Let $N_r = \{x_1, \ldots, x_{n_r}\}$ be the set of dogs belonging to kinds *out*side the player's expertise and which are presented to him or her during round r. Let p_i be defined as follows:

$$p_i = \begin{cases} 1, & \text{if player sent a message about } x_i \\ 0, & \text{otherwise} \end{cases}$$

We define the novice's index (NI) in the following way:

$$\text{NI} = \sum_{r \in \text{Rounds}} \left[\frac{\sum_{i=1}^{n_r} x_i * p_i}{n_r} \right]$$

Let $M_r = \{y_1, \ldots, y_{k_r}\}$ be the set of messages about dogs belonging to kinds *in*side the player's expertise during round r. Let c_i be defined as follows:

$$c_i = \begin{cases} 1, & \text{if player correctly answered message } y_i \\ 0, & \text{otherwise} \end{cases}$$

We define the expert's index (EI) in the following way:

$$\text{EI} = \sum_{r \in \text{Rounds}} \left[\frac{\sum_{i=1}^{n_r} y_i * c_i}{k_r} \right]$$