "qyj gt'r quu'v'j tqwi j rkgu"cpf "eqo o gpv."y v'ej kpi "rkxg'utgco  
xkf gqu'j quvgf "d{ "v'j g'tgugctej gtu."cpf "tghgtkpi "qyj gt r ctvlekr cpwu"v'y'j g'i tqwr 0F cv"eqmgevkap  
dgi cp"qp"Qevqdg"36."4242"cpf "eqpenmf gf "qp"Cr tkn36. 42430

**Data Analysis**

Cp"guugpvkcn'r ctv'qh'qwt"fcv"cpcn{ uku'o gj qf "ku'eq/etgcvkap. y j lej "cmqy u'qwt"uwf { "vq  
dvwf "c'tlej "pcttcvkg"dgvy ggp'v'j g'r ctvlekr cpwu"cpf vj g'tgugctej gtu"D3/kluj /Dtgf plej ."423: +0  
D3/kluj /Dtgf plej "go r j cuk gu'v'j cv'wpeqpxgpvqpcn'o gj qf u'qh'pcttcvkg"gy'pqi tcr j { "ctg'kp  
v'pukqp'y kj "v'j g'pggf "hqt"gy'pqi tcr j le'tgugctej "v' dg"cmgp"ugtqwan{ "cu"uqekcn'uekgpeg  
"D3/kluj /Dtgf plej ."r 0; ."423: +0Y j krg"{ gv"v'c"pcttcvkg dguv'ecr wtgu'v'j g"go qvqpu"gzr tguugf "d{  
r ctvlekr cpwu'tgi ctf kpi "v'j gk'y kf rkhg'kpgtcevkpu. cpf "ku'o quv'tvg"v'y'j g'pcwtg'qh'ugpvkgpeg0  
Hwv'j gto qtg."qwt"o gj qf u'hqmgy "cp'kpwkxg"cpcn{ uku cr r tqcej "cu"qr r qugf "v'cpcn{ v'ecneqf kpi  
qh'y g'f cvc0D3/kluj /Dtgf plej "chko u'v'j cv'y j krg"okv'ku'vgo r vpi "v'wtp'uvqtkgu'kpv"fcv"cpf  
f gxcnwg'v'j g'cev'qh'f ggr "kuv'gkpi "cpf "pcttcvkg"eqpvgo r r'v'kqp.ö vj g'r tqegu'qh'qtf gkpi "uvqtkgu  
kpv'pcttcvkgu'ku'dguv'i vkf gf "d{ "c"sv'wv'kxg"cr r tqcej vj cv'f qgu'pqv'mug'v'j g"go qvqpu'lp'y'j g

r ctvkr cpvau'uvqtkgu'd{ 'f kuugevki 'vj go '\*D3pkuj /Dtgf plej . 'r 032."423: +0Qwt"cpcn{ uku'go r j cuk gu  
kpwkxg'y kuf qo u'y j kg'go r mq{ kpi 'tgugctej "eqpxgpvkp y j gp"cr r tqr tkvg0

Vj g'f cv'y cu'cuuguugf "wukpi "c'ugtkgu'qh's wrkcvkxg s wgunkqpu'vj cv'eqpukf gt'vj g'go qvkpu  
cpf "ugpvkpeg"dgj kpf "vj g'uvdo kvgf 'r j qvqi tcr j u.'xkf gqu. cpf "cvf kq'tgeqtf kpi u0S wgunkqpu'vj cv  
i vkf g'qwt"fcv"cpcn{ uku'kpenmf g<y j cv'v{ r g'qh'y kf cpko cnku'uj qy p'AY j cv'ku'vj g'eqpvz'v'qh'vj g  
r j qvq'AY j cv'f qgu'vj g'eqo r qukkqp"qh'vj g'r j qvqi tcr j uc{ "cdqw'vj g'tgrvkqpuj k "dgwy ggp'vj g  
r gtuqp"cpf "vj g'cpko cn'AY j cv'ecr vkpu'cpf "uvqtkgu'ctg kpenmf gf AY j cv'go qvkpu'f'vj g







O gfk'V{r g	
Rj qvq	39
Xlf gq	5
P qpg	3
Eqmgi g'Cwgpf gf	
Dquqp'Eqmgi g	35
Qvj gt	6

**Trends**

**Trend 1: Key words about animal sentience**

Dgecwug'uwwf lgu'kp'vj ku'ctgc'qh'tgugctej 'j cxg'kpxgunki cvgf j wo cp'cempqy ngf i go gpv'qh cpko cnl'ugpvkpeg.'c'ej qugp'vj go g'ht'cpcn'uku'y cu vj g'wug'qh'vj g'y qtf 'ugpvkpeg'qt'c'tgrvgf cempqy ngf i go gpv'qh'pqp/j wo cp'cpko cnl'go qvqp'y kj kp vj g'f'guetkdgf 'kpvgtcevkp0Hqwtvggp.'qt 85085' . 'qh'vj g'r ctvkr cpw'eqo o gpvgf 'qp'vj g'r gtekgxf go qvqpu'qh'vj g'cpko cnl'qt'cpko cni'vj g{ gpeqwpvgf 0Vj g'uwwf { 'y cu'cm quv'gpvkn' 'eqo r qugf qh'hgo cmg'j wo cp'r ctvkr cpw'y j kej 'o c{ eqttgrvg'v'vj g'o clqtk' 'qh'r ctvkr cpw'o cnl'pi 'ugpvkpeg/tgrvgf eqo o gpw0Eqtpkuj 'cpf eqmgi wgu'hqwpf 'vj cv'hgo cmg'y gtg'o qtg'rkng' 'v' gpi ci g'go qvqpcn' 'y kj 'pqp/j wo cp'cpko cni \*Eqtpkuj 'gv'cn'423: +0J qy gxgt.'pq'r ctvkr cpw'gzr rkn' wugf 'vj g'y qtf 'ugpvkpeg'kp'vj gkt pcttcvkg0Vj gtghqtg.'eqo o gpw'qp'cpf 'tgrvgf 'v'r gtekgxf go qvqp'cpf 'ur kkwcnl'pvtur gelgu eqppgevkp'y gtg'eqpukf gtgf 'wvf gt'vj g'vj go g'qh'ugpvkpeg0

**Trend 2: Key words about human emotional experience**

Vj tgg'qh'vj g'44'r ctvkr cpw'\*35085' +y j q'ngw'pcttcvkg r quw'tgr qtvgf 'hggkpi 'go r cvj { hqt'cpqt#

j wo cp'lpvgtcevkqpu'y kj 'y kf rkhg'cpko cni'cpf 'yj gk'j cdkcwoVj gtg'y gtg'ugxgtenr ctvlekr cpwu'y j q  
kpf kecvf 'yj cv'y g{ 'hgn'cr r tgj gpukxg'qt'hgcthwi'cdqww yj gk'lpvgtcevkqpu'y kj 'y kf 'cpko cni'Vj tgg  
r ctvlekr cpwu'qh'y g'44'vqcn'kpf kecvf 'yj cv'y g{ 'hgn'pgtxqwu'qt'hgcthwi'ctqwpf 'cpko cni'dw'y q'qh  
yj g'y tgg'tgr qtvgf 'wko cvgn' 'j cxkpi 'r qukkxg'hgnkpi u cdqw'yj g'lpvgtcevkqpu0

### ***Trend 3: Transformative effect of experience***

Dgecwug'r tgxkqwu'uwf lgu'umi i guvgf 'yj cv'r gtuqpcn'gZR gtlgpegu y kj 'y kf rkhg'j cxg'yj g  
r qy gt'vq'ej cpi g'j wo cpu'r gtur gevkgu'cpf 'cevkqpu'vqy ctf qyj gt'ur gekgu.'yj g'tgugctej gtu  
kpxguki cvgf 'yj g'vcpuhqto cvkxg'pcwtg'qh'yj g'r ctvlekr cpwu) gZR gtlgpegu'\*Nctuqpg'v'cni'4238=  
F qrd{. '4242='Ueqw'v'cni'4242-0'Qh'yj g'44'f guetkr vkg pcttcvkgu.'. 'r ctvlekr cpwu\*5808' +  
gZR rlekn{ 'f guetkdgf 'c'vcpuhqto cvkxg'ghgevtqo yj gk'gZR gtlgpeg'y kj 'y kf rkhg.'9'r ctvlekr cpwu  
\*530: ' +lpenmf gf 'pq'tghgtgpeg'v'c'vcpuhqto cvkxg'ghgevtqo'v'gk'gZR gtlgpeg.'cpf 'yj g'tgo clkpi  
9'r ctvlekr cpwu\*530: ' +lpenmf gf 'ko r rlekn'tghgtgpegu v'v'g'gZR gtlgpegu'eqpvtkdwkq'v'v'gk'pgy  
r gtur gevkg0Ukz'qh'yj g'gki j v'vcpuhqto cvkxg'gZR gtlgpegu kpxqkxgf 'c'j wo cpw'lpvgtcevkq'p'y kj 'c  
ur gekgu'yj g'r ctvlekr cpv'f qgu'pqv'ugg'qt'lpvgtcev'y kj qp'c'tgi wxt'dcuku0Cu'v'v'ku'tgugctej 'y cu  
eqpf wevgf 'lp'yj g'o kf uv'qh'yj g'EQXKF/3; 'r cpf go ke.'vy q qh'yj g'gZR rlekn{ 'vcpuhqto cvkxg  
gZR gtlgpegu'lpenmf g'tghgtgpegu'v'v'g'ko r qtvcpeg'qh'eqppgevkq'p'y kj 'qyj gt'ur gekgu'f wtkpi 'yj ku  
r gtlqf 'qh'kuqrvkq0'Hkxg'qh'yj g'gki j v'vcpuhqto cvkxg'gZR gtlgpegu'lpenmf gf 'gZR rlekn'tghgtgpegu'v'v'  
r gtuqpcn'cevkq'v'v'c'f'eqpugt'xcvkq0Qpg'vcpuhqto cvkxg'gZR gtlgpeg'j'gir gf 'c'r ctvlekr cpv'hgn  
r gtuqpcn' 'eqppgevgf 'v'v'kf rkhg'0'Vj gtg'y cu'cp'qxgty j gm kpi v'v'gpf 'lp'r ctvlekr cpwu'gZR gtlgpegu  
ecwulpi 'tghgevkq'qp'o wkur gekgu'eqgzkvgepg0'Qh'yj g'eqo dkgf '37'gZR rlekn{ 'cpf 'ko r rlekn{  
vcpuhqto cvkxg'gZR gtlgpegu.'; 'lpenmf gf 'c'tghgevkq qp'eqgzkvgepg'cpf 'yj g'gh

Vj g'9'r ctvkr cpw'y j q'f kf "pqvtgr qtv'qp"vj g'tcpuhqto cvkxg'pcwtg'qh'vj gk'y kf rkg'g'zr gtlgpegu  
uj qy gf 'hgy 'eqo o qpcrkku0"Vj g'ur gekgu'gpeqwpvgtgf cpf 'mcecvkpu'qh'vj gug'pcttcvkgu'y gtg  
xctkgf 0Qpg'r ctvkr cpv'r qpf gtu'y j { 'c'upcr r kpi 'wtvrg tgvwtpu'v'vj gk' { ctf "qp'cp'cppwcn'dcuku0  
ōJ gtgū'o { 'vj qwi j v'ō c { dg'uj g'ej qqugu'qwt'my p'dgecwug y g'j cxg'vj g'qpn' 'pcwtcn'ry p'kp'vj g  
pgki j dqtj qqf #AP q'htvkr gt0P q'r guvkr gu0P q'cp { vj kpi ō Cpqvj gt'r ctvkr cpv'tgo ctngf "qp'c  
ugcnu'cdkrk' { 'v'eqgzku'y kj 'j wo cpu'kp'Nc' Lqmc<ō'Kuy co 'kp'vj g'y cvgt'cpf 'y cu'j qpgu'f  
uwr tkugf 'd { 'vj g'ugcnu'rcni'qh'j quvkrk' { 'cpf 'uggo kpi n' f lutgi ctf 'hqt'j wo cpu'uy ko o kpi 'kp'uj  
enug'r tqzko kv.ō0"Vj g'r ctvkr cpw'ctg'cdng'v'cempqy ngf i g cpf 'tghge'v'qp'vj gk'g'zr gtlgpegu'y kj  
qvj gt'ur gekgu.'dw'f q'pqvtgr qtv'cp { 'gxkf gpeg'qh'c ej cpi gf 'cvkwf g'qt'r gtur gevkg'hqmy kpi 'vj g  
kpgtcevqp05"qh'vj g'9'r ctvkr cpw'vj cv'f kf "pqvtgo ctm'qp'tcpuhqto cvkqp'ctg'uwf gpw'qh  
Gpxkqpo gpv'cn'Uwf kgu0

**Trend 4: Species Type**

Qh'vj g'44'f guetkr vkg'pcttcvkgu.'35'r quu'\*7; Ō; ' +hgewugf "qp'cp'kpgtcevqp'y kj 'c  
vj tgcwpgf "qt'tctg'ur gekgu'vj cv'vj g'r ctvkr cpv'f qgu pqv'eqo o qpn' 'gpeqwpvgt'kp'vj gk'gxgt { f c {  
rkg0Vj gug'ur gekgu'kpenf gf 'c'ugc'rkqp.'j wo r dcemy j crgu.'dgctu.'cp'gm'c'f ggt.'ugc'wtvrgu.'dkuqp.  
o qwpvcp'i qcvu.'c'vgtter kp.'ugcnu.'uy cpu.'cpf 'c'wtvrg { 0Qh'vj gug'35'r quu'hgcwtkpi 'kpgtcevqpu  
y kj 'tctg'cpko cnu.'8'r quu'\*68Ō7' -'cnu'g'zr rckm' f guetkdgf "c'tcpuhqto cvkxg'ghge'v'qp'vj g  
r ctvkr cpv'tqo 'vj g'gpeqwpvgt0Qpg'r ctvkr cpv'uckf vj gk'kpgtcevqp'y kj 'c'ugc'rkqp'tgchko gf  
vj gk'o qvxcvqp'v'r tqvge'v'y kf rkg'cpf 'hcxg'cpko cnu crpg'ōv'f q'vj gk'vj kpi ō Cpqvj gt  
r ctvkr cpv'y cu'tgo kpf gf "qh'vj g'ko r qv'peg'qh'eqpugt'xcvqp cpf 'vj g'eqgzku'v'peg'qh'j wo cpu'cpf  
pqpj wo cp'cpko cnu'chgt'vj gk'kpgtcevqp'y kj 'uy cpu0O qtgqxt.'y q'r ctvkr cpw'vj cv'y tqv  
cdqw'vj gk'kpgtcevqpu'y kj 'j wo r dceny j crgu'f guetkdgf vj g'gpeqwpvgtu'cu'o cnpki 'vj go 'tghge'v  
qp'vj g'j wo cp'ko r cev'qp'vj g'gpxkqpo gpv'cpf 'vj g'etvgn'v'gco gpv'qh'y j crgu'kp'ecr vkv'.'cpf

f guetkdgf 'hggrkpi 'kpur ktgf 'v'eqpvkpwg'yj gk'eqpugtxcvkqp'ghqtu0Qh'yj g'; 'r quu'hgcwtkpi  
kpvgtcevkqpu'y kj 'o qtg'eqo o qp'cpko cnu.'4'r quu'\*4404' +cnuq'f guetkdgf 'c'tcpuhqto cvkxg'ghgev  
qp'yj g'r ctvlekr cpv'htqo 'yj g'gpeqwpvgt0Vj wu.'pcttcvkxgu cdqw'gpeqwpvgtu'y kj 'tctg'cpko cnu'y gtg  
409'ko gu'o qtg'rkgnf 'v'f'kuewu'c'tcpuhqto cvkxg ko r cev'yj cp'gpeqwpvgtu'y kj 'eqo o qp'cpko cnu0  
c0 35'qh'yj g'44'r quu'\*7; 0; ' +cnuq'kpenf gf 'c'tghgevkkp qp'eqgzkvgep.'yj g'j' wo cp'ko r cev  
qp'yj g'uwtxkcn'qh'yj g'ur gekgu.'cpf lqt'yj g'ghgevqh'j wo cp'qt'pqpj wo cp'cpko cnu'r tgugpeg  
cu'c'r quukdr'f kuwtdcpeg'v'yj g'qyj gt0Qh'yj g'6'r quu yj cv'hqewugf 'qp'eqgzkvgep.'cml'qwt  
\*322' +y gtg'eqppgevgf 'v'kpvgtcevkqpu'y kj 'tctg'cpko cnu0k'qp'g'r quv'cdqw'o qwpvckp  
i qcu.'yj g'r ctvlekr cpv'uj ctgf 'yj cv'yj g'gizr g'kgep o cf g'yj go 'otgcrk' g'yj cv'j wo cp'dgkpi u  
eqgzkv'y kj 'cpko cnu'cu'y g'uj ctg'yj g'uco g'gctvj 'y kj yj go 0'k'cpqyj gt'r quv.'c'r ctvlekr cpv  
yj cv'kpvgtcevgf 'y kj 'dkuqp'gizr m'kpgf 'yj cv'yj g'gpeqwpvgt o cf g'yj go '0vj kpm'yj cv'eqgzkvgep  
y kj 'cpko cnu'ku'r quukdr'0'Qh'yj g'8'r quu'yj cv'f gcnv y kj 'yj g'j' wo cp'ko r cev'qp'pqpj wo cp  
cpko cnu.'5'qh'yj g'8'\*72' +r quu'y gtg'eqppgevgf 'v' tctg'ur gekgu0Qpg'r quv'cdqw'ugc'wt vgu  
tgo kpf gf 'c'r ctvlekr cpv'cdqw'0vj g'ko r cev'yj cv'j wo cp

cpko cnu'uj ctkpi 'c'ur ceg0J qy gxgt. 'qh'vj g'35'r quu'vj cv'tghngevgf "qp'vj gug'vqr keu'cu'y gmi'cu  
eqgz kugpeg. ", 'r quu'"8604: ' +y gtg'htqo 'kpgtcevkqpu y kj 'tctg'cpko cnu0

**Trend 5: Composition of Photograph**

J qy 'f'kf 'r tqzko kv 'chgevj' qy 'vj g{'hgn'cdqw'vj g'cpko cnaF kf "k'gxqmg'tgur gev.'hgctA

c0 Y qqf r gengt<õJ g'f'kf pø'uggo "vq'o kpf "o g'uvcpf kpi 'uq enqug.'s wkw' "o guo gtl gf "y j kg

y cvej kpi 'j ko 'j cr r kn' 'y qqf dqt kpi "cy c{=j g'uggo gf 'tcvj gt r tqwf "vq'uj qy 'qh'h'j ku

r qy gt/r genkpi "cdk'k'gu0K'hgn'vj cv'vj ku'y qqf r gengt cewcm' 'hknf 'vj g'cwf kgpeg.'uq"K

hqmqy gf 'j ko "cpf 'hko gf 'j ko 'y j kg'pco kpi 'j ko "Y cngtõ

cemcãfã cbpã cãrdã  
d0 Gm'õkj gãmã u'pquv'f kgev'g'zr g'f'j kpi 'j ko 'j cr r kn' 'y cewcg0

- k0 ðVj g'o quv'tgo ctædrg'gZR gtlgpeg'y cu'y kj 'c'i tqwr 'qh'y j crgu'y j lej 'eqo g  
 vj tqwi j 'qwt'y cvgtu'kp'O ctej 'cpf 'Cr tkn'gcej '{ gct0Uggkpi vj gug'j vi g'cpko cnu  
 tgcml 'r wu'j qy 'uo cm'y g'ctg'kpva'r gtur gevkgö
- k0 ðVj gtg'y g'f tkhgf 'y j kg'dgkpi 'uwtqwpf gf 'd{ 'J wo r dcemu hqt 'yj tgg'j qwtuö
- g0 UgcndöCv'j ku'eqxg'qp'vj g'y cvgt.'o cp{ 'ugcni'i cvj gtgf ctqwpf 'v'uwpcvj g0Kuy co 'kp'vj g  
 y cvgt'cpf 'y cu'j qpguwl 'uwr tkugf 'd{ 'yj g'ugcnu'æremqh'j quv'kv' 'cpf 'uggo kpi n' 'f kutgi ctf  
 hqt'j wo cpu'uy ko o kpi 'kp'uwej 'emug'r tqzko kv'0Vj g'ugcnu y gtg'uwpcvj kpi . 'uy ko o kpi .  
 erko dlpi 'qp'vj g'tqemu.'gplq{ kpi 'yj g'uwpcvj . 'gveí "Ky cu uvcpf kpi 'uwr gt'emug'v'v' q'ugcnu  
 y j q'uggo gf 'v'i gv'kp'cp'cti wo gpv'y kj 'gcej 'qvj gt' 'g'vf kf 'pqv'gxgp'dcv'cp'g{ g'cv'o g0  
 Rtgw{ 'pgcv'j qy 'ceewuqo gf 'cpko cni'ecp'i gv'v' dgkpi pgct'j wo cpuö
- h0 Dwpp{ <ðK'y cupø'o qxlpi 'cv'cm'gxgp'y j gp'Keco g'emug v'k' 'cpf 'k'y cupø'drkpnkpi lkw  
 g{ g'y cupø'o qxlpi 0Kdgi cp'v'i gv'y qttkgf 'cpf 'eqpukf gt vj g'r quukdkv' 'vj cv'vj g'dwpp{ 'y cu  
 htq| gp'v'f gcvj . 'y j lej 'uectgf 'o g'cpf 'o cf g'o g'hggnuq'uqtt{ 'hqt'k0Ky qwr 'pqv'eqpukf gt  
 o { ugrh'cp'cpko cni'qxtg'd{ 'cp{ 'o gcpu.'cpf 'pqto cm' co 'o qtg'chtckf 'v'i gv'emug'v'cp{  
 y kf 'cpko cni'0Rgtj cr u'vj g'hcev'vj cv'vj ku'dwpp{ 'y cu uq'f g'hpugruu'ku'y j cv'o cf g'o g'pqv  
 hggv'vj tgcvgpgf 'd{ 'k'dw'tcvj gt'vj kpnkpi 'qh'y c{ u v'v' 'v'j'j gr 'k0
- i 0 F ggt<ðKmqmgf 'qwu'kf g'vj g'y kpf qy 'qh'o { 'j qwug'cpf ucy 'c'f ggt'uuctkpi 'cv'o g'cpf  
 uqo r kpi 0K'y cu'c'tgcm' 'co c| kpi 'gZR gtlgpeg'v'ugg vj g'f ggt'tgeqi pk g'cpf 'kpvgtcev'y kj  
 o g0
- j 0 Dkuqp<ðQp'o { 'y c{ 'yj gtg.'Kuvqr r gf 'o { 'ect'v'vcng c'mqm'cv'vj ku'i tqwr 'qh'dkuqp0K  
 y cvej gf 'vj go 'hqt'c'y j kg.'cpf 'gplq{ gf 'dgkpi 'kp'vj gk r t'gugpeg0Vj g{ 'f kf pø'uggo 'v'  
 pqv'eg'o g'cpf 'y gpv'cdqvw'vj gk'f c{ 'i tcl kpi 'cpf 'y cm'kpi ctqwpf 0

10 I qcvu<ōKi qv'c'dk'pghtxqwu'cu'vj g{ 'eco g'emug'v'wu'v'etquu'vj g'r cvj 0Vj g{ 'f kf 'pqv'uggo  
vq'o kpf 'vj g'fcev'vj cv'vj gtg'y gtg'r gqr ng'cni'cmipi 'vj g'r cvj . 'cu'iqpi 'cu'y g'f kf 'pqv'i gv'vqg  
enugō

10 Ugc'Nkqp<ōQp'qpg'gzr gf kkp'y g'gpeqwpvgtgf 'c'ugc nkqp'ur tcy ngf 'qp'c'dgpej 'tgukpi 0K  
ucv'qp'vj g'dgpej 'qr r qukg.'cdqw'8'hggv'cy c{0K'iqqngf wr . 'kf gp'kkgf 'o g'cu'c'pqp/vj tgcv  
cpf 'y gpv'dcem'v'unggr 0K'eqwf pō'j grr 'dw'pqv'eg c'r gtuqperkv{ 'v'j ko . 'hng'j qy '{ qw'hgn  
y j gp'{ qw'g'pcc r kpi 'qp'vj g'eqwej 'cpf 'uqo gqpg'y cmu k'p'uq'{ qw'iqqm'wr 'dghgtg'i two r kq  
i q'dcem'v'upqql kpi ō

67067' 'qh'r quu'tghgtgpegf 'j wo cp'r tqzko kv{ 'v'y kf nkq ur geku0Ugxgtcn'qh'vj gug'r quu

hpf lpi u'd { 'kmwo kpcvpi 'vj g'xgt dci g'wugf 'vq'f guetkdg'pqp/j wo cp'cpko cni'go qvqpu'cpf 'ugpvkpeg  
 cpf 'tghphqteki 'vj gk'tguwuu'tgi ctf lpi 'c'eqttgrvqp dgy ggp'hgo cngu'cpf 'go qvqpcr'eqppgevkp  
 y kj 'pqp/j wo cp'cpko cni'Eqtpluj 'gv'cni'423: -0Hqwtvgg qh'vj g'y gpv{/wy q'r ctvkr cpw'y tqvg  
 cdqw'vj g'r gtegxgf 'go qvqpu'qh'vj g'cpko cni'kp'uqo g ecr cekv { 'kpf lecvpi 'cp'cempqy rgi go gpv'qh  
 pqp/j wo cp'cpko cni'ugpvkpeg0k'qy gt'y qtf u.'o qtg'vj cp j cni'qh'vj g'r ctvkr cpw'kpenmf gf  
 eqo o gpw'tgrvpi 'vq'cpko cni'ugpvkpeg'y j gp'cungf 'vq uj ctg'c'pcttcvkg'cdqw'c'y kf rkhg  
 kpvgtcevqp0vj gug'r gtegxgf 'go qvqpu'tcpi gf 'öecro ö vq'öci i tguukxgö'cpf 'vj g'r quw'kpenmf gf  
 y qtf u'wej 'cu'gzekgf . 'tgrczgf . 'htwutcvgf . 'wpr j cugf . eqpvgr0Qh'vj g'r quw'vj cv'kpenmf gf 'vj gug  
 ng{y qtf u'cpf 'ugpvko gpw.'vj g'ur gekgu'qh'vj g'cpko cntcpi gf 'htqo 'rjecn'dcem{ ctf 'dglpi u'vq  
 kpvgtpcvqpcn'tctg'ur gekgu'kpf lecvpi 'vj cv'ur gekgu rkngr { 'j cf 'pq'ko r cev'qp'y j gj gt'qt'pqv'vj g  
 r ctvkr cpv'kpenmf gf 'eqo o gpw'qp'ugpvkpeg0O cp { 'qh'vj g'ur gekgu'ctg'hqwpf 'kp'vj g'Wpkgf 'Ucvgu  
 dw'rjcevqpu'cniq'kpenmf gf 'Uy kj gtrpf . 'Dgto wf c. Dtc| kn'cpf 'vj g'I cnr ci qu0P qpg'qh'vj g  
 r ctvkr cpw.'j qy gxgt.'wugf 'vj g'y qtf 'ugpvkpeg'kpf lecvpi 'vj cv'r gtj cr u'vj g { 'gztg'kpeg'cpko cn  
 ugvkpeg'y kj qw'j cxkpi 'rgctpgf 'cdqw'vj g'hqto cneqpegr 0F qnd { 'cti wgu'hqt'vj g'gzt cpukp'qh  
 gpv'kqpo gpv'nf'gf wecvkq'ur gekk'ecm { 'tgrcvgf 'vq'go r cvj { cpf 'cpko cni'ugpvkpeg'y j lej 'y g'cniq  
 tgeqo o gpf 'cu'o cp { 'r ctvkr cpw'y gtg'pqv'cu'y gmlphqto gf qp'eqpugtxcvq'cpf 'vj g'go gti lpi  
 rkgtcwtg'qp'ugpvkpeg'0F qnd { 'gv'cni'4242-0Gf wecvkq'ur gekk'le'vq'vj ku'vqr le'dglpi 'i kxgp'r tkqt'vq  
 eqpf wevpi 'c'uwf { 'uwej 'cu'vj ku'o c { 'j cxg'ko r rkevqpu qp'tguwuu'cpf 'vgtö kqmqi { 'wugf 0

***Trends in human emotion***

Vj g'f cv'eqngevgf 'uj qy u'vj cv'j wo cpu'gztg'kpeg'c dtqcf 'tcpi g'qh'go qvqpu'y j gp  
 kpvgtcevpi 'y kj 'vj g'rkgu'cpf 'ugpvkpv'ur kksu'qhy kf rkhg'cpko cni'0Y j gp'r ctvkr cpw'tgr qtvf  
 hgnkpi u'qh'go r cvj { 'hqt'pqp/j wo cp'cpko cni'vj g { 'hgnv'gtg'utwi i rki 'kp'uqo g'y c { . 'vj g {  
 o gpv'kqpgf 'j qy 'vj g'cpko cni'utwi i ng'o cf g'vj go 'vj kmetk'ecm { 'cdqw'j wo cp'cpf 'pqp/j wo cp

cpko cnlkpvtcevkqpu'cpf lqt'eqpugtxcvkqp0Vj ku'kpf kpi 'tghngeu'vj g'y qtm'qh'\*Y cmcej 'g'v'c'0'423: +  
k'p'y j lej 'y g'cwj qtu'ucv'vj cv'uwo o qpkpi "eqo r cuukqp ku'ko r qtcv'v'y j gp'y kpnkpi "etkkkcm' "cpf  
g'y kcm' "cdqw'eqpugtxcvkqp0Kpvtgukpi n'.'y g'eqo r cuukqp ugxtgn'qh'vj g'r ctv'ekr cpv'u'gnv  
kpxqmgf 'c'ugpug'qh'f w'f 'v'q'eqpugt'xg'vj g'rkxgu'cpf y gm'dgkpi "qh'y k'f r'k'g'cpko cnu0Vj g'o clqtk'f "qh  
r ctv'ekr cpv'u'g'zr tguugf 'r qukkx'g'hgnkpi u'k'p'vj g'k p'cttcv'xgu'tgeqwp'kpi 'y g'k'g'zr g'k'g'pegu'y k'j  
y k'f r'k'g'cpko cnu0Vj ku't'g'p'f 'ku'g'zekkpi "dw'p'qv'p'gegu'ctkn' u'w'r tkukpi 0O qt'g'q'x'g't.'uwej 'k'p'f kpi u  
c'k'k'o 'y cv'ek'k' gp'ue'k'g'peg'f' t'q'w' u'r t'q'x'k'f g'go q'v'x'g' g'zr g'k'g'pegu'y t'q'w' j 'g'f wec'k'pi 'r ctv'ekr cpv'u'q'p  
ko r qtcv'p'g'p'x'k'q'po gp'v'c'n'v'q'r leu'\*R'c'g'eq'g'v'c'f'0'4243+0

**Trends in Transformative Narratives**

Vj g't'guw'u'h'q'w'p'f 'k'p'vj ku'uw'f { 'ct'g'eqpuk'v'g'p'v'y k'j r t'g'x'k'q'w'u'uw'f { a'k'p'f kpi u'vj cv  
g'zr g'k'g'pegu'y k'j 'y k'f r'k'g'j' c'x'g'vj g'c'd'k'k'f 'v'q'o q'v'x'c'v'g' j wo cp'ce'v'q'tu'v'q'y c't'f "go r cv'j g'v'e'ce'v'k'q'pu  
v'q'y c't'f 'y k'f r'k'g'c'p'f "c'h'g'v'x'g'c'p'f "go q'v'k'p'c'n't'g'ur q'p'ugu v'q'y k'f r'k'g'u'v'ko w'k'\*N'c'tu'q'p'g'v'c'f'0'4238=  
F'q'nd'f'.42420N'c'tu'q'p'c'p'f "eq'm'g'c'i w'g'u'h'q'w'p'f 'y cv'g'zr g'k'g'pegu'y k'j 'j' q'w'ug'ur c't't'q'y u'r qukk'x'g'n'f  
c'h'g'v'g'f 'r ctv'ekr cpv'u'v't'g'c'w'o gp'v'q'h'vj g'ur g'el'g'u.'y j lej ku'uw'r r'q't'v'g'f 'd' { 'y g'q'x'g't'y j g'm' kpi 'r q't'v'k'p  
q'h'g'zr g'k'g'pegu'y cv'q'w't'uw'f { 'h'q'w'p'f 'v'q'd'g'r ctv'ek'w'c't'n'f v'c'p'uh'q'to c'v'x'g'0'F'q'nd'f' { 'h'q'w'p'f 'y cv'y t'k'k'pi  
cp'g'u'uc' { 'h't'q'o 'y g'r g'tur g'v'x'g'q'h'c'p'cp'ko c'n'vj g' { 'j' c'f r t'g'x'k'q'w'u' { 'q'd'ug't'x'g'f "eq'p't'k'd'w'g'f  
u'k'i p'k'h'c'p'v'f 'v'q'vj g'k'g'p'x'k'q'po gp'v'c'n'g'f wec'k'q'p'c'p'f go r cv'j g'v'e'eq'p'p'g'v'k'q'p'v'q'cp'ko cnu'F'q'nd'f'.  
4242+0Q'w't'uw'f { "eq'p't'k'd'w'g'u'v'q'F'q'nd'f' { a'y q't'm'f' { 'u'j' q'y e'c'uk'pi 'y g'r q'y g't'q'h'g'zr g'k'g'p'v'c'n't'g'h'g'v'k'q'p  
q'p'j' wo cp'a'eq'p'eg'r v'k'q'pu'q'h'c'p'f "eq'p'p'g'v'k'q'pu'y k'j "q'v'j g't'ur g'el'g'u'0H'k'g'g'p'q'h'vj g'44'\*8: Ø: ' +  
r ctv'ekr cpv'u'g'k'j g't'ko r r'ek'n'f "q't'g'zr r'ek'n'f "t'g'h't't'g'f v'q'vj g'v'c'p'uh'q'to c'v'x'g'p'c'w'w'g'q'h'vj g'k't'y k'f r'k'g'  
k'p'v't'ce'v'k'q'p.'u'w'i i g'uk'pi 'y cv'k'p'et'g'c'ug'f 'h't'g's'w'g'p'e' { 'q'h'j' wo cp/y k'f r'k'g'k'p'v't'ce'v'k'q'pu'j' cu'vj g'r q'v'g'p'v'c'n  
v'q'ko r t'q'x'g'v't'g'c'w'o gp'v'q'h'q'v'j g't'ur g'el'g'u'0"R'c't'v'ekr cp'v'38a'uc'v'g'o gp'v'ec'r w't'g'f 'y g'ug'p'v'ko gp'v'q'h  
o cp' { 'q'h'vj g'f' t'q'w' a'v'o go d'g'tu'c'v'0Vj g' { 'y g't'g'x'g't' { 'ec'm' c'p'f "ug'g'o g'f "s'w'k'g'eq'p'v'g'p'v'lw'v'j' c'p'i kpi "q'w

qp'vj g'o qwpvcp0Vj ku'gZR gtlgpeg'o cf g'o g'tgcrk g'vj cv'j wo cp'dgkpi u'eqgzku'v'y kj 'cpko cnu'cu'y g  
uj ctg'vj g'uco g'gctvj 'y kj 'vj go 0K'r ctvkwct.'tghgtgpegu vq'eqgzku'v'y gtg'j ki j n' r'tgxcrgp0  
Vj ku'o c{ 'dg'f wg'vq'j wo cpaf'qo kpcpeg'lp'vj g'pcwtcny qtrf.'qhv'p'ngcf kpi 'vq'ugr ctcvq'p'qh  
ur gelgu0'Y j gp'j qo q'ucr kpu'ctg'gpeqwtci gf 'vq'lpvgtcevy kj 'qvj gt'ur gelgu'lp'vj gkt'v' r'lecn  
gpv'vj g' ctg'cdng'vq'f geqpuv'wv'vj g'f qo kpcpvp'cwtg/uqekv' 'kf gqni' kcn'f kxkf g0  
Cempqy rgi i kpi 'vj g'xcnw'q'h'o wnkur gelgu.'cu'lpvtqf wv'gf d{ 'cwj qtu'Mktmug{ 'cpf  
J gm tglej \*4232+.'lp'qwt'uj ctgf 'gpv'ku'c'etwecnu'v'g'v'qy ctf u'l'wuv'r t'gugt'xcv'q'p'0'Mktmug{  
cpf 'J gm tglej .4232+0' Cp'qxgty j gm kpi 'o clqtk'v' 'qh'vj g'gZR r'ekn'f 't'cpuhqto cv'xg'gZR gtlgpegu  
qeewt'gf 'dgy ggp'j qo q'ucr kpg'cpf 'c'ur gelgu'vj g' lpvgtcevy kj 'tctgn'0'Vj ku'o c{ 'uwi i guv'vj cv  
ur gelgu'lpvgtcevy'p'ctg'o qtg'r qy gthw'vj j gp'vj g' 'eqv'cuv'v' r'lecn'lpvgtcevy'p'0'Hqt'gzco r'ng.  
Rctv'ekr cpv'4'y tqv'cdqw'vj gkt'gZR gtlgpeg'y kj 'j wo r'dcemy j crgu'0'Vj g'f c{ 'y cu'qpg'Ky km  
hqtgxgt'tgo go dgt'y kj 'vj g'tcpuegpf gpv'uqwpf u'qh'y j crgu dtgcej kpi 'pgctd{ 'cpf 'vj g'tgcrk'v' 'qh  
y j cv'y g'xg'f qpg'vq'vj gug'y cvgtu'ukn'kpi 'lp.0'Vj g r'ctv'ekr cpv'tgr qv'gf 'vj cv'vj g'gZR gtlgpeg'j cf 'c  
f'ktgev'lo r'cev'qp'vj gkt'y qtn'icpf 'eqv'kdw'k'p'vq'eqpugt'xcv'q'p' kpk'cv'x'gu'0' Cf f'k'k'q'p'cm{ .ej ctkuo cv'le  
gZR gtlgpegu'y kj 'cpko cnu'o c{ 'j cxg'vj g'r qv'p'v'cn'vq' dg'o qtg't'cpuhqto cv'xg'0'Rctv'ekr cpv'33  
eqppgevg'f'y kj 'c'f'gg'0'K'dtqwi j v'o g'emugt'vq'y kf r'ng' c'p'f 'K'hn'o qtg'eqppgevg'f 0'K'p'ungcf 'qh'l'wuv  
qdugt'x'kpi 'vj ku'cpko cnu'qo 'vj g'lpv'kf g.'Ky cu'cewcm{ o c'kpi 'g'g'eqp'cev'cpf 'dgkpi  
cempqy rgi i gf 'd{ 'vj ku'f'gg'0'J wo cpu'o c{ 'dg'o qtg'eqppgevg'f c'p'f 'o q'v'x'cv'gf 'vq'r tqv'ev'ur gelgu  
vj cv'gzj kdk'j wo cp'rng'hgcw'wg'0'Vj g't'guw'u'uj qy vj cv'vj gug'lpvgtcevy'p'ctg'lo r'qt'v'p'v'ht  
k'pvt'qf wv'kpi 'o wnkur gelgu'eqppgevg'f'cpf 'ugp'v'k'peg'0 Vj ku'uwf { 'y cu'ur gel'k'ecm{ 'lpvgt'g'v'gf 'lp'vj g  
gh'gev'qh'vj gug'lpvgtcevy'p'qp'r g'ur ge'v'x'gu'qh'eqpugt'xcv'q'p'=j qy gxgt.'qpn'f 'h'x'g'gZR gtlgpegu'j cf 'c  
f'ktgev'f 'r'qu'k'x'g'lo r'cev'qp'vj g'r'ctv'ekr cpv'v'eqpugt'xcv'q'p' kpk'cv'x'gu'0'Vj gug't'guw'u'uw' i guv'vj cv  
vj gtg'ku'c'ecw'ucn'gh'gev'qh'y kf r'ng'lpvgtcevy'p'qp'j wo cp'v'r g'ur ge'v'x'gu'qp.'go q'v'k'p'u'uj ctgf 'y kj .



tgugtej 'hqt cv'etgcv'cp'k'pvtcevxg'cpf 'o gcpkpi hwi'gzr gtlgpeg'hqt'yj g'r ctvkr cpw. 'k'ecp'dg  
kpetgfdn' 'tcpuhto cvxg'hqt'yj g'tgugtej gtu'cu'Tlej ctf uqp \*4223+'j ki j rki j w'cpf 'f'kuewugu'cv  
ngpi yj 'kp'j gt'y qtn0Cffkkqpcmf. 'wukpi 'c'pqp/tcpf qo eqpxgpkpeg'uco r ng'etgcvf 'c'f'kxgtug  
r ctvkr cpv'dcug0Vj g'r ctvkr cpv'r qqr'ku'eqo r qugf qh'cm'ci gu'qxgt'yj g'ci g'qh'3: . 'dqyj 'eqmgi g  
cpf 'pqp/eqmgi g'uwf gpw. 'cpf 'c'o kz'qh'Dquvq'Eqmgi g cpf 'pqp/Dquvq'Eqmgi g'eqo o wpkf  
o go dgtu0J cxkpi 'c'f'kxgtug'i tqwr 'qh'r ctvkr cpw'r tqxkf gf c'y kf g'tcpi g'qh'k'pvtg'w'lp'y kf rkg.  
r gtur gevkgu. 'cpf 'gzr gtlgpegu'y kj 'y kf rkg0Wukpi Hcegdqnm'cu'yj g'ej qugp'r r'v'hto 'hqt  
eqpf wvki 'y ku'tgugtej 'cmqy gf 'yj g'r ctvkr cpw v' hqugt'eqppgevkpu'y kj 'gcej 'qyj gt'cpf 'yj g  
tgugtej gtu'k'pugcf 'qh'dgkpi 'dnkf 'v'y j q'yj g'qyj gt r ctvkr cpw'y gtg0Vj ku'wps wg'qprkg  
r r'v'hto 'r tqxkf gu'c'pgy 'eqv'kdwkq'v'eqo o wpkf dwkf kpi 'kp'eqpf wvki 'gy pqi tcr j le.  
pcttcvxg'tgugtej 0Vj g'tgugtej gtu'r qugf 'gf wecvkpcnxf gqu'qy ctf u'yj g'gpf 'qh'yj g'f'cv  
eqmgevq'r tqegu'v'k'p'hto 'yj g'o go dgtu'qh'yj g'i tqwr qh'yj g'tgcuqpu'hqt'yj g'tgugtej 'cpf  
gzr r'k'kpi 'hg' { 'eqpegr w'lp'yj g'pqp/j wo cp'cpko cntgugtej ur ceg0Vj ku'cmqi 'y kj 'yj g'k'p'wukq  
qh'r gtuqpcn'pcttcvxg'ku'lp'yj g'o cpwetr v'cmqy gf 'yj g' tgugtej gtu'v'eq/etgcv'y kj 'yj g'r ctvkr cpw  
cpf 'gcej 'qyj gt'yj tqw j 'yj g'eqv'kdwkq'qh'r gtuqpcncpgef qv'gu0Ukwc'kpi 'yj g'tgugtej gtu'yj kj k  
yj g'pcttcvxg'ur ceg'cu'qr r qugf 'v'c'r w'g'qdugtxcv'kpcncpf 't'g'k'g'tcvxg'tqrg'ku'y j cv'o cngu  
pcttcvxg'tgugtej 'cpf 'gy pqi tcr j { 'wps wg'cu'p'qygf d { 'D%pkuj /Dt'gf'plej '\*423: +0Y j cv'ugw'qwt  
uwf { 'cr ctv'ku'yj g'eqv'kdwkq'qh'qwt'xqlegu'lp'yj g' tgugtej 'ur ceg'v'gf wecv. 'k'p'hwpeg. 'cpf  
go qv'cmqi ukf g'r ctvkr cpw'lp'v'wg'ugpv'k'p'v'hto 0Vj ku'uwf { 'y cu'r'cti gn' 'cp'qtki k'p'cntgugtej  
o gy qf 'f'guki p'yj lej 'cmqy gf 'yj g'tgugtej gtu'v'ckqt yj g'r tqegu'v'ur gekk'f'gukt gf 'qweqo gu  
cpf 'ko r'ncv'kpu'hqt'yj g'tgugtej gtu. 'r ctvkr cpw. cpf 'r'cti gt'h'gn' 'qh'y kf rkg'tgugtej 0

**Limitations**

Y j krg'vj g'f guki p'qh'vj ku'uwf { 'qhhgtgf 'o cp { 'dgpghku'v'vj g'tgugctej . 'vj gtg'ctg'ugxgten cur gew'vj cv'bo c { 'hko k'vj g'cdkxk { 'v'hqto 'f ghpkxkg'cpf 'i gpgtckk cdr'eqpenwukpu0' Cnj qwi j gzvpukg'ghqtu'y gtg'vcngp'v'kpxkg'kpvgtguvf r ctvlekr cpw'v'vj g'i tqwr . 'vj g'ukl g'qh'vj g'uco r ng y cu'uqo gy j cv'uo cm'y kj 'qpn { '44'qh'64'v'vcl'j wo cp r ctvlekr cpw'uj ctkpi 'vj gkt'gZR gtlkpegu'y kj vj g'i tqwr 0'Vj g'uo cm'ukl g'qh'r ctvlekr cpw'cmqy gf hqt'o qtg'gzvpukg'cpf 'kpenwukg'cpcn { uku'qh pcttcvkgu=j qy gxgt. 'vj g'uco r ng'bo c { 'pqv'dg'tgr tguvpvkg qh'vj g'i tgcvt'j wo cp'r qr wvckp0 Cffklqpcm { . 'vj g'uco r ng'y cu'qxgty j gm kpi n { 'hgo crg. y kj 'qpn { 'qpg'o crg'r ctvlekr cpw'0'Vj g'xcuv o clqtk { 'qh'r ctvlekr cpw'\*99049' -'ctg'eqmgi g'uwf gpw0Uq. 'vj g'hpf kpi u'o c { 'dg'r tko ctkn { i gpgtckk cdr'v'v' hgo crg'eqmgi g'uwf gpw0k { 'kpenwukgpguu cpf 'F kxgtuk { 'k'Ekkk gp'Uelkpeg.ö Rcrgeq'cpf 'eqmgi wgu'utguu'vj g'tqrg'qh'ekkk gp'uelkpeg k'r tqf wvckpi 'hpqy rgi g. 'y j kej 'y g. 'cu tguugctej gtu. 'etgcvg'vj tqwi j 'qwt'htco kpi 'qh'qwt'pcttcvkgu cpf 'vj g'r ctvlekr cpw'y g'kpenw'g'Rcrgeq gv'cr0'4243+0k { 'vj g'r tqegu'qh'qwt'tgugctej . 'qwt i tqwr 'j cu'go dtcegf 'uwlgevkg'gZR gtlkpeg= j qy gxgt. 'k'ku'ko r qvcpv'v'tgeqi pk g'vj cv'qwt'kf gpv { cu'hgo crg'eqmgi g'uwf gpw'eqpvtldwgf 'v'c ngu'vj cp'kpenwukg'uco r ng0Ncuw { . 'vj g'qr gp'gpf gf pcwtg'qh'vj g'r tqo r v'rgf 'v'f khhgtpegu'k eqpvgpv.'hko kkp { 'vj g'tgugctej gt'æ'ecr cek { 'hqt'f kgeveqo r ctkuq'qh'r ctvlekr cpv'gZR gtlkpegu0

**Implications**

Vj tqwi j qw'qwt'uwf { . 'qwt'kpvkqp'y cu'v'v' hqewu'qp eqppgevki 'r gqr ng'ctqwpf 'vj g'kf gc'qh r tqgevki 'qwt'uj ctgf 'gpxkqpo gp'0'Y g'clo gf 'v'kpukmcp'go qvqpcn'cr r tqcej 'v'tghngevku'qp y kf rkg'kpvgtcevku' . cpf 'd { 'uq'f qkpi . 'uj gf 'hki j vqp'vj g'tgrvku'pj kr 'dgy ggp'r ctvlekr cpwø wpf gtuwcpf kpi 'qh'pqp/j wo cp'cpko cn'ugpvkpeg'cpf 'vj gkt qr kpkpu'qp'eqpugtxcvku'cpf dlkf kxgtuk { 0'Dcugf 'qp'qwt'tguwu. 'k'p'y j kej 'r ctvlekr cpw tgcf kn { 'uj ctgf 'c'y kf g'xctkgy { 'qh vj qwi j vhwlpcttcvkgu'cdqw'vj gkt'gZR gtlkpegu'y kj y kf rkg'vj cv'go dtcegf 'vj gkt'go qvku'cpf





eqo o wplv{ 'eqwf 'uwf { 'y j cv'y g'o quv'ghgevxg'y c{ u'ctg'vq'lpetgcug'cpf 'o clpvk'gpi ci go gpv  
 co qpi 'r ctvkr cpw'y kj 'y gug'vqr leu0Hwwt g'tgugctej gtu eqwf "gxr mtg'kh'uj ct'kpi 'ctvkr gu.  
 Htgs wgpw{ 'eqo o gpvki 'cpf 'rknpi 'r quw.'r tqxkf kpi pgy 'r tqo r w'qt "qyj gt"eqpvgpv'tgi wactn{.'wukpi  
 ðNkxgö'hgcwt gu'qt "qyj gt 'hcegu'qh'yj gug'uqekn'pgy qtnkpi r rlvhcto u'y qwf "dg'yj g'o quv'uweeguuhwn  
 utcvgi kgu'vq'uwuxk'c"nqpi /vgtō "cpf 'vki j vmpk'eqo o wplv{ ctqwpf 'y gug'kf gcu0

### References

D³pkæj /Dtgf plej . 'Dtki kwg0\$Y tkkpi 'y g'Gyj pqi tcr j le Uqt { <Eqputwvki 'P cttcvxg'qw'qh  
 P cttcvxgu\$Hcdwrc."xqr07; . 'pq03/4."423: . 'r r 0: /480  
 j wr u<lf qkQti B20737 hcdwrc/423: /2224

Dqtf c. "QH0\*4228+0Rctvkr cvqt { 'Cvkap'Tgugctej kp"Uqekn'Vj gqt { <Qtki kpu'cpf 'Ej cmgpi gu0Kp  
 yj g *Handbook of Action Research*0J 0Dtcf dw { \*Gf 00R049/590

Eqpvtgcu."Tcpf qn0\*423; +0Vj g'Dtqngp'Gyj pqi tcr j { <Nguuqpu'htqo 'cp'cm quv'J gtq0*Qualitative  
 Sociology*. 42\*4+."383/39; 0

Eqtpkij . 'C0'Y knqp. 'D0'Tcwdgpj glo gt. 'F 0'(' 'O eI tggx{. R0\*423: +0F go qi tcr j leu'Tgi ctf kpi  
 Dgrgh'lp'P qp/J wo cp'Cplo cn'Ugpkpeg'cpf 'Go qvqpcnGo r cvj { 'y kj 'Cplo cn'c'Rkny  
 Uwf { "co qpi 'Cwgpf ggu'qh'cp'Cplo cn'Y grhctg'U{o r qukwō 0*Animals*, 8.'0f qk<  
 3205; 2 kpk 322396

F kl | . 'Ucpf tc00WP 'Tgr qt v<'P cwtg'u'F cpi gtqwu'F gerkpq )Wpr tgeg f gpvgf )=Ur gelgu'Gz vkevqp  
 Tcvgu')Ceegrtcvkpi )'ó'Wpkgf 'P cvkpu'Uwuxkpcdrf F gxgr o gpv0'Wpkgf 'P cvkpu.'Wpkgf  
 P cvkpu.'8'O c { '423; .  
 y y y 0wpQti luwuxkpcdrf gxgr o gpvdrqi 423; 127 lpcwtg/f gerkpq/wpr tgeg f gpvgf /tgr qt v10

F ko gt.'O C.'Kppctknk'H'Vtk'CP.'I ctuj grk.'FN. Ectvt.'P J 0Ct v'hekn'pki j v'ki j v'j gr u'ceeqwpv  
 hqt'qdugt xgt'dlcu'lp'ekk gp'uekpeg'o qpkqt kpi 'qh'cp'gxr cpf kpi 'hcti g'o co o cnl'qr wrcvqp0  
 I0Cplo 0Geqr04242=22<3ó'350j wr u<lf qkQti B20333 B587/48780555:

F qnd { 'P 0\*4242+0P qpj wo cp'cpko cni'cpf 'y g'hwwtg'qh'gpxktqpo gpvni'gf wecvkp<'Go r cvj { 'cpf  
pgy 'r quidkrlkgu0Journal of Environmental Education. 50\*668+:'62566370  
[j wr u<l f qkQti B2B2: 2122; 7: ; 860423; B8: 9633](#)

Lcpg'I qqf cni'kpukswg'P gy '\ gcrpf 0\$Cplo cni'Ugpkpeg\$. F ge'3; . '423; .  
[j wr u<l y y 0 qwwdg0eqo ly cvej Ax? qQni I uP 9IZK hgcwtg? go da vkr0](#)

Mktmg { 'U0( 'J gm tglej . 'U0\*4232+0Vj g'Go gti gpeg qh'O wnkur geku'Gvj pqi tcr j {0E wmwtn  
Cpj tqr qmji { . '47\*6+:'767/7980

Nctuqp. 'Nkpeqp' T0Ectgp' D0Eqqr gt( 'O ctni'G0J cwdgt \*4238+'Go qvqpu'cu'F tkxgtu'qh'Y krf rkhg  
Ugy ctf uj kr 'Dgj cxlqt<'Gzco klpki 'Ekkk gp' Uelgpeg'P guv O qpkqtu0T gur qpugu'vq' kpxcukxg  
J qwug'Ur cttqy u. 'J wo cp'F ko gpukqpu'qh'Y krf rkhg. '43-3. 3: /55. 'F QK

O cplhtgf q. 'O 00'Vgnn' VN0'F qp'Ectnqu. 'C0Y 0'Uwnkxcp. N0'Dtki j v' C0F 0'F kgviej . 'C00 0  
Dt wunqwt. 'L0'cpf 'Hwnqp. 'F 0\*4242+'Vj g'ej cpi kpi uqekqewmwtn'eqpvzv'qh'y krf rkhg  
eqpugtxcvqp0Eqpugtxcvqp'Dkqmi {0f qk320333 lqdk0356; 5

Rcrgeq. 'E0'Rgvt. 'U0I 0'Ugqcp. 'P 0'U0'Mcwh0 cpp. L0( 'Cti {tk' R0\*4243+0'kpenwukxgpguu'cpf  
F kxgtukx' k' Ekkk gp' Uelgpeg'0Vj g' Uelgpeg'qh'Ekkk gp Uelgpeg. '483/4: 40

Tlej ctf uqp. 'N0\*4223+0I gwkpi 'r gtuqpcn<'Y tkkpi /uqtkgu0kpvtpcvkpcn'Lqwtpcn'qh'S wrkcvkxg  
Uwf lgu'lp'Gf wecvkp. '36\*3+:'55/5: 0

Ueqw. 'F cy p' O 0'gv'cni0\$Ur cvkn'F kntkdwkqp'qh'Ucteqr vke O cpi g'Ucteqr vgu'uecdkxk'lp'Wtdcp  
Hqz gu'Xwr gu'xwr gu+'lp'I tgcv'Dtkclp'cu'F gvto kpgf d { 'Ekkk gp' Uelgpeg\$'Wtdcp  
Gequ { ugo u'4507 '\*4242+<'3349/620RtqS wgu0Y gd09 Qev042420

Vtngxu. 'C0'gv'cni0\$Uwv'Rt gugtxcvqp0'Dkqmi kecnEqpugtxcvqp. 'xqr044; . '423; . 'r r 0356663.  
f qkj wr u<l f qkQti B2B238 l0kqeqp0423: B3B3: 0

Y crnej . 'Ctkcp'F 0'gv'cni0\$Uwo o qkpi 'eqo r cuukqp'vq cff tguu'y g'ej cmgpi gu'qh'eqpugtxcvqp0\$  
Eqpugtxcvqp'Dkqmi { '5408 '\*423: +<'3477/34870

.. | f go kt. 'Xwtcni0\*4242+0\$Qpg'P cwtgö<'C'P gy 'Xqecdwrnt { cpf 'Hico g'hqt'I qxgtcpeg  
kppqxcvqp'lp'RquvEqxkf/3; 'Rrpgvct { 'J gcrnj 0C'Lqwtpcn qh'kvgi tvkxg'Dkqmi { . 'xqr04603

**Appendix A.**

**Recruitment and Informed Consent Message (Sent to participant after joining the Facebook group)**

Vj cpm{ qwhqt "{ qwt 'kpvgt gu'kp'r ctvek r c'kpi 'kp'qwt uwf {0Vj tqwi j 'y ku'tgugctej 'y g'j qr g'v'gdwgt wpf gtucpf 'y g'y c{u'j wo cp'hggnkpi u'cdqw'cpko cni'ugpvkpeg cpf 'go qv'kqp'ecp'ko r cev'y g vgcwo gpv'qh'cpko cni'cpf 'cwkwf gu'cdqw'eqpugtxcv'kqp0

Ki{ qw'ci tgg'v'cng'r ctv'kp'y ku'uwf {."{ qw'y kndg'cungf 'v'uwo k'r gtuqpcn'cpgef qv'gu'cdqw"{ qwt kpvgtcev'kpu'y kj 'y kf rkhg0Kp "{ qwt 'tgr qpugu'y g'gpeqwtci g { qw'v'gh'gev'qp "{ qwt go qv'kpcn'eqppge'v'kqp 'v'y kf "cpko cni'cpf "{ qwt 'kpvgr tgv'kqp qh'cpko cni'go qv'kqp0Y g y greqo g'y g'uwo k'kqp'qh'pette'v'xgu.'r j qv'i ter j u. xkf gqu'cpf lq't'cwf kq'tgeqtf kpi u'qh { qwt 'kpvgtcev'kpu'y kj 'y kf rkhg0

Y g'ctg'j qr kpi "{ qw'o c{ 'dgpgh'v'htqo 'dgl'kpi 'kp'y ku'uwf { cpf 'kp'y g'eqo o wpk'v'etgcvf 'y tqwi j qwt'r r'v'htqo 'y j lej 'y kn'hquvt'o gcp'kpi hwt'eqpxgtucv'kpu cdqw'r ctvek r cpw'ø j wo cp/cpko cni'kpvgtcev'kpu0Vj g'tgugctej gtu'j qr g'v' i gpgtcv'npqy rgi g'cdqw'y g'tqng'qh j wo cp'w'pf gtucpf kpi 'qh'ugpvkpeg'kp'eqpugtxcv'kqp'r tcev'egu y cv'o c{ 'dgpgh'v'uekv'0

Vj g'tgeqtf u'qh'y ku'uwf { 'y kn'dg'ngr v'r tkxcv'g0Kp cp{ 'uqtv'qh'tgr qt'v'y g'o c{ 'r wdrkuj . 'y g'y kn'pqv kpenf g'cp{ 'kph'qto cv'kqp'y cv'y kn'o cng'k'r quukdng v'k'f gpv'kh{ "{ qw'kh{ qw'y kuj 'v'q'tgo clp cpqp{o qwa0Ki "{ qw'j cxg's wgu'kpu'cdqw'y ku'tgugctej . { qw'o c{ 'eqpvcev'lgpp'kgt 'Uej cwtg. lgpp'kgt0ngm{GB deQf w.'839/774/63520

D{ 'v'r kpi "{ qwt 'hwn'pco g'kp'y ku'v'gzv'dqz."{ qw'ctg ci tgg'kpi 'v'dg'kp'y ku'uwf {0O cng'uwg' "{ qw