Evaluating the Intraspecific Relationship and Reciprocal Reaction Within Group Learning Shark Behavior Patterns

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Sharks are perceived as instinctual organisms absent of social intraspecific learning. The purpose of this study is to establish the social learning cascade of sharks through a model organism Mustelus canis (MudShark). This study was dependent on two necessary consecutive goals; establishing a fixed and measurable behavior and determining if subsequent introduced sharks will support social learning. The fixed behavior was target training of the initial shark. This primary goal was essential because the termination of the study would have resulted without a trained shark. The initial shark was trained using a static target allowing for the measurement of the time required for target acquisition and attack angle. Once target training was completed, the introduction of subsequent individuals was used to determine if the social learning cascade was recognized. Social learning data was the time for static target interaction and attack angle for recognition of feeding patterns. Over 16 trials, the initial shark was successfully trained with a 78.33% increased learning rate. Using a Pearson correlation, the initial shark's reaction times when correlated with trials, produced an R2 value of 0.34 (p=0.018), indicating statistically significant low positive correlation. Over 14 trials, the introduced shark interacted with the target 10.71% of the time with a varying frequency of interaction per trial. This demonstrated that as trials progressed, the social learning rate increased. This data can be applied as a foundation for future research such as multi-generation migration patterns and social learning interaction in future studies/research.

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