

# 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 lgu'Rtqi tco . 'Dquvp'Eqmgi g.'Dquvp. O C.'24689.'WUC

## Corresponding Author

Igppkgt'Tgdgeec'Uej cwt.'649'O eI wkpp.'F gr ctvo gpvqh'Uqekmqi {.'Dquvp'Eqmgi g.'Dquvp.  
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 "q'tghgevkpu'qp'y kf rkg'kpvgtcevkpu. eqpugtxcvqp."cpf "dkqf kxgtuk{0

## Acknowledgements

Vj g'tgugtej gtu'y qwf 'hmg'v'vj cpn'Rtqhguqt'Igppkgt Uej cwt.'vj g'Gpxkqpo gpvcn'Uwf lgu  
rtqi tco . 'Rtqhguqt'Vcte'RkucpkI ctgcw.'qwt'hgmjy Ugpkqt'Tgugtej "Ugo kpc't'encuo cvgu."cpf "qwt  
r ctvkr cpw'hqt'vj gk'eqvtdwkqpu'v'qwt'uwf {0

## Introduction

Vj g'tgrvkvpuj kr "dgy ggp"j wo cpu'cpf "pqp/j wo cp'cpko cnu j cu'gxqrxgf "vj tqwi j qw"j kvqt {  
cpf "xctkgu'dgy ggp"ewwmtgu."eqo o wpkkgu."cpf "kpf kxf wcn0Ur gekkccm{."j qy 'r gqr ng'xky "cpf  
xcnwg'pqp/j wo cp'ugpvkpeg"j cu'dggp"c'vqr ke'qh'tgugctej co qpi "uej qrtu0Lcpg'I qqf cni'y cu'qpg  
qh'yj g'hktuv'gZR gtw'vq"fkuo cpvrg'yj g'r qr wrct'eqpegr vqh'yj g'f lej qvqo { "dgy ggp"j wo cpu'cpf  
cpko cni'd { 'rtqxkpi "vj cv'vqnr/wug."ewwmtg."cpf "go qvkvpcneqppgevkvq"ctg'pqv'wpls wv"vq  
j qo qucr kgpu0Uj g'lw i guvgf "vj cv'vj qug'y j q"j cxg'ur gpveqpukf gtcdrq'vko g'y kj "cpko cni'tgeqi pk g  
vj cv'qwt'pqp/j wo cp'eqo r cplkvpu'cpf "y kf rkhg'r quuguu ugpvkpeg0Uj g'ct vkwrcvgf "vj cv'v'vqpeg" { qw  
ctg'r tgr ctgf "vq'cf o kv'vj cv'cpko cni'ctg'ugpvkpv'cpf ecppqv'qprn { "npqy "go qvkvpu'hkmg"j cr r kpguu.  
ucf pguu."hgct."dw'gur gekcm{ "vj g{ "ecp'hggnr clp"o vj gp."cu"j wo cpu'y kj "cf xcpegf "tgcupkpi  
r qy gtu."y g"j cxg"ctgur qpukdkkv{ "vq'tgcv'yj go 'kp o qtg"j wo cpg'y c { u'vj cp'y g'vq'qhvnp"fkv"0Lcpg  
I qqf cni'kvkwwg."423; +0Dgecwug"j wo cpu'r r { "c'rti g tqrg'kv"pqp/j wo cp'cpko cni'eqpugtxcvkv.  
vj g'gzvgnv'vq"y j lej "j wo cpu'wv'gtucpf "cpf "gZR gtlgpeg ugpvkpeg"co qpi "pqp/j wo cp'dgkpi u'o c {  
ko r cev'vj g'hwmtg'qh'eqpugtxcvkv"cpf "vj g'hwmtg'qhj wo cp/y kf rkhg'kvgtcevkvpu'cpf "eqgzkvvpeg0  
Lcpg  
kv'tgvgpv { gctu."gZR gtw"j cxg"ecmgf "hqt"vj g'fkuo cpvkvpi qh'tcf kvkpcr'ndkpcr'kv'dgy ggp"j qo q  
ucr kgpu'cpf "pqp/j wo cp'cpko cni'o" | f go k'lw i guw'y g dtgen'yj g'dkpcr { "dgy ggp"j wo cpu'cpf  
pqp/j wo cp'cpko cni'cpf "dgy ggp"j wo cpu'cpf "pcwtg'y kj i qxgtcpeg"htco gy qtm'hkmg"0Qpg  
P cwtg0"Uvej "c'r ctcf ki o "ecm'hqt"j wo cpu'vq"o qxg dg { qpf "cpij tqr qevp'vkv"y c { u'qh'y kpnkpi  
cpf "qr gtcvkvpi "y kj kv'vj g'i nqcn'gequ { ugo 0Vj kv'dgi kvu y kj "tgeqi pk kpi "cpko cni'ugpvkpeg  
\* | f go kt."4242""2

## Problem

Cu'j wo cpu"eqvkwg"q"gpctqcej "w qp"pcwtcrif 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 gcpki hwt'ghgevkpu'cdqw'j wo cp/cpk cnkpvgtcev'qpu'vj cv'y knkphwpeg  
r ctvek cpw'qy p'nxgu'lp'qwt'ecm'hqt'y tkwgp'pcttcv'xgu. y g'ctg'j qr kpi 'vq'j cxg'cp'ko o gf kvg  
ghgev'qp'dqj 'vj g'tgugtej gtu'cpf "'vj g'r ctvek cpw'0Dwrf kpi 'qh'h'qh'Tlej ctf uqp'kf gcu.'vj g  
tgugtej gtu'dgn'xg'vj cv'y g'y tkkpi 'r tqegu'y knkpk'cv'f kvexgt { '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 gcpki 'cpf 'etgcv  
pgy 'cy ctgpgu'qh'tgcrk'lp'vj g'r tqegu'\*Tlej ctf uqp. 4223-0Vj g'tgugtej gtu'cempqy ngf i g'vj cv  
y tkkpi 'ecppqv'dg'wv'k'p'gf 'h'qo 'vj g'h'g'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 gtuqpcnrleqppgevkvq"dgwy ggp vj g'tgugctej gtu'cpf "vj g'tgcf gtu0k'vj gk  
y qtm'Vtgxgu'cpf "eqmgi wgu'kpenmf g'c'ugevkvq'y j g'g vj g{'cempqy rñfi g'cpf 'uj ctg'vj gk'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'ctg  
r cuukqpcvg'cdqw'vj g'uwdlgev'cpf 'ctg'eqpvtkdwkpi kvmgewcnleqpvqv'vq'vj g'ctveng."vj g{'ctg'pqv  
cm'r gthgevf 'crki pgf 'k'vj gk'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'guugpvkr0Grko kpcvki vj gug'r tgeqpegkxgf "pqvkvpu'qh'j wo cp  
uwr gkqtkv { 'cpf "rgcpki "kv'vj g'ugpvkv'pcwtg'qh'cm'dgkpi u'y kn'cmqy "cm'ur gelgu'vq"eqgzkv'qp  
Gctvj "k'c"eqo r cuukqpcvg'o cpgt'cpf "tgf weg'vj g'ugxgtg j cdkev'f kutw kvq'cpf "uwdugs wgpv  
dkqf kxgtukv { "quu'y g'ewtgpv { "hceg0

F qwi rnu'cti wgu'vj cv'ugpvkpeg'ku'vj g'utqpi guv'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  
eqphlev'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 "hqtgki p hqt'uo g'k'pf k'kf wcu'vq'qr gpn { "go dtceg.  
Tgkm { "ci tggu'y k'j "F qwi rnu'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'hqt'tgcnleqpvugtxcvkvq'vq qeew0Tgkm { "hgnu'vj cv'cpvj tqr qegpvtkuo "ku'uv  
f ggr n { "kpi tckpgf "k'v'q'c { "u'qekvkgu'vj cv'k'pf k'kf wcu o c { "pggf "vko g'vq'ceerko cvg'"vq'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 qtmici clpuv" yj g  
j wo cp" gzege vqpcrkuv" htco gy qtn0 kpur ktf "d { " yj g" y qtmqh" Mktmug { "cpf " J gm tglej " \*4232+ " N { pej  
j qr gu" vq" dt kpi " kp" r gtur gevkgu" 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 gtcvkg vq" cf xcpeg" qwt " Y guvtp" r wdrk  
wvf gtucpf kpi " qh" cpko cniugpvkpeg" dg { qpf " wkrkctkcp xcncvkgp" qh" ur gekgu. " cpf " vqy ctf u" cp  
wvf gtucpf kpi " qh" o wkur gekgu" cu" i qpf " vq" rkg" y kj . cpf " co qpi " \*Mktmug { " cpf " J gm tglej . " 4232+0

Tlej ctf u" dgrkgxgu" yj cv" yj g" dkpctkgu" yj cv" gzku" vgr ctcv kpi pqpj wo cp" cpko cni" htqo " j wo cpu  
ctg" j cto hwnht" cm" ur gekgu0 k" ku" kp" cm" ur gekgu dguv" kpvgt guv" yj cv" uwej " dkpctkgu" cpf " j kgtctej kgu" ctg  
f kuo cpvrgf " dgecvug" cm" rkgu" j cxg" kpj gtgpv" xcncvkg0 Tlej ctf u" j qr gu" yj cv" gpi ci kpi " kp" etkccn" cpf  
gptlej kpi " eqpxgtucvkgpu" cdqw" cpko cniugpvkpeg" ku cp" ko r qtcvpv" vgr " kp" dtgcnkpi " f qy p" yj gug  
vcf kkpccn" dctt kgtu0

### Trends in Existing Literature

Vj g" gzku kpi "dqf { " qh" tgugetej " gzt rqt gu" yj g" tqrg" qh" xcncvkgu. " cvkwf gu. " cpf " f kt gev" kpvgtcevkgpu  
qp" yj g" tgrcvkgpuj kr " dgvy ggp" j wo cp" cpf " pqpj wo cp" etgcwtgu. ekk gp" o qpkqt kpi . " cpf  
eqpugtxcvkgp" r tcevkgu0 Vj gtg" ctg" c" xctkgy { " qh" tgp f u gur gekm { " ucrlgpv" vq" hwwt g" tgugetej " qp" yj g  
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ko r qtcpeg" qh" eqo r cuukap" kp" j wo cp" cvkwf gu" vqy ctf u y kf rkg. " tgr qt v kpi " go qkqpcn" xctkcdrgu" cu  
yj g" utqpi guv" r tgf levqt " qh" y kf rkg" 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 " hggkpi u" cdqw" ugpvkpeg o c { " rgef " vq" dgwt " tgcvo gpv" qh" cpko cni  
\*Nctupq" gv" cr0 " 4238=Eqtpkuj " gv" cr0 " 423: +0Go r cvj gve tgcvo gpv" qh" cpko cni" gzvgpf u" vq



r gtur gevxg"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 gpwu'cu'r ctvkr cpwu'ctg'vy q'vj kpi u'y gdf 'rkg vq'o kttqt'kp'qwt'uwwf {0Y cmcej "cpf "eqmgi wgu  
cti wg'hqt'vj g'ko r ngo gpvcvqp'qh'eqo r cuukqpcvg'eqpugtxcvqp. c'hqto "qh'eqpugtxcvqp'kp'y j lej "cm  
ppp/j wo cp'cpko cnlwdlgeu'ctg'tgcvf "cu'ugpvkpvdkpi u'cpf "ctg'uggp'hqt'vj gkt'kptkpuke'xcnwg  
\*Y cmcej "gv'cn0'423: +0Vj g'cwj qtu'uwwf kfg "xctkqu ecugu'qh'cpko cnl'eqpugtxcvqp'cpf "etkks wg'vj g  
y c{u'vj g{ 'ki pqtg'cpko cnl'ugpvkpeg'cpf "cev'y kj "cp cpvj tqr qegpvle'ugv'qh'i qcm'\*Y cmcej "gv'cn0  
423: +0Y j kg'y g'y knlpq'dg'cpcnf| kpi "ewttgpv'eqpugtxcvqp ghtqva."y g'y kn'dg'kpxguki cvkpi "vj g  
tgrcvqpuj k "dgy ggp'xkgy u'qp'ppp/j wo cp'cpko cnl'ugpvkpeg cu'k'tgrcvgu'vq'cwkfw gu'vy ctf u  
eqpugtxcvqp00 cphtgf q'cpf "eqmgi wgu."y tqwi j "vj gkt cpcnf ulu'qh'uqekqewmwcn'xcnngu'qp'y kf rkg  
eqpugtxcvqp."f ghkg'xcnwg'u{ ugo u'vj tqwi j "o cvtkcnewmtg."uqtkgu."xcnwg'u{ ugo u'cpf "o qtg  
\*4242+0Vj ku'uwwf { "cuuguu'vj g'ko r cev'qh'xcnngu'vy ctf u ppp/j wo cp'cpko cu'qp'y kf rkg  
eqpugtxcvqp'dgrgh0Qwt'uwwf { 'y kn'uggm'v'uko krcnf cuuguu'j qy "xkgy u'qp'y kf rkg'ugpvkpeg  
ko r cev'r gtegr vqpu'qh'y kf rkg'eqpugtxcvqp'vj tqwi j uqtkgu."r j qvu."cpf "qvj gt'uwej "o gf kwo u0k  
qwt'f cv'eqmgevqp'r gtlkf "y g'cko "v'hqugt"cy cto cpf "ceegr vki "gpxkqpo gpv'hqt'vj g  
r ctvkr cpwu'kp'qwt'f kuewukp'i tqwr "y j gtg'vj g{ "y kndg'kpxkfg "v'twn{ "gzmrtg'vj gkt'vj qwi j u'cpf  
hgrkpi u'cdqw'cpko cnl'ugpvkpeg0Uko krcnf "v'F qnd{. y g'y kn'gpeqwtci g'r ctvkr cpwu'vq'r ww  
vj go ugrkgu'kp'vj g'qvj gt'dgkpi au'r neg'cpf "t{ "v'kpvgrtgvcpf "tgegkg'vj gkt'gpgti { "cpf "go qvqpu0  
Y g'y knlr tqo r v'vj g'uwwf { "r ctvkr cpwu'vq'vj qwi j vwn{ tghgevw'qp'vj gkt'kpvgtcevqpu'y kj  
pppj wo cp'y kf rkg'cpko cu0Y g'y cpv'vq'ecm'cwgpvqp vq'vj g'vpls wg'gpgti gke'dqpf "vj cv'ku'uj ctgf  
dgy ggp'vy q'ugpvkpvdkpi u0Y g'y kn'gpeqwtci g'qwt r ctvkr cpwu'vq'dtkpi "cp"gxgt'r tguvpv  
cy ctgpguu'qh'eqpuekqwapuu'vj cv'cm'rkxkpi "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. tghgevpq."cpf "eqpvkpwgf "o wwmf "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 rkhg"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 cevu'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 qt'u'vj g'dgrkh'vj cv'gzr gtlgpegu y kj "y kf rkhg'utgpi vj gp"chgevkxg"cpf  
go qvkpcni'tgur qpugu'vq'y kf rkhg'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 rkhg0Vj 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 cuikqpcvgn\ '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'ugtyleg 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'pcttcvxgu."r j qvqu.  
xkf gqu."qt"cwf kq'hkngu'cpf "r tqo r vgf "v'tghngev'qp vj g"go qvqpcn'gzr gtlgpegu'qh'y gk'y kf rkhg  
kpgtcevkpu0C"eqo o qp"dcttkgt "hqt"ekkl gp"uekgpeg tgugctej "ku'uwuclkgf "gpi ci go gpv'cpf  
eqo o ko gpv'qh'r ctvlekr cpwu"\*Rcrgeq'gv'cn0"4243+0Y g'clo "v'cf f tguu'y ku'ej cmgpi g'd{ "qhhgtkpi  
o wnr ng'r tqlgv'gpv{ "r qkpu"cu'y gm'cu'o wnr ng y c{ u"vq'r ctvlekr cvg"cvf khhgtgpv'hxgnu'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'y'j tqwi j rkhgu'cpf "eqo o gpwu."y vcej kpi "rkxg'utgco  
xkf gqu'j quvgf "d{ "y'j g'tgugctej gtu."cpf "tghgtkpi "qyj gt r ctvlekr cpwu"v'y'j g'i tqwr 0F cvc"eqmgv'kqp  
dgi cp"qp"Qevqdg"36."4242"cpf "eqpenmf gf "qp"Cr tkn36. 42430

**Data Analysis**

Cp"guugpvlekr ctv'qh'qwt"fcvc"cpcn{uku'o gj qf "ku'eq/etgcvkqp. y j lej "cmqy u'qwt"uwf { "vq  
dwkf "c"tlej "pcttcvxg"dgvy ggp'y'j g'r ctvlekr cpwu'cpf vj g'tgugctej gtu"\*D3/plej /Dtgf plej ."423: +0  
D3/plej /Dtgf plej "go r j cuk gu'v'j cv'wpeqpxgpvqpcn'o gj qf u'qh'pcttcvxg"gy'pqi tcr j { "ctg'kp  
v'pukqp'y kj "y'j g'pggf "hqt"gy'pqi tcr j le'tgugctej "vq dg"vcmgp"ugtkwun{ "cu"uqekcn'uekgpeg  
\*D3/plej /Dtgf plej ."r 0; ."423: +0Y j kg"{ gv"v'c"pcttcvxg dguv'ecr wtgu'y'j g"go qvqpu"gzr tguugf "d{  
r ctvlekr cpwu'tgi ctv'kpi "y'j gk'y kf rkhg'kpgtcevkpu. cpf "ku'o quv'tvg"v'y'j g'pcwtg'qh'ugpvkgpeg0  
Hwtv'j gto qtg."qwt"o gj qf u'hqmqy "cp"kpwwkxg"cpcn{uku cr r tqcej "cu"qr r qugf "vq"cpcn{ v'ecnl'eqf kpi  
qh'y'j g'fcv0D3/plej /Dtgf plej "chko u'v'y'j kg"okv'ku'vgo r vpi "vq"vwp'uvqtkgu'kpq"fcvc"cpf  
f gxcnwg'y'j g'cev'qh'f ggr "kuv'gkpi "cpf "pcttcvxg"eqpvgo r r'v'kqp.ö vj g'r tqegu'qh'qtf gkpi "uvqtkgu  
kpq'pcttcvxgu"ku'dguv'i vkf gf "d{ "c"s wcrkcvxg"cr r tqcej vj cv'f qgu'pqv'mug'y'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 wrkcvxg s wguvkpu'vj cv'eqpukf gt'vj g'go qvkpu  
cpf "ugpvkpeg"dgj kpf "vj g'uvdo kwgf 'r j qvqi tcr j u.'xkf gqu. cpf "cwf kq'tgeqtf kpi u0S wguvkpu'vj cv  
i vkf g'qwt "f cv'cpcn{ uku'kpenwf g<y j cv'v{ r g'qh'y kf cpko cn'ku'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'tgrvkpuj k "dgwy ggp'vj g  
r gtuqp"cpf "vj g'cpko cn'AY j cv'ecr vkpu'cpf "uvqtkgu'ctg kpenwf 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'Cwgpfg	
Dquqp'Eqmgi g	35
Qvj gt	6

**Trends**

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

Dgecwug'uwwf lgu'kp'yj ku'ctgc'qh'tgugctej 'j cxg'kpxgunki cvgf j wo cp'cempqy ngf i go gpv'qh cpko cnl'ugpvkpeg.'c'ej qugp'yj go g'ht'cpcn'uku'y cu yj g'wug'qh'yj g'y qtf 'ugpvkpeg'qt'c'tgrvfg cempqy ngf i go gpv'qh'pqp/j wo cp'cpko cnl'go qvqp'y kj kp yj g'f'guetkdgf 'kpvgtcevqp0Hqwtvggp.'qt 85085' . 'qh'yj g'r ctvkr cpw'eqo o gpvfg 'qp'yj g'r gtegxgf go qvqpu'qh'yj g'cpko cnl'qt'cpko cni'yj g{ gpeqwpvgtgf 0Vj g'uwwf { 'y cu'cm quv'gpvkn' 'eqo r qugf qh'hgo cmg'j wo cp'r ctvkr cpw'yj kej 'o c{ eqttgrv'q'yj g'o clqtk' 'qh'r ctvkr cpw'o cnl'pi 'ugpvkpeg/tgrvfg eqo o gpw0Eqtpkuj 'cpf eqmgi wgu'hqwpf 'yj cv'hgo cmg'y gtg'o qtg'rkng' 'q' gpi ci g'go qvqpcm' 'y kj 'pqp/j wo cp'cpko cni \*Eqtpkuj 'gv'cn0'423: +0J qy gxgt.'pq'r ctvkr cpw'gzr r'ekn' wugf 'yj g'y qtf 'ugpvkpeg'kp'yj gkt pcttcvkg0Vj gtghqtg.'eqo o gpw'qp'cpf 'tgrvfg 'q'r gtegxgf go qvqp'cpf 'ur kkwcnl'kpvgtur gelgu eqppgevp'y gtg'eqpukf gtgf 'wpgt'yj g'yj go g'qh'ugpvkpeg0

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

Vj tgg'qh'yj 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 cnu'cpf 'yj gk'j cdkcuv0Vj gtg'y gtg'ugxgtenr ctvlekr cpwu'y j q  
kpf kecvgf 'yj cv'y g{ 'hgn'cr r tgj gpukxg'qt'hgcthwi'cdqww yj gk'lpvgtcevkqpu'y kj 'y kf 'cpko cnu0Vj tgg  
r ctvlekr cpwu'qh'y g'44'vqcnlkpf kecvgf 'yj cv'y g{ 'hgnvpgtxqwu'qt'hgcthwi'ctqwpf 'cpko cnu'dw'y q'qh  
yj g'y tgg'tgr qtvgf 'wmo cvgn' 'j cxkpi 'r qukkxg'hggkpi 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'v'cpuhqto cvkxg'pcwtg'qh'yj g'r ctvlekr cpwu) gZR gtlgpegu'\*Nctuqp'g'v'cn0'4238=  
F qrd{ . '4242='Ueqw'g'v'cn0'4242-0'Qh'yj g'44'f guetkr vkg pcttcvkgu. ': 'r ctvlekr cpwu\*5808' +  
gZR rlekn{ 'f guetkdgf 'c'v'cpuhqto cvkxg'ghgevtqo yj gk'gZR gtlgpeg'y kj 'y kf rkhg.'9'r ctvlekr cpwu  
\*530: ' +lpenmf gf 'pq'tghgtgpeg'vq'c'v'cpuhqto cvkxg'ghgevtqo'qh'yj gk'gZR gtlgpeg.'cpf 'yj g'tgo clkpi  
9'r ctvlekr cpwu\*530: ' +lpenmf gf 'ko r rlekn'tghgtgpegu vq'yj g'gZR gtlgpegu'eqpvtkdwkq'vq'yj gk'pgy  
r gtur gevkg0Ukz'qh'yj g'gki j v'v'cpuhqto 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'yj ku'tgugctej 'y cu  
eqpf wevgf 'lp'yj g'o kf uv'qh'yj g'EQXKF/3; 'r cpf go le.'vy q qh'yj g'gZR rlekn{ 'v'cpuhqto cvkxg  
gZR gtlgpegu'lpenmf g'tghgtgpegu'vq'yj g'ko r qtvcpeg'qh'eqppgevkq'p'y kj 'qyj gt'ur gekgu'f wtkpi 'yj ku  
r gtlqf 'qh'kuqrcvkq0'Hkxg'qh'yj g'gki j v'v'cpuhqto cvkxg'gZR gtlgpegu'lpenmf gf 'gZR rlekn'tghgtgpegu'vq  
r gtuqpcn'cevkq'vqy ctf 'eqpugtxcvkq0Qpg'v'cpuhqto cvkxg'gZR gtlgpeg'j gir gf 'c'r ctvlekr cpv'hgn  
r gtuqpcn{ 'eqppgevgf 'vq'y kf rkhg0'Vj gtg'y cu'cp'qxgty j gm kpi v'gpf 'lp'r ctvlekr cpwu'gZR gtlgpegu  
ecwulpi 'tghgevkq'qp'o wnkur gekgu'eqgzkvgepg0'Qh'yj g'eqo dlpgf '37'gZR rlekn{ 'cpf 'ko r rlekn{  
v'cpuhqto 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 gtlkpegu  
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 tgwtpu'v'vj gk"{"ctf "qp'cp'cppwcn'dcuku0  
ōJ gtgā'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 guvkrf gu0P q'cp{ vj kpi 0 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 qpgun{\  
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'uwej  
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 gtlkpegu'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; 0; ' +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'\*6807' -'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 0 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 dcen'y 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 "0tgcrl'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 quw'vj cv'tghngevgf "qp'vj gug'vqr keu'cu'y gmi'cu  
eqgz kugpeg."; 'r quw'8604: ' +y gtg'htqo 'kpgtcevqpu y kj 'tctg'cpko cnu0

**Trend 5: Composition of Photograph**

J qy 'f kf 'r tqzko kv ('chgev'j qy 'vj g{'hgn'cdqw'vj g'cpko cnaF kf 'k'gxqng'tgur gev.'hgctA

c0 Y qqf r gengt <0J g'f kf pø'uggo "vq'o kpf "o g'ucpf 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'j ku

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

hqmqy gf 'j ko "cpf 'hko gf 'j ko 'y j kg'pco kpi 'j ko "Y cngt0

cewcm' 'hngf 'vj g'cwf kgpeg.'uq"K  
d0 Gm'okj g'nu'uj puqv'f kgev'gzr g'ej kpi 'j ko 'j cr r kn' 'y cewcm'0

- 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 '{ gvf 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 qxkpi 'cv'cm'gxgp'y j gp'Keco g'emug v'k' 'cpf 'k'y cupø'drkpnkpi lka  
 g{ g'y cupø'o qxkpi 0Kdgi cp'v'i gv'y qttkgf 'cpf 'eqpukf gt vj g'r quukdkkv' '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 ghpugruu'ku'y j cv'o cf g'o g'pqv  
 hgn'vj tgcvgpgf 'd{ 'k'dw'tcvj gt'vj kpnkpi 'qh'y c{ u v'v' 'v'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'pgrxqwu'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'vqq  
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 gpv'kkgf 'o g'cu'c'pqp/vj tgcv  
cpf 'y gpv'dcem'v'unggr 0K'eqwf pø'j grr 'dw'pqv'eg c'r gtuqperkv{ 'v'j ko . 'hng'j qy '{ qw'hgn  
y j gp'{ qw'g'pcr r kpi 'qp'vj g'eqvej 'cpf 'uqo gqpg'y cmu k'p'uq'{ qw'iqqm'wr 'dghqtg'i two r kq  
i q'dcem'v'upqq| kpi 0

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

hgcwtgf 'cp'c

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 'tghphqtelpi 'vj gk'tguwmu'tgi ctf lpi 'c'eqttgrvqp dgy ggp'hgo cngu'cpf 'go qvqpcrleqppgevkp  
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 'mqecn'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'mqecvqpu'cni'kpenmf gf 'Uy k/ 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{ 'gZR gtlkpeg'cpko cn  
ugpvkpeg'y kj qw'j cxkpi 'rgctpgf 'cdqw'vj g'hqto cneqpegr 0F qnd{ 'cti wgu'hqt'vj g'gZR cpukp'qh  
gpvktqpo gpvni'gf wecvqp'ur gekklem{ 'tgrcvf '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'eqpugtxcvqp'cpf 'vj g'go gti lpi  
rkvgtcwtg'qp'ugpvkpeg'0F qnd{ 'gv'cni'4242-0Gf wecvqp ur gekk'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 rdevqpu qp'tguwmu'cpf 'vgtö kqmqi { 'wugf 0

**Trends in human emotion**

Vj g'f cv'eqngev'f 'uj qy u'vj cv'j wo cpu'gZR gtlkpeg'c dtqcf 'tcpi g'qh'go qvqpu'y j gp  
kpvgtcevpi 'y kj 'vj g'rkv'gu'cpf 'ugpvkpv'ur kksu'qhy kf rkhg'cpko cni'0Y j gp'r ctvkr cpw'tgr qtvf  
hgrkpi u'qh'go r cvj { 'hqt'pqp/j wo cp'cpko cni'vj g{ 'hgrvy gtg'utwi i rki 'kp'uqo g'y c{.'vj g{  
o gpv'kpgf 'j qy 'vj g'cpko cni'utwi i ng'o cf g'vj go 'vj kpmetklem{ 'cdqw'j wo cp'cpf 'pqp/j wo cp

cpko cnlkpvtcevkqpu'cpf lqt'eqpugtxcvkqp0Vj ku'kpf kpi 'tghgeu'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 "etkkekcm' "cpf  
g'y kecm' "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 kf rkhg'cpko cu0Vj g'o clqtk'f' "qh  
r ctv'ekr cpv'u'g'zr tguugf 'r qukkxg'hgnkpi u'k'p'vj gkt p'cttcv'xgu'tgeqwp'kpi 'y gkt'g'zr gtlgpegu'y kj  
y kf rkhg'cpko cu0Vj ku'tgp'f'ku'gzek'kpi "dw'pqv'pgegu'ctkn' uwr tkukpi 0O qt'gq'xgt.'uwej 'k'p'f'kpi u  
ch'kto 'y cv'ek'k' gp'uekg'peg'i tqw u'r tq'x'f' g'go q'v'x'g' g'zr gtlgpegu'y tqwi j 'gf wecv'kpi 'r ctv'ekr cpv'u'qp  
ko r qtcv'p'gp'x'k'qpo gp'v'c'n'v'qr leu'\*R'c'geq'g'v'c'f'0'4243+0

*Trends in Transformative Narratives*

Vj g'tguw'u'hqwpf 'k'p'vj ku'uwf { 'ctg'eqpuk'v'gp'v'y kj r t'g'x'k'q'u'uwf { a'k'p'f'kpi u'y cv  
g'zr gtlgpegu'y kj 'y kf rkhg'j' cxg'vj g'cd'k'k'f' "v'q'o q'v'x'c'v'g' j wo cp'cev'qtu'v'qy ctf "go r cvj g'v'e'cev'k'qpu  
v'qy ctf 'y kf rkhg'cpf "ch'ge'v'x'g'cpf "go q'v'k'p'c'n't'gur qpugu v'q'y kf rkhg'u'v'ko w'k'\*N'c'tu'qp"g'v'c'f'0'4238=  
F qnd { .42420N'c'tu'qp"cpf "eqm'g'ci wgu'hqwpf 'y cv'g'zr gtlgpegu y kj 'j' q'w'ug'ur c'tt'q'y u'r qukk'x'gn'  
ch'ge'v'f' 'r ctv'ekr cpv'u'v'g'c'w' gp'v'q'h'vj g'ur g'el'gu.'y j lej ku'uw' r q't'v'g'f' 'd' { 'y g'q'x'g'ty j g'm' kpi 'r q't'v'k'p  
q'h'g'zr gtlgpegu'y cv'q'w't'uwf { 'h'q'w'p'f' "v'q'd'g'r' ctv'ek'w'c't'n'f' v'c'p'u'h'q'to c'v'x'g'0'F qnd { 'h'q'w'p'f' 'y cv'y t'k'k'p  
cp'gu'c' { 'h't'q'o 'y g'r g'tur g'ev'x'g'q'h'c'p'cpko c'n'ij 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'ki p'k'h'c'p'v' { "v'q'vj gkt'gp'x'k'qpo gp'v'c'n'g'f wecv'k'p'cpf go r cvj g'v'e'eq'p'p'g'ev'k'p'v'q'cpko cu'F qnd { .  
4242+0Q'w't'uwf { "eq'p't'k'd'w'gu'v'q'F qnd { a'y q't'm'f' { 'uj' q'y ecukpi 'y g'r q'y g't'q'h'g'zr gtlg'p'v'c'n't'g'h'ge'v'k'p  
qp'j' wo cp'a'eq'p'eg'r v'k'p'u'q'h'c'p'f' "eq'p'p'g'ev'k'p'u'y kj "q'v'j g't ur g'el'gu'0H'k'v'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'u'h'q'to c'v'x'g'p'c'w'g'q'h'vj gkt 'y kf rkhg  
k'p'v't'cevk'p.'u'wi i gukpi 'y cv'k'p'et'g'c'ug'f' 'h't'g's'w'p'e' { "q'h'j' wo cp/y kf rkhg'k'p'v't'cevk'p'u'j' cu'vj g'r q'v'g'p'v'c'n  
v'q'ko r t'q'x'g'v'g'c'w' gp'v'q'h'q'v'j g't'ur g'el'gu'0"R'ct'v'ekr cp'v'38a'u'uc'v'go gp'v'ec'r w't'g'f' 'y g'ug'p'v'ko gp'v'q'h  
o cp' { "q'h'vj g'i tqw a'o go d'g'tu'v'0'Vj g' { 'y g't'g'x'g't' { 'ec'm' c'p'f' "ug'go 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 ctvkwrt.'tghgtgpegu vq'eqgzku'v'y gtg'j ki j n' r'tgxcrgp0  
Vj ku'o c{ 'dg'f wg'vq'j wo cpai'f qo kpcpeg'lp'vj g'pcwctny qtrf . 'qhv'p'ngcf kpi 'vq'ugr ctcvkap'qh  
ur gelgu0'Y j gp'j qo q'ucr kgpu'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'cwctg/uqekg'v' 'kf gqni' lecn'f kxkf g0  
Cempqy rgi i kpi 'vj g'xcnwg'qh'o wnkur gelgu.'cu'lpvtqf wv'gf d{ 'cwj qtu'Mktmug{ 'cpf  
J gm tglej \*4232+.'kp'qwt'uj ctgf 'gpv'ku'c'etwecnuvgr 'vqy ctf u'l'wuv'r t'gugt'xcvkap'\*Mktmug{  
cpf 'J gm tglej . '4232+0' Cp'qxgty j gm kpi 'o clqtk'v' 'qh'vj g'gZR r'lekn' 'v'cpuhqto cv'xg'gZR gtlgpegu  
qeewt'gf 'dgy ggp'j qo q'ucr kgp'cpf 'c'ur gelgu'vj g' lpvgtcevy kj 'tctgn'0'Vj ku'o c{ 'uwi i guv'vj cv  
ur gelgu'lpvgtcevkpu'ctg'o qtg'r qy gthw'vj j gp'vj g' 'eqv'cuv'v' r'lecn'lpvgtcevkpu0'Hqt'gzco r'ng.  
Rctv'lekr 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'v'cpuegpf 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'ukp'kpi 'lp.00'Vj g r'ctv'lekr cpv'tgr qt'v'gf 'vj cv'vj g'gZR gtlgpeg'j cf 'c  
f'kt'gev'lo r'cev'qp'vj gkt'y qtm'cpf 'eqv'kdw'k'vq'v'eqpugt'xcvkap' kpk'cv'xgu'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'v'cpuhqto cv'xg'0'Rctv'lekr cpv'33  
eqppgevg'f 'y kj 'c'f'gg'0'K'v'dt'qwi j v'o g'em'ugt'vq'y kf'rhg' cpf 'K'hn'o qtg'eqppgevg'f 0'K'v'ug'cf 'qh'l'wuv  
qdu'gt'x'kpi 'vj ku'cpko cnu'qo 'vj g'lp'v'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 cpf 'o q'v'x'cv'gf 'vq'r' tq'gev'ur gelgu  
vj cv'gzj kdk'j wo cp'v'kng'v'g'cw'wt'gu'0'Vj g't'gu'w'u'uj qy vj cv'vj gug'lpvgtcevkpu'ctg'lo r'qt'v'p'v'ht  
k'p'v'qf wv'kpi 'o wnkur gelgu'eqppgevk'p'cpf 'ug'p'v'k'peg'0 Vj ku'uwf { 'y cu'ur gel'k'lecm'v' 'lpv'gt'g'v'gf 'lp'vj g  
gh'gev'qh'vj gug'lpvgtcevkpu'qp'r'gtur ge'v'x'gu'qh'eqpugt'xcvkap'=j qy gxgt. 'qpn'v' 'h'x'g'gZR gtlgpegu'j cf 'c  
f'kt'gev'v' r'qu'k'x'g'lo r'cev'qp'vj g'r'ctv'lekr cpv'v'eqpugt'xcvkap' kpk'cv'xgu'0'Vj gug't'gu'w'u'uw' i guv'vj cv  
vj gtg'ku'c'ecw'ucn'gh'gev'qh'y kf'rhg'lpvgtcevkpu'qp'j wo cpai'r'gtur 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  
kpetgf kdn' '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: . 'dqy '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 vq'hqugt'eqppgevku'y kj 'gcej 'qy gt'cpf 'yj g  
tgugtej gtu'k'pugcf 'qh'dgkpi 'dnkf 'v'y j q'yj g'qy gt r ctvkr cpw'y gtg0Vj ku'wps wg'qprkg  
r r'v'hto 'r tqxkf gu'c'pgy 'eqv'kdwkp'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  
eqmgevku'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'wukp  
qh'r gtuqpcn'pcttcvxg'ku'lp'yj g'o cpwetr v'cmqy gf 'yj g' tgugtej gtu'v'eq/etgcv'yj kj 'yj g'r ctvkr cpw  
cpf 'gcej 'qy gt 'yj tqw j 'yj g'eqv'kdwkp'qh'r gtuqpcncpgef qv'g0Ukwc'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'c'v'x'g't'q'g'ku'y j cv'o cngu  
pcttcvxg'tgugtej 'cpf 'gy pqi tcr j { 'wps wg'cu'p'qygf d { 'D'p'k'ej /Dt'gf'p'ej '\*423: +0Y j cv'ugw'qwt  
uwf { 'cr ctv'ku'yj g'eqv'kdwkp'qh'qwt'x'q'legu'lp'yj g' tgugtej 'ur ceg'v'gf wecv. 'k'p'hwpeg. 'cpf  
go qv'cmqi ukf g'r ctvkr cpw'lp'v'wg'ugp'k'p'v'hto 0Vj ku'uwf { 'y cu'rti gn' 'cp'qtki k'p'cntgugtej  
o gy qf 'f'guki p'yj lej 'cmqy gf 'yj g'tgugtej gtu'v'ck'qt yj g'r tqegu'v'ur gek'k'f'gukt'gf 'qweqo gu  
cpf 'ko r'ncv'k'p'pu'hqt'yj g'tgugtej gtu. 'r ctvkr cpw. cpf 'rti gt'h'gn' 'qh'y kf rkg'tgugtej 0

**Limitations**

Y j krg'vj g'f guki p'qh'vj ku'uwf { 'qh'gtgf '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 gpgtcnk cdrag'eqpenwukpu0' Cnj qwi j gzvpukg'ghqtu'y gtg'vcngp'v'kpxkg'kpvgtguvf r ctvlek cpw'v'vj g'i tqwr . 'vj g'uk' g'qh'vj g'uco r ng y cu'uo gy j cv'uo cm'y kj 'qpn { '44'qh'64'v'v'cnj wo cp r ctvlek cpw'uj ctkpi 'vj gk'gzr gkpegu'y kj vj g'i tqwr 0'Vj g'uo cm'uk' g'qh'r ctvlek cpw'cm'y 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 wv'kqp0 Cffkxkpcn { . 'vj g'uco r ng'y cu'qxgty j gm kpi n { 'hgo crg. y kj 'qpn { 'qpg'o crg'r ctvlek cpw'0'Vj g'xcuv o clqtk { 'qh'r ctvlek cpw'\*99049' -'ctg'eqngi g'uwf gpw0Uq. 'vj g'hpf kpi u'o c { 'dg'r tko ctkn { i gpgtcnk cdrag'v'v' hgo crg'eqngi g'uwf gpw0k { 'kpenwukgpguu cpf 'F kxgtuk { 'k'Ekkl gp'Uelgpeg.ö Rcrgeq'cpf 'eqngci wgu'utguu'vj g'tqrg'qh'ekkl gp'uelgpeg k'r tqf wv'kpi 'hpqy rfi g. 'y j kej 'y g.'cu tgugetej gtu. 'etgcvg'vj tqwi j 'qwt'htco kpi 'qh'qwt'pcttcvkgu cpf 'vj g'r ctvlek cpw'y g'kpenw' g'\*Rcrgeq gv'cn0'4243+0k { 'vj g'r tqeguu'qh'qwt'tgugctej . 'qwt i tqwr ' j cu'go dtcegf 'uwlgevkg'gzr gkpege= j qy gxgt. 'k'ku'ko r qv'cpv'v'v'tgeqi pk' g'vj cv'qwt'kf gpv { cu'hgo crg'eqngi g'uwf gpw'eqv'kdwgf 'v'c nguu'vj cp'kpenwukg'uco r ng0Ncuw { . 'vj g'qr gp'gpf gf pcwtg'qh'vj g'r tqo r v'rgf 'v'f khtgpegu'k eqpv'p. 'hko kpi 'vj g'tgugctej gt'æ'ecr cek { 'hqt'f kgeveqo r ctkuq'qh'r ctvlek cp'v'gzr gkpegu0

**Implications**

Vj tqwi j qw'qwt'uwf { . 'qwt'kpv'kqp'y cu'v'v' hqewu'qp eqppgev'kpi 'r gqr ng'ctqwpf 'vj g'kf gc'qh r tqgev'kpi 'qwt'uj ctgf 'gpxkqpo gp'0'Y g'clo gf 'v'kpu'kncp'go qv'kpcn'cr r tqcej 'v'tghngev'kpu'qp y kf rkg'kpvgtcev'kpu. 'cpf 'd { 'uq'f qkpi . 'uj gf 'hki j vqp'vj g'tgr'v'kpuj kr 'dgy ggp'r ctvlek cpw'ø wpf gtuwcpf kpi 'qh'pqp/j wo cp'cpko cn'ugpv'kpeg'cpf 'vj gk'qr kpkpu'qp'eqpugt'xcv'kqp'cpf dkqf kxgtuk { 0'Dcugf 'qp'qwt'tguwu. 'k'p'y j kej 'r ctvlek cpw'tgcf kn { 'uj ctgf 'c'y kf g'xctkgv { 'qh vj qwi j vhw'pcttcvkgu'cdqw'vj gk'gzr gkpegu'y kj y kf rkg'vj cv'go dtcegf 'vj gk'go qv'kpu'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 'vj 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"npi /vgo "cpf 'vki j vmpk'eqo o wplv{ ctqwpf 'vj gug'kf gcu0

### References

D³pkæj /Dtgf plej . 'Dtki kwg0\$Y tkkpi 'yj g'Gy 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  
 vj g *Handbook of Action Research*0J 0Dtcf dw { \*Gf 00R049/590

Eqpvtgcu."Tcpf qr0\*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 qukwo 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 tgegf gpvgf )=Ur gelgu'Gz vkevqp  
 Tcvgu')Ceegrtcvki )'ó'Wpkgf 'P cvkpu'Uwuxkpcdng F gxgr o gpv0'Wpkgf 'P cvkpu.'Wpkgf  
 P cvkpu.'8'O c { "423; .  
 y y y 0wpQti luwuxkpcdngf gxgr o gpvldrqi 423; 127 lpcwtg/f gerkpq/wpr tgegf 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 "dku'lp"ekk gp'uekpeg"o qpkqt kpi "qh'cp"gzr 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<lf qkQti B2B2: 2122; 7: ; 860423; B8: 9633](#)

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

Mktmg { 'UO( '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

Nctup. 'Nkpeqp' T0Ectgp' D0Eqqr gt( 'O ctni'G0J cwdgt \*4238+'Go qvqpu'cu'F tkxgtu'qh'Y krf rkhg  
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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'U'Mcwhc 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 wcrkcvkxg  
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Ueqw. 'F cy p' O 0'gv'cni0\$Ur cvkn'F kntkdwkqp'qh'Ucteqr vke O cpi g'Ucteqr vgu'uecdkxk'lp'Wtdcp  
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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<lf 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'ht'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 ct vkr 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 'c'kwf gu'cdqw'eqpugt'xcv'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 kpvgtcevkpu'y kj 'y kf rkhg0Kp "{ qwt 't'gur qpugu'y g'gpeqwtci g { qw'v'g'gh'gev'qp "{ qwt go qv'kpcn'eqppgevkqp 'v'y kf "cpko cni'cpf "{ qwt 'kpvgt'rgv'kqp qh'cpko cni'go qv'kqp0Y g y greqo g'y g'uwo k'kqp'qh'pettev'xgu.'r j qv'i ter j u. xkf gqu'cpf lq't'cwf kq'tgeqtf kpi u'qh { qwt 'kpvgtcevkpu'y kj 'y kf rkhg0

Y g'ctg'j qr kpi "{ qw'o c{ 'dgpgh'htqo 'dglpi 'kp'y ku'uwf { cpf 'kp'y g'eqo o wpk' 'etgcvf 'y tqwi j qwt'r r'v'htqo 'y j lej 'y kn'hqugt'o gcpkpi hwi'eqpxgtucv'kpu cdqw'r ct vkr cpwø j wo cp/cpko cni'kpvgtcevkpu0Vj 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'eqpugt'xcv'kqp'r tcevegu 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{ 'kphqto cv'kqp'y cv'y kn'o cng'k'r quukdng v'k'f gpv'kh{ "{ qw'kh{ qw'y kuj 'v'g'go clp cpqp{o qwa0Ki "{ qw'j cxg's wgu'kpu'cdqw'y ku'tgugctej . { qw'o c{ 'eqpvcev'lgppk'ht'Uej cwt. lgppk'ht'ngm{GB deQf w.'839/774/63520

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