

The Role of Structured Companionship and Indirect Correction in Puppy Emotional Regulation and Resilience

Background

Early developmental experiences play a pivotal role in shaping a puppy's long-term behavior and emotional health. Traditional dog training methods have often prioritized obedience (teaching commands like “sit” or “stay”) while overlooking the pup's emotional state and social learning needs. In many conventional approaches, a puppy's misbehavior is addressed either with punitive measures (which can instill fear or anxiety) or with permissive laissez-faire attitudes (which may fail to set boundaries). Neither extreme fosters optimal emotional regulation. Recognizing these shortcomings, the *Just Behaving* mentorship-based philosophy emerged to emphasize the *emotional* and *social* development of puppies alongside basic training. This approach posits that raising a well-adjusted dog requires more than rote training; it requires emotional mentorship, calm leadership, and an environment that prevents cycles of hyper-arousal. By proactively cultivating traits like calmness, confidence, and trust from an early age, we can nurture puppies who are better equipped to handle stress and novel situations. The present report investigates two core components of the Just Behaving approach – structured companionship and indirect correction – and how they contribute to improved emotional regulation and behavioral resilience in puppies.

Theoretical Framework

Structured Companionship: Calm Engagement vs. Chaos

Structured companionship emphasizes calm, guided interactions – such as quietly reading with a puppy nearby – instead of chaotic play sessions.

A central tenet of Just Behaving is that a fulfilled dog is a *calm* dog, not one constantly wound-up or overstimulated. Structured companionship refers to a style of human-canine interaction that prioritizes calm, guided engagement over frantic or unstructured play. Rather than encouraging puppies to be in a perpetual state of high excitement, owners deliberately shape activities to keep arousal at manageable levels. For example, instead of riling up a puppy with intense roughhousing or endless fetch until the pup is panting and frenetic, a Just Behaving mentor might opt for a leisurely sniff walk or quiet time together. In practice, this could mean taking a slow walk where the puppy is encouraged to explore scents at its own pace, or having the puppy relax at one's feet with a long-lasting chew while the owner reads or works. Play is not absent, but it is *measured* and interspersed with pauses for recovery; if the puppy becomes too excited, the game stops momentarily until the pup settles, teaching the young dog how to come down from excitement quickly and smoothly. Through such patterns of engagement, the pup learns that calm behavior leads to rewarding companionship (attention, affection,

inclusion), whereas wild, overexcited behavior causes the human to disengage. This structured approach to companionship thus “flips the script” of a typical household where often *hyper* behavior draws a response and calm behavior is ignored. Philosophically, the goal is to make serenity the puppy’s default state – to prevent excessive arousal before it starts – rather than trying to quell a frenzy after it has erupted. By raising puppies in a calm atmosphere with gentle exposure to everyday stimuli (no blaring TVs or chaotic environments) and plenty of scheduled quiet time, we set an emotional baseline of security and relaxation. Over time, this structured companionship is expected to enhance the puppy’s self-regulation: the dog becomes comfortable with calmness, develops patience, and is less prone to stress-induced outbursts. In essence, the human acts as a steady emotional anchor – a calm mentor – and the puppy, being an “emotional sponge,” begins to mirror that stable energy. This aspect of the framework aligns with the idea that dogs thrive when they know what to expect; a predictable, gently structured social environment provides safety and reduces anxiety.

Indirect Correction: Gentle Guidance vs. Force

In any upbringing, even a calm one, puppies will inevitably test boundaries and make mistakes. How caregivers respond to these missteps is crucial for the pup’s emotional development. The Just Behaving methodology advocates indirect correction – a gentle, low-key form of discipline that teaches right from wrong without instilling fear. Indirect corrections are *non-confrontational, subtle, and instructive, rather than harsh or intimidating*. The goal is to guide the puppy back on track quietly, without “breaking its trust or causing fear”. This approach can be viewed as a balanced middle ground, mirroring how a well-socialized adult dog would discipline a youngster: with clear signals, but no brutality. For instance, instead of yelling or using physical punishment when a puppy behaves inappropriately, a Just Behaving mentor might use gentle interrupters and natural consequences. A simple timeout from attention is one effective example: if a puppy nips too hard during play or jumps up uncontrollably, the human may calmly say “Ouch, too bad,” then briefly withdraw attention by standing up and turning away for a short interval. This mild social timeout mimics how puppies learn from peers – playmates yelp and disengage momentarily when play gets too rough, teaching the pup that overzealous behavior makes fun stop. Another indirect technique is a gentle verbal marker like “uh-uh” or “oops” said in a neutral, calm tone to interrupt unwanted behavior. Crucially, this is immediately followed by showing the puppy an acceptable alternative behavior (for example, if the pup started chewing a shoe, the “uh-uh” is followed by offering a chew toy) so that the correction is also a redirection. The tone remains calm and matter-of-fact, conveying information rather than anger.

Indirect correction also encompasses modeled canine discipline – in other words, using methods analogous to how adult dogs correct puppies. A classic example is mild body

blocking or spatial pressure: if a puppy is rushing toward an off-limits area, the handler simply steps in the way, blocking the path with their body. No one is yelled at or manhandled; the pup just finds its forward motion gently thwarted and gets the message “not this way right now”. Dogs naturally use this technique with each other – a confident adult might stand in a puppy’s way to prevent misbehavior – so the puppy easily interprets the handler’s body block without alarm. Similarly, if a puppy is about to jump on a guest, an indirect approach would be to hold the leash such that the pup simply cannot reach the person (preventing the jump entirely) rather than allowing it and then punishing. Once the pup’s front paws return to the floor, the leash pressure is relaxed and calm praise is given for the appropriate behavior, reinforcing the good outcome. In more tactile cases, a light physical interruption can be employed – for example, a brief, gentle two-finger touch to the pup’s side (mimicking a mother dog’s corrective nip without any pain) – just enough to startle the puppy out of the unwanted action momentarily. This is akin to a “tap on the shoulder” that says, “pay attention,” followed immediately by guidance toward the right behavior. Because these corrections are so mild and timely, the puppy does not associate the human with intimidation or anger. Instead, the pup experiences a clear but *emotionally neutral* consequence to its action, and then normal interaction resumes without grudges. From the puppy’s perspective, getting gently interrupted or briefly ignored is a far cry from something truly scary; thus its emotional security remains intact even as it learns boundaries. The philosophy explicitly avoids instilling the thought “my beloved owner becomes scary or hurts me if I make a mistake,” and replaces it with “if I do that, it just doesn’t work or isn’t any fun, so I’ll try something else”. By using such indirect methods consistently, the handler teaches the puppy cause and effect *without* fear. Over time, this builds a pup’s frustration tolerance and impulse control – the puppy learns it cannot always get what it wants immediately, yet nothing terrible happens when it’s thwarted, and calm behavior earns rewards. Notably, Just Behaving frames correction not as punishment but as guidance: the puppy is treated as a learning partner. This fosters confidence and trust in the handler, as the dog is never “shut down” by severe punishment. Indeed, a core principle is that the dog should follow the owner’s lead out of habit and trust, not out of fear or out of a dependence on constant treats. In summary, structured companionship and indirect correction together create a learning environment where puppies feel secure and guided. The human provides consistent, calm leadership – acting like a benevolent parent figure – which in turn makes the puppy more resilient. The young dog doesn’t have to worry about chaotic surprises or harsh reprimands; it learns to navigate the world with an emotional safety net. We expect that puppies raised under these conditions will demonstrate strong emotional regulation: they can experience excitement or stress and recover quickly, they focus on their handler even amid distractions, and they inhibit inappropriate behaviors because they have internalized gentle rules and self-calming strategies.

Methodology

To investigate the impact of these principles, we propose a comparative, longitudinal study of puppy development under different early-life rearing conditions. The study will follow several groups of puppies from birth (or from the point of program entry) through adolescence, systematically observing their behavior and emotional responses over time:

- **Group 1: Just Behaving From Birth** – Puppies whelped and raised in a mentorship-based program from day one. These puppies experience the full Just Behaving approach: a calm, structured nursery environment, ample exposure to adult canine role models, and handlers consistently employing structured companionship and indirect corrections. For instance, from the neonatal period onward, caretakers reinforce calm behaviors (quietly holding puppies during feeding, gentle handling) and as the pups grow, they are introduced to mild boundaries set by their mother or a stable adult dog (under supervision) and by humans using gentle interrupters. This group represents the *ideal-case implementation* of the Just Behaving principles.
- **Group 2: Transitioned into Just Behaving** – Puppies initially raised in a more typical or generalized manner, then integrated into the Just Behaving program at a later age (e.g. at 8–12 weeks old or at the time of adoption by new owners). Prior to joining, these pups might come from conventional home environments or standard breeding settings without the structured mentorship emphasis (no specific extreme – just the kinds of mixed techniques and play that average pet puppies receive). Upon entering the program, their new handlers begin applying structured companionship routines (instilling calm engagement, adjusting play style) and indirect correction techniques in place of whatever methods were previously used. This group simulates a common real-world scenario: a puppy or young juvenile whose owners switch to the Just Behaving philosophy after some time. It allows us to examine how quickly and effectively the benefits of mentorship-based strategies can be conferred to a dog that did *not* have that foundation from birth.
- **Group 3: General Upbringing Control** – A comparison group of puppies raised in a standard manner without any specific specialized training philosophy. These may include puppies who attend a basic puppy class or whose owners use widely available training advice (reward-based training for obedience and ad-hoc corrections like saying “no” or occasional time-outs, but without the structured emphasis on calm mentorship). This group provides a baseline for typical behavioral development, reflecting “business-as-usual” puppy rearing. Importantly, we are not labeling this group with terms like “permissive” or

“aversive” – it simply encompasses the broad spectrum of common approaches in pet dog households (where some training and socialization occur, but not the comprehensive Just Behaving regimen).

All groups will be composed of puppies of similar breed/background to control for breed-specific temperament differences. For example, the study could focus on a single breed (such as Golden Retrievers, given the program’s context) or include multiple breeds with stratified sampling to ensure each group has similar breed representation. Littermates could be split between groups when ethical and feasible, to control for genetics (e.g., some puppies from a litter stay with the Just Behaving breeder vs. some go to conventional homes, etc.). Each group will have a sufficient sample size (e.g., $n \approx 8\text{--}10$ puppies per group, balancing practical limitations with statistical power) and equal gender distribution.

The study would employ a longitudinal design: key behavioral assessments will be conducted at several developmental milestones (for instance, at 8 weeks old (baseline for all pups), 4 months, 8 months, and 1 year). By tracking individuals over time, we can observe not only end-point differences between groups but also the trajectories of their behavioral development. This design helps determine whether Just Behaving puppies show early advantages and how stable those are, and whether late-start puppies catch up after joining the program. All testing will be done in environments familiar to the puppies (or neutral test areas) to reduce extraneous stress, and experimenters can be blinded to the puppy’s group when feasible to reduce bias in observations.

To maintain fidelity to the Just Behaving method in the treatment groups, caretakers/owners of Group 1 and Group 2 will receive training and guidance from the program’s developers. Adherence to the techniques (structured play routines, calm mentorship behaviors, use of indirect corrections instead of aversive tactics) will be monitored throughout the study, ensuring the “dose” of the intervention is consistent. Group 3 owners will continue their normal practices without special instructions (but we will document what those entail via surveys, to characterize the control condition). This comparative setup lets us evaluate the *added value* of the structured mentorship model against a variety of typical rearing styles, without singling out or stigmatizing any particular one.

Ethically, all puppies (including controls) will be treated humanely and receive basic care, socialization, and positive interactions. If any puppy in the control group develops severe behavioral issues, owners will not be prevented from seeking help; however, such cases would be noted and possibly analyzed separately. The scientific aim is to see trends, not to allow harm, so welfare remains a priority.

Metrics

We will measure a range of behavioral and physiological outcomes to capture the puppies' emotional regulation and resilience. Key **behavioral indicators** include:

- **Stress Resilience:** The puppy's ability to handle and recover from mild stressors or surprises. This can be measured with controlled novel stimuli (for example, an umbrella opening, a sudden strange noise, or encountering an unfamiliar object). We will record the puppy's immediate reaction (startle, avoidance, curiosity) and the recovery time (how quickly normal behavior resumes). A resilient puppy might startle briefly but then approach the new object with healthy curiosity or return to relaxed behavior within seconds, whereas a less resilient one might show prolonged fear or agitation. We expect Group 1 (and eventually Group 2 after joining Just Behaving) to have shorter recovery times and more exploratory (rather than fearful) responses, indicative of a *secure base*. Additionally, stress resilience will be quantified via a startle-recovery test and scoring of the pup's body language during mildly challenging scenarios (e.g. walking on an unfamiliar surface).
- **Confidence:** The puppy's confidence will be assessed by observing its willingness to explore new environments and to engage with novel social or physical challenges. Metrics might include performance in a novel arena test (how much area the puppy explores in a new room within a set time), approach to a novel object or an unfamiliar person, and responses to social novelty (e.g. entering a playgroup with unfamiliar puppies). Confident pups typically explore more and recover from initial caution faster. We anticipate that puppies with structured companionship backgrounds, having had gentle exposure to various stimuli and supportive mentorship, will score higher on confidence measures (more tail-up exploration, less avoidance).
- **Handler Focus:** This refers to how attentive and responsive the puppy is toward its human handler, especially in distracting environments. We will evaluate this with tests like a focused attention task (calling the puppy or giving a simple command while the puppy is engaged with a distraction, and measuring latency to respond or reorient to the handler). We may also use a standard puppy obedience test adapted for focus (e.g., see how often the puppy "checks in" visually with the handler during a brief free-play session, or its ability to maintain a sit-stay with mild distractions present). A high handler focus indicates a strong social bond and trust – the puppy sees the human as a secure reference point. Because Group 1 puppies are raised with consistent mentorship (essentially learning from humans as they would from a parent or leader figure), we expect them to show excellent attention and recall even amid distractions. Group 3 (general upbringing) puppies might be more prone to environmental distraction, having not had the same intensive reinforcement of handler engagement.

- Frustration Tolerance:** This metric assesses how the puppy copes with not getting what it wants immediately – an aspect of impulse control. We can test this via a delayed gratification task (for example, show the puppy a treat or toy under a transparent cover and measure how it reacts when it cannot access it for a short period, or ask the puppy to wait before eating a treat). Another measure is observing behavior when play or an exciting activity is momentarily paused: does the puppy remain relatively calm, or does it escalate into barking, whining, or destructive behavior? Puppies from a calm, structured environment have repeatedly practiced de-arousal (e.g. play pause and settle as per the structured companionship model), so they should handle frustration better – perhaps sitting or showing “waiting” behaviors because they expect guidance, whereas less mentored puppies might throw tantrums or lose focus when frustrated. We will score behaviors such as whining, pawing, or loss of composure during these tests to compare tolerance levels.
- Aggression Inhibition:** Although overt aggression is rare in young puppies, we are interested in proxies for aggression control, such as bite inhibition and the absence of inappropriate biting or resource guarding. We will use structured play sessions to evaluate bite pressure (with humans and with a canine playmate if available). For instance, during play with a human tester, if the puppy bites hands or clothing, we note whether it responds to a yelp or “uh-uh” by inhibiting its bite. We’ll also observe how the puppy behaves around food or toys when another dog or person is nearby – an absence of growling or guarding indicates good inhibition of aggressive tendencies. Puppies who have been corrected indirectly by adult dogs or humans (via gentle yelps, timeouts) should have learned naturally that hard bites end play, leading to softer mouthing. Similarly, a puppy raised around calm adults may mirror that controlled behavior, whereas a puppy without consistent feedback might exhibit harder biting or possessiveness. All occurrences of aggressive signals (growls, snarls, excessive nipping) will be tallied. We predict Group 1 (and well-integrated Group 2) will show strong bite inhibition and minimal guarding, reflecting the “well-mannered” outcomes of the mentorship approach.
- Overall Emotional Regulation Capacity:** This is a more holistic assessment of the puppy’s ability to manage its emotional states (excitement, fear, frustration) and return to equilibrium. It can be operationalized through composite scores or ratings by observers on standardized scales. For example, testers might use a behavior checklist or questionnaire (such as a puppy behavior inventory or an adapted version of the Canine Behavioral Assessment tools) to rate each puppy on traits like calmness, nervousness, recovery from stress, and adaptability. Additionally, scenarios that intentionally excite the puppy (a brief vigorous play or

when greeting an exciting stimulus) can be followed by a measurement of how quickly the puppy settles with the help of the handler. A puppy with high emotional regulation might get excited but can sit or lie down within moments when the handler signals downtime, whereas a dysregulated puppy might remain revved up or have trouble calming even with intervention. We will quantify this, for instance, by measuring the time to switch from play to a relaxed down position on cue. Given that Just Behaving's program explicitly trains puppies to have *on-off switches* (build up excitement then calm down), we expect those pups to excel in this measure.

In addition to these behavioral metrics, we will include physiological markers of stress and resilience to provide objective support for our observations. Two primary measures are proposed:

- **Salivary Cortisol:** Cortisol is a hormone associated with stress, and salivary samples provide a non-invasive way to gauge a puppy's stress response. We plan to collect saliva (using cotton swabs or similar) from the puppies at baseline (in a calm state) and after mild stress challenges (for instance, after the startle test or after a play session) to see how their cortisol levels change. Lower post-challenge cortisol or a quicker return to baseline in Group 1 would indicate a blunted or more regulated stress response, aligning with better resilience. We will also monitor cortisol in Group 2 before and after they transition into the mentorship program – a decrease over time could suggest improved stress coping due to the new training environment. While individual variability will be high, group trends can be informative. Notably, we will schedule sample collection carefully to avoid confounding factors (like time of day effects on cortisol) and ensure puppies are comfortable with the sampling procedure (training them to chew on a swab as a game, so it's not aversive).
- **Heart Rate Variability (HRV):** HRV, the variation in time between heartbeats, is a proxy for autonomic nervous system balance and emotional regulation capacity. Higher HRV at rest generally corresponds to better stress tolerance and calm engagement (it reflects strong parasympathetic – “rest and digest” – influence), whereas low HRV is seen in chronic stress or high arousal states [sciencedaily.com](https://www.sciencedaily.com). We can use wearable canine heart rate monitors to track HRV in various conditions. For example, during a calm social interaction (like petting with the owner) versus during a mildly stressful event, or before and after a training session. We expect Just Behaving puppies, who are conditioned to relax and feel secure, to show relatively higher resting HRV and a quicker recovery of HRV after excitement. In practical terms, one might strap a small sensor vest on the puppy for a short period and later analyze the data for HRV indices. If feasible, syncing HRV readings with specific test events (like a thunder sound

playback) can show momentary drops and recoveries. This data, combined with cortisol, provides a physiological picture to complement behavioral assessments.

By integrating multiple metrics, our evaluation will be robust. We will employ both quantitative measures (e.g., seconds to recover, frequency counts of behaviors, hormone concentrations) and qualitative assessments (expert ratings, behavioral questionnaires). The use of standardized testing scenarios and objective criteria (like what constitutes a “recovered” behavior or a “focused” response) will ensure that our outcomes are well-defined and replicable. Moreover, many of these measures are grounded in established practices in canine behavioral research and veterinary behavior – for instance, it’s well-known that early positive socialization builds confidence and can prevent later problems veterinaryirelandjournal.com. We are essentially evaluating whether the structured companionship and indirect correction elements accelerate and enhance those positive developmental outcomes relative to more ad-hoc upbringing.

Data Collection Strategies

To systematically capture the above metrics, the study will utilize a combination of structured assessments, continuous tracking tools, and observational coding methods:

- **Scheduled Behavioral Assessments:** At each key age milestone (8wks, 4mo, 8mo, 1yr as planned), puppies will undergo a battery of tests in a controlled setting. We will design a standardized assessment protocol lasting perhaps 30–45 minutes per puppy, including tasks for each behavioral metric (e.g., a startle test for resilience, a novel object test for confidence, a short obedience/focus test, etc., as described in Metrics). Each test will have a clear scoring guideline. For instance, the startle test might be scored on a 0–5 scale for recovery (0 = no startle or immediate recovery, 5 = prolonged fear or inability to return to baseline after several minutes). These assessments will be videotaped for accuracy and for later coding.
- **Longitudinal Behavior Tracking:** Between these formal assessment sessions, owners and trainers will log observations on the puppies’ day-to-day behavior using tools such as *Just Behaving’s Longitudinal Behavior Tracker*. This tracker is essentially a diary or software application where key events and behaviors are recorded over time, creating a longitudinal profile for each puppy. For example, it may prompt the owner weekly to rate the puppy’s general calmness, note any incidents of biting or extreme excitement, and record any new experiences the puppy had (and how it coped). By compiling this data, we can see trends (e.g., a steady decrease in mouthing behavior in Group 1, or improvements in Group 2 after joining the program). The tracker ensures that we capture improvements or issues that emerge outside of the laboratory tests, providing ecological validity. It also helps ensure that handlers in Group 1 and 2 are consistently applying the

methodology – any deviations or challenges can be noted and addressed, which is important for treatment fidelity.

- **Observational Coding of Social Interactions:** Given that structured companionship and indirect correction are interactive by nature, a key part of data collection will involve observing the mentor-puppy interactions themselves. Trained observers (blind to hypotheses and group identity when possible) will code videos of the puppies in both training sessions and free-play sessions. We will use an ethogram (a defined catalogue of behaviors) focusing on things like: puppy's state (calm, mildly excited, overly aroused), types of correction used by the handler (if any, e.g., verbal interrupter, body block), puppy's response to corrections (does it heed the signal and self-correct, does it remain unfazed, or does it become fearful?), and general engagement (is the puppy attentively near the human or constantly wandering, etc.). For example, a video of a play session might be coded for "number of play pauses initiated by handler," "puppy calming latency after pause," "instances of jumping/mouthing," and "any signs of stress (yawning, lip licking)". These fine-grained observations will allow us to correlate the *quality* of mentorship interactions with outcomes: e.g., perhaps puppies who received more frequent short play-breaks have higher measured frustration tolerance later. We will make use of **inter-rater reliability** checks – multiple observers will code a subset of videos to ensure our coding scheme is reliable and objective.
- **Standardized Behavior Checklists and Surveys:** At various points, owners (particularly of Group 3, who are outside the program) may fill out surveys about their puppy's behavior at home. Tools like the Canine Behavioral Assessment and Research Questionnaire (CBARQ) or other validated questionnaires can be repurposed to quantify things like fearfulness, excitability, trainability, etc., from the owner's perspective. Since Just Behaving also has specific focus areas (calmness, focus, etc.), we might include custom questions aligned to those (for instance: "When startled by a loud noise, my puppy recovers quickly" on a Likert scale). These subjective reports complement the objective tests and may capture nuances (owners might notice subtle improvements that a one-time test might miss). The **Just Behaving Longitudinal Behavior Tracker** itself can be structured as a series of these questions answered regularly, effectively creating a continuous survey.
- **Physiological Data Collection:** For cortisol sampling, research staff will visit the puppies or have owners collect saliva at designated times. All samples will be frozen and later analyzed in batch to determine cortisol levels. We will maintain a strict protocol (like collect baseline sample in morning after an hour of rest, then one 20 minutes after a mild stress test) to ensure consistency. For heart rate and

HRV, if using wearable monitors, the puppies will be gently acclimated to wearing them (through positive reinforcement) so that the data reflects normal heart activity rather than a reaction to the device. Data from the monitors will be downloaded and analyzed using standard HRV analysis software to extract metrics like the high-frequency power (indicative of parasympathetic activity). These physiological measures will be handled by team members with expertise in veterinary physiology to ensure accurate interpretation.

- **Data Management and Analysis:** All data from behavioral tests, trackers, and physiological measures will be compiled in a database. Given the longitudinal and multi-faceted nature of the data, we will use statistical techniques suited for repeated measures, such as mixed-effects models (with puppy ID as a random effect, group as a fixed effect, etc.) to analyze changes over time and differences between groups. We will also look at correlations between variables (e.g., does higher handler focus correlate with lower cortisol?).

Throughout the data collection, blinding and standardization are emphasized. For example, the person conducting the behavioral tests with the puppy will not be the puppy's regular trainer, to ensure the puppy's responses are to the test itself and not cued by a familiar person (except where the test involves the handler on purpose). Similarly, those analyzing videos or hormone samples will not know which group the sample came from. All testing apparatus and procedures will be identical for all groups (any adaptations for group 3, like allowing a short acclimation if they're not used to handling, will be standardized).

Finally, the study will use iterative data review to ensure welfare: an independent ethics monitor (possibly a DACVB veterinarian or animal welfare specialist) will periodically review videos and stress data. If any puppy shows undue signs of distress, adjustments will be made (such as skipping a particular test or providing extra support to that puppy). However, given the gentle nature of the mentorship approach, we expect overall stress to be low – indeed, we hypothesize that Group 1 puppies may sail through tests with wagging tails due to their secure upbringing.

Collaborative Potential

This investigation is inherently interdisciplinary and offers numerous opportunities for collaboration across fields. By aligning the project with the Just Behaving mentorship methodology, we invite input from veterinary behaviorists, dog trainers, ethologists, and even developmental psychologists for a well-rounded perspective. Here we highlight how different experts and stakeholders can contribute and benefit:

- **DACVB Residents and Veterinary Behavior Experts:** Veterinary behaviorists (including residents in training) bring expertise in animal behavior modification

and welfare science. They can help refine the stress measures and ensure the protocols are humane and clinically relevant. For instance, a DACVB resident might collaborate on analyzing the cortisol and HRV data, linking physiological findings to clinical signs of anxiety or resilience. They also can assist in interpreting whether differences seen are practically significant for improving pet quality of life. This research is a rich training ground for residents, exposing them to rigorous scientific methods and a novel philosophy of training, thereby broadening their toolkit beyond the typical clinical approaches. The accessible language and clear structure of this report are intended to make it easy for such clinicians to engage with the findings and consider adopting mentorship-based principles in their behavior modification plans.

- **Canine Behavior Researchers (Ethologists/Psychologists):** Researchers studying animal behavior and learning will find the comparative aspect of this study compelling. It tests a real-world application of concepts like social learning, attachment theory (human as secure base), and self-regulation in a non-laboratory setting. Collaboration with academic researchers can help in designing robust behavioral tests and lending theoretical frameworks (e.g., linking our findings to theories of attachment or socio-emotional development in animals). They might also help publish the outcomes in scientific journals, thereby validating the Just Behaving approach within the wider scientific community. Additionally, interdisciplinary discussions could explore parallels between this mentorship model and, say, early childhood education models – opening avenues for cross-species comparative research on mentorship as a pedagogy.
- **Professional Dog Trainers and Behavior Consultants:** On a practical level, this study can involve experienced dog trainers who implement the protocols for Group 1 and 2 puppies. Their hands-on skills ensure that the Just Behaving methods are applied consistently. In turn, these professionals gain empirical evidence about the effectiveness of techniques they may intuitively value. By documenting outcomes, trainers can refine best practices (for example, identifying which indirect correction technique was most impactful on impulse control). The collaboration also helps translate academic findings back into training protocols for wider use. The structured assessments and tracking tools could be turned into resources (like a standardized “puppy behavior checklist” or the longitudinal tracker app) that trainers everywhere could use to monitor progress in their own clients’ dogs. We foresee workshops or joint publications (white papers, seminars) where researchers and trainers present the results together, demonstrating the power of merging science with practical know-how.
- **Breeders and Puppy Rearing Programs:** Breeders who are interested in raising well-adjusted puppies may collaborate by providing litters for the study

(for Group 1, for example) or by allowing some of their puppies to be raised under the experimental conditions. They stand to gain valuable insight into how early environment impacts their puppies' futures. A successful demonstration that mentorship-based rearing produces puppies with exceptional resilience and temperament could encourage breeders to adopt these methods broadly. The *Collaborative Potential* here is that breeders, who traditionally might not engage deeply with behavior research, become partners in data collection (keeping records on early neurodevelopment, noting maternal behaviors, etc., which could even enrich the analysis). In exchange, breeders get evidence-based techniques to market healthier, happier puppies – a win for reputation and animal welfare.

- **Interdisciplinary Scholars (Anthrozoology, Animal Welfare Science):** This project touches on human-canine emotional interaction, a topic of interest in anthrozoology (the study of human-animal relationships). Collaboration with scholars in this field can provide a richer analysis of the *relationship* outcomes – for instance, measuring owner satisfaction, the strength of the human-animal bond, and the bidirectional emotional regulation (there is evidence that calm dogs can help owners remain calm and vice versa [neurosciencenews.com](https://www.neurosciencenews.com)). Including these perspectives might lead us to incorporate measures of owner stress or expectations, making the study truly holistic. Animal welfare scientists could help ensure the study design not only avoids harm but actively promotes positive welfare (e.g., by using Positive Welfare Indicators such as contentment behaviors, or by evaluating the puppies' affective states).
- **Data Science and Behavior Analytics Collaboration:** Given the involvement of a longitudinal tracker and possibly large amounts of video data, partnering with data analysts or computer scientists could yield interesting innovations. For example, machine learning could assist in analyzing video footage for certain behaviors automatically, or in detecting patterns in the tracker data that human eyes might miss (like subtle shifts in daily routine that predict improvements in behavior). While not required to answer our primary questions, these collaborations can enhance the efficiency and depth of analysis, and also push the development of new tools for canine behavior monitoring.

In conclusion, this academic-style inquiry is more than a single study – it's a nexus for collaborative progress in understanding and improving puppy development. By rigorously examining how structured companionship and indirect correction contribute to a puppy's emotional balance, we adhere closely to the Just Behaving philosophy while subjecting it to scientific scrutiny. The findings will have broad applicability, translating the mentorship model into evidence-based recommendations for anyone raising a puppy. Ultimately, the goal is to cultivate dogs that are resilient, confident, and emotionally regulated, *and* to do so through humane, empathetic methods that

strengthen the human-canine bond. We anticipate that this research will demonstrate quantifiable benefits to the Just Behaving approach – potentially reshaping how both scientists and practitioners think about puppy training. Such results would underscore that calm leadership and gentle guidance are not just philosophically satisfying, but measurably effective in raising the family dog we've always wanted: one that can navigate our complex world with poise, trust, and joy.