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Survey - Interactive technology use with captive great apes

Participant Information Sheet

PLEASE ONLY COMPLETE THIS SURVEY IF YOU CURRENTLY WORK WITH GREAT APES:
Chimpanzees, gorillas, orangutans or bonobos.

Only ONE SURVEY PER SPECIES per facility may be submitted.

If you house more than one species of great apes e.g. chimpanzees and gorillas, ONE SURVEY FOR EACH SPECIES may be submitted.

Please ensure the PRIMARY CARETAKER for each species completes the survey.

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The University of Queensland, Australia

Goal of this Survey:

The goal of this survey is to understand what interactive technology (where the ape engages directly with the technology) is being used globally, with what species of great apes and for what purpose.

Survey Information:
- **The survey should take approximately 5 - 20 minutes to complete depending on your responses.**
- **Participation is voluntary, and all respondents may cease their participation at any time while completing the survey.**
- **All participants must be over the age of 18.**

- **Results may be used for publication and partial completion of a PhD thesis.**
- **All personal names (optional) and facility names provided within this survey will remain 100% confidential unless written permission is gained from the participant and / or the facility.**
- **All participants have access to results should they wish by contacting Liz Bellward at liz.bellward@uqconnect.edu.au**

This study adheres to the Guidelines of the ethical review process of The University of Queensland and the National Statement on Ethical Conduct in Human Research (Approval No. 2018000326). Whilst you are free to discuss your participation in this study with project staff (contactable on the details above), if you would like to speak to an officer of the University not involved in the study, you may contact the Human Ethics Office on +61 (0)7 3365 4584 or humanethics@research.uq.edu.au.

* 1. By completing this survey, you are consenting to participate in this research.

○ I consent

○ I do not consent

* 2. Any personal contact information provided (optional within the survey), may be used to contact the participant via email for further information in regards to this survey, or to notify winners of the book draw.
Contact information will be stored on a password protected laptop and password protected cloud drive.
If you wish to opt out at any time to have your contact details removed, please contact Liz Bellward at liz.bellward@uqconnect.edu.au
Please note, to participate in the survey you must provide your consent, even if you do not provide your contact details within the survey as they are optional.

○ I consent

○ I do not consent   **"I do not consent" will end the survey and skip all questions.**

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Qualifier

* 3. What great ape species do you care for at your zoo? *Please select the ONE APE SPECIES that you primarily care for. If your zoo houses another species, please forward this survey to their primary keeper to complete. All questions from this point will refer to your selection of great ape species below.*

◯ Chimpanzees

◯ Orangutans

◯ Gorillas

◯ Bonobos

◯ None

"None" will end the survey and skip all questions.

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General Questions

* 4. What is the name of your zoo or facility?

* 5. What region are you located?

◯ Africa

◯ Asia

◯ Australia and NZ

◯ Europe

◯ Middle East

◯ North America and Canada

◯ South America

◯ United Kingdom

◯ Other (please specify)

* 6. Choose the "best fit" to describe your role / position.

○ Volunteer

○ Keeper

○ Senior Keeper

○ Single-exhibit Manager of a species or similar species e.g. gorillas or primates

○ Multi-exhibit Manager of different species e.g. Asia / Africa

○ Curator / Facility Manager

○ Other (please specify)

[   ]

* 7. What is your gender?

○ Male

○ Female

○ Other

○ Prefer not to say

* 8. What is your age?

○ Under 18

○ 18-20

○ 20-30

○ 30-40

○ 40-50

○ 50-60

○ Over 60

○ Prefer not to say

* 9. How long have you worked with captive, non-domestic animals?

○ Under 1 year

○ 1-2 years

○ 3-5 years

○ 6-10 years

○ 11-15 years

○ Greater than 15 years

* 10. How long have you worked in your current position at this facility?

○ Under 1 year

○ 1-2 years

○ 3-5 years

○ 6-10 years

○ 11-15 years

○ Greater than 15 years

* 11. Please list your completed qualifications (education only). *Please select as many qualifications as you hold.*

☐ Junior School

☐ High School

☐ Certificate

☐ Diploma

☐ Degree

☐ Postgraduate - Honours

☐ Postgraduate - Masters

☐ Postgraduate - PhD

Please specify the Specialisations / Majors for any study after high school.

[   ]

* 12. What size is your zoo / facility?

○ Small - 1 to 20 paid employees (full time equivalent)

○ Medium - 21 to 50 paid employees (full time equivalent)

○ Large - 51 to 100 paid employees (full time equivalent)

○ Very large - 100+ paid employees (full time equivalent)

* 13. Please rank the importance of the following enrichment options to captive apes' MENTAL WELL-BEING? *Please rank the following by clicking and dragging each row up or down.*
1 (top) = most important
11 (bottom) = the least important.

⬍	Food Enrichment e.g. scatter feeds	☐ Not beneficial
⬍	Spatial Enrichment e.g. changing surroundings	☐ Not beneficial
⬍	Olfactory Enrichment e.g. spraying scents in their enclosure	☐ Not beneficial
⬍	Auditory Enrichment e.g. playing animal vocalisations	☐ Not beneficial
⬍	Social Enrichment e.g. changing group structures	☐ Not beneficial
⬍	Interactive Technological Enrichment e.g. apes playing the piano on the iPad, painting on the iPad	☐ Not beneficial
⬍	Visual Enrichment e.g. TV, videos	☐ Not beneficial
⬍	Cognitive Challenges e.g. puzzle feeders	☐ Not beneficial
⬍	Motor Skill Activities e.g. termite fishing mounds	☐ Not beneficial
⬍	Ape-Keeper Interactions e.g. training sessions	☐ Not beneficial
⬍	Ape-Public Interactions e.g. animal encounters	☐ Not beneficial

* 14. Please rank the importance of the following values to captive apes' MENTAL WELL-BEING? *Please rank the following by clicking and dragging each row up or down.*

1 (top)= most important

5 (bottom) = the least important.

⠿	[⬍]	Providing apes with some choice	☐ Not beneficial
⠿	[⬍]	Providing apes with some control	☐ Not beneficial
⠿	[⬍]	Providing apes with some predictability	☐ Not beneficial
⠿	[⬍]	Providing apes with some variety	☐ Not beneficial
⠿	[⬍]	Good relationships with keepers	☐ Not beneficial

* 15. What effect do you see <u>interactive technology</u> could potentially have on the apes with the following? Interactive technology means technology the ape ACTIVELY ENGAGES with e.g. an iPad, computer etc. *Please rate for each row, the effect on the apes.*

	Highly Positive Effect	Positive Effect	No Effect	Negative Effect	Highly Negative Effect
Enrichment e.g. apes playing the piano or painting on an iPad	◯	◯	◯	◯	◯
Social e.g. apes selecting choice of mates, video conferencing apes or keepers at other zoos	◯	◯	◯	◯	◯
Keeper / ape relationship	◯	◯	◯	◯	◯
Welfare - mental health	◯	◯	◯	◯	◯
Welfare - physical health e.g. apes can communicate to their keeper if in pain	◯	◯	◯	◯	◯
Reduction of abnormal behaviours e.g. games can keep the ape's mind active	◯	◯	◯	◯	◯
Providing apes with some choice e.g apes can choose food or toys	◯	◯	◯	◯	◯
Providing apes with some control e.g. apes can change the temperature of indoor enclosures	◯	◯	◯	◯	◯

Any other effects you could think of? Please specify.

[   ]

* 16. What effect do you believe interactive technology could potentially have on the zoo and conservation with the following? *Please rate for each row, the effect on the zoo or conservation.*

	Highly Positive Effect	Positive Effect	No Effect	Negative Effect	Highly Negative Effect
Public engagement at the zoo resulting in promotion of the conservation message	○	○	○	○	○
Public engagement at the zoo affecting revenue for the zoo	○	○	○	○	○
Public engagement and visitor times spent at the ape enclosure	○	○	○	○	○
Publicity / media for the zoo affecting revenue for the zoo	○	○	○	○	○
Publicity / media for the species resulting in promotion of the conservation message	○	○	○	○	○

Any other effects you could think of? Please specify.

[   ]

* 17. Do you think it is good or bad to provide captive great apes with interactive technology? *Please provide one response only.*

○ Very good

○ Good

○ Neutral - Neither good, nor bad

○ Bad

○ Very Bad

○ No opinion, as don't know enough about it

* 18. Would you like to see more use of interactive technology with great apes in your zoo? *Please provide one response only.*

○ Yes, I would like to see more use of interactive technology with great apes

○ I am happy with current level of use of interactive technology with great apes

○ No, I would not like to see more use of interactive technology with great apes

○ No opinion, do not know enough about it

* 19. Please rate the current challenges you face in using interactive technology with your great apes? *Please rate all rows.*

	No Challenge	Minor Challenge	Major Challenge
Funding to buy technology	○	○	○
Time to use technology with apes	○	○	○
Human expertise - programming / using the technology	○	○	○
The apes breaking the technology	○	○	○
Zoo management support	○	○	○
Public perception	○	○	○
Keeper perception	○	○	○

Any other challenges? Please specify.

[   ]

* 20. Please rate the the possible negative impacts you see with using interactive technology with great apes? *Please rate all rows.*

	Technology Would Have No Impact	Minor Negative	Major Negative
Decrease of exercise	○	○	○
Decrease in physical health	○	○	○
Decrease in mental health	○	○	○
Competition amongst apes / fighting for use of technology	○	○	○
Antisocial ape behaviour - spending too much time with technology	○	○	○
Bad publicity for the zoo and / or loss of revenue	○	○	○
Addiction to technology	○	○	○

Any other negatives? Please specify?

[   ]

* 21. Do your apes currently engage directly with interactive technology?

○ Yes

○ No

"No" will skip the "Interactive Technology" and "Touch Screen Technology" sections of the survey and take them to the "Communication Qualifier" page.

22. Any general comments you would like to make on interactive technology use with captive great apes?

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Interactive Technology

* 23. What forms of interactive technology do your apes interact with? *Please select as many answers as you wish.*

- ☐ Portable Touchscreens - iPad / tablet / iPhone etc.

- ☐ Touchscreen Computers

- ☐ Touchscreen TVs

- ☐ Other "Touch" technology

- ☐ Computers - Joystick interface

- ☐ Computers - Keyboard interface

- ☐ Ape Operated Cameras or Videos

- ☐ Ape Controlled Temperature Gauges

- ☐ Ape Controlled Lights

- ☐ Ape Controlled Music

- ☐ Food Vending Machines

- ☐ Other? Please explain below.

  [   ]

If the participant selects the four highlighted "touch technology" options, they will proceed to the "Touch Screen Technology" sections.

If they do not select the highlighted options, they will skip to the "Communications Qualifier" page.

* 24. What is the purpose of using the interactive technology with your apes?*Please select as many answers as you wish.*

- [ ] Enrichment
- [ ] Ape to Keeper Communication
- [ ] Ape to Public Communication
- [ ] Ape to Ape Communication
- [ ] Cognitive Research
- [ ] Language Research
- [ ] Husbandry Practices
- [ ] Medical Practices
- [ ] Public Entertainment
- [ ] Public Education
- [ ] Other? Please explain below.

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Touch-screen Technology

* 25. Touchscreen technology only - How do your apes interact with the technology?*Please provide one response only.*

○ Technology is outside the enclosure but apes can access with fingers, toes, tools, keeper is present

○ Technology is outside the enclosure but apes can access with fingers, toes, tools, keeper is not present

○ Technology is temporary in the enclosure with the ape, keeper is present

○ Technology is temporary in the enclosure with the ape, keeper is not present

○ Technology is permanently in their enclosure, keeper is not present

○ Other - please explain in comments

Any further comments?

[   ]

* 26. Touchscreen technology only - How regularly are the apes provided with access to the technology? Please provide an average. *Please provide one response only.*

○ Permanently

○ Daily

○ Twice a week

○ Once a week

○ Once a fortnight

○ Once a month

○ Less often than once a month

○ Other - please explain in comments

Any further comments?

[   ]

* 27. Touchscreen technology only - Do you insist that the apes use the technology in their allotted time?
Please provide one response only.

○ Yes, training session for the allocated time and they must stay the entire time

○ No, the apes have total freedom to come and go as they wish, engage or not as they wish

○ Other - please explain in comments

Any further comments?

[   ]

* 28. Touchscreen technology only - How long on average is each session that YOU OFFER the apes (not how long do they participate)? *Please provide one response only.*

○ 5 minutes

○ 10 minutes

○ 15 minutes

○ 30 minutes

○ 1 hour

○ As long as they are interested

○ Other - please explain in comments

Any further comments?

[   ]

* 29. Touchscreen technology only - On average, how long do your apes actively engage with the technology per session? Please indicate the number of MINUTES you estimate. Please do not time your apes. *Please select only one time per age group.*

	No engagement	Under 1 minute	1-2 minutes	2-5 minutes	5-10 minutes	10-15 minutes	15-30 minutes	30-60 minutes	Over 1 hour	Have apes this age but they don't have access to technology	Do not have apes in this age group
Infants under 2 years	○	○	○	○	○	○	○	○	○	○	○
Juveniles 2-5 years	○	○	○	○	○	○	○	○	○	○	○
Juveniles 5-10 years	○	○	○	○	○	○	○	○	○	○	○
Adults 10-30 years	○	○	○	○	○	○	○	○	○	○	○
Adults 30+ years	○	○	○	○	○	○	○	○	○	○	○

Any further comments?

[   ]

* 30. Touchscreen technology only - Is there any difference in the level of engagement between sexes? *Please select as many answers as you wish.*

- [ ] Yes - females are more engaged
- [ ] Yes - males are more engaged
- [ ] No - depends more on ape's age
- [ ] No - depends on each individual ape
- [ ] Other - please explain below
- [ ] Any further comments?

[text field]

* 31. Touchscreen technology only - Do your apes interact with the technology individually or as a group? *Please provide one response only.*

- ( ) Individually
- ( ) 2 apes at a time
- ( ) 3 apes at a time
- ( ) Group as they choose
- ( ) Other - please explain below

Any further comments?

[text field]

* 32. Touchscreen technology only - What rewards / reinforcements do you use to encourage the apes to engage with the technology? *Please select as many answers as you wish.*

- [ ] Food
- [ ] Toys
- [ ] Verbal encouragement
- [ ] Tactile / physical encouragement e.g. pats, scratches
- [ ] Engaging with the technology is the reward
- [ ] None
- [ ] Other - please explain below

Any other rewards or encouragements? Any further comments?

[text field]

* 33. Touchscreen technology only - Please rate what engages your apes with using this technology? *Please rate all rows.*

	Highly engaging	Engaging	Does not encourage engagement
Reward	◯	◯	◯
Sound	◯	◯	◯
Colour	◯	◯	◯
Movement on the screen	◯	◯	◯
Touching the technology	◯	◯	◯
Videos	◯	◯	◯
Photos	◯	◯	◯
Games	◯	◯	◯
Problem solving activities	◯	◯	◯
Interaction with keeper	◯	◯	◯
Keeper encouragement	◯	◯	◯
Other apes using the technology	◯	◯	◯

Any other things that engage the apes? Any further comments?

* 34. Touchscreen technology only - What apps / programs are you using with your apes?*Please select as many answers as you wish.*

☐ Music they listen to

☐ Music they play on e.g. drums

☐ Games

☐ Painting

☐ Visual e.g. Koy pond, scenery

☐ Video clips eg. YouTube

☐ Movies

☐ Audio Books

☐ Photos

☐ Communication with humans

☐ Communication with other apes e.g. Skype, Facetime

☐ Cognitive challenges

☐ Other - please explain below

Any other applications? Any further comments?

[   ]

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Communication Qualifier

* 35. Do your **APES ACTIVELY COMMUNICATE** with keepers? If so, what methods are they using? Please note, this is active, deliberate communication, not a keeper reading their body language or vocalisations. *Please select as many answers as you wish.*

☐ No, they do not actively communicate with keepers American Sign Language,

☐ Auslan or similar Lexigrams / Symbols - technology

☐ Lexigrams / Symbols - cards

☐ Pictures - cards

☐ Pictures - technology

☐ Other technology - please explain below

☐ Basic gestural communication e.g. deliberate pointing Other - please explain below

Any other methods? Any other comments?

[   ]

If the participant selects "No", they will skip the "Communication" section and go to the "Research" page (last page of survey).

If they select any of the communication options, the will proceed to the "Communication" section.

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Communication

* 36. In terms of **APE ACTIVE COMMUNICATION**, what are your apes communicating to keepers? *Please select as many answers as you wish.*

☐ Food choice for snacks / rewards

☐ Food choice for main meal

☐ Toy choice

☐ Enrichment choice

☐ Communicate health concerns e.g. headache, stomachache

☐ Communicate mental welfare e.g. feelings, emotions, moods

☐ Social e.g. choice of social groupings

☐ Environmental e.g. choice of enclosures

☐ Communicate physical sensations e.g. hot, cold, hungry

☐ Other - please explain below

☐ Any further communication? Any further comments?

[   ]

37. Touchscreen technology only - What specific apps are you using with your apes for ACTIVE COMMUNICATION with humans?

[   ]

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Research and Contact Details

* 38. Has / is your facility participating in any research (formal or informal) in regards to great apes and technology?

◯ Yes

◯ No

If yes, please provide a brief summary of the research (optional) and contact details of the researcher (if they are happy to be contacted).

[   ]

* 39. Assume there was an application that would allow great apes to COMMUNICATE with keepers. It would;

- Be quick and easy for them to learn to use (picture-based)
- Allow choice of food, toys, social groupings
- Allow them to tell you if they are sick
- Allow them to communicate immediately when transferred to a new facility
- Be touchscreen based e.g. iPad as many facilities already using them.

Would you use the proposed communication application if the constraints of time and funding were addressed adequately? *Please provide one response only.*

◯ Definitely

◯ Probably

◯ Possibly

◯ Probably not

◯ Definitely not

Why? Why not? (Optional)

[   ]

* 40. What do you think the main challenges of using a COMMUNICATION tool like this would be? *Please rate all rows.*

	No Challenge	Minor Challenge	Significant Challenge
Cost to purchase iPads / tablets	○	○	○
Time to train the apes how to use	○	○	○
Time to use with the apes once communicating	○	○	○
Time to respond to the apes e.g. prepare food they want (instead of standard), get toys etc.	○	○	○
Time to train the keepers how to use	○	○	○
Time / skills to customise application to your facility	○	○	○
Apes breaking the iPad / tablet (zoos using them now use them through the wire mesh to prevent breakage)	○	○	○
Safety - zoo would consider you are too close to the apes	○	○	○
Competition between apes to use the iPad	○	○	○
Public perception	○	○	○
Keeper perception	○	○	○

Any other challenges you can see?

[   ]

41. If you are happy to be contacted to answer further questions if required, please provide your contact details below. *Please leave blank if you do not wish to be contacted.*

Name

Facility Name

Position within Facility

Address

City/Town

State/Province

ZIP/Postal Code

Country

Email Address

Phone Number

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Thank You

42. If you would you like to enter a draw to win one of the following books as a thank you for completing this survey, please provide your email address.
   * Zoo Animal Welfare - Terry L. Maple & Bonnie M. Perdue
   * The Welfare of Performing Animals - David A.H. Wilson
   * The Welfare of Marine Mammals - Andy Butterworth
This email address will not be used for any other purpose.

43. Thank you for your time and input into this study. It is much appreciated.

PLEASE forward the survey link to other great ape departments in your zoo. More than one survey per facility may be submitted for multiple species.

PLEASE forward the survey link to your peers at other zoos or facilities, and encourage them to complete to allow a full understanding of industry practices.

Contact details again, should you need them are:

Liz Bellward
University of Queensland
E. liz.bellward@uqconnect.edu.au
P. +61 (0) 404 222 991

If you would like to add any further comments, please do so below.