A BEHAVIORAL ANALYSIS OF ANXIETY

OBM, NETWORKING, & COFFEE

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We are now into our second issue of Behavior Analysis Quarterly, and the reception has been more than we could have hoped for. We had a soft launch without much advertising on our part, as we were expecting some issues with hosting and accessing the magazine. To our surprise, the launch went off without a hitch, and we managed to attract over 2,000 unique readers! Not too bad for the first round...

This issue keeps with our theme of providing a diverse range of topics that should be of interest to all manner of behavior analyst. BAQ’s goal is to provide entertaining, though-provoking, and timely work that challenges our perception of what it means to be a behavior analyst. In that spirit, I am so pleased to continue our coverage of organizational behavior management, work with developmentally delayed and impaired learners, clinical behavior analysis, and the underlying philosophical, theoretical, and conceptual core that binds all factions together.

But there is so much more BAQ needs to cover, and we cannot do this without your support. I will use my remaining space here to call out submissions.

**EDUCATORS**

Consider using the Digest portion of BAQ as a class assignment. Students get experience summarizing journal articles and can get their feet wet with the publication process.

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Your hard work, unique views, and expertise need a platform to reach all behavior analyst. BAQ is a great opportunity to have a conversation with your fellow behavior analysts, and I’m happy to discuss any ideas you might have.

**STUDENTS**

Your term papers, thesis lit reviews, and other projects can find a happy home here at BAQ. The more unique your area of interest is, the more likely it is we will want it!
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Market Pressures and Addressing a Need

From her first job working for a non-profit technology transfer consulting firm in the engineering building at West Virginia University, to her most recent company, ChangePartner Healthcare (CP-H), Julie Smith has proven her ability to build successful business ventures based on behavior analysis. As CP-H’s CEO and co-founder, she has been working hard over the last year to establish CP-H as primarily a technology company that will create and customize mobile- and web-apps to assist healthcare providers in many areas of practice to improve clinical outcomes and create better patient experiences.

Smith has a knack for detecting market needs and developing products and services to address those needs. And her company couldn’t be developing at a better time. The healthcare field is undergoing rapid transition. The Accountable Care Act in the US, and national-level healthcare plans in other countries, are altering the contingencies under which hospitals and other health care providers operate. The largest of these changes involves tying a provider’s reimbursement to patient outcomes instead of to the traditional fee-for-services model. This means that providers will be paid for patients getting better, not for the number of services they provide to the patient. This shift is intended to incentivize effective care and avoid excessive treatment options, which are costly to patients and payers.

The new system being created is a tectonic shift for healthcare providers and they are struggling to make this change. This is where CPH comes in. According to the CPH website, their science-based, data-driven Behavior-Based Healthcare Delivery Excellence™ System reliably creates a culture where healthcare providers are eager to use standardized approaches to measurably improve patient outcomes, deliver an excellent patient experience, and improve financial performance for providers. CP-H’s System will help providers scientifically determine best practices and then scale their application so outcomes can be improved—and ultimately maximize reimbursements.

A Day as the CEO

CP-H is still in a start-up stage, so Smith’s days consist of a variety of tasks. She does everything from big picture work, like creating the company’s business strategy, mission, and values, to more hands on work such as talent management and customer relationship building. “These initial stages are so important for creating the culture of the organization. I am being more deliberate than I’ve been in the past about establishing the values, and making sure our team members support those values,” says Smith. In addition, much of her day is spent developing how to differentiate CP-H from other technology and consulting companies. She works on the business strategy, determining which services and offerings to provide to clients, and what the business model will be (i.e., how the company will make money and stay profitable). It is important to think about the big picture and brainstorm, but then to balance those big dreams with day-to-day reality. The combination of both dreams and
reality are then rolled out in phases that will, hopefully, be successful in the market.

Exploring and Making New Friends

Smith sees the value of adding Behavior Analysis (BA) to areas that have not traditionally used its techniques. “It’s very rewarding to apply behavior analysis in a target market that has never, ever dreamt it would be helpful, and then bring success and relief to your customers.” She pays homage to the application of BA in the area of autism, and likens the potential BA has in healthcare to the successes seen when applying BA in autism. “You had autism treatments that didn’t work, or weren’t very effective until BA came along, I think it will be that way in what we are trying to accomplish with healthcare providers.”

In many cases, markets are hungry for the skills a behavior analyst can bring to the table. “I was trained in Experimental Analysis of Behavior (EAB), so I was surprised thirty years ago when clients loved everything that we did to apply behavior analytic approaches in business, even the stuff that I considered ‘sloppy’ at the time, given that I was trained to deal with precision!”

Being immersed in the science during undergraduate and graduate training can sometimes limit your effectiveness outside of academia. Smith had to learn how to remain true to the science while translating it into models and terms that clients could understand and embrace. “It’s been an ongoing struggle and education for me, where my professional behaviors have been shaped by real-world clients who tend to be very practical and straightforward about what level of understanding they want and need about the science.”

“You had autism treatments that didn’t work ... until BA came along. I think it will be that way in what we are trying to accomplish with healthcare providers.”

Smith points out that another very significant aspect of her job that is often missing in graduate education is instruction and practice on how to establish yourself as a reinforcer. “You really need to become part of the culture if you are going to be effective as a behavior change agent. If you want to effect change, you can’t just study the reinforcement system, you need to become part of it early on to help shape new behaviors, and then phase yourself out as more of the ongoing reinforcement systems take over.”

Of course, working with non-behavior analysts is not always easy. Sometimes a client’s employees can become adversarial. There might be employees trained in traditional organizational development or change management that see BA as a collection of techniques, not as an overarching framework. “They may have already tried to change behavior using BA or similar approaches, failed and given up. They think, ‘This doesn’t work, we already tried that,’ by the time we enter the picture. They think of BA as a tool, instead of a comprehensive framework for problem-solving behavior-based performance issues and taking action.”

In cases like these, CP-H, “…embraces them with love. There are things that they are doing that are behavioral, you just need time to talk about their approaches and find common ground. It is important to work with these professionals rather than fight them. Use their successes and build on those. Show them how BA can enhance what they are doing and lead to even more success for them and their organizations.”

The Need for Marketing

The packaging that is used to deliver the content is also very important. Sciences like chemistry and biology don’t have the same problems as behavior analysis does when communicating principles to the public. With the behavior sciences, everyone is an armchair psychologist and has formulated ideas about why people do what they do. Everyone observes behavior and theorize about causes or reasons. This makes the packaging of BA important. “You have to differentiate yourself, but in a way that is understandable. And in a clever way that challenges conventional wisdom, to get people to see things differently.”
Smith’s vision of using behavior analysis to improve things is not just for CP-H and healthcare. It is also a vision for moving all of behavior analysis forward. “There are many behavior analysts in unique positions, like those studying traumatic brain injury or helping to address rampant problems of obesity. There are even behavior analysts consulting at the global level focused on sustainability.” She also points out a little known fact that a behavior analyst was at the heart of creating Apple’s user interface in the early days. “It is important that all of these people are quietly working behind the scenes to make programs more effective, but we need to feed them the right stuff to help them embed the BA approach more formally and broadly in their spheres of influence. Our work is powerful, but we are way behind from a marketing and packaging perspective. That is what we [CP-H] are doing right now; working on packaging it in a way that is easily accepted while still remaining true to the science—and helping people learn more about the underlying science so they can generalize and replicate.”

Looking to the Future: “Be Bold”

Student interns and expert behavior analysts will be instrumental in helping CP-H and its clients establish baseline checklists, associated training products, and performance feedback systems for healthcare providers. Smith also foresees a need for consulting support for clients during the initial installation of the Behavior-Based Healthcare Delivery Excellence System™ in their organizations. “We hope to create significant employment opportunities for BAs as our company grows.”

Smith has encouraging words for people interested in pursuing a similar career. “Be really bold and push yourself beyond your comfort zone. Trust that you and your team can do it. If you use the science as your guide, it will carry you through every time. Big problems can be solved if you and the clients whom you support adopt a workable solution to human behavior. You will make a lot of mistakes, I did. But if you embrace the science and actively care about the people you are working with, that combination will carry you through all of the mistakes until you find what works.”

For more information about Change Partner Healthcare, visit: www.changepartnerinhealthcare.com/

For more information about OB M Network, visit www.ombnetwork.com
Positive Policing: A New Trend in Law Enforcement

Police departments have seen better days. Few would argue that the incidents in Ferguson Missouri and Baltimore, Maryland have influenced the public perception of law enforcement for the worse (Buchanan et al., November 25, 2014; Hermann & Cox, April 28, 2015). In Police Chief Magazine, Russell Laine, the president of the International Association of Chiefs of Police (IACP), noted “this perception is extremely damaging to our crime reduction efforts. Without community support, law enforcement agencies cannot succeed” (Laine, 2009). The IACP has been actively engaged in improving the public perception of law enforcement for a quarter century, by publishing a variety of reports such as A Symbol of Fairness and Neutrality: Policing Diverse Communities in the 21st Century (International Association of Chiefs of Police (IACP), and Protecting Civil Rights: A Leadership Guide for State, Local, and Tribal Law Enforcement, International Association of Chiefs of Police (September, 2006) among many others.

Concurrently, when we shift our focus from broad policy issues to particular police departments, a new movement is taking shape: positive policing, or providing incentives for lawful behavior. Below, we will discuss three examples of positive policing. Note that in nearly every case, the overarching goal of the programs is to develop and maintain rapport between law enforcement agencies and the communities they serve.

We will start with a police department in Farmington, New Hampshire. The chief of police, Jay Drury, came up with an idea to incentivize lawful behavior after watching a man trudge through the heavy snow to use the crosswalk, rather than simply jaywalking. NBC News quoted him as saying, “that gentleman deserves a medal for battling the snow” (Smith, March 11, 2015). Though he couldn’t give out medals, he partnered with a local restaurant and Credit Union to start a program in which officers provide gift certificates for free pizza and french fries when they see lawful behavior, such as properly using crosswalks and turn signals.

Members of the Farmington PD

Even though Farmington is a small town of a few thousand, it has it’s fair share of violent crime, burglaries, and arson. Given the traditional focus on criminal activity, officers only see a very small percentage of the population, but do so frequently. The overarching goal of the program is to build a better relationship with the community by interacting with a larger cross-section of the population in a positive way (Smith, March 11, 2015).

Moving across the country, to Ferndale, CA, the local police department has partnered with local businesses “to reward children for safe behavior and cultivate a positive relationship between police and youth in Ferndale” according to C&G News (Gordon, April 23, 2015). The program specifically focuses on helmet wearing by children on skateboards and bicycles. When an officer catches kids in the act, they give the child a coupon for a 7-Eleven drink or McDonald’s french fries.

Sgt. Baron Brown noted in the C&G article that the community doesn’t really have a problem with injuries due to kids not wearing helmets, though it is a good practice to promote. Apart from safety, the program has a much larger goal of shifting kids’ perception of law enforcement. Sgt. Brown remembers friendly interactions with police when he was a kid, but today he thinks kids fearful of police, and wants to change that. Having officers put forth the extra effort to catch kids doing good could go a long way towards that end.

Finally, turning north to Edmore, Michigan, the local police have developed the Youth of Edmore Shine (YES) program in partnership with Burger King and McDonald’s to reward positive behavior in the community (Miller, August 19, 2013). Luke Sawyer, the Chief of Police in Edmore, told The Daily News that the program’s aim is “to promote a sense of pride in the community and will be on the lookout for anyone younger than 18 who is making a positive contribution” which includes picking up litter, wearing helmets, opening doors for people, and saying...
Incidence and prevalence are familiar measures to law enforcement agencies. Practically speaking, such group-level data are aligned with the goals of agencies whose mission relates to the well-being of communities. A challenge is presented with the problem of identifying suspected reinforcement processes at the level of individual community members. If the before-mentioned programs function to reinforce the beneficial behavior they are targeting, then one might expect to see an increase in the incidence and prevalence of those behaviors over time.

In actuality, however, it isn’t that simple. The problem is that incidence and prevalence do not track the behavior of particular individuals over time, which is the most unambiguous measure of reinforcement to date. Thus, the incidence of kids’ helmet wearing could increase or decrease simply as a function of more kids coming into or leaving the community, and not due to reinforcing functions of the rewards themselves. Moreover, if the rewards do function as reinforcers for a percentage of the kids, but not others, the incidence of helmet wearing could decrease if the effect is masked by decreased rates of helmet use by the other kids.

Prevalence is another matter. Because reinforcement operates at the level of particular individuals, reinforcement could very well increase rates of helmet use while never affecting prevalence. However, if kids do find the program reinforcing, word of the program would likely spread and more kids would likely participate (cf. Skinner’s 1981 cultural selection). Moreover, prevalence can increase as a function of police officers getting the word out and catching more citizens engaged in positive behaviors.

In conclusion, the increasing trend in incentive programs offered by law enforcement agencies is exciting. If agencies wish to conclusively determine if their reward systems are actually reinforcing the behaviors they target, they will have to find ways to track the behavior of particular individuals over time, perhaps through a voluntary self-reporting process with a random sample of the population. Realistically, however, this might not be a top priority for agencies, in terms of time, money, or manpower.

Though the ability to conclusively determine if positive reinforcement is operating in these programs might not be practical, it is clear that a goal of these programs is to encourage positive behaviors in the community. If agencies can show an increase in the incidence and prevalence of these behaviors that correlate with their incentive systems, then that might be all that is necessary to convince stakeholders of their value.
Children and Prosocial Behavior

From the early days of behavior analysis, researchers and theorists have held the science of behavior can and should contribute to the betterment of the human experience. They believed this so strongly it is a prominent part of our code of ethics. One meaningful way to help improve our world is to develop and maintain prosocial behaviors. Prosocial behaviors include displaying signs of affection for others, showing concern for others’ distress, attempts to comfort, sharing, taking turns, cooperative play, and helping others. Non-examples of prosocial behavior would include violent behaviors, bullying, coercion, criminal behaviors, and valuing individualism over the collective good. Some behavior analysts might be quick to dismiss these behaviors as unobservable because they may involve covert behavior (verbal or otherwise), however, objective exemplar and non-exemplar definitions are possible.

While he did not use the word “prosocial,” B. F. Skinner discussed behaviors we would describe as “prosocial” at length in several publications, including the landmark fictional story of Walden Two. More recently, behavior scientists have advocated for the research into and teaching of prosocial behaviors, including teaching prosocial behaviors to toddlers (e.g., Zanolli, Paden, & Cox, 1997), analyses of prosocial cultures in schools (e.g., Erickson, Mattaini, & McGuire, 2003), and analyses of prosocial behaviors across cultures (e.g., Trommsdorff, Friedleiner, & Mayer, 2007). When it comes to individuals furthering this objective, we can, of course, engage in prosocial behaviors ourselves; we can also work to ensure the next generation is a prosocial one. To find an example of someone “living” this last method, I talked to Behavior Analyst and mom Alicia MacAleese.

MacAleese is a PhD, BCBA-D, LBA-NV and Co-founder/Managing Member of an ABA service provider based in Reno, NV. MacAleese and her husband, Kenneth, also a PhD, BCBA-D, LBA-NV, have two children; Kennedy is six years old and Camden is four. When I asked her to describe her children, MacAleese included “helping” in the lists of things both children like to do. Just days into the new school year, Camden’s preschool teacher commented that she wished she had a whole room of students like him because of how helpful he was. He even brings home certificates for his helpful acts, which go on the refrigerator, of course. But helping is not the only prosocial behavior in which the children often engage.

“When I had Camden, Kennedy had just turned two, and I believe this was when she first started showing inklings of prosocial behavior,” MacAleese recalled. “For example, if he was crying, she would quietly talk to him or sing to him or show him her favorite toys.”

The consequences to these initial prosocial behaviors were what you would expect: Kennedy received praise from her parents and her little brother would often stop fussing, “not always but frequently,” as MacAleese put it. MacAleese speculates Kennedy was imitating what she had seen her parents do to comfort the baby.

“As she became older, the prosocial behaviors became more complex, less imitative,” MacAleese said as she described the progression of Kennedy’s kind acts.

“She started kindergarten this year... and she came home one day a few months in and tells me that during recess she was playing with one of her friends and another little girl came up to them with a ‘red face and eyes’ and quietly asks if she can play with them. Kennedy tells me that she told the little girl, ‘Sure, you’ll have fun with us.’” Based on what Kennedy said next,
Based on what Kennedy said next, MacAleese believes verbal behavior played a role in how she interacted with the other girl, “She thought the little girl had been crying because other kids wouldn’t let her play with them, and she wanted the girl to feel happy.” In fact, verbal behavior plays an increasing role in how the children interact with others, according to MacAleese.

“As they get older the prosocial behaviors become more complex due to their verbal behavior becoming more complex. I think the language gives them more insight into how others are feeling, more empathy and sympathy. They can tact what they are doing and then see it [in] others, thus allowing them relate to the other person.”

When I asked what maintains these prosocial behaviors, MacAleese admitted it is difficult to identify. Camden’s helping behaviors and Kennedy’s initial, soothing behaviors were most likely reinforced by social attention in the form of praise.

“The more complex prosocial behaviors, like the example with Kennedy, are harder to identify,” MacAleese says. “Possibly [it’s] the interaction that occurs from the other person and the activities they are engaging in together.”

By 1) modeling prosocial behaviors for her children, 2) reinforcing the children’s imitative prosocial behaviors, 3) publicly displaying recognition of their prosocial behaviors, and 4) allowing maintenance of prosocial behaviors to transfer to the naturally occurring reinforcers, Alicia MacAleese are living it!

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Those working with autistic children see a wide range of behavior patterns. Many of these are classified as excesses and deficits and are considered ‘abnormal,’ which then necessitates intervention. We behavior analysts recognize that there is really nothing incorrect about the child’s behavior, but rather that the child is behaving the only way he or she knows how.

Take, for example, the child who screams constantly at life’s slightest offenses. Whether it be in response to a distaste for what was served for lunch or the television being on the wrong channel, the behavior persists. We know, of course, that this behavior persists because it works for that child. The parent cooks something else for lunch and quickly finds the right channel, all to eliminate the crying. This is the realm of operant behavior, and these behaviors are shaped and maintained by the consequences that follow.

There is another category of behavior-environment relations that is also capable of producing rather odd, some would say “abnormal” behavior: respondent learning. Unlike operant learning, respondent learning takes place without consideration to the consequence of our behavior. Thus, respondent learning is concerned with stimulus-response relations.

Consider the wide range of stimuli of which people can be afraid. A student once discussed her fear of broccoli, which she reported stemmed from a choking incident as a child. Broccoli by itself is not something to be feared; but for this individual, broccoli signaled that bad things would happen. Of course, were she to eat broccoli again she would not likely choke. As the likelihood of choking again on broccoli is low, we might call this fear irrational. In terms of learning, though, the fear is perfectly rational. If we replace broccoli with a large marble, and given a similar choking experience as a child, we could call the fear rational as choking on a large marble is more likely today. But the process of learning doesn’t care what the stimulus was. It is enough that some particular stimulus preceded some event. We humans add the “rational” or “irrational” later.

Respondent learning is, generally, advantageous. While each instance of learning might not be, the general process is. Of course, there are other relations that are developed in respondent learning beside fear. One other relation, the one we are concerned with here, is called sign- and goal-tracking.

**Sign- and Goal-Tracking**

Goal-tracking takes place when an organism attends to some environmental stimulus directly correlated with reinforcement. A rat hangs out near the food hopper, a dog stays close to its food dish, and a young child waits by the door just before mom comes home from work.

Sign-tracking, however, is seen when the organism attends to some stimulus that is correlated with the availability of reinforcement. The rat might spend time near a house light that turns on when food reinforcement is available, or spends time on a lever—even an inoperative one—while waiting for food. The dog might allocate time to stimuli correlated with a food dish being filled. For example, if the dog is fed when its human companions eat dinner, the dog might hang near the dinner table. Finally, the child might opt to look at a clock rather than wait by the door, even if it means missing mom’s entrance through
the door. Sometimes sign-tracking can be such an interference that the organism will miss opportunities to contact reinforcement!

Unlike operant conditioning where a response is required to produce an outcome, we learn these cues independent of what we do. Not only do we learn because of what happens to us, but our learning is also dependent upon the stimuli in the environment when the learning occurs. The object is always paired with the cue whether the organism does anything or not.

Hearst and Jenkins first coined the term “sign-tracking” in 1974 after reviewing studies that demonstrated this seemingly anomalous behavior that happened independent of consequences (as cited in Domjan, 2015). They summarized that pairing a stimulus such as a light, with the delivery of food independent of what the animal does results in the animal approaching the light instead of the food. (as cited in Domjan, 2015). When Hearst and Jenkins paired a key light with the delivery of food, instead of approaching the food when the key light was turned on, the pigeons pecked at the key light.

Sign-tracking is the type of response we sometimes see when repeated pairings of a cue, or signal, indicate the availability of a desirable item. The organism then learns the association between a cue and an object in the environment so well that it responds to the cue, even if that response jeopardizes their ability to obtain the item.

As an example, if you’ve ever used a token board as a part of a reinforcement schedule for a child, tokens can be a conditioned reinforcer, or a total distraction. Instead of the child attending to their work and trying to earn tokens quickly, the child is constantly attending to the token board. The quality of the work does not seem to change or improve, and on the one hand you suspect that the child may not know what the tokens are for. But on the other hand, the child seems very interested in the board and its tokens and likes them, and will spend time looking at them, but this prolongs time working or jeopardizes success with earning the tokens. Sound familiar?

This is not an inability to learn what the tokens are for. It is that the behavior is very much under the control of the tokens, regardless of the consequences. The tokens have been paired with the reinforcer, but responding to tasks has not.

The respondent/operant distinction in learning is frequently misunderstood to be a distinction between autonomic and directed movement. Respondent learning, the pairing of a stimulus and an event or item, can have significant control over behavior beyond salivation and eye blinks. Moreover, procedures such as biofeedback use operant conditioning to increase or decrease autonomic responses.

We are teaching all the time, which countless articles and training programs emphasize in an operant sense in that consequences determine our behaviors. However, the study of sign-tracking reveals that some situations may warrant an analysis of cues in the environment, the antecedents, as well.

Why Vocal isn’t always Verbal, and not all Verbal is Vocal

I work with many students across the world who are working in various companies offering in-home and center-based treatments for individuals with developmental disabilities. Some of these companies are large, well-known, and are powerhouses in the field of developmental disabilities. Other companies are new, small, and are working to make amazing change in their respective communities. Regardless of the company’s size, location, age, or history of producing peer-reviewed journal articles, a common theme runs across most… they confuse verbal and vocal-verbal behavior.

I should be clear, though. It’s not just confusing two terms that’s the issue. The real issue is what these terms are said to “represent.” Let me provide you with a sample sentence:

“MV is a 3-year-old male diagnosed with autism spectrum disorder. He is nonverbal and communicates using PECS.”

I will use this sentence to show where two mistakes are made. First, nonverbal is incorrect in this sentence, and second, the child did not actually “communicate.” Let us start with the first.

**Nonverbal and Non-vocal**

Before we can articulate what is meant by “nonverbal” and “non-vocal,” we first have to clarify what is meant by “verbal” and “vocal.” Skinner defined verbal behavior as “behavior reinforced through the mediation of other persons” (1957, p. 2) and that the listener’s responses “have been conditioned precisely in order to reinforce the behavior of the speaker” (p. 225, emphasis removed) with said conditioning resulting from cultural practices (p. 226). That’s certainly a mouthful! Perhaps some unpacking will help here.

By stating that reinforcement is mediated through other persons means that we need a speaker and a listener. This makes contacting reinforcement indirect, rather than direct. For example, I can ask someone to go make me a copy of a journal article (indirect), or I can go do it myself (direct). Now, it is true that the speaker and listener can be the same person, but for now, let’s skip over that aspect of verbal behavior (but not at the expense of downplaying its significance in an analysis of verbal behavior).

When we bring in cultural or group practices to bear upon the listener’s behavior—the one who reinforces the speaker’s verbal behavior—we work to restrict the types of listener behavior that can be identified as verbal. Consider two boxers in a boxing ring. Boxer A’s behavior, punching, can be reinforced when Boxer B responds accordingly. As his behavior can only be reinforced when Boxer B responds accordingly. However, we would not necessarily call this interaction verbal behavior as no training is necessary for Boxer B to respond in this manner. The boxers’ behavior is nonverbal.

As you read this article, you are serving as the listener to my verbal behavior (of which this article is the product of said verbal behavior). Writing (and reading) requires special training, and without someone to read this article, I would not be very likely to produce it. My behavior, that of typing, is verbal.

Within verbal behavior there are many functional relations, and each functional relation can be produced across a wide array of modes. For example, reading this article makes the verbal product visual. Other modes include auditory (hearing), tactile (braille), and so forth. The mode is determined by how the listener contacts the verbal product—not by how it is produced. For example, writing this article is achieved via physical movements and tactile stimulation (i.e., my fin-
gers on the keys). But what you, the listener, interacts with is the visual stimulus that is the verbal product.

Focusing on the auditory mode, we come to see that there are several response classes that produce auditory products. For example, clapping hands can produce applause, which is a type of verbal behavior contacted by the listener through auditory verbal products. What we are most concerned with here is the class known as vocal behavior which makes use of the vocal musculature in producing auditory products. We must be careful, though, in distinguishing between vocal behavior, vocal-verbal behavior, auditory products, and auditory verbal products. As we will see, vocal need not be verbal.

As I sit here writing, I am fairly tired. I let out a big yawn. My yawn is audible to anyone nearby, though it need not be heard. My behavior does not change because of my yawn (ignore the fact that I’m writing about it!), and no one near me responds to it. Was my yawn verbal? In some cases, it might be. I might yawn to indicate to dinner guests that it is time for them to leave. I might yawn simply because I am tired, and I produce this behavior with no forethought or additional stimulus control. In some cases, the yawn is audible and is produced because having done so under similar conditions in the past has resulted in a preferred outcome. These cases are cases where my yawn, which is vocal, is also verbal. Thus, I have engaged in vocal-verbal behavior. Other times I yawn in the absence of verbal relations, thus making my behavioral vocal behavior.

It is here where we can revisit the earlier confusion. To say someone is nonverbal but communicates through PECS is simply wrong. Vocal behavior is produced in many ways and is contacted through many modes. PECS is a visual mode of contact, and it is still verbal. What the behavior analyst meant to say was “MV is a 3-year-old male diagnosed with autism spectrum disorder. He does not produce vocal-verbal behavior, but communicates using PECS.”

This statement distinguished between vocal behavior, vocal-verbal behavior, and verbal behavior in general.

But wait! There’s another major issue in that statement. We would be incorrect to say that the individual “communicates.” But why is this a problem, too?

Verbal behavior does not communicate anything (cf. Skinner, 1957, Chapter 5). Communication can imply at least two things. First, communication implies that there is something communicated from one organism to another—that the behavior somehow transfers a bit of something from one organism, perhaps in its “mind,” to the other organism, perhaps to its short-term memory storehouse. This idea is, of course, not in line with any behavioral analysis I know of. The other implication in the term “communication” lies with the belief that a word (statement, etc.) stands for something else. To say the word “bread” communicates the object bread, or stands for it, is simply not correct. The word bread and the object we label bread are not the same. If they were, then I could make my wife very happy on our anniversary by simply saying “Diamond earrings.” Unfortunately for me, the word and the object are not the same thing. The words we use are arbitrary and culturally-bound. There is no reasons “bread” needs to be related to a starchy product used to make sandwiches.

Instead, we can think of words as products of stimulus control, culturally-bound. For example, for what does “shot” stand? Consider the following; “The doctor gave me a shot,” “He took the shot and scored, winning the game,” “The car is just shot… time to get a new one.” In these cases, there is no one meaning for shot. That is, shot did not communicate one thing or relation. The meaning, then, is to be found in the conditions under which the verbal behavior was produced. Nothing is communicated.

REFERENCES

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Recognizing: Danika Stone, Program Supervisor, Gorbold Behavioral Consulting, Inc.

Danika Stone joined our team last fall as a part-time practicum intern interested in helping start our OBM department. She has since grown into a full-time leader in our company. Danika’s passion for ABA, love of research, impressive work ethic, and high level of professionalism have proved invaluable to GBC aba! She created a complex, user friendly performance matrix system that we are currently using with our behavior technicians. It allows us to use a pay-for-performance system for service industry positions, which is no easy task. We cannot wait to see what she does next! Thank you, Danika!

Is there someone whose behavior you want to SR+? Then let us know and we’ll feature it in our next issue for the world to see!

Submission Instructions:

- Limit your SR+ to 450 characters or less (including spaces)
- Include your full name, the full name or title of the person, program, business, etc., you are SR+ing
- Provide specifics what your SR+ is for, descriptive feedback is the most effective
- Email Daniel Reimer to submit your SR+ at dr.reimer@yahoo.com
For one who is interested in behavior change at the large scale, living in a city that is poised for rapid change is an invigorating prospect. As a transplant to the Reno community, I have dedicated my spare time to discovering the true Reno roots that guide the development and transformation of this curious city. Known to many as Las Vegas’s older, dirtier partner in the gambling industry, Reno has an unfortunate reputation to overcome. Fortunately, a growing body of loyal Renoites plans to rebrand the city. Below is just one example of how change on the small scale can revitalize a city, and potentially establish a new niche for those interested in organizational behavior management (OBM).

**Startup Potential**

At 9 o’clock on Wednesday mornings in a locally owned coffee shop, aspiring entrepreneurs in Reno gather to share their business ideas with their colleagues and competitors, teachers, and students. I was surprised to stumble upon this hopeful community just six months ago. At 1 Million Cups Reno, one of many groups across the country affiliated with 1 Million Cups (1MC), one finds a conglomerate of visionaries with the dual intent to become successful entrepreneurs and pull their city to the forefront of startup notoriety.

One of the first talks I saw at 1 Million Cups was Nate Pearson presenting his startup TrainerRoad, a software company that designs and implements training programs for indoor cyclists. Nate was casual but professional. Dressed in jeans and black t-shirt with his company logo, he presented a comprehensive update on his company—the successes and difficulties—in under 10 minutes. In the remaining 40 minutes, the audience fired out questions and comments. Questions from the 1MC community are specific and probing: Is there room in the market for your product?, What’s your profit margin?, Who is your competition?, What’s the greatest challenge your company is currently facing?, What do you need to move forward? I was impressed, not only by the potentially invasive and critical questions that were posed, but also the heartfelt sentiment of support and mentorship on which those questions were based. Similarly impressive was that Nate had a focused and open answer for each question.

As a graduate student, I tread a fine line between being highly educated and completely naïve. The temptation to walk around as if I am an expert in business practices is strong, and the world outside of academia quickly (and consistently) teaches me the difference between knowledge and experience. Attending 1 Million Cups is one such event that continually grounds me.

Regular attendees recognize Nate’s company as one of the success cases. In roughly three years, TrainerRoad users across the globe have logged over two million workouts and the company workforce is rapidly increasing. Intoxicated by the reflected success of a person capturing his dreams, I introduced myself and we set up a lunch meeting to discuss his work. After all, the exciting aspect of start ups are very similar to that of a scientist: creating new ideas out of nothing based on a foundation of what has worked and failed before.

**New Companies, New Challenges, New Opportunities**

Whether or not startups will bring hope to a recovering economy seems to be a matter of opinion. Some suggest that there is a need for startups, and specifically the “Main Street,” locally owned businesses that fill in downtown. Furthermore, a recent poll done by the Washington Post, 66% of Millennials (who will consist of 75% of the global workforce by 2025) say they would like to start their own business. The entrepreneurial spirit is upon us, which to a savvy OBMer could signal a unique opportunity.

However, the cruel reality is that the vast majority of new companies fail. Records show that 40% of startups fail in the first five years, and on a whole is not a band aid solution to our economy. The 10% of entrepreneurs that succeed are the Nates of the world. Self-taught, self-regulated, and resourceful. When evaluating that statistic, one can come to one
of two conclusions: 1) that’s just the way it is, and we have to accept it, or 2) that number can be improved if entrepreneurs were better informed on setting up and running a business (i.e., managing human behavior). Clearly, it doesn’t boil completely down to management practices. Success of a business heavily relies on a need for the product or service at the right time in the right place. Nevertheless, even with the perfect idea and opportunity, small businesses flounder with poor prediction and control of behavior: theirs, their employees, and their consumers.

Investing in OBM Futures

Organizational Behavior Management is much like Reno. For many years our bread and butter has subsisted on familiar and initially profitable practices. Feedback loops and performance management is to OBM as the gambling industry and speedy divorces is to Reno. While OBM has demonstrated success in current business models, we need to be adaptive and agile alongside the organizations we serve. If we expect to continue to be effective, we can’t expect what we do to keep working in a continuously changing business environment. In the end, it doesn’t mean that OBM is on the brink of oblivion or that the lack of recognition is reflective of its true value. What it does mean, however, is that OBM needs to adapt and revitalize.

One opportunity is by paying attention to startups. After seeing his presentation at 1MC, I scheduled a meeting with Nate on a weekday afternoon—at a locally owned restaurant, of course. I was ready with questions, note pad, and a plan of how my knowledge of behavior analysis could help his company adjust to the rapid...
growth of his success. It became immediately clear that I was taking the wrong approach. Nate didn’t need me. I needed his experience. Here was a gracious and patient, albeit extremely busy man, who took over an hour to answer my many questions about business models, organizational structures, and communication strategies. Largely self-taught, Nate was open to designing a truly adaptive, highly efficient company all in the service of delivering a competitively priced technology that the world wants. His is the company that makes up the dreams of budding OBM consultants. So, perhaps my interaction with Nate was not the launching point for my startup consulting career, but it is definitely going to be my exemplar for what success looks like.

Working with small, new businesses could provide a novel way for OBM to establish an effective presence among a new demographic. The startup community is an eager audience craving methods that produce and maintain positive results for their business. Most of their effective leadership and management behavior has been contingency shaped. With the help of OBM, entrepreneurs can develop the rule governance necessary for planning the future of an expanding enterprise. Their business is small, and it can be more easily adapted than larger, more established organizations. With leaders interested in systems supporting behavioral principles of reinforcement, startups seem like an excellent opportunity for the dissemination of OBM.

The true selling point in consulting with startups is the proactive approach. It’s prevention-oriented, rather than reactive. Rather than serving as organizational fire-extinguishers, we could collaborate with the executive board to set up meaningful contingencies and checks and balance systems, from the beginning. Efficacy and effectiveness are two variables that are particularly important for new companies with modest budgets and minimal staff. Furthermore, being that the company is new, there is no engrafted, toxic company culture that needs to be eliminated. Positive leadership styles and beneficial management practices can be established from the beginning.

The age of rigid hierarchical structures and good ol’ boy business is losing traction with the younger workforce redefining commerce. This means that many of the methods used in traditional OBM will need to evolve in step with new business models.

There is every indication that OBM will excel in these new environments, as all techniques and technologies in OBM still rely on the principles of behavior which will always be effective when applied appropriately. Yet, in the interest of developing and expanding the reach of OBM, we would do well to explore new arenas. We may need to change our services and strategies such that we can serve more individuals on a tighter budget. Few professionals are more equipped, I would argue, than the very cadre of specialists who have been trained in the functional analysis of behavior.

Let Nate, and his company Trainer-Road, serve as a hopeful symbol and a friendly reminder to the avid behavioral engineer. As behavior analysts we can work to change the failure rate of startups, to make it more likely for new businesses to succeed. Doing so will require intense collaboration of experts in different fields: we of behavior science, they of their industry. And, if done right, collaborating with entrepreneurs could result in a constantly adapting, mutual interaction between knowledge and experience. Here’s to moving the world with the biggest little ideas.

For more information about
Nate and Trainer Road, visit
www.trainerroad.com

For more information about
One Million Cups, visit
www.1millioncups.com/

References
Recent reports indicate that the prevalence of anxiety disorders in the United States and their respective economic costs are a major societal issue. For instance, a report conducted by the Center for Disease Control estimates that these disorders are as prevalent as depression and reports reviewed estimate the diagnosis at 14% of all adults (Reeves, W. C., et al., 2013). In addition, economic costs nationally, linked to anxiety disorders has been estimated at over $48.72 billion annually, with the direct medical costs totaling $33.71 billion (Shirneshan, E. 2014). So far, the field of Behavior Analysis has been somewhat quiet on the subject in comparison to research for other societal concerns (e.g., autism) in part because of the difficulty in measuring private events and the inadequacies of a working definition of anxiety (Dymond & Roche, 2009; Friman, Hayes, & Wilson, 1998).

The identifying markers available on this subject rely principally on metaphorical examples (Friman et al., 1998), the object or event that the person’s anxiety is orientated towards, physiological events (5th ed., DSM-5; American Psychiatric Association, 2013), or cognitive “disruptions” (Dugas, et al., 2007). Each of these lacks precision, fails to define anxiety directly, or provides challenges for measuring data. For example, with the orientation of the “phobia”, anxiety is diagnosed through the identification of the object or event to which the individual is anxious or fearful about but this may not provide measureable behaviors and may not be an indication of the controlling variables. In addition, these terms are developed through the individual’s reports of responses to private occurrences and the influences of verbal behavior. It is possible that one can circumvent a report of physiological events through measurements but this may not be practical or possible during treatment. Additionally, Friman, et al. (1998) pointed to the commonalities of physiological events that different emotions share. For instance, anticipation and anxiety may share an increase in heart rate and a measurement will not be reliable. Lastly, these measures are not beneficial in identifying the initial cause of the physiological event and do not measure the individual’s influence in reporting response to the stimulation (Skinner, 1953).

For these reasons, it is ideal to identify the controlling variables of a verbal account of emotions and the overt behaviors that denote anxiety. Given the current literature, it is not yet clear how the overt and covert emotional effects influence each other (Friman et al., 1998; Skinner, 1953). Keeping with a Skinnerian account of emotions, however, it is possible to investigate the controlling variables of all responses separately (Skinner, 1953). The total effects of an emotion are independent responses.

With this in mind, Skinner (1984) talked about the importance of the functional analysis of psychological terms. In his paper he used the term operational but the importance of the methodology is still clear and needed. The controlling variables with which verbal behavior of a private event develops may include, for example, the observations of the self, the methods to which one makes these observations, or neither of these occurrences. The meaning of a word is not found in

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Can we have a Behavioral Science of Anxiety?

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...behavior analysis has been somewhat quiet on [anxiety] in comparison to research for other societal concerns (e.g., autism)
the response itself but the contextual stimuli of which the response was produced. Leigland (2002) argues conducting a functional analysis of psychological terms would provide a pathway for the field of behavior analysis to follow. It is not the intention to replace the terms but provide direction and clarify a research direction (Leigland, 2002; Skinner, 1984).

An advancement of a science of human behavior requires an ability for the field to predict and influence behavior (Skinner, 1953). When discussing emotional responding, the ability for a behavior analyst to predict and therefore influence the behavior currently faces challenging. The responding is often a private event that cannot be observed and verbal behavior given by the behaving individual may not be complete. (Skinner, 1957).

**Total Effects of Emotions**

Although the current paper will focus on verbal and other overt behavior that denote anxiety, it is helpful to first address the total effects of emotions to provide some orientation. In other words, the outline of emotion and its effects will provide a point of reference for the other responses of anxiety and to provide evidence that the effects can be analyzed separately.

Skinner (1990), used an analogy of feeling the fabric on a jacket to describe the response to the physiological events termed emotions. Skinner (1957) went on to clarify that these are still responses and they are behaviors themselves. It is not, however, enough to look at just the stimulation and response. When an organism is presented with an aversive stimulus, there may be a physiological event that occurs in the smooth muscles and glands. The term anxiety is used to describe the response to the stimulation—or at least, it is one effect of the aversive stimuli in the environment. Simultaneously or in close temporal location, the organism may also engage in overt behaviors including weakening of behaviors or the organism may engage in behaviors to avoid or escape the aversive stimulus. Lastly, a person might engage in verbal behavior related to the emotion. The response that occurs covertly, however, is not the controlling variable. A person does not run because he is responding to the physiological event related to fear but because historically, this behavior resulted in the removal of aversive stimuli. Often the layperson discusses an overt emotional response as a result of an inner feeling. For example, the statement, “I ran because I was scared” is a common and acceptable statement. The controlling variable, however, is not the covert emotion but the environmental factor that may have elicited an emotional response—a response to stimulation of the smooth muscles—and other behaviors described next.

Looking further in depth at the potential controlling variables of the different effects of emotions will provide a foundation for analysis. It is possible that the aversive stimulus serves biological functions or develops through conditioning in an organism’s life. The conditioning occurs when the aversive stimulus is paired with other—to begin with—neutral stimuli and the now conditioned aversive stimulus elicits an emotional response. The person may engage in either covert or overt behaviors that are elicited. For example, he may scream, jump, or crouch in “fear”.

In addition to the elicited emotional response, the organism may engage in behavior maintained by negative reinforcement of the conditioned aversive stimulus or escape from the aversive stimulus. For example, a person is confronted with a strange figure in the alley and escapes the aversive stimulus by running away. Also, a person with self-defense training takes a stance to defend herself. The stance historically results in the removal of an aversive stimulus.

Identifying behaviors as either overt or covert, as a stimulus-response or maintained by historical consequences does not define them as the controlling variable. Again, it is possible that overt and covert behaviors influence each other but the initial environmental controlling variable must also be identified (Skinner, 1953). Although it is possible that emotional responding at times functions as motivating operations, it should be treated as a behavior with its own controlling variables first and its control on other responding should be considered later. Skinner (1957) cautioned an analysis of motivating operations—absence of friends and familiar places, in his example—as the cause for emotional responding. Nostalgia, an emotional condition, may result in the weakening of other behaviors in a state that may be described as depressed. The behaviors related to development, however, are not “specifically restrained” (Skinner, 1957, p. 166). In other words, the deprivation resulted in two responses. One is any responses that historically have been met with social contact and the other is the emotional response—nostalgia or sadness—that decreased the likelihood of other behaviors. The ways in which emotional dispositions develop is complex. A functional analysis, however, is still possible. Although multiple responses of emotions may influence or relate to each other further, it is beyond the scope of this paper to compare and
Some Current Psychological Interpretations of Anxiety

As stated earlier, other fields of psychology—clinical and cognitive, for example—do provide information related to the definition of anxiety. The Diagnostic and Statistical Manual of Mental Disorders (5th ed., DSM-5; American Psychiatric Association, 2013) defined anxiety—along with separate classifications of the emotion—as being “associated with muscle tension and vigilance in preparation for future danger and cautious or avoidant behaviors” (p. 189). The corresponding additional classifications include: separation anxiety disorder, mutism, specific phobia, social phobia, agoraphobia, and generalized anxiety disorder (5th ed., DSM-5; American Psychiatric Association, 2013). In the cognitive model literature, there are four aspects of anxiety that are used to address and identify anxiety. They include: intolerance of uncertainty, positive beliefs about worry, negative problem orientation, and cognitive avoidance (Dugas, et al., 2007).

Usefulness of worry indicates tendencies that the person views the emotional response as solving problems or altering outcomes, providing motivation, or that the person is kinder for responding with worry. With negative problem solving orientation, the person lacks confidence about an ability to solve problems, and views problems as a threat, which may lead to increased worry (Dugas, et al. 2007). An article in the journal Depression and Anxiety points to the tendency of literature on generalized anxiety disorder to focus on cognitive avoidance and provides some clarity to the terms related to anxiety. For instance the authors state that worry “functions as a cognitive avoidance response suppressing somatic anxiety and preventing patients from deeper emotional processing of aversive thought and images” (Beeso-Baum, et al., 2012, p. 949).

Excessive checking may be an avoidant behavior for indicators of a future threat—a potential conditioned aversive stimuli. In addition, the term safety behaviors relates to the individual attempting to ensure the safety of the self or others by carefully planning for any potential threats. In the same article, seeking reassurance is discussed as another potential indicator of anxiety. Lastly, patients reporting a loss of control and a weakening of behaviors such as sleep and eating habits (Beeso-Baum, et al., 2012).

Some characteristics of anxiety defined include attentional biases towards threat. One method discussed was to track the individuals’ eye gaze to identify the visual focus on stimuli and to also measure latency orien-
tating towards “threatening” stimuli (Dugas, et al., 2007). The content of the “bias” is individualized given their learning history and the conditioning of objects or events may be specific or generalized. For example, the authors pointed to the diagnosis of social phobia in which the individual’s “illness” is characterized by—in part—a hyper-awareness towards angry faces. A related component discussed in the review is a vigilance-avoidance pattern in which the individual demonstrates shortened latency when orientating towards aversive stimuli and avoidance behavior. The individual exhibits engagement with the stimuli or difficulty removing awareness from the stimuli as well as awareness away from threat stimuli. It is unclear whether the awareness towards and aware from stimuli occur rapidly or in slower succession (Dugas et al., 2007).

A Potential Functional Analysis of Terms

In looking at the literature reviewed, there are a few patterns to point out. First, the categories used in the DSM-5 (5th ed., DSM; American Psychiatric Association, 2013) indicate a tendency to act. Many of the other terms imply avoidance or escape-maintained behavior, access to competing contingencies to anxiety, and attention-maintained behavior. The specifics are unique to anxiety and appear varied but categorizing them by function will provide some simplicity and clarity. 

Tendencies to Act

Although the objects and events to which the individual is anxious about provides a way to test the occurrence of anxiety, it does not necessarily indicate its controlling variables. For instance, social phobia is anxiety surrounding the topic of social interactions. The individual may be anxious interacting with others and may report worry that others will judge or reject the person. The implication is that the individual’s social interactions contacted reinforcement and the aversive consequence. The individual engages in behaviors that avoid or escape the aversive stimuli. It is also possible, however, that an aversive stimulus was presented while the individual was in a social setting. The aversive stimuli may or may not be related to the social event but due to the conditioning, the social event now elicits a response related to the emotional disposition of anxiety. The conditioning related to development of anxiety may have a comprehensive effect in that even the nuances of the event later elicit a response. For instance, Skinner (1957) used an example of an unexpected death of a friend to demonstrate. The individual is then burdened by a general feeling of anxiety for no particular reason. The reason is difficult to identify because the death was paired with “everyday life.” In addition, the effect of the conditioning may be great due to multiple and “all-encompassing” conditioning. Returning to social phobia provides a good example. When the individual’s brief social interaction is paired with an aversive event, future presentations of a similar interaction now elicit a response. The elicited conditioned response may also be a stimulus that conditions additional responding. Although it is beyond the scope of this...
paper to address all of the potential effects of emotions especially as it pertains to the influence of responses to stimulation, it is worth pointing out that independence of the two responses and the potential exacerbating effect that the response of anxiety may have on future responding.

Dymond and Roche (2009) pointed to a possibility that direct conditioning does not occur. They point to the fact some individuals affected by anxiety disorders cannot identify when the conditioning occurred nor can they identify the “trauma.” The aversive stimuli may not have the appearance of a traumatic event to generate a response. In addition, the environment that now generates anxiety, may not have at first (Catania, 2013). For instance, after leaving a store, a person is attacked. The store initially did not generate anxiety but with future presentations, it elicits the response. In addition, through induction, similar stores elicit the emotion anxiety and other behaviors related to avoidance. The person may walk into an unfamiliar store and report a feeling of anxiety but is not sure why. The individual does not need to be aware of conditioning for it to occur (Skinner, 1953). Given the complexity of conditioning, it is not the “phobia” that indicates the controlling variable. In other words, it may or may not be aversive stimuli but may be correlated with it. For this reason, the categories used to diagnose anxiety disorders can only be understood as tendencies to act.

Escape-Maintained Behavior

For many of the psychological terms, the potential functional relation appears to be escape-maintained. For instance, with cognitive uncertainty, the individual will more likely avoid or escape from situations that are unfamiliar. This may include subtle examples—a phone call from an unknown caller—to the more obvious example of going on a blind date. Of course, avoidance or escape-maintained behavior is not unique to anxiety. For example, a person runs inside from the rain. The behavior contacts the removal of the aversive stimuli and the person tends to run inside when it begins to rain. Also, conditioning of aversive stimuli may occur and the person will more likely engage in behavior to avoid the conditioned aversive stimuli. The person does not necessarily feel anxious about the occurrence of rain or conditioned stimuli associated with it. It is the total effect of emotional responding that make related avoidant and escape-maintained behaviors categorized as “anxiety” but prediction and influence can still occur through the analysis of the avoidant and escape-maintained behaviors alone.

Access to Approval

With anxiety related to social interactions, the person may engage in behaviors to get approval. This may especially be likely if the person feels more mild anxiety and does not avoid the social interaction altogether. The history of rejection that now functions as a perhaps mild aversive stimuli may also serve as an establishing operation for statements related to favorable reception from others.

Multiply-Controlled

Another behavior that may be beneficial to explore further is the vigilance-avoidance pattern discussed earlier. In the article reviewed, the phenomenon was in reference to eye gaze and “awareness” towards and away from aversive stimuli. The effects of anxiety may include a subtle responding similar to this example or it may be a more of a gross response. Skinner (1953) discusses a related response. Algebraic summation refers to two response to one stimuli that are the same except in opposite direction. For example, an approach and withdrawal response of the same stimuli. When on a smaller scale, the response might be a shaking hand as if in hesitation or the response occurs in a wave-like oscillation.

Reasons for Idiosyncrasies in Emotional Responding

Verbal Community and Its Control

The difficulty of identifying and measuring a covert emotional response, creates a necessity to rely on a person’s verbal behavior of the event. The self-reports may lack precision due to the shaping and maintenance of these responses by the verbal community. In part, they must rely on public accompaniments to reinforce appropriate tacts (Skinner, 1953, 1957). For example, the mother watches her child walk into preschool with wide eyes and slow steps. The mother might say, “It looks like you’re nervous”. Here the child learns to tact the response to a particular stimulation as a form of anxiety. What makes the development of accurate tacts of private events including emotional responding even more difficult is the mother might say—for the benefit of the child—“You’re going to have fun. I’m so excited for you”. With this learning history, the child does not learn to tact the emotional response correctly. The verbal behavior surrounding private events is developed through a long history of perhaps differing contingencies. It may be why, for example, the lay person tacts anxiety when they mean fear or the other way around. Skinner (1957) makes a simple dis-
tinction between fear and anxiety. Fear is an emotional response to an aversive stimulus. I am fearful of the man that is running after me. In comparison, a person feels anxious while walking down a dark and unfamiliar alley and the response is akin to I am anxious of what danger historically occurs after the presentation of this stimulus. For purposes of treatment, the distinction is important. Fear is the emotional response that accompanies escape-maintained behavior. The aversive stimuli is present. Whereas anxiety is related to avoidance of the aversive stimulus by escape of the conditioned stimulus and may be referred to as “concern for future events”. The layperson’s verbal behavior may not be a sophisticated or sensitive measure for this distinction.

Several sources point to the use of metaphors in reports of anxiety and the term itself is a derivative of the Latin word anguisse referring to a choking sensation. Metaphoric extensions, as Skinner (1957) termed them aid in the verbal community shaping a tact of a private event. The wording relates to a public, and therefore, shared experience. The response that wording evokes mirrors the private experience. For example, when a person says, “I have butterflies in the stomach”, the image evokes a response in the listener that is similar to the emotional response of “being” nervous.

In addition, when a person talks about an emotional response, they are often referring to a tendency to act. They are not necessarily tacting the response to stimulation but a statement related to their history of acting in relation to that particular emotional response (Skinner, 1957). For example, a report of anxiety indicates that the speaker will more likely fidget, appear restless, avoid or escape certain situations, or maybe even seem withdrawn depending on the severity of the emotional response. The statement, depending on the learning history of the individual, may function—in part—as a mand for comfort or assistance in the removal of aversive stimuli. The impure tact is controlled by the private event and motivating operations (Skinner, 1953, 1957).

**Group Control**

A culture may dictate appropriate emotional responding through delivery of reinforcement, punishment, or aversive stimulus. The development of what is generally accepted occurs over time and for a variety of reasons but can be simply defined as what is good for the group. Some cultures engage in overt emotional responding openly whereas others punish those responses and reinforce only emotional responses that are subdued, demonstrated with only immediate family members, or organized verbal behavior related to emotions. The community may be the larger culture of the individual’s country of origin or a smaller community and may be different for individuals depending on their age or standing in the community. For example, different emotional responding is expected and tolerated from a 2 year old then an adult. The control exerted by the group may be in the form of disapproval or shame, a conditioned aversive stimulus. For example, when the customer demands rudely that his plate be taken back because the food is cold, other customers may glare or shake their heads at the response. His date may punish him with silence or withhold future dates. It may also play out that the customer is a powerful member of the community and others identify the angry outburst as an example of that power. Others may say that he is entitled to his demands and the emotional responding is appropriate.

**Behavioral Applications for Treatment of Anxiety**

Once the functional relation of a behavior is identified, the path for the behavior analyst is significantly clearer. In this section a few examples of how a functional analysis provides viable treatment options. Considering escape-maintained behavior appears frequently in the literature reviewed in this paper, it may be starting point for a behavior analyst. For instance, both respondent and operant conditioning are already an established practice in behavior analysis and other fields of psychology (Dugas, et al. 2009). With extinction, the individual is presented with stimulus that previously elicited emotional responding—anxiety—but the behavior no longer contacts the aversive stimulus. It may be beneficial to lessen the association of the originating stimulus to the presented stimulus by systematically introducing the conditioned aversive stimulus. Perhaps, for example, the person that “fears” social interactions. It would be appropriate, therefore, to present short interactions with more familiar people. Then, once anxiety is not demonstrated or reported, the expectation to contact the stimulus increases.

The aversive stimuli may be unique to the individual. There are several possibilities but some are listed. For “uncertainty to consequences”, the therapist would need to define the term more specifically—lacking a history of clear contingencies. The client would be presented with a situation in which the consequence was unknown. For example, the individual is asked to walk into a room and is told to there will be task but no description of what is expected or what the consequence will be for the behavior is provided.
Discussion

The complexity of human behavior may generate interest in finding solutions to societal concerns through elaborate methods. It is not always fruitful to ignore the simple intricacies that make up behavior because precision is often lost. In an argument for a science of human behavior, Skinner (1957) uses the beginning student of physics and their view of what a science has to offer a worldview as a starting point. At first the science does not match her experience with it and its lackluster viewpoint is unappealing. As she becomes more astute in her studies, the science demonstrates its power by providing precision and the passion with which she viewed the world is again present. It was never the science that failed her but her ability to grasp the concepts. As the field of behavior analysis pursues its path towards a more comprehensive natural science of human behavior, it must more thoroughly address emotional dispositions and their influence. At first glance, a science will appear to fail in its ability to completely explain the influence of emotions as the layperson experiences it. Once thoroughly developed, however, it will not only examine that experience but provide an explanation when the experience leads to suffering.

The complexity of human behavior should not deter the field from first analyzing simple conditioning. The appearance that the stimulus control of the everyday experience does not match the stimulus control respondent and operant conditioning may or may not be complete. It is the many incidences of conditioning that take place that make up the complexity of human nature.

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In recent years, efforts have been made to incorporate child exercise in areas of the school schedule other than recess and physical education (e.g., Kibbe et al., 2011). Howie, Beets, and Pate (2014) proposed that increased exercise may support on-task student behavior. Unfortunately, few behavior-analytic studies have examined physical activity patterns and associated variables in young children (Larson, Normand, Morley, & Miller, 2014). This review discusses classroom physical activity interventions, and the effects of classroom exercise on other classroom behaviors such as on-task behavior.

Kibbe et al. (2011) evaluated the TAKE 10! program, a classroom-based program aimed to integrate movement into academics. The curriculum included activity cards that defined physical activities, learning objectives, worksheets, tracking posters, rewards, teacher resources, and a questionnaire. Results indicated higher levels of physical activity levels during TAKE10! than in physical education classes, lunch, and after school/weekend activities. There was also a decrease of over 20% in off-task behavior following a TAKE10! activity segment.

Howie, Newman-Norlund, and Pate (2014) evaluated the effects of classroom exercise breaks on eight 4th and 5th grade classrooms. The exercise breaks were set to music and aimed to engage all students in moderate-to-vigorous physical activity (MVPA). The study consisted of four treatment conditions including a 10-minute sedentary classroom activity, and 5-, 10-, and 20- minute exercise breaks. Results of the study describe the affect and opinions of students and teachers involved in the study. Although these descriptive measures do not reflect valid results, it must be noted that the student surveyed preferred the exercise breaks.

Howie, Beets, and Pate (2014) replicated the four conditions Howie et al. (2014) and found that 10-minute bouts of classroom exercise improved on-task behavior in 4th and 5th grader students. On-task behavior was measured before and after each condition using direct observation. The exercises used in the study were designed to maintain MVPA and included marching in place with arm movements, various forms of jumping, and running in place. Results of the study indicated improvement in on-task behavior ten minutes following the intervention.

Ma, Mare, and Gurd (2014) also evaluated the effects of classroom physical activity on off-task behavior. The intervention consisted of 10-minute breaks (“FUNterval”) or no-activity condition. A no-activity break consisted of a 10-minute lecture, and a FUNterval consisted of a 4-minute activity (including squats, scissor kicks, jumping, and running in place). The level of off-task behavior was significantly lower following the FUNterval condition. The authors also noted a positive correlation between the FUNterval condition and decreased motor behavior, suggesting that the intensity of physical activity may also impact the effectiveness of the activity intervention.

The current review discusses behavior-analytic literature that could be replicated and extended in future research. Future researchers could examine the effects of physical activity (e.g., form, duration, intensity, etc.) on classroom behavior (e.g., on-task or in-seat). Physical activity opportunities (e.g., recess, physical education) could be manipulated in an educational setting to evaluate the changes in behavior given MVPA at different times throughout the school day. Future research could also investigate structured MVPA during recess and the effects on subsequent classroom behavior. Increasing classroom physical activity levels is an important consideration, and its effects on child behavior is worth further examination.


Teaching Children with Autism using Video Modeling

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It is well documented that many children diagnosed with autism spectrum disorders may suffer from impairments in functional communication, which may be displayed through problem behaviors and nonfunctional, or bizarre speech. Poor communication skills can hinder social interactions with peers and present problems for people who are responsible for educating them. Taylor (2001) noted that teaching peer-interaction skills to children with autism is a fundamental part of a behavioral treatment plan. Taylor suggested a variety of effective interventions based on the principles of applied behavior analysis that have been used to teach functional communication skills to children with autism.

Of the treatments reviewed in Taylor (2001), video modeling, presents children with autism a way to observe and practice communication skills and interactions with others. Charlop and Milstein (1989) noted that video modeling may be a more resourceful approach to modeling social interactions because it reduces the need for personnel while remaining time-efficient. Other possible advantages of using video models instead of live models include a more systematic and simple approach to the lessons, greater ability to maintain the attention of the audience, and the procedure may be less emotionally strenuous on the children (Charlop-Christy, Le, & Freeman, 2000).

Several studies have demonstrated that teaching interventions using video models are effective at increasing the performance of communication skills in participants with autism (Charlop & Milstein, 1989; Theimann & Goldstein, 2001; Wert & Neisworth, 2003). Wert and Neisworth (2003) conducted a social communication training using a video self-modeling approach, whereby the participants serve as their own model in the training videos. At the conclusion of the study, all children with autism demonstrated an increase in spontaneous requesting for items or activities that were essential to the play settings.

Theimann and Goldstein (2001) implemented a procedure that assessed the efficacy of video modeling as a means of corrective feedback. The children with autism were given systematic instruction before engaging with typically developing peers in social activities. Following interaction, the children were shown video feedback of the session and asked to evaluate their performances. The results showed an overall increase in topic maintenance during conversation as well as a decrease in contextually inappropriate responses from the target children.

Studies assessing the generalization of social communication skills learned during video modeling training offer encouraging evidence. Charlop and Milstein (1989) found that the children with autism who were shown videos of familiar adults conversing about specific toys were able to generalize the learned conversational skills across topics and settings when presented with toys that had not been present in the video model and in settings where no previous practice had occurred. Further evidence for topic generalization was provided by Charlop-Christy et al. (2000) as they monitored the performance of skills, including spontaneous greetings, conversational skills, and social play, during and after the video modeling intervention.

It should also be noted that supplementary techniques might be combined into the program making the effects of video modeling somewhat ambiguous. Theimann and Goldstein (2001) combined video modeling procedures with social stories and other written text cues to facilitate the acquisition of social behaviors in the participants. Taylor et al. (1999) manipulated antecedent variables in the training setting in attempting to evoke target responses from participants; a procedure that closely resembles the incidental teaching model.

To conclude, treatment using video modeling procedures have great potential as an effective method for increasing the acquisition, generalization, and maintenance of social communication skills among children with autism. Further research is warranted to explore the limitation within the model and the combined effects when other treatment methods are integrated into a comprehensive treatment approach.


Using the Internet to Motivate Older-Aged Adults to Exercise More

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The Center for Disease Control (2008 [CDC]) recommends at least 150 minutes of moderate-intensity physical activity each week. This may be achieved simply by walking at least 10,000 steps per day. Kurti and Dallery (2013) stated that less than 5% of adults meet the CDC’s physical activity recommendation. This is troubling in that, if an adult follows this recommendation, there is a decreased risk of developing heart disease, Type 2 diabetes, osteoporosis, and some cancers. The author’s purpose was to evaluate the feasibility, acceptability, and efficacy of an Internet-based intervention to increase walking in sedentary adults. They used walking because it is an ideal form of exercise in that it is simple, convenient and inexpensive. Also, emerging Internet-based programs might provide a simple, more efficient method to increase walking.

Kurti and Dallery (2013) conducted two separate experiments. Participants, recruited via advertisements, underwent a telephone screening to obtain demographic information such as age, current exercise level, problematic medical conditions, and verification of computer/internet access. If approved, participants underwent a 60-minute screening, provided informed consent, and additional personal information. The twelve qualifying participants ranged in age from 50 to 71 years. Kurti and Dallery (2013) used a changing criterion design to evaluate changes in walking across conditions. During baseline and intervention phases, walking, defined at the number of steps taken, was measured using a Fitbit. A Fitbit is a device worn on the wrist which uses a three-dimensional accelerometer to measure how many steps an individual takes. Participants logged onto a website each night and submitted a video of them displaying the Fitbit’s digital display. They also completed activity logs and reported the activities they engaged in to increase steps.

During Experiment 1, participants received $1 per activity log in baseline, $0.50 during intervention, $5 per video submission, and $2 per step goal, plus an additional $3 for advancing to a new step goal. The procedure for Experiment 2 was identical to Experiment 1, except that participants received no money rewards. Baseline was a 5-day trial where participants submitted their daily step count. The intervention consisted of successive 5-day blocks where step goals were assigned and participants had to meet their goal in at least 3 days to advance to a new step goal. The procedure for Experiment 2 was identical to Experiment 1, except that participants received no money rewards. Baseline was a 5-day trial where participants submitted their daily step count. The intervention consisted of successive 5-day blocks where step goals were assigned and participants had to meet their goal in at least 3 days to advance to a new step goal. The intervention was terminated when participants walked at least 10,000 steps per day on at least 3 days during two consecutive 5-day blocks, or after 2 months elapsed. The results included an increased number of steps for 11/12 of participants during the intervention phase. Following the study, participants completed the treatment acceptability questionnaire and all participants rated the intervention favorably.

A limitation of the study was that there was not verification that the individual wearing the Fitbit was, in fact, the participant. Also, the intervention might only be effective in good weather. If an individual doesn’t go outside on a given day due to rain, this could limit the number of steps taken. Future researchers may address the participant verifiability by using a device that monitors heart rate because hear rate patterns are unique to each individual. Relative effects of the intervention components should also be analyzed. Newer technology might measure other types of physical activity such as swimming or lifting weights. Modified intervention designs may also maintain active levels and promote long-term health gains.

Programming for Generalization

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Producing behavior changes with long-term effects across settings, people, and conditions is the goal for behavior-change procedures (Baer, Wolfe, & Risley, 1968/1987; Stokes & Baer, 1977; Stokes & Osnes, 1989). Baer et al. (1968) declared generalization as one of the seven dimensions of applied behavior analysis (ABA). Two decades later, Baer et al. (1987) returned to the dimensions and reiterated the importance of them, highlighting generalization. Unfortunately, in twenty years, generalization had yet to make the substantial progress it was intended to make. Generalizat-
tion remains to be rarely observed. Stokes and Baer (1977) wrote the first review of the behavioral literature regarding generalization. The review resulted in nine conceptualized methods to promote and facilitate generalization: (a) train and hope, (b) sequential modification, (c) introduce to natural maintaining contingencies, (d) train sufficient exemplars, (e) train loosely, (f) use in-discriminable contingencies, and (g) program common stimuli. These principles provided the behavior analytic field the opportunity to integrate generalization programming into their research and practice. Promotion of generalization has continued to persist regardless of its little maintenance. Stokes and Osnes (1989) was the last publication to provide the field of behavior analysis a template to promote programmed generalization (Osnes & Lieblein, 2003). It has been over 20 years since a refined template was provided within both the practice and research world of behavior analysis. Within that time, it is suspected that programmed generalization has become increasingly less prevalent. Unfortunately, if generalization is considered, it is often an afterthought that occurs near the end of therapy (Stokes & Osnes). Osnes and Lieblein (2003) reported the state of advancement of generalization programming in behavior analysis practice and research was minimal. The authors suspected it was due to the increase in response effort to demonstrate a functional relationship between the procedures and generalization when compared to the response effort to demonstrate the immediate effectiveness of the procedures. Regrettably, the current state of generalization has since become an even more elusive entity. An extensive review of the current state of affairs is desperately needed to preserve and expand the little programmed generalization we have maintained. Stokes and Baer (1977) stated that for a therapeutic behavior change to be considered effective it should occur over time, across people and settings, as well as across related behaviors. The authors further declared that behavior analysis is only functional when its effect is both immediate, in the immediate environment, as well as in non-trained environments. This lends to the influence programming decisions have regarding both the clients we serve, and the field as a whole. Stokes (1992) emphasized the importance for an analytic pursuit of the principles of effective generalization. This pursuit is critical to the advancement of generalization programming in both behavior analytic research and practice. Johnston (1979) stressed that to attain generalization programming it is not so much the thought process as how to get it, rather, how to arrange for it to occur. Similarly, Baer et al. (1968) noted the critical need for effective techniques for active generalization programming. Since requested, emphasis and techniques have been provided to promote generalization programming (Stokes and Baer, 1977; Stokes and Osnes, 1989), yet the absence is still prevalent. Osnes and Lieblein (2003) state that it is the behavior analyst’s responsibility to make generalization programming part of their research and intervention plan from the beginning. The support and templates are available for all. So, let’s take page out of our own book to increase our future frequency of generalization programming.

**Training Pouched Rats to Find People**

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Morogoro, Tanzania – Imagine this: pouched rats undergoing training that equips them with the ability to pinpoint human targets trapped under collapsed structures. This is an exciting reality and important advancement because a human being’s probability of survival could potentially increase. But the question remains, can pouched rats in fact locate human targets and return back to the starting position?

La Londe and colleagues (2015) designed an experiment to study the effectiveness of using giant African pouched rats to locate human targets under rubble. The study was conducted at the Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling (APOPO, “Anti-Personnel Landmines Detection Product Development” translated in English) training facility under simulated conditions of a crumpled building. Five pouched rats underwent 4 stages of training procedures, followed by a series of probe trials. Stage 1 of training included socialization at a young age (3-6 weeks). Stage 2 introduced the rats to the beep that was used to signal
when the rat was to return to the starting location. Stage 3 consisted of a small obstacle course in which the rats were to locate human targets in conditions that mildly reflected those of a collapsed building. Stage 4 introduced a larger obstacle course in which the rats were to again attempt to identify the human beings within a certain time limit. The probe trials provided an opportunity for the rats to make contact with a human target, a plastic bag filled with human clothes, or a plastic bag filled with air; under conditions that somewhat reflected a demolished building. The rats were given 3 minutes to locate the target and 3 minutes to return to the starting point.

The results were a higher percentage of trials in which the rat found the target when it was a human target as compared to a bag or a bag with clothes over it. This demonstrates the rats’ ability to accurately identify human targets as opposed to non-human targets. This means that the pouched rats may very well be used to locate human beings (La Londe et al, 2015).

Limitations exist in the failure to demonstrate the rats’ ability to locate a human target in a real catastrophe setting. Additionally, the rats were not required to meet the highest level of accuracy possible. Therefore, there is a strong need for further research which implements strict accuracy requirements and conditions that more-closely resemble those of a real collapsed structure. Other ideas for future research include training the pouched rats to locate narcotics and/or explosives for police task forces. La Londe and colleagues (2015) findings directly impact the notion that pouched rats could be utilized in real disasters to locate and save human lives. The rat’s ability to crawl underneath and over rubble would decrease the time in which it takes to locate a distressed human target; therefore, substantially increasing an individual’s chance of survival. This is definitely an exciting new advancement in our field.


Behavior Chains and Response Prompts

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Southborough, MA— In many learning environments, there is often the question of why skills are not acquired as fast as expected or wished. Is it a fault in the teacher, or is it in the hands of the learner? How can we help make this process more efficient for the learner? Seaver and Bourret (2014) sought out to answer these questions. Seaver and Bourret (2014) recruited 10 individuals aged 7 to 20, each diagnosed with an Autism Spectrum Disorder for one to three experiments. The researchers designed Lego-block models with colored bases. Each colored base was a prompt to the researcher on what procedure to implement. Data were recorded on the number of steps independently completed by the participant on the last trial per session, and each session consisted of 10 trials. Correct responding led to progression through the steps, and errors led to re-teaching. When all steps were completed independently across two trials, the skill was considered mastered. Seaver and Bourret (2014) conducted Experiment 1 to investigate prompt effectiveness in skill acquisition. The researchers presented each participant with materials to build a block structure and assessed which prompt (verbal + gestural, model, or physical) led to the most rapid acquisition of the target block structure. The results were that prompt effectiveness varies between participants and there is no universal prompt type that leads to quicker skill acquisition. Experiment 2 focused on prompt-fading procedures (LTM, MTL, and delay fading). A hierarchy was developed for the prompts that were identified as most effective for each participant from Experiment 1. The procedures remained the same, but focused on fading. The results were similar to Experiment 1 in that there was no most-effective procedure across participants Experiment 3 was a test for generality. This experiment demonstrated the applied side of the research by using the prompt procedures identified as most effective from Experiments 1 and 2 to teach novel skills. The results were consistent with the conclusions of Experiments 1 and 2, adding that there is no undisputed prompt or prompt-fading procedure and they should instead be assessed on an individual basis similar to reinforcers.

A limitation to this study is the question of relevance and social validity of the skills used across experiments. The skills taught in Experiment 3 were more socially valid daily living skills; whereas, the skills in Experiment 1 and 2 were more discrete-trial style skills. Had the researchers used target skills such as those in Experiment 3 throughout all experiments, there may have been more significance and value to the participants. Future research could investigate methods of assessing prompt effectiveness.

The Applicability of Preschool Life Skills

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According to a study on early childcare conducted by The National Institute of Child Health and Human Development (2003; NICHHD), children who have been enrolled in non-maternal daycare centers from birth to kindergarten display higher rates of aggression and noncompliance and lack communication skills to effectively replace these problem behaviors in social situations. This is an unfortunate finding, in that so many children need to be enrolled in daycare centers because both parents need to work outside the home. To address the lack of skills to appropriately replace these problem behaviors, Hanley, Heal, Tiger, and Ingvarsson (2007) developed a set of skills to teach preschool children titled "Preschool Life Skills" (PLS). The teaching methods used include functional communication (FC) training. PLS teaching was implemented during a class-wide study to teach skills to replace problem behavior observed in the classroom consistent with the NICHHD study, including aggression and noncompliance. The results included a 74% reduction in problem behavior and an over 400% increase in the probability of communication skills. However, the list of PLS skills include 13 skills which build upon one another. Teaching all 13 skills takes a great deal of time, and it may be possible there are ways to decrease problem behavior and increase communication skills more effectively. Or there may be certain component of the skills that are more essential than others.

Since Hanley et al. (2007), some studies have been conducted to determine which skills and components were imperative for success in the classroom setting (e.g., Beaulieu, Hanley, and Roberson, 2012; Beaulieu, Hanley, and Roberson, 2013). Beaulieu et al. (2012) focused on teaching precursors in addition to functional communication responses. These precursors included pausing the activity they are currently engaged in, orienting toward the teacher, and saying "yes" if a person calls their name. The results included an increase in the frequency of precursor behaviors and an increase in compliance to instructions which followed successful precursor behaviors. In a follow-up study, Beaulieu et al. (2013) added a peer component to their intervention in which peers reminded each other to engage in the precursor behaviors. Again, there was an increase in precursor behaviors and compliance, especially when the reminders were delivered by peers instead of teachers. The success of these studies indicates that there may be specific components of PLS skills which are more essential to success in teaching appropriate behaviors to preschool children. Another important skills that is often targeted in preschool classrooms is sharing. There are multiple PLS skills that target this overall social skill including asking their peer to wait, to share appropriately, and to find an alternative activity for themselves. It may be that some of these components are more essential, and more effective, at increase sharing and decreasing toy stealing than others; however, this has yet to be evaluated. Additionally, there are other large-scale problem behaviors that may be decreased by using specific PLS skills, such as bullying and problem during transitions. As a researcher in preschool classrooms, this is an exciting area for future research!


General and Behavior-Specific Praise

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Over the last few years praise has been a popular subject in homes, classrooms and other teaching settings. Bayat (2011) suggests when people hear praise given to children it seems to be more socially acceptable than using other procedures, such as punishment techniques. Bayat proposes that the use of praise can lead to positive relationships between peers and adults because, as a positive reinforcer, praise can lead to effective preventive approaches for inappropriate behaviors at home and in classrooms. Due to this recent popular encouragement in many schools and homes to use praise, it is important to make sure that praise is an effective reinforcer and will increase positive behavior while also decreasing undesirable behavior.

Fullerton, Conroy, and Correa (2009) described two types of praise, general and behavior-
specific. General praise included statements directed to the target child that did not describe the behavior (e.g., ‘Way to go!’); whereas, behavior-specific praise was statements specifically directed to the child that described the behavior (e.g., ‘You did a nice job washing your hands’).” The authors examined these two types of praise in classrooms and evaluated whether they would have differential effects on appropriate behaviors, especially compliance and activity engagement. The researchers monitored teachers’ behavior of implementing the praise and examined the correlation between their behavior and the students’ behavior. The results were that, as the teacher’s rate of behavior-specific praise increased, compliance and activity engagement increased as well; however, similar changes were not evident with general praise statements.

This research shows that behavior specific praise may have a higher reinforcing value than the general praise in a school setting; therefore, it may be important to educate teachers on the topography of the praise they deliver.

However, based on the setting in which this study was conducted, there may be some confounding variables such as imitation of peers and peer (or teacher) modeling. Also, there may be changes in the teacher’s demeanor and teaching style if she is engaging in a higher rate of praising. It may be important to evaluate the different types of praise in more controlled settings to account for some of these variables. Future research could provide further insight for teachers and parents while discovering high reinforcers for children. A particularly important variable to evaluate is generalization. Behavior-specific praise provides a direct reference to the appropriate behavior, this direct reference may promote response generalization.

Praise may be a very powerful reinforcer for many children. It is also an easily delivered reinforcer in that teachers can quickly reference an appropriate behavior or approval for an answer without having to provide a tangible item. Further evaluations of the types of praise and their reinforcing efficacy will have far-reaching benefits for the fields of behavior analysis and education.


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