Busy Analytical Bee

NEWSLETTER April

Welcome to the April edition. In this edition we are reviewing four main Verbal Operants, another great activity involving paper shreddings and the career of B. F. Skinner. Have a great month

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Verbal Operants

B.F. Skinner describe language in terms of Operants in his book titled "Verbal behaviour" (Skinner, 1957). In this review we will discuss Mand, Echoic, Tact and Intraverbal. These Verbal Operants are typically the first units of language to develop in children so an Applied Behaviour Analysis (ABA) programme may focus on these (with young children, and/or clients with limited communication). As we discuss the Verbal Operants, we will reference the three-term contingency. The three term contingency is broken down into the Antecedent (an event in the environment that occurs directly before the behaviour) which involves a verbal or non-verbal stimulus, the Behaviour (specifically the target behaviour, what the speaker says or does) and the Consequence (what happens directly after the behaviour). These Verbal Operants are not limited to vocalisations and sounds; mands, tacts, echoics and intraverbals can all occur through other forms of communication (e.g. Makaton sign language, Picture Exchange Communication System (PECS), etc.).

The mand, derived from words "command" and "demand", is a requesting behaviour. In terms of the three term contingency the mand is distinct by the motivation being present in the antecedent and the consequence being specific to the mand. The mand benefits the speaker directly as they are able to meet their needs. This typically develops first in humans, in babies through differential cries that mothers are able distinguish. Here is an example of a mand:

Antecedent (S^D)	Behaviour	Consequence
Motivated for apple, sees apple	"Apple"	Given apple

To teach mands it is imperative to have powerful reinforcers and this may mean you manipulate motivation. This can be done by not allowing your client to access a reinforcer (toy, food item, action, activity, etc.) for a length of time (this is deprivation), so that when you begin a manding session the reinforcer has a lot of value and your client is willing to mand. Mark Sundberg has successfully demonstrated teaching mands through manipulation of motivation. The procedure he has used (Hall & Sundberg, 1987; Sundberg et al, 1990) has been to train a sequence of behaviours (for instance, making soup) and then removed a key item (i.e. can opener) and used the motivation to complete the sequence to teach the mand for the respective item. The participants in this study (Hall & Sundberg, 1987) were deaf students (16 and 17 years of age) and following mand training began to mand for the missing items (that were chosen to be targeted) independently 100% of the time (this continued to follow-up). They also discovered that tact training did not improve mand success and that mands needed to targeted directly, by manipulating the motivation.

From: https://flic.kr/p/q5NWCM

Echoics and Imitation are skills that also develop early in childhood development. Through imitation of sounds and movements children accelerate their learning in the first few years of life. Echoics includes vocal sounds, movements (imitation of signs) and also copying text. This Verbal operant is defined by the behaviour matching (point to point correspondence) the antecedent. Here are two examples:

Antecedent (S^D)	Behaviour	Consequence
Say "Boo!"	"Boo!"	Praise
Sees friend waving	Waves	friend smiles

Teaching echoics (vocal sounds) can be difficult with children with Autism, as sound production can difficult to physically prompt and children with Autism can find it difficult to imitate speech sounds. Researchers have successfully taught three non-verbal young boys to echo sounds upon request, and, later, also to label some items (Drash et al 1999). The researchers first established a mand repertoire by shaping up sounds, from crying to specific sounds. When these sounds were reliably produced they transferred them into echoic targets. Motor imitation and sign language can be easier to teach as physical prompting can be easier to implement and fade.

Point to Point Correspondence
[S^D | Behaviour]
"Boo" | "Boo" (vocal)
Wave | wave (movement)
No Point to Point Correspondence
"Boo" | "AAAH!" (vocal)
Wave | Thumbs up (movement)

The tact, derived from "contact" (to contact the environment, through senses), is using labels. In the three term contingency the antecedent there is a non-verbal stimulus that evokes the behaviour and the consequence is typically so-

cially mediated, with attention. There is an example of this below. Tact can also occur when the speaker is labelling an event in the environment and also private events, for example pain and feelings, etc..

Antecedent (S^D)	Behaviour	Consequence
Sees an aeroplane in the	"Aeroplane"	Listener attends to
"What do you see?"	"Elephant"	Listener smiles and agrees "you're right"

Typically in tact training children are asked "What is this/ what do you see/etc.?" and then the therapist will use an echoic prompt. Marchese et al (2012) investigated the outcomes of using the question "What is this?", or omitting the question, during tact training, on acquisition. The researchers found that acquisition was faster when the question is used, and suggested the question "might evoke attending to task materials" (Marchese et al, 2012) which improved responding and, in turn, acquisition.

Intraverbals are conversational language. In the three term contingency an intraverbals follows a verbal stimulus in the environment, so someone talking (asks a question or makes a comment). The key features of an intraverbal is that it does not match the verbal behaviour that occurs as the antecedent (no point to point correspondence) and it's prompted by a verbal stimulus. Look at these examples:

Antecedent (S^D)	Behaviour	Consequence
Asked "How did the meeting go?"	"Terrible!"	Social interaction continues
"Twinkle, twinkle. Little …..	"Star"	Father praises!

These skills are usually taught as "fill-ins" for younger children, so they complete a sentence or a rhyme, like the second example. These targets teach the turn taking that occurs during conversation (I speak, you speak, etc.). These then progress into questions, for example "What is your name?", and then "Tell me what happens in the story", as converstaion becomes more and more elaborate, following typical developmental milestones. There is a wealth of research and interest in teaching these language skills to children with developmental disabilities, as this population have deficits in these areas, however little research investigating teaching to typically developing children. Research investigated a tact transfer procedure, which is commonly adopted with Children with Developmental Disabilities (Partington & Bailey 1993). Often Intraverbals are taught by asking the question and then showing a object or picture that prompts the response. The researchers taught items as tacts first so the children can reliably label them, then began teaching targets (for example, "What are some toys?"). The intraverbal targets did not emerge until directly taught. (Partington & Bailey 1993).

Taken from: https://flic.kr/p/gfsBDf

All the research support Skinner's analysis of Verbal Behaviour. Breaking language into these Operants and teaching each in this way has been proven successful across many populations, for example typically developing children (Partington & Bailey 1993), children with Autism (Drash et al 1999) and adults with Brain Injury (Sundberg, et al 1990). Skinner suggested that each Operant was functionally independent of other verbal operants, and many studies have found this to be true. It is commonly observed that a target may need to be directly taught across all Operants and may not emerge without training. A BCBA will be able to support you in developing and implementing a training programme that follows Skinners Analysis of Verbal Behaviour.

Drash, P. W., High, R. L., & Tudor, R. M. (1999). Using mand training to establish an echoic repertoire in young children with Autism, The Analysis of Verbal Behavior, 16, 29-44.

Hall, G., & Sundberg, M. L. (1987). Teaching Mands By Manipulating conditioned establishing operations, The Analysis of Verbal Behavior, 5, 41-53.

Marchese, N. V., Carr, J. E., LeBlanc, L. A., Rosati, T. C., & Conroy, S. A., (2012). The effects of the question "What is this?" on tact-training outcomes of children with Autism, Journal of Applied Behavior Analysis., 45, 539-547.

Partington, J. W., & Bailey, J. S. (1993). Teaching Intraverbal behaviour to preschool children, The Analysis of Verbal behavior. 11, 9-18.

Skinner, B. F. , (1957). *Verbal Behavior*. Acton, MA: Copley Publishing Group

Sundberg, M. L., San Juan, B., Dawdy, M., Arguelles. M. (1990). The Acquisition of Tacts, Mands, and Intraverbals by Individuals with traumatic brain injury. The Analysis of verbal Behaviour, 8, 83-99.

PEOPLE WHO INSPIRE US

This month we will be celebrating the pioneer of Operant conditioning and reinforcement, Burrhus Frederic Skinner. B. F. Skinner was born in March 1904 in Pennsylvania. In 1928, after trying to pursue a career as a writer, he attended Harvard University to study psychology. Whilst studying at Harvard he developed the Skinner Box. Using this he published the results of his experiments in his book '*The Behavior of Organisms*' in 1938. In 1947 he became a lecturer at Harvard University, following other experiments and endeavours. He remained at Harvard for the rest of his career, and wrote several other books, including *Walden Two* (1948), *The Technology of Teaching* (1968) and *Beyond Freedom and Dignity* (1971). One of Skinners main critics was Noam Chomsky , who is a linguists who's theory of the Language Acquisition Devise (LAD) opposes the theory of Verbal Behaviour developing through operant conditioning. Chomsky critiqued Skinner's book 'About Behaviorism'. B. F. Skinner died in August 1990.

NET IDEAS

Paper shreddings is a fun activity for young children. This is a great messy play activity (not too messy!) that really encourages children's imagination. You can contrive motivation for mands for paper or a container that the paper is in (i.e. bag or tray, etc. (mand, 5M)). You can also contrive motivation for different actions, drop, tip (or down), throw (or up) or also jump (mand, 7b). You could also lay down and get your client to cover you or you could cover them. This would give you a great opportunity to discuss body parts, for example, "cover my arm/knee/hands/etc." (tact 7a; LR† 4c). To extend the activity you could add some characters which would increase opportunities to label different things or introduce some conversational skills.

Image taken from: https://flic.kr/p/6kADA5

Preceding skills reference to the VB-MAPP Assessment tool:

Sundberg, M. L. (2008) Verbal Behavior Milestones Assessment and Placement Program: The VB-MAPP. Concord, CA: AVB Press.

†LR: Listener Responding.

PRODUCTS

This months wish list covers some recommended textbooks for you to add to you collection. This books mostly cover Applied Behaviour Analysis and it's application with young children.

TERMINOLOGY

Scrolling is a definition given when a client is producing several response behaviours. An example of this Is when a child is learning the mand water and when presented with water vocalises "cookie, cake, juice, water". It is important to be vigilant with responses that occur in this manner and ensure there is a clear break between the scrolling behaviour and the correct response. Also it is important that reinforcement is delivered only contingent on a clear response to avoid reinforcing scrolling behaviour. You may need to discuss with your supervisor if you are concerned your client is scrolling as this is a significant barrier to learning.

EVENTS

UK Society of Behaviour Analysis (UK SBA) have announced their next speaker series. This will be held on the 21st and 22nd of April in London. Wayne Fisher, PhD, BCBA-D and Cathleen Piazza, PhD, BCBA-D will both be speaking. For non-members one day costs £175 or both days £250. For members ensure you log in before registering to pay the reduced member rate.

The annual Division of Behaviour Analysis Conference will be held on the Friday 10th June (Non members– €110) and Saturday 11th June (Non members– €100) , in National University of Ireland, Maynooth. Speakers include Jon Bailey, Ph.D., and Peter Sturney. Please follow the relevant links to find out more information and to book a place.

Kevin Vowles and Gail Sowden will be presenting a workshop on Interdisciplinary ACT for Chronic Pain. This will take place in Manchester on Saturday 18th and Sunday 19th of June (9am-5pm). Tickets cost £233.29 (early bird tickets are no longer available).

Child Autism UK offer a variety of courses throughout the year. These courses include topics like "Increasing motivation", "School Shadowing".

Carole Roxburgh BCBA and Jamie Weinlein BCBA of Carbone Clinic will be running a hands on training for teaching Verbal Behaviour. This will run from 12-14th July in Chester. For more information email Carole directly at croxburghcarboneclinic@gmail.com.

STUDY TIPS

A great way to keep up to date with topics is to use Google Alerts. You can add a term, for instance "Applied Behaviour Analysis" and each time this term is used online you will receive an email. This way you can keep up to date with articles, blogs and research. This will help you find new information and resources while studying!

Remember to contact us at our email account busyanalyticalbee@gmail.com and like our Facebook page and Twitter page @AnalyticalBee

Next month we will be looking at smoking behaviour, so be sure to subscribe so you receive the next exciting edition.

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