

# Without Feather ado, Social Learning in Zebra Finches (*Taeniopygia guttata*)

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## Introduction

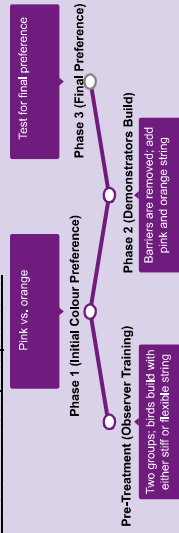
- Social learning theory suggests that individuals are more likely to use social information when unsatisfied<sup>1</sup>
- Zebra finches have been shown to prefer stiff string to flexible string when building nests<sup>2</sup>
- **Prediction: Zebra finches that are less satisfied (use flexible string) with their prior experience will be more likely to copy conspecific demonstrated colour preference**
- **Aim:** To examine if animals base social information use on their previous social experience



Figure 1: Male zebra finch building with a piece of white string © Lauren M. Guillet

## Methods

### Overview of whole experiment



Using BORIS (Behavioral Observation Research Interactive Software) scored Demonstrator behaviours during observation phase<sup>3</sup>

### SUBJECTS

- 35 adult zebra finches
  - Naive Observers
  - Experienced Demonstrators

Behaviour	Definition
Interaction	When a male or female; pecks, holds, carries or picks-up a piece of string
Nest Box	When a male or female is in the nest or on the nest box
Deposit	When a male or female puts a piece of string into the nest box and adds it to their nest.

Figure 2: Definitions of behaviours scored



Figure 3a (Top Left): Phase 1 set up, Initial colour preference.



Figure 3b (Top Middle): Top-down view of Observer cage



Figure 3c: (Bottom): Top down view of Demonstrator cage



Figure 3d (Top Right): Phase 3 set up, Final colour preference



Figure 8: Nest built with orange string



Figure 9: Nest built with pink string

## Results

### Scored Behaviours

	Demonstrator Interact	Tied Down Interact	Nest Box
Male	Max 2199	1256	8028
	Min 42	76	501
	Avg. 1108	635	5474
Female	Max 1839	2370	19658
	Min 10	0	639
	Avg. 575	493	9911

Figure 4: Maximum (Max), Minimum (Min), and Average (Ave) amount of seconds spent at each interaction for males and females across 9 demonstrator pairs

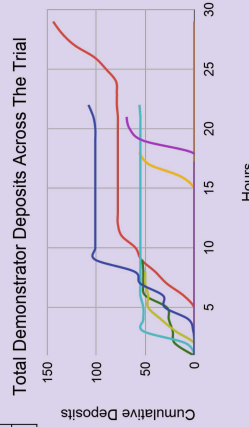


Figure 5: Cumulative deposits for each of the demonstrator pairs

### Correlations between Female and Male Behaviours

Behaviour of interest	R Value	R-Squared
Female Duration with tied down / Male duration with Tied down	0.23	0.05
Female Duration with demonstrator material / Male deposits per hour	-0.75	0.56
Female Duration with tied down / Male deposits per hour	-0.09	0.01

Figure 6: Correlation values between: Female duration, Male duration and Male rate

### Correlation between Female interaction and Male deposits

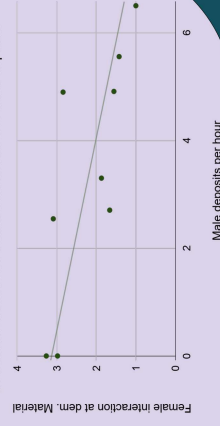


Figure 7: A line graph of Female interaction with demonstrator material and the Male's deposit rate

## Conclusions/Discussion

- Demonstrators built at different rates
- There are also large differences in how much or even if demonstrator pairs interacted with available material
- There is a strong negative correlation between the female duration with demonstrator material and the male's deposit rate; which could open future research questions
- We were blind to the results of the other phases so we do not fully know the implications of what we scored for this project

## References

1. Laland, K. N. (2004) Social Learning Strategies. *Animal Learning & Behavior*, 32(1) 4-14
2. Bailey IE, Morgan KV, Bertin M, Meddle SL, Healy SD. 2014 Physical cognition: birds learn the structural efficacy of nest material. *Proc. R. Soc. B* 281: 20133225.
3. Friard, O., & Gamba, M. (2016). BORIS: a free, versatile open-source event-logging software for video/audio coding and live observations. *Methods in Ecology and Evolution*, 7(11), 1325-1330

## Acknowledgements

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