TRAINING PROCEDURE OF VOCAL MIMICRY BIRD, COMMON MYNA (*ACRIDOTHERES TRISTIS*) BY LOCAL TRAINERS IN KELANTAN, MALAYSIA

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ABSTRACT

Acridotheres tristis, or common myna or Indian myna is a bird species that can mimic human words and sounds around them. Local trainers used to teach the common myna in the State of Kelantan to mimic the words taught using several training procedures. This study aims to determine whether the training procedures used by local trainers have helped in the training process, and the factors that affect the mimicry process for this species are also highlighted. Interview sessions were conducted in nine districts in the State of Kelantan to collect data from local trainers from November 2021 until May 2022. This study utilised the Kruskal-Wallis test to analyse the significant difference in training time among different training procedures and different types of food and water for common myna. The results indicated that the training procedures used by local trainers have affected the training time of this species ($p \leq 0.05$). The mean value of training time for other scrape techniques is the lowest, which is considered the best training method in training common myna to mimic the words. The second highest mean value is none scraping methods, followed by scraping tongue using Lalang, which has the highest mean value. In addition, the types of food and water given to common myna by the local trainers during the training procedure did not show a significant difference in training time.

Keywords: Mimic, *Acridotheres tristis*, common myna, training procedure, local trainer.

INTRODUCTION

Some bird species have a special ability to speak and mimic sounds around them or even human words. This ability will emerge if they have a great bonding time with humans to listen and repeat certain phrases. Due to their remarkable capacity to mimic human voices, they are very popular as pets (Feare and Craig, 1998). Mimicry birds have always received attention as it is considered an aesthetic value. In animal behavioural studies, it is also one of the methods of interaction because it describes the evolution that occurs in an animal, and the development of vocal imitation is linked to the evolution of vocal learning, as it involves the ability to learn sounds. Tracking the evolution of vocal imitation may reveal why songbirds' song-learning processes vary (Goller and Shizuka, 2018). The limited sounds produced by those birds are rare, as they are only demonstrated by human speech. Mimicking or imitating sound is not just a simple act of opening and closing the mouth. A complex system was required for this behaviour to happen, and all parts of this system must be synchronised in perfect working order. The parts of a bird that make sounds are very similar to those in human beings, except for the beak.

Birds make sounds with their articulators: their lungs, bronchi, syrinx, airway, larynx, mouth, and beak. Sound is generated by the passage of air pressure through an organ known as the syrinx during the expiration process. It is located at the junction of the two primary bronchi and the trachea (Singh *et al*., 2018). The vibration of medial tympaniform (MTM) helps the production of sounds. Medial labia (ML) and lateral labia (LL) are part of the structure that can act like vocal folds in humans (Fagerlund, 2004). Birds with a talent to mimic sounds have all these requirements and demonstrate their ability in extraordinary ways. A few bird species, like parrots, hummingbirds, and parakeets, could mimic human words (Kalhagen, 2020). According to Thorpe (1959), a well-trained parrot or Budgerigar (*Melopsittacus undulatus*) can mimic human voices, as can best mimics among the Sturnidae (*Sturnus*, Starlings, *Eulabes*, and Mynah).

Common myna would communicate vocally between their species and other birds. This species has alarm calls that signal their species and other birds of upcoming danger. Common myna usually produces high-pitched sounds when they are facing threats. In addition, a study conducted on *Acridotheres tristis* that live on the same island shows that this species will make different sounds. Still, subpopulations that are closer together will sound more alike than those that are farther apart. *Acridotheres tristis* is more likely to pick up on the songs of the birds nearby, so groups that live close together should have more similar calls. However, in some places, alarm calls are similar because it would be better for more people to respond to a possible threat (Chao, 2018). When feeding, the parents would give a signal to their nestlings, so the broads started to beg for food. This species produces loud dawn and dusk chorus sounds with other avian species (Kannan and James, 2001).

Common myna, or its scientific name *Acridotheres tristis* (Linnaeus, 1766), is one of the bird species that could imitate human words. It has many common names like Indian myna, House myna, and Talking myna. This species is considered one of the worst invasive species worldwide because of its ability to outcompete many native cavity-nesting species as well as being an agricultural pest (BirdLife International, 2004; Grarock *et al*., 2013; Grarock *et al*., 2014; Lowe *et al*., 2000; Peacock *et al*., 2007; Tidemann, 2001). The natural range distribution of common myna is as far as India, south-eastern Asia, and eastern Iran (Rabia *et al*., 2015). The common myna is also considered an invasive species in Vietnam, Malaysia, Thailand, and Singapore (Yap and Sodhi, 2004). Common mynas are known as captive birds for their ability to sing and speak (Thai National Parks, 2023). Common mynas would create a "communal noise" sound before sleeping. The calls include croaks, squawks, chirps, clicks, whistles, and 'growls,' and the bird often fluffs its feathers and bobs its head in singing (Thai National Parks, 2023). Locally, oratory mimicry is well-known among bird trainers and bird lovers.

Meanwhile, the training procedure of an animal could be defined as teaching the animal to respond to specific stimuli. The purpose of training animals is for protection, entertainment, companionship, and detection. The training methods used by the trainers are different based on their goals. This research aims to identify the training procedures the local trainers use to train common myna to mimic human words. In this research, the training process of common myna will be distinguished; the types of vocals used by trainers to train this species will also be included. Since common myna is popular with this special talent, this species has high demand from people who want to own one as a pet. It is important to know the training techniques used by the local trainers to train this species to understand better how the behaviour of common myna could adapt to the skills taught by humans.

MATERIALS AND METHOD

Study Area: The study was conducted in Kelantan, covering most of Kelantan's state, including Tumpat, Kota Bharu, Pasir Mas, Bachok, Tanah Merah, Pasir Puteh, Machang, Jeli, and Kuala Krai (Figure 1). The survey was conducted to collect data related to the training procedures, types of vocals, types of food, types of water, and training periods among the local trainers in Kelantan used to train common myna. This study has focused on the local bird sellers and the local trainers in Kelantan, and it was done from November 2021 until May 2022. The selected respondents were interviewed based on their experiences in training the common myna to mimic human words. There were 15 trainers identified within 9 Kelantan districts.

Data Analysis: The data of this study were analysed using the Statistical Package for the Social Sciences (SPSS) software to analyse the effectiveness of training procedures and types of food and water used by local trainers in Kelantan using the Kruskal-Wallis test. This test refers to the method commonly used to compare three or more independent samples of ordinal (ranked) data. It is also helpful for researchers who are unable to compute and interpret a standard one-way between groups ANOVAs because of normality assumption violations (Ostertagová and Ostertag, 2013). The Kruskal-Wallis test determines whether there are statistically significant differences between two or more groups of independent variables on a continuous or ordinal dependent variable. This study required a non-parametric test and used K-independent samples because of the small data set.
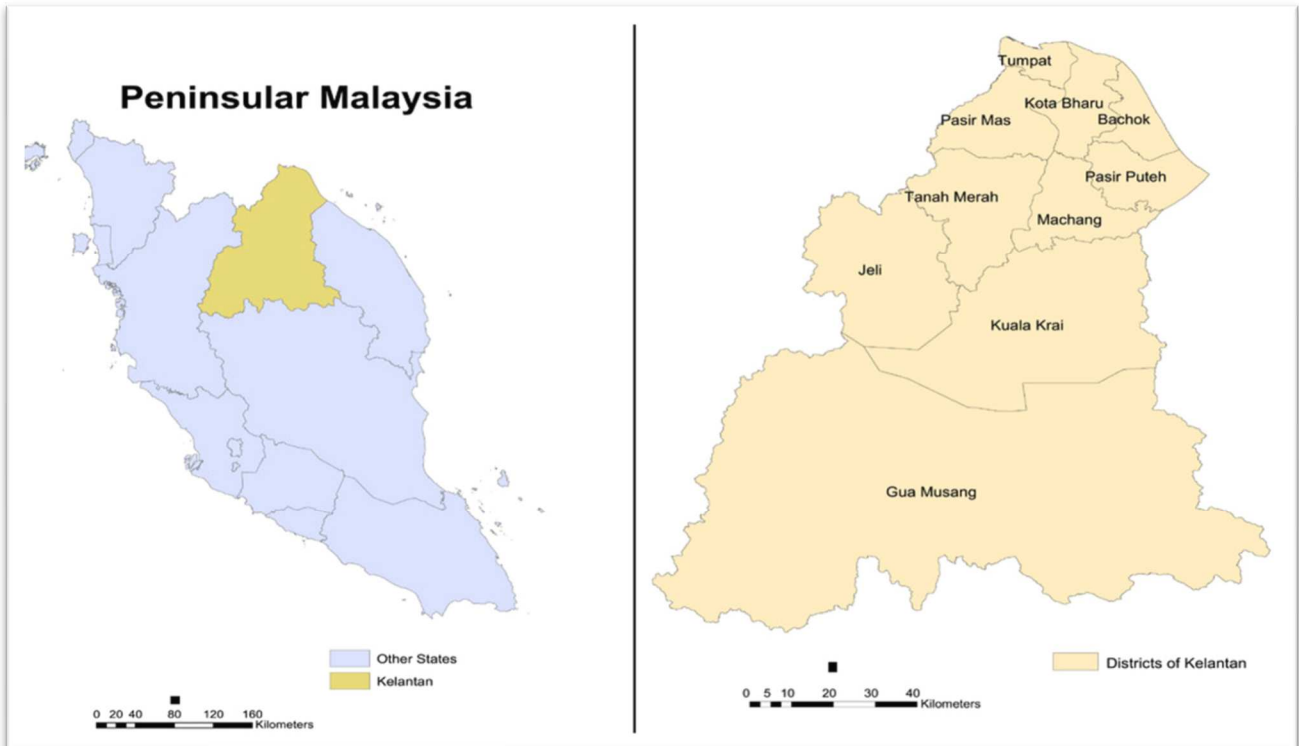
Figure 1: Location of the study area.

RESULT AND DISCUSSION

Trainer Preferences in Training Common Myna:
From the surveys, most trainers prefer to train males over females since 45.5% or 10 of 22 are male birds. The infant cannot be identified because it is too young to determine the sex (Table 1). According to the trainers, males have the potential to mimic human words more easily than females. Moreover, males sing more frequently than females (Kannan and James, 2001). As a result, the male common myna is preferred by local trainers. In addition, training common myna until it can imitate human words requires the trainers to teach this species from infancy. Table 1 shows the number of infants, which is the highest compared to other age groups. Training the common myna from four to eight weeks old is easy. According to Archawaranon (2005), birds can learn and mimic fluently and make the lesson possible as early as six months.

The training procedures used by the local trainers to train this species until it is able to mimic human words are shown in Table 2. Most trainers believed that training common myna without using any scraping technique is the most effective since this species could naturally imitate human words. About 40% of the trainers interviewed did not use any scraping technique. Yet, the bird still managed to say the words. Furthermore, about 33% of trainers have used the technique of scraping the common myna's tongue using Lalang (*Imperata cylindrica*) (Figure 2) to enhance the mimicry process of the birds and 27% of trainers using the same method, but using the different utensils such as bamboo leaves, knife, and squid bone. The trainers also believed that these procedures would help train the common myna more easily. Besides, a trainer from Kota Bharu (Pantai Sabak) has recommended another training procedure: cutting the tongue tip using a sharp knife, which is believed to be the most effective way to train common myna to imitate human words. Usually, the training procedure will be done before the mimicry process begins and is done in the morning once a week.

Time and Process of Training: Regarding the training process of common myna, 7% of local trainers have spent 20 minutes (maximum) every day to train this species, 47% have spent 15 minutes (average), and 46% have spent 10 minutes (minimum) each day. The trainer's lessons are better received early morning and late afternoon, before sunset (Butterfield, 1998). According to Diquelou *et al.* (2018), the common myna is seen more often in the early morning and late afternoon, indicating when the birds are in active mode. Regular training sessions are needed instead of long ones, which may drain the bird and reduce its attention span. Common mynas naturally imitate the sounds they are most often exposed to. Unique words are much more encouraging for this species to imitate. Therefore, a trainer should

spend more time and teach words with interesting sounds to attract their attention so that they will imitate those words. Word repetition is important in the training process because common mynas will recognise words they repeatedly hear from their owners. According to Butterfield (1998), whistle training should be avoided when working with common mynas because it encourages them to whistle instead of talking. A few researchers have also looked into the audio training approach. According to Chang and Sinnott (2022), using audio sound is also practised to apply Mel Frequency Cepstral Coefficients (MFCC) in combination with a range of machine learning models to train various birds, including myna species.

Table 1. Local trainers in nine Kelantan districts and the number of common myna by sex and age group.

District	Local Trainer	Num. Common myna	Adult Male	Juvenile Male	Juvenile Female	Infant
Jeli	Lakota	1	1			
	Batu Melintang	1				1
	Gunung Reng	1				1
	Kuala Balah	1				1
Kota Bharu	Pantai Sabak	2				2
	Panji	3		1	1	1
Tanah Merah	Bukit Gading-1	1		1		
	Bukit Gading-2	2				2
Tumpat	Kampung Jambu	2				2
Bachok	Pantai Irama	1		1		
Pasir Puteh	Jalan Istana	1		1		
Kuala Krai	Kampung Tanjung Batu	2		1	1	
	Cabang Bukit Sireh	1		1		
Machang	Kampung Padang Mala Kemuning	1		1		
Pasir Mas	Tendong	2		2		
	Total	**22**	**1**	**9**	**2**	**10**

Table 2. The local trainers used a training procedure to train common myna.

Local Trainer	Scrape Tongue using Lalang	None	Others Scrape Technique
Lakota			1[1]
Batu Melintang		1	
Gunung Reng		1	
Kuala Balah		1	
Pantai Sabak	1		
Panji		1	
Bukit Gading-1			1[1]
Bukit Gading-2			1[2]
Kampung Jambu	1		
Pantai Irama	1		
Jalan Istana		1	
Cabang Bukit Sireh			1[3]
Kampung Tanjung Batu	1		
Kampung Padang Mala Kemuning	1		
Tendong		1	
Total	**5**	**6**	**4**

Note:
[1] Scrape tongue using a knife.
[2] Scrape tongue using bamboo leaves.
[3] Scrape tongue using squid bone.

Figure 2: The author's illustration shows how the trainer uses the technique of scraping the common myna's tongue using Lalang (*Imperata cylindrica*) to enhance the mimicry process of the birds.

The Vocal Type Used to Train Common Myna: The word 'Assalamualaikum' (Peace be upon you) has the highest number of trainers as all the local trainers used to train the species. The second highest is 'wak gapo' (What are you doing?), with nine trainers using this word to train the common myna to mimic human words. Meanwhile, the word 'Waalaikumussalam' (May peace be upon you) and 'sapo tu?' (Who are you) have the same frequency of local trainer usage, which is three individuals respectively. The other words trained by the local trainers to the common myna depend on the trainer himself, such as nickname 'Kakchik', 'Angah', 'Kakak', and other words, for instance, 'Alhamdulillah' and 'Beli Gapo?' (What do you want to buy?). Through these surveys, some local trainers (Kota Bharu-Pantai Sabak, Tumpat-Kampung Jambu) stated that their common myna could imitate other animals' sounds, such as chickens and birds that stay around their captivity. In addition, a common myna from the trainer (Tumpat-Kampung Jambu) could also mimic the cat sound. Although the owner did not train the common myna to do the mimicry, the bird could imitate indirectly through the sounds and voices in its environment. When common myna is taught to perform speech mimicking, it tends to retain the words and would be able to repeat them when prompted by its owner. According to Chao (2018), *Acridotheres tristis* has the ability to learn various accents and dialects due to its large range of vocalisation. Common myna also has an incredible ability to repeat the sounds they can hear, just like parrots do; there are many extraordinary sounds different populations of this species can create (Baker and Jenkins, 1987; Baptista and Trail, 1992). Table 3 shows the types of words trained by local trainers during the training process.

Table 3. Types of words trained by the local trainers to train common myna.

District	Local Trainer	Types of Word				
		Assalamualaikum	Waalaikumussalam	Sapo tu?	Wak gapo?	Others
Jeli	Lakota	1		1		
	Batu Melintang	1			1	1
	Gunung Reng	1	1		1	
	Kuala Balah	1	1		1	1
Kota Bahru	Pantai Sabak	1	1	1		
	Panji	1			1	
Tanah Merah	Bukit Gading-1	1		1	1	1
	Bukit Gading-2	1				1
Tumpat	Kampung Jambu	1			1	
Bachok	Pantai Irama	1			1	1
Pasir Puteh	Jalan Istana	1			1	1
Kuala Krai	Kampung Tanjung Batu	1				
	Cabang Bukit Sireh	1			1	
Machang	Kampung Padang Mala Kemuning	1				1
Pasir Mas	Tendong	1				1
Number of Local Trainers		**15**	**3**	**3**	**9**	**8**

Types of Foods and Water in Training Sessions of Common Myna: The trainers also suggested that types of foods and water play an important role in enhancing the mimicry process of the species. About 8 trainers have used chicken pellets, 1 trainer has used pineapples, and the other 6 trainers have used other food. A trainer (Jeli-Lakota) stated that pineapple could help in the mimicry process of common myna when the fruit was given after scraping the bird's tongue using a sharp knife. The technique would make the bird's tongue become itchy and scrape its tongue at the wood provided in the cage. However, other trainers used chicken pellets as their main diet because this food has the potential to help the common myna imitate human words easily. This survey also found that some trainers used rewards and praise throughout the training process. Grasshoppers, bananas, apples and papayas were examples of treats used by the trainers (Kota Bharu-Pantai Sabak, Tanah Merah-Bukit Gading 2) to reward their common myna if it is able to say a word. Meanwhile, a trainer (Jeli-Lakota) stated that plain tea would be helpful for a common myna during the training process because it would make the bird's tongue itchy, just like the pineapples mentioned before. These methods are also being used by the other trainer (Tanah Merah-Bukit Gading 2), who has served plain coffee to the common myna as drinks because plain coffee is said to be effective in encouraging the species to mimic human words. During the interview session, some local trainers believed that chicken pellets, pineapples, plain tea and plain coffee could help the common myna in the mimicry process as these alternatives would make the tongue become itchy, and the bird will scrape their tongue at a wooden stick provided in the cage until it sharp. The other food refers to trainers that used fruits and grasshoppers to reward common myna if they managed to say a word and did not use those foods as it could make the bird's tongue itchy. The types of food and water used by the trainers for the common myna training process are shown in Table 4 and Table 5, respectively.

Effects of Training Procedures, Types of Food and Types of Water on Training Period of Common Myna: A Kruskal-Wallis test was conducted to determine the significance of training time among training procedures, types of food and types of water for common myna. Table 6 shows that there is a statistically significant difference in training period between the different training procedures with the value of $\chi_2^2 = 5.982, \rho \leq 0.05$. However, different types of food and water do not significantly affect the training period of common myna since the p-value > 0.05. From this study, training procedures in the common myna mimicry process might have influenced the ability of this species to imitate human words. However, without using any scraping methods, it shows that the common myna is still able to mimic those words. In addition, the food and water did not show influence in the training process and might not be the factor in helping common myna imitate human speech. However, because there was not a single word instructed by the trainer during the training period, it is impossible to determine the precise, effective training strategy for common myna due to the limited data set that was obtained.

Table 4. Types of foods provided by local trainers to common myna.

District	Local Trainer	Types of Food		
		Chicken Pellet	Pineapples	Others
Jeli	Lakota		1	
	Batu Melintang	1		
	Gunung Reng	1		
	Kuala Balah			1
Kota Bahru	Pantai Sabak			1
	Panji	1		
Tanah Merah	Bukit Gading-1	1		
	Bukit Gading-2			1
Tumpat	Kampung Jambu	1		
Bachok	Pantai Irama			1
Pasir Puteh	Jalan Istana			1
Kuala Krai	Kampung Tanjung Batu	1		
	Cabang Bukit Sireh	1		
Machang	Kampung Padang Mala Kemuning			1
Pasir Mas	Tendong	1		
Number of Local Trainers		**8**	**1**	**6**

Table 5. Types of water provided by local trainers to common myna.

District	Local Trainer	Types of Water		
		Plain Water	Plain tea	Plain coffee
Jeli	Lakota		1	
	Batu Melintang	1		
	Gunung Reng	1		
	Kuala Balah	1		
Kota Bahru	Pantai Sabak	1		
	Panji	1		
Tanah Merah	Bukit Gading-1	1		
	Bukit Gading-2			1
Tumpat	Kampung Jambu	1		
Bachok	Pantai Irama	1		
Pasir Puteh	Jalan Istana	1		
Kuala Krai	Kampung Tanjung Batu	1		
	Cabang Bukit Sireh	1		
Machang	Kampung Padang Mala Kemuning	1		
Pasir Mas	Tendong	1		
Number of Local Trainers		**13**	**1**	**1**

Table 6. Summary of Kruskal-Wallis test.

Variable	Kruskal-Wallis H	df	Asymp. Sig.
Training procedures	5.982	2	0.050
Types of food	3.145	2	0.208
Types of water	3.349	2	0.187

Training Procedure	N	Mean Rank
Scrape tongue using Lalang	5	9.90
None	6	9.42
Other Scrape Technique	4	3.50

Types of Food	N	Mean Rank
Chicken pellet	8	7.94
Pineapple	1	1.00
Others	6	9.25

Types of Water	N	Mean Rank
Plain Water	13	8.73
Plain Coffee	1	5.50
Plain Tea	1	1.00

Conclusion: The Kruskal-Wallis test shows that there is a significant difference in training time among different training procedures for the common myna. However, due to the small data set collected, the effective training method of common myna cannot be clearly identified because the training period did not represent a single word trained by the trainer. Meanwhile, there is no significant value between the training period and the types of food and water. However, common myna has its own ability to imitate human words. There is a significant difference in the mean among the training procedures in terms of training period. Based on the mean value, other scrape technique has the lowest mean in training time, which is considered the best training method for training the common myna to mimic the words. The second highest mean value is none scraping methods, followed by scraping tongue using Lalang, which has the highest mean value. This means that the other scraping method is considered the best method in training common myna. However, types of food and water do not affect the training process of common myna because both show no significant difference in the training period. The training technique used by the local trainers in Kelantan is considered the enhancement of the mimicry process. It was because a few local trainers disagreed with the training techniques used by the species, as the common myna is still able to mimic the words trained by them without using any training techniques. The most important thing to do when training a common myna to imitate human phrases is continuous training sessions, dedication, and patience. On the other hand, the repetition of words played a major role in this training procedure of this mimicry bird (Goller, 2020). The findings from this study will benefit future studies in surveying key sampling areas and serve as a foundation and reference for extensive studies related to the capabilities and oratory behaviours of common mynas. Therefore, for the next studies, the data size should be increased to get more significant results for this research.

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