

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'Uqekqmi {.'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 rkhg="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 rkhg'kpvgtcevkpu. eqpugtxcvqp."cpf "dkqf kxgtuk{0

Acknowledgements

Vj g'tgugctej gtu'y qwf 'hmg'v'vj cpn'Rtqhguuqt'Igppkgt Uej cwtg.'vj g'Gpxkqpo gpvcn'Uwf kgu r tqi tco . 'Rtqhguuqt'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

Introduction

Vj g'tgrvkvpuj kr "dgy ggp"j wo cpu'cpf "pqp/j wo cp"cpko cnu j cu"gxqkxgf "vj tqwi j qw"j kvqt {
cpf "xctkgu'dgy ggp"ewmwgu."eqo o wpkkgu."cpf "kpf kxf wcn0Ur gekkxcm{."j qy 'r gqr ng'xkgy "cpf
xcmwg"pqp/j wo cp"ugpvkpeg"j cu'dggp"e"vqr ke"qh'tgugctej co qpi "uej qrtu0Lcpg"l qqf cm'y cu'qpg
qh'y g'htuv'gzzr gtu'vq"l kuo cpvng"vj g'r qr wct"eqpegr vqh'y g'f lej qvqo { "dgy ggp"j wo cpu'cpf
cpko cnu'd { 'r tqxkpi "vj cv'vqqr/wug."ewmwg."cpf "go qvkvpcneqppgekvqp"ctg'pqv'wpls wg"vq
j qo qucr kgpu0Uj g'lw i guvgf "vj cv'vj qug'y j q"j cxg'ur gpveqpukf gtcdr'vko g'y kj "cpko cnu'tgeqi pl g
vj cv'qwt"pqp/j wo cp"eqo r cpkqpu"cpf "y kf rkhg'r quuguu ugpvkpeg0Uj g'ct vkwrcvgf "vj cv'vqpeg" { qw
ctg'r tgr ctgf "vq"cf o k'vj cv'cpko cnu'ctg'ugpvkpv'cpf ecppqv'qpn { "hpqy "go qvkvpu'rkmg"j cr r kpguu.
ucf pguu."hgct."dw'gur gekcm { "vj g { "ecp'hggn'r clp"o vj gp."cu"j wo cpu'y kj "cf xcpegf "tgcupkpi
r qy gtu."y g"j cxg"e'tgur qpukdkkv { "vq"tgecv'vj go "kp o qtg"j wo cpg'y c { u'vj cp'y g'vq'qh'v'p'f qo"lcp
l qqf cm'l kvkwwg."423; +0Dgecwug"j wo cpu'r r { "c'rti g tqrg"kp"pqp/j wo cp"cpko cnu'eqpugtxcvkv.
vj g'gzv'v'vq"y j lej "j wo cpu'w'p'f gtuw'cpf "cpf "gzzr g'kpeg ugpvkpeg"co qpi "pqp/j wo cp"dgkpi u'o c {
ko r cev'vj g'hwmg"qh'eqpugtxcvkv"cpf "vj g'hwmg"qh'j wo cp/y kf rkhg'kvgtcevkvpu'cpf "eqgzkvpeg0
j kvkv
kv'v'gegpv { gctu."gzzr gtu"j cxg"ecmgf "hqt"vj g'f kuo cpv'kpi qh'tcf kvkvpcn'dkpc'kgu'dgy ggp"j qo q
ucr kgpu'cpf "pqp/j wo cp"cpko cnu" | f go k'lw i guw'y g dtgcm'y g'dkpc { "dgy ggp"j wo cpu'cpf
pqp/j wo cp"cpko cnu'cpf "dgy ggp"j wo cpu'cpf "pcwtg'y kj i qxgtcpeg"htco gy qtm'rkmg"oQpg
P cwtg0"Uvej "c'r ctcf ki o "ecm'hqt"j wo cpu'vq"o qxg dg { qpf "cp'y tqr qegpv'ke"y c { u'qh'vj kvkpi
cpf "qr gtcv'kpi "y kj kv'vj g'i kvdcn'gequ { ugo 0Vj kv'dgi kvu y kj "tgeqi pl kpi "cpko cnu'ugpvkpeg
* | f go kv."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'ugwki .
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'dgn'xg'vj cv'y g'y tkkpi 'r tqegu'y knkpkcv'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 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'wpvkv'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'tg
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'tgrvkvquj k' "dgwy ggp
j wo cpu'cpf "pqp/j wo cp'cpko cn'ku'guugpvkr0Grko k'cvki vj gug'r tgeqpegkxgf "pqvkvu'qh'j wo cp
uwr gkqtkv'cpf "rcpki "k'vj g'ugpvkv'pcwtg'qh'cm'dgkpi u'y kn'cmqy "cm'ur gelgu'vq"eqgzku'qp
Gctvj "k'c"eqo r cuukqpcvg'o cpgt'cpf "tgf weg'vj g'ugxgtg j cdkevf kutw kvq'cpf "uwdugs wgpv
dkqf kxgtukv' "quu'y g'ewtgpv' "hceg0

F qwi rcu'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 cdkecv0Y j k'g
eqpegr wu'qh'ugpvkpeg'o c { "dg'vq'cdutcev'cpf "hqtgki p hqt'uqo g'k'f k'k' wcu'vq'qr gpn' "go dtceg.
Tgkm' "ci tggu'y k'j "F qwi rcu'vj cv'cwkwf gu'vqy ctf u j wo cp/cpko cn'tgrvkvqu'o wu'dg'tgeqpvk'gtgf
d { "vj g'eqo o qp'r qr wcvkvq'hqt'tgcnleqpvkvq'vq qeew0Tgkm' "hgnu'vj cv'cpvj tqr qegpvtkuo "ku'uv
f ggr n' "kpi tckpgf "k'vq'c { "u'qekvkgu'vj cv'k'f k'k' wcu o c { "pggf "vko g'vq'ceen'kv'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 qtmci clpuv" yj g
j wo cp" gzege vqpcrkuv" htco gy qtn0K" ur ktgf "d { " yj g" y qtmqh" Mktmug { "cpf " J gm tglej " *4232+ " N { pej
j qr gu" vq" dtkpi " kp" r gtur gevkgu" qh" gs wcrk { . " tgr nceki pi yj g" rpi wci g" qh" pqpj wo cp" ur gekgu" y kj
o wkur gekgu" wpf gtucpf kpi OCf f kkpccm { . " k" ku" ko r gtcvkg vq" cf xcpeg" qwt " Y guvtp" r wdrke
wvf gtucpf kpi " qh" cpko cniugpvkpege" dg { qpf " wkrktkcp xcncvkgp" qh" ur gekgu. " cpf " vqy ctf u" cp
wvf gtucpf kpi " qh" o wkur gekgu" cu" i qaf " 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 ctcvki pqpj wo cp" cpko cni" htqo " j wo cpu
ctg" j cto hwnht" cm" ur gekgu0K" 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" xcncvkg0Tlej ctf u" j qr gu" yj cv" gpi ci kpi " kp" etklecni" cpf
gptlej kpi " eqpxgtucvkgpu" cdqw" cpko cniugpvkpege" ku cp" ko r qtcvpv" vgr " kp" dtgcnkpi " f qy p" yj gug
vcf kkpccni" dctt kgtu0

Trends in Existing Literature

Vj g" gzku" kpi "dqf { " qh" t" gugctej " g" zr mt gu" yj g" t" qrg" 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 tcevkgu0Vj gtg" ctg" c" xctkgy { " qh" t" gpf u gur gekm { " ucrlgpv" vq" hwwt g" t" gugctej " qp" yj g
tqrg" qh" ugpvkpege" kp" o qkxcvkgpu" htq" dgwgt" t" gcvo gpv" qh" y kf rkhg0P wo gtqwu" uwf kgu" j ki j rki j v" yj g
ko r qtcpeg" qh" eqo r cuukap" kp" j wo cp" cvkwf gu" vqy ctf u y kf rkhg. " tgr qt vki pi " go qkqpcni" xctkcdrgu" cu
yj g" utqpi guv" r tgf levqt" qh" y kf rkhg" o cpci go gpv" qh" j qwug" ur cttqy u=cpf . " yj cv" j wo cp" go r cvj {
vqy ctf " cpko cni" cpf " utqpi gt" hggri kpi u" cdqw" ugpvkpege o c { " rgef " vq" dgwgt" t" gcvo gpv" qh" cpko cni
*Nctupq" gv" cri0" 4238=Eqtpkuj " gv" cri0" 423: +0Go r cvj gve tgcvo gpv" qh" cpko cni" gzvgpf u" vq

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'uwdvqr 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'dgrkgh'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'tqng'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 qvgp'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 ' 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 gtlkpeg'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 'hqvgtu 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'ugtxleg vq"qyj gtu'cpf 'y qtnkpi 'vq'o cm

Data Collection Methods

Rctvlekr cpwu'y gtg'lpwxkgf "xlc"vgzv."go ckn'y qtf/qh'o qwj . cpf "uqekcn'o gf kc"vq'r quv'y gk
y kf rkhg'lpvgtcevkpu"vq'yj g'Hcegdqqmfi tqwr 0Rctvlekr cpwu y gtg'cungf "vq'uj ctg'pcttcvxgu."r j qvqu.
xkf gqu."qt"cwf kq'hkgu"cpf "r tqo r vgf "vq'tghngev"qp vj g"go qvqpcn'gzr gtlgpegu"qh'yj gk'y kf rkhg
lpvgtcevkpu0C"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 "vq'cf f tguu'yj ku'ej cmgpi g'd{ "qhhgtkpi
o wnr ng'r tqlgv'gpv{ "r qkpw'cu'y gm'cu'o wnr ng y c{ u'vq'r ctvlekr cvg"cvf khhgtgpv'rgxgnu"qh
eqo o ko gpv'lp'yj g'Hcegdqqmfi tqwr "Rcrgeq'gv'cn0"4243+0Gzco r ngu'qh'r ctvlekr cvkqp"dg{ qpf
r qukpi "kpenmf g'lpvgtcevkpi "y kj "qyj gt'r quu'yj tqwi j rkgu"cpf "eqo o gpwu."y cvej kpi "rkxg'utgco
xkf gqu"j quvgf "d{ "yj g'tgugctej gtu."cpf "tghgtkpi "qyj gt r ctvlekr cpwu"vq'yj g'i tqwr 0F cvc"eqmgevkap
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/etgcvkap. y j lej "cmqy u'qwt"uwf { "vq
dwnf "c'tlej "pcttcvxg"dgy ggp'yj g'r ctvlekr cpwu"cpf vj g'tgugctej gtu"D3/plej /Dtgf plej ."423: +0
D3/plej /Dtgf plej "go r j cuk gu'yj cv'wpeqpxgpvqpcn'o gj qf u qh'pcttcvxg"gyj pqi tcr j { "ctg'lp
vpuqp'y kj "yj g'pggf "hqt"gy pqi tcr j le'tgugctej "vq dg"cmgp"ugtqwun{ "cu"uqekcn'uekgpeg
"D3/plej /Dtgf plej ."r 0; ."423: +0Y j kg"{ gv"pcttcvxg dguv'ecr wtgu'yj g"go qvqpu"gzr tguugf "d{
r ctvlekr cpwu'tgi ctf kpi "yj gk'y kf rkhg'lpvgtcevkpu. cpf "ku'o quv'tvg"vq'yj g'pcwtg"qh'ugpvkgpeg0
Hwvj gto qtg."qwt"o gj qf u'hqmgy "cp'lpwkkxg"cpcn{uku cr r tqcej "cu"qr r qugf "vq"cpcn{ vcecn'eqf kpi
qh'yj g'fcvc0D3/plej /Dtgf plej "chko u'yj cv'y j kg"okvku'vgo r vpi "vq'wtp'uvqtkgu'lpvq"fcvc"cpf
f gxcnwg'yj g'cev'qh'f ggr "kuvgkpi "cpf "pcttcvxg"eqpvgo r rvkqp.ö vj g'r tqegu"qh'qtf gkpi "uvqtkgu
lpvq'pcttcvxgu"ku'dguv'i vkf gf "d{ "c"swrkvxg"cr r tqcej vj cv'f qgu'pqv'mug'yj g"go qvqpu"lp'yj 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'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'tgrvkqpuj kr "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'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 cni'ugpvkpeg.'c'ej qugp'vj go g'ht'cpcn'uku'y cu vj g'wug'qh'vj g'y qtf 'ugpvkpeg'qt'c'tgrvfg cempqy ngf i go gpv'qh'pqp/j wo cp'cpko cni'go qvqp'y kj kp vj g'f'guetkdgf 'kpvgtcevkp0Hqwtvggp.'qt 85085' . 'qh'vj g'r ctvkr cpw'eqo o gpvfg 'qp'vj g'r gtekgxf go qvqpu'qh'vj g'cpko cni'qt'cpko cni'vj g{ gpeqwpvgtgf 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{ eqttgrv'q'vj g'o clqtk' 'qh'r ctvkr cpw'o cni'pi 'ugpvkpeg/tgrvfg eqo o gpw0Eqtpkuj 'cpf eqmgi wgu'hqwpf 'vj 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 rckn' wugf 'vj g'y qtf 'ugpvkpeg'kp'vj gkt pcttcvkg0Vj gtghqtg.'eqo o gpw'qp'cpf 'tgrvfg 'q'r gtekgxf go qvqp'cpf 'ur kkwcn'kpvgtur 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'kpvgtcevkqpu'y kj 'y kf rkhg'cpko cni'cpf 'yj gk'j cdkcwo0Vj 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'kpvgtcevkqpu'y kj 'y kf 'cpko cni0Vj tgg
r ctvlekr cpwu'qh'y g'44'vqcnlkpf kecvgf 'yj cv'y g{ 'hgnvpgtxqwu'qt'hgcthwi'ctqwpf 'cpko cni'dw'y q'qh
yj g'y tgg'tgr qtvgf 'wko cvgn' 'j cxkpi 'r qukkxg'hggnkpi u cdqw'yj g'kpvgtcevkqpu0

Trend 3: Transformative effect of experience

Dgecwug'r tgxkqwu'uwwf 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'cpuhtqto 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'cpuhtqto cvkxg'ghgevtqo yj gk'gZR gtlgpeg'y kj 'y kf rkhg.'9'r ctvlekr cpwu
*530: ' +lpenmf gf 'pq'tghgtgpeg'v'c'v'cpuhtqto 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'v'cpuhtqto cvkxg'gZR gtlgpegu kpxqkxgf 'c'j wo cpw'kpvgtcevkq'p'y kj 'c
ur gekgu'yj g'r ctvlekr cpv'f qgu'pqv'ugg'qt'kpvgtcev'y kj qp'c'tgi wxt'dcuku0Cu'v'v'ku'tgugctej 'y cu
eqpf wevgf 'kp'yj g'o kf uv'qh'yj g'EQXKF/3; 'r cpf go ke.'vy q qh'yj g'gZR rlekn{ 'v'cpuhtqto 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'kuqrcvkq0'Hkxg'qh'yj g'gki j v'v'cpuhtqto cvkxg'gZR gtlgpegu'lpenmf gf 'gZR rlekn'tghgtgpegu'v'v'
r gtuqpcn'cevkq'v'v'qy ctf 'eqpugtxcvkq0Qpg'v'cpuhtqto cvkxg'gZR gtlgpeg'j gir gf 'c'r ctvlekr cpv'hgn
r gtuqpcn{ 'eqppgevgf 'v'v'kf rkhg0'Vj gtg'y cu'cp'qxgty j gm kpi v'v'gpf 'kp'r ctvlekr cpwu'gZR gtlgpegu
ecwulpi 'tghgevkq'qp'o wkur gekgu'eqgzkvgepg0'Qh'yj g'eqo dkgf '37'gZR rlekn{ 'cpf 'ko r rlekn{
v'cpuhtqto 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 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 guvkr gu0P q'cp { vj kpi ō Cpqj 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 gtlgpegu'y kj
qjy gt'ur gekgu.'dw'f q'pqvtgr qtv'cp { 'gxkf gpeg'qh'c ej cpi gf 'cvkwf g'qt'r gtur gevkg'hqmuy kpi 'vj g
kpgtcevkp05"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'kpgtcevkp'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 'kpgtcevkp
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'kpgtcevkp'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 Cpqj 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'kpgtcevkp'y kj 'uy cpu0O qtgqxt.'y q'r ctvkr cpw'vj cv'y tqv
cdqw'vj gk'kpgtcevkp'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 vkk'.'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 kuwtdcepeg'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

- 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 gevkg0
- k0 ðVj gtg'y g'f tkngf 'y j kg'dgkpi 'uwtqwpf gf "d{ 'J wo r dcemu hqt 'yj tgg'j qwtu0
- g0 Ugcnd0Cv'j ku'eqxg'qp'vj g'y cvgt."o cp{ 'ugcni'i cvj gtgf ctqwpf "v'uwpdcvj g0Kuy co 'kp'vj g
 y cvgt'cpf 'y cu'j qpguwl 'uwr tkugf "d{ 'yj g'ugcnu'ixemqh'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'uwpdcvj kpi . 'uy ko o kpi .
 erko dlpi "qp'vj g'tqemu."gplq{ kpi 'yj g'uwp."gei "Ky cu ucpf kpi 'uwr gt'emug'v'y 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 cpu0
- h0 Dwpp{ <ðK'y cup0'o qxlpi 'cv'cm'gxgp'y j gp'Keco g'emug vq'kv'cpf 'kv'y cup0'drkpnkpi lkv
 g{ g'y cup0'o qxlpi 0Kdgi cp'v'i gv'y qttkgf "cpf 'eqpukf gt vj g'r quukdkv' 'yj 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 vq't{ 'v'j'j gr 'k0
- i 0 F ggt<ðKmqmgf "qwukf 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'u'gg vj g'f ggt'tgeqi pk g'cpf 'kpvgtcev'y kj
 o g0
- j 0 Dkuqp<ðQp'o { 'y c{ 'yj gtg."Kuvr r gf "o { 'ect'v'vcng c'mqm'cv'vj ku'i tqwr 'qh'dkuqp0K
 y cvej gf 'yj go 'hqt'c'y j kg."cpf 'gplq{ gf "dgkpi 'kp'vj gk r t gugpeg0Vj g{ 'f kf p0'uggo 'v
 pqv'eg'o g'cpf 'y gpv'cdqvw'vj gk'f c{ 'i tcl kpi 'cpf 'y cmkpi 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'vqq
enqugō

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'pcr r kpi 'qp'vj g'eqvej 'cpf 'uqo gqpg'y cmu k'p'uq'{ qw'iqqm'wr 'dghgtg'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

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'qvj 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 gjv 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'cnuq'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
 ugvkpeg'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 gekk'ecm{ 'tgrcvgf 'vq'go r cvj { cpf 'cpko cni'ugpvkpeg'y j lej 'y g'cnuq
 tgeqo o gpf 'cu'o cp{ 'r ctvkr cpw'y gtg'pqv'cu'y gmlphqto gf qp'eqpugtxcvqp'cpf 'vj g'go gti lpi
 rkgtcwtg'qp'ugpvkpeg'0F qnd{ 'gv'cni'4242-0Gf wecvqp ur gekk'le'vq'vj ku'vqr le'dglpi 'i kxgp'r tlqt'vq
 eqpf wevpi 'c'uwf { 'uwej 'cu'vj ku'o c { 'j cxg'ko r rkecvqpu qp'tguwuu'cpf 'vgtö kqmqi { 'wugf 0

Trends in human emotion

Vj g'f cv'eqmgev'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 qtvgf
 hgnkpi u'qh'go r cvj { 'hqt'pqp/j wo cp'cpko cni'vj g{ 'hgnv'ytg'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 kpmetk'ecm{ 'cdqw'j wo cp'cpf 'pqp/j wo cp

cpko cnlkpvtcevkpu'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 cnu0Vj 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 cnu0Vj ku'tgpf 'ku'gzekkpi "dw'pqv'pgeguuctk'f' uwr tkukpi 0O qtgqxtg.'uwej 'k'p'f kpi u
chhko 'y cv'ekkk gp'uekgpeg'i tqw u'r tqxkf g'go qv'xg g'zr gtlgpegu'vj tqwi j 'gf wecv'kpi 'r ctv'ekr cpv'u'qp
ko r qtcv'p'gp'xk'qpo gp'v'cn'v'qr leu'*Rcgeq'g'v'c'0'4243+0

Trends in Transformative Narratives

Vj g'tguwuu'hqwpf 'k'p'vj ku'uwf { 'ctg'eqpukv'gp'v'y kj r t'g'x'k'q'w'u'uwf { a'k'p'f kpi u'vj cv
g'zr gtlgpegu'y kj 'y kf rkhg'j cxg'vj g'cdk'k'f' "v'q'o q'v'x'c'v'g j wo cp'cev'qtu'v'qy ctf "go r cvj g'v'ek'cev'k'pu
v'qy ctf 'y kf rkhg'cpf "chhge'v'x'g'cpf "go q'v'k'p'cn't'gur qpugu v'q'y kf rkhg'v'ko w'k'*N'ct'v'q'p'g'v'c'0'4238=
F qnd { .42420N'ct'v'q'p' "cpf "eqm'g'ci w'gu'hqwpf 'y cv'g'zr gtlgpegu y kj 'j q'w'ug'ur ctt'q'y u'r qukkx'gn'f'
chhge'v'f' 'r ctv'ekr cpv'u'v't'g'c'w' gp'v'qh'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'
qh'g'zr gtlgpegu'vj 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'uh'q'to c'v'x'g'0'F qnd { 'h'q'w'p'f 'y cv'y tkk'p'i
cp'g'u'c' { 'h't'q'o 'y g'r g'tur g'ev'x'g'qh'c'p'cpko cn'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'
uki p'k'h'ec'p'v' { 'v'q'vj gkt'gp'x'k'q'po gp'v'cn'g'f' wecv'k'p' "cpf go r cvj g'v'ek' "eq'p'p'g'ev'k'p' "v'q'cpko cnu' "F qnd { .
4242+0Q'w't'uwf { "eq'p't'k'd'w'gu'v'q' "F qnd { a'v'y q't'm'id' { 'uj' q'y ecuk'p'i vj g'r q'y g't'qh'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'pu'qh'c'p'f "eq'p'p'g'ev'k'pu'y kj "q'v'j g't ur g'el'gu'0H'h'g'g'p'qh'vj g'44'*8: Ø: ' +
r ctv'ekr cpv'u'g'k'j g't'ko r r'ek'k'f' "q't'g'zr r'ek'k'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'qh'vj gkt 'y kf rkhg'
k'p'v't'cevk'p'. 'u'w'i i g'uk'p'i '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't'g'c'w' gp'v'qh'q'v'j g't'ur g'el'gu'0"R'ct'v'ekr cp'v'38a'v'c'v'g'o gp'v'ec'r w't'g'f' 'y g'ug'p'v'ko gp'v'qh'
o cp' { 'qh'vj g'i tqw a'v'o go d'g'tu'<0'Vj g' { 'y g't'g'x'g't' { 'ec'm' c'p'f "ug'go g'f' "s'w'kg' "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 g'tg'j ki j n' r'tgxcrgp0
Vj ku'o c{ 'dg'f wg'vq'j wo cpaf'qo kpcpeg'lp'vj g'pcwctny qtrf.'qhv'p'ngcf kpi 'vq'ugr ctcvqp'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 kpcpvpwctg/uqekv' 'kf gqni'lecn'f kxkf g0
Cempqy rgi i kpi 'vj g'xcnw'qh'o wkur gelgu.'cu'lpvtqf wv'gf d{ 'cwj qtu'Mktmug{ 'cpf
J gm tglej *4232+.'lp'qwt'uj ctgf 'gpv'ku'c'etwecnuv'g'vqy ctf u'lwuv'r tgu'gtxcvqp'0'Mktmug{
cpf 'J gm tglej .4232+0' Cp'qxgty j gm kpi 'o clqtk'v'qh'vj g'gZR r'lecn'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'ctg'o qtg'r qy gthw'vj j gp'vj g' 'eqv'cuv'v' r'lecn'lpvgtcevy'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 qtm'cpf 'eqv'kdw'kq'vq'eqpugt'xcvqp' kpk'cv'xgu'0' Cf'f'k'k'q'p'cm'f.'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
eqppgev'f'y kj 'c'f'gg'0'K'dtqwi j v'o g'emugt'vq'y kf'rhg'cpf 'K'hn'o qtg'eqppgev'f'0'K'p'ugcf 'qh'lwuv
qdu'gtx'kpi 'vj ku'cpko cnu'qo 'vj g'lpv'kf'g.'Ky cu'cewcm'f' 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'eqppgev'f' cpf 'o'qv'xcv'gf 'vq'r tqv'ev'ur gelgu
vj cv'gzj kdk'j wo cp'rhg'hgcw'gu'0'Vj g'tgu'w'u'uj qy 'vj cv'vj gug'lpvgtcevy'ctg'lo r'qt'cv'v'hqt
kpv'tqf wv'kpi 'o' wkur gelgu'eqppgev'kq'cpf 'ug'p'v'peg'0' Vj ku'uwf { 'y cu'ur gel'lecm'f' 'lpv'gt'g'v'gf 'lp'vj g
gh'gev'qh'vj gug'lpvgtcevy'qp'v' r'gtur ge'v'x'gu'qh'eqpugt'xcvqp=j qy g'xgt.'qpn'f 'hxg'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'xcvqp' kpk'cv'xgu'0'Vj gug'tgu'w'u'uw' i guv'vj cv
vj gtg'ku'c'ecw'ucn'gh'gev'qh'y kf'rhg'lpvgtcevy'qp'v'j wo cp'v'ur'gtur ge'v'x'gu'qp.'go'qv'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 luewuugu'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'v'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'eqppgevku'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'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 'qyj gt'yj tqw j 'yj g'eqv'kdwkp'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 wt g'qdugtxcv'kpcncpf 't'gkgtcvxg'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'kdwkp'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 necv'k'p'v'ht'yj g'tgugtej gtu. 'r ctvkr cpw. cpf 'r'cti gt'h'gn' 'qh'y kf rkg'tgugtej 0

Limitations

F qnd { 'P 0*4242+0P qpj wo cp'cpko cni'cpf 'y g'hwwtg'qh'gpxktqpo gpvni'gf wecvkqp<'Go r cvj { 'cpf
pgy 'r quakdkkku0Journal of Environmental Education. 50*668+:'62566370
[j wr u<lf qkQti B2B2: 2122; 7: ; 860423; B8: 9633](#)

Lcpq'I qqf cni'kpuvkwg'P gy '\ gcrpf 0\$Cplo cni'Ugpkpeg\$. F ge'3; . '423; .
[j wr u<ly 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

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 kpkpi '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 l0'Vgnn 'VN0'F qp'Ectnqu.'C0Y 0'Uwnkxcp. N0'Dtki j v'C0F 0'F kgviej . 'C00 0
Dtwnmqwt.'L0'cpf 'Hwnqp.'F 0*4242+'Vj g'ej cpi kpi uqekqewmwtn'leqpvz v'qh'y krf rkhg
eqpugtxcvqp0Eqpugtxcvqp'Dkqmi {0f qk32B333 leqdkB56; 5

Rcrgeq.'E0'Rgvt.'U0I 0'Ugqcpq.'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 /uqtkgu0kpvgtpcvqpcn'Lqwtpcn'qh'S wcrkcvkxg
Uwflgu'lp'Gf wecvkqp.'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
Hqzgu'*Xwr gu'xwr gu+lp'I tgcv'Dtkckp'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 lecnEqpugtxcvqp.'xqr044; . '423; . 'r r 0356663.
f qkj wr u<lf qkQti B2B238 l0kqeqp0423: B3B3: 0

Y crnej . 'Ctkcp'F 0'gv'cni0\$Uwo o qpkpi 'eqo r cuukqp'vq cff tguu'y g'ej cmgpi gu'qh'eqpugtxcvqp0\$
Eqpugtxcvqp'Dkqmi { '54B '*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 {.'xqr046B3

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'eqppgev'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'pettev'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'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 ctvek r cpwø 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'0Kp 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'tgo 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'g'qwt