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Competent and Ethical Practices in Applied Behavior Analysis

Introduction

Achieving competent and ethical practice in applied behavior analysis (ABA) can pose significant barriers and difficulties for the practitioner, researcher, teacher, and student particularly when conducting a research study. Therefore, it is important for a behavior analyst to understand what it means to behave in an ethical manner through use of principles of conduct and of competent practice.

The field of behavior analysis is often thought of as a unique field within the scientific community that encompasses both research and practice. Several areas that involve human subjects within research encourage the use of randomized controlled trials or other group designs as a means of studying the effects of different interventions. Within these areas, the methods that are utilized by researchers are different from the methods that are used by practitioners to evaluate various interventions. Since these differences in methods used exist between practitioners and researchers, those that write about research ethics will typically discuss the ethical conduct concerning research using group designs and the ethical claims regarding the generalization of this particular research to individuals within the populations that are studied. On the other hand, the field of behavior analysis differs from other fields with regard to the context of research and the methods that are used to evaluate an intervention with human subjects. Methods that are used by behavior analytic researchers can be replicated through use as an empirically supported method for changing the behavior of an individual. This generalizability of methods used in research to general practice generates ethical concerns and challenges that are specific to the field. Additionally, research ethics may be regarded as a series of rules that a researcher needs to follow or certain responses that need to be provided as a method for avoiding aversive contingencies. While these may seem to be cumbersome to some individuals, it is important for a behavior analyst to understand that ethical

decisions are continually being made throughout the entire research process that allows for higher quality research to be conducted with a greater impact being made on society.

In this course, participants will learn to (1) discuss the different ethics codes for behavior analysts that have been delineated regarding research in applied settings, (2) identify several principles and values that guide scientific research, and (3) identify a multitude of ethical considerations when balancing clinical effectiveness with the design of the research study that is to be implemented.

Section 1: Research in Applied Settings

The field of behavior analysis is not only considered a science but also a professional practice that contains both theory and methodology as their basis. When evaluated as a science, behavior analytic research has a strong focus on the study of various principles of learning as they are applied through different interactions that occur between the environment and the behavior of others. Research within the field of behavior analysis is based on a continuum that begins with basic and extends to applied while each area actively contributes to the shaping and development of the science and practice. Additionally, research that is conducted within the field is categorized based on the manner in which the different variables that are being studied are selected. Research that is considered basic is designed to help provide responses to questions that are derived from theories of learning through variables that are selected carefully. On the other hand, applied research refers to the application and analysis of the science as it pertains to socially significant change for an individual.

Research that is considered to be applied forms the basis of the field of ABA. ABA, while it maintains its foundation in science (i.e., behavioral, analytic, conceptually

systematic), also considers areas that are socially significant to others. Social significance is viewed as being important or significant to an individual or society. The science and clinical practice of behavior analysis both overlap; however, the clinical practice of behavior analysis also differs from the application when referring to scientific purposes. Clinical practice refers to the application of the principles of the science of behavior that create socially significant change for others whereas research refers to the extension of generalizable knowledge.

When conducting research or applying clinical practice, ethical guidelines are established as a way to provide a general sense of how one should conduct themselves. Professionals within the field are expected to apply these rules to different situations that they encounter within both basic and applied research as well as within their own clinical practice (Cox, 2020). For example, beneficence delineates that the benefits should outweigh the risks associated with research; however, a formula does not exist that provides an evaluation of benefits and risks for every situation that may arise. Therefore, navigating the generality of ethical guidelines can be complex. It may necessitate the evaluation of several variables across different situations and times and require the use of various ethical guidelines. If one wants to behave ethically in both research and practice, it will require the professional to continually consider the general ethical principles and codes of professional conduct and how they can be best applied to the situation at hand.

Ethics Regarding Research Conducted in Applied Settings

There are several factors that should be considered prior to an individual engaging in research within an applied setting. One area that should be considered is the protection of research participants. When research is conducted within an applied setting, this research involves the use of human participants. Therefore,

the rights and welfare of these participants should be protected. Ethical guidelines and federal regulations concerning the protection of human participants were developed as a result of unethical events associated with research that occurred throughout the 1900s. Three general ethical principles were created as a result of these unethical events that were based on respect for persons, beneficence, and justice.

These principles were developed so they could be used as a basis for making ethical decisions and solving problems within various research activities. As a result, these have also been incorporated into the Ethics Code for Behavior Analysts (Behavior Analyst Certification Board®, 2020; BACB®).

As a behavior analyst conducts research within an applied setting, the behavior analyst will need to be aware of the conditions and processes associated with which informed consent is obtained during both research and within clinical practice.

6.04 Informed Consent in Research (BACB®, 2020): Behavior analysts are responsible for obtaining informed consent (and assent when relevant) from potential research participants under the conditions required by the research review committee. When behavior analysts become aware that data obtained from past or current clients, stakeholders, supervisees, and/or trainees during typical service delivery might be disseminated to the scientific community, they obtain informed consent for use of the data before dissemination, specify that services will not be impacted by providing or withholding consent, and make available the right to withdraw consent at any time without penalty.

2.11 Obtaining Informed Consent Behavior (BACB®, 2020): Behavior analysts are responsible for knowing about and complying with all conditions under which they are required to obtain informed consent from clients, stakeholders, and

research participants (e.g., before initial implementation of assessments or behavior-change interventions, when making substantial changes to interventions, when exchanging or releasing confidential information or records). They are responsible for explaining, obtaining, reobtaining, and documenting required informed consent. They are responsible for obtaining assent from clients when applicable.

Several of the individuals that receive services within ABA settings are members of a vulnerable population and will need additional safeguards in place when informed consent is sought out for research. Informed consent will often need to be obtained through parents or legal guardians, and information will need to be relayed so that it can be understood and that consent is voluntary. Informed consent should be a voluntary process that requires consideration concerning the relationship that exists between those that are obtaining consent and those that are providing consent.

Additionally, the contingencies that control the researcher's behavior are more likely to be different based on the reason as to why the research is being conducted. There may be several different variables that control the reason for the research such as recognition through awards, part of a requirement for a job or degree completion, or even for publication purposes. Positive outcomes associated with conducting research may also motivate organizational leaders as a method for determining the effectiveness of the services that are being provided. Competing contingencies should be balanced as various types of research are being implemented within a setting that is applied. There are several BACB® codes that should be considered:

6.07 Conflict of Interest in Research and Publication (BACB®, 2020): When conducting research, behavior analysts identify, disclose, and address conflicts of

interest (e.g., personal, financial, organization related, service related). They also identify, disclose, and address conflicts of interest in their publication and editorial activities.

1.11 Multiple Relationships (BACBⓇ, 2020): Because multiple relationships may result in a conflict of interest that might harm one or more parties, behavior analysts avoid entering into or creating multiple relationships, including professional, personal, and familial relationships with clients and colleagues. Behavior analysts communicate the risks of multiple relationships to relevant individuals and continually monitor for the development of multiple relationships. If multiple relationships arise, behavior analysts take appropriate steps to resolve them. When immediately resolving a multiple relationship is not possible, behavior analysts develop appropriate safeguards to identify and avoid conflicts of interest in compliance with the Code and develop a plan to eventually resolve the multiple relationship. Behavior analysts document all actions taken in this circumstance and the eventual outcomes.

1.13 Coercive and Exploitative Relationships (BACBⓇ, 2020): Behavior analysts do not abuse their power or authority by coercing or exploiting persons over whom they have authority (e.g., evaluative, supervisory).

Services that are provided with different applied settings will require ongoing and collaborative relationships to exist among family members and professionals. It is important for a behavior analyst that these relationships may provide families with a sense of commitment to the professional which can result in a sense of obligation to provide consent to participate in research. Therefore, precautions should be taken to provide a clear definition of the role that consent is being requested for as well as a statement that outlines the independence of consent for research and services provided in the applied setting.

Research, when it is discussed concerning the topic of service delivery, requires a behavior analyst to make arrangements for research activities that prioritize the welfare and services of a client.

6.03 Research in Service Delivery (BACB®, 2020): Behavior analysts conducting research in the context of service delivery must arrange research activities such that client services and client welfare are prioritized. In these situations, behavior analysts must comply with all ethics requirements for both service delivery and research within the Code. When professional services are offered as an incentive for research participation, behavior analysts clarify the nature of the services, and any potential risks, obligations, and limitations for all parties.

Each person within a professional field is responsible for being familiar with and being able to apply the general ethical principles of respect for persons, justice, and beneficence. Additionally, the ethics code that is outlined for that profession should also be integrated into their research practices.

Section 1 Personal Reflection

Within the factors that were discussed for conducting research in an applied setting, which BACB® ethics code do you believe will be the most difficult to ensure is integrated into your research practice? Are there other ethics codes that you believe may require more awareness than others to ensure they are being upheld while conducting research?

Section 1 Key Words

Applied research - application and analysis of the science as it pertains to socially significant change for an individual

Basic research - designed to help provide responses to questions that are derived from theories of learning through variables that are selected carefully

Beneficence - benefits should outweigh the risks associated with research

Section 2: Principle and Values that Guide Scientific Research

Scientific research has had a significant impact on the lives of humans in that it is designed to improve the lives of others. The countless tasks conducted by behavior analysts, the data that a technician collects through an electronic data collection system, as well as the broad dissemination of research findings on various topics are all made possible by the scientific research that has been conducted. Research may not always go as planned, though, and instead end up harming people, animals, or even different aspects of the environment.

As harm impacts individuals, animals, and the environment, the field in which the research is being conducted tends to develop ethical guidelines that reveal that this particular field does not approve of this conduct. As research was conducted within the area of behavior modification in the 1970's, public attention focused on concerns regarding aversive conditioning procedures and methods of behavior control that were questionable (i.e., electric shock). Research into the ethics that were used in the science behind the study of human behavior was conducted by the Subcommittee on Constitutional Rights of the Committee on the Judiciary. Results demonstrated that the rights of individuals were not always being upheld during the case of Wyatt v. Stickney (Rutherford, 2006). Furthermore, as a result of these scandals that culminated within this trial, guidelines that were associated with the use of least restrictive methods were formulated. This meant that

individuals have the right to have the least restrictive interventions used that are able to achieve socially significant goals within research parameters.

These ethical guidelines provided a clear function which was to protect research participants from acts of harm that could occur in the future. When ethical guidelines are developed as a result of a scandal, limited resources are used to focus on behavior that is acceptable and the potential to cause the most harm within the field and to other individuals at a minimum. This type of ethical guidance also demonstrates to the general public that this is not how research is generally conducted within the field and that this behavior is not tolerated by the research community.

There are also drawbacks associated with the development of ethical guidelines when they are formulated as a response to misconduct. One drawback is that this method of development only focuses on the behaviors that researchers should not engage in. For example, this method may limit the function and scope of ethical guidelines to only developing guidelines that prevent a researcher from engaging in misconduct, not allowing harm to those that participate in research, and providing contingencies that will punish either of these aforementioned behaviors.

Additionally, when ethical guidelines are formulated as a response to the misconduct of others, advances in the area of ethics would only occur when a misstep within the field occurs and then a way to avoid this misstep is developed for future use. Unfortunately, this would entail the use of a reactive approach as it looks to resolve an issue once the issue has occurred. On the other hand, by developing a broader antecedent based approach to research ethics, prior to an occurrence of misconduct, this will allow for different tools and technologies to be developed that can be used to mitigate harm and avoid other occurrences of misconduct.

The Function of Conducting Research

In order to have a better understanding of what an individual should do when faced with a specific situation, it is best to also understand the function of the behavior that is exhibited. When evaluating the ethical behavior concerning research, this is no exception. There are various behaviors related to research that should be considered and in order to understand if these behaviors are right or correct, the function of conducting research within the field of behavior analysis should be understood. An example of a function of conducting research within the field of behavior analysis may be to have a better understanding of the environment and relationships that exist within the environment. Another function of research within behavior analysis may be to gain a general understanding of knowledge that will improve the lives of individuals beyond just those that participated in the research. Research that is published in the Journal of Applied Behavior and Analysis is typically considered to be "good" as those that read the research within the articles can typically generalize the processes and procedures that were used in the interventions as methods for creating similar if not better results for the individuals that they work with and provide services to. It is important to note, though, that applied research can be difficult to conduct and may require several attempts that lead to researcher error or even outcomes that were not intended. Therefore, adverse effects of applied research can occur such as the participants within the research being at risk of gaining less from the intervention in the study than the time and effort that they spend when compared to the benefits that the researcher receives from publishing the research.

Another possible function for conducting research may pertain to an individual's personal or professional goals. A researcher may want to publish research that they have conducted as a means to furthering their career in academia. Students that complete coursework for their graduate studies may also need to fulfill their

educational requirements through completion of research within the field. In these situations specifically, research is unlikely to be published and students are unlikely to complete their degree requirements if the research that has been conducted goes against any of the commonly accepted rules or methods that are delineated for the ethical conduct of research. Ultimately, if the integrity of the research becomes questioned by others or a form of dishonesty is detected and substantiated, the researcher's career or stance within the field can be ruined (Godlee et al., 2011). Furthermore, if students engage in unethical conduct while conducting research during their schooling, this could result in the student having their degree revoked (Flaherty, 2017).

The function of engaging in research behavior can differ widely from one individual to the next. This variability that is found within the controlling contingencies can lead to patterns of responding that vary, and the resulting research products such as a publication will play a functional role in research behavior by others. By understanding the "why" behind conducting research, this can ultimately help to narrow the ethical rules and principles into those that are the most relevant to the function of one's own research behavior.

The principles that are guiding the ethics behind research are considered to be instances of verbal behavior. These verbal stimuli can impact a researcher's behavior based on the role that they have in both respondent and operant contingencies. The specific functions that are associated with any of these principles of research ethics can differ from one individual to another as well as the conditions in which the verbal stimuli vary in correlation with consequence events. Additionally, verbal behavior does allow individuals to learn various contingencies without having to directly experience these contingencies (Hayes et al., 1986). Individuals can learn to exhibit behaviors that help their performance toward an outcome that they are desiring to achieve. For example, a behavior analyst may have never implemented a specific assessment in their intervention,

but after having read how to implement this assessment are able to do so in their work environment the following week. Similarly, when an individual is able to read different ethical rules and guidelines on how to handle different situations, a researcher may be more likely to exhibit behaviors that are viewed as right as they relate to the broader function of conducting research within the field.

Rules and decision models concerning ethics can help a researcher know what to do in certain situations. This area is known as normative ethics- what someone should do in a particular situation. For some situations that may be simpler, there may be one or more guidelines that can directly notify a researcher as to a particular behavior that the field of behavior analysis views as correct. For example, according to the ethics codes that are outlined for behavior analysts to adhere to, researchers should provide credit toward the collaborators that have been involved in any research activities that have been completed (BACB®, 2020 Code 6.08) and data are to be published using accuracy and in completion without the omission or fabrication of any results (BACB®, 2020 Code 6.11). As a result, when a behavior analyst decides to publicly display their research and findings of such research, the expected behaviors that the behavior analyst should engage in are delineated in a clear manner.

A decision model can be utilized by researchers as a way to help determine what to do when a more complex situation arises. These types of models are created to help the individual that is using them to make the best decision possible for the situation that they have encountered as it relates to meeting a predetermined goal. A decision-making model is able to achieve this outcome by acting as a textual prompt that helps guide the individual using the model to consider variables and options that are relevant that may not previously been considered without the use of the model prompt. These models are helpful as they are able to walk an individual through a chain of behaviors that will act to increase the

probability that the individual will make a decision that is better than if they had not used the model in this situation.

Although guidelines and decision models have the ability to help an individual determine what they are to do in a given context, these items do not typically help to identify why someone should engage in a particular behavior. For most people, they are not easily convinced that they should do something simply because someone else told them to do it. Some individuals will result in questioning if what they are being told to do is actually the right thing that they should do. Ethical principles, values, and theories, known as normative ethical behaviors, are in place to help justify why a researcher should follow along with various rules and guidance on how they are to behave in a situation.

The Belmont Report

The Belmont Report was developed with the intent to provide three ethical principles that acted as a set of guidelines for conducting research with the use of human participants. Additionally, the Belmont Report provided three demonstrations that showed others how to apply these particular principles.

One principle that was discussed within the Belmont Report was regarding respect for persons (The Commission, 1978). This principle delineated that individuals should be treated as an autonomous agent and that all individuals that demonstrate a diminished autonomy have the right to protection (The Commission, 1978). Ultimately, this means that all individuals have the right to be provided with all options that are available to them and given the opportunity to select among these options as long as it does not result in significant harm to the research participant or other individuals. However, there are other individuals, such as children or those diagnosed with a developmental disability, that may make choices resulting in harm to not only themselves but other individuals as

well. They may also not understand the consequences of their choices completely. These individuals, when presented with these situations, may need another person (i.e., parent, guardian, caregiver) to help them make a choice so that they are able to avoid any harm and can maximize their own well-being.

The second principle that is outlined within the Belmont Report is beneficence (The Commission, 1978). This principle of beneficence states that individuals should be treated in a way that secures their well-being. The term well-being can be defined by different people in different ways. Additionally, research within the field of behavior analysis has also revealed that people have different preferences (Verriden & Roscoe, 2016). Even though this may be the case, there are still two ultimate rules that are typically used to guide behaviors that coincide with improving the well-being of other individuals. The first rule is to do no harm, and the second rule is to maximize the benefits that are possible while also minimizing any potential harms.

Lastly, the third principle that is outlined within the Belmont Report is justice (The Commission, 1978). Within this context, justice refers to the equitable distribution of both the benefits and costs that are associated with conducting research. As research is being conducted, injustice can happen in a minimum of two different ways. One way that research injustice occurs is if the amount of benefit that a research participant encounters from the research that was conducted is less than the amount of benefit that the research participant has the right to receive. Research injustice can also occur if the burden or costs of conducting research are not able to be distributed fairly across those individuals that participated in the research. These items can differ substantially based on the different types of methodology that are used and decided upon by the researcher.

The ethical principles that are outlined within the Belmont Report have provided others with an ethical framework for protecting participants involved in research and have been applied toward the creation of principles that are contained within different codes of ethics across fields. For example, the respect of a person's principle has been used to formulate the informed consent process where individuals are provided with all of the information as it pertains to the research study in a method that is easy to understand and provides a choice in participation. Additionally, the beneficence principle has led to researchers assessing the potential risks and benefits with the intention that these findings will minimize harm and maximize benefits of the individuals that participate in research. The justice principle, on the other hand, necessitates that participants are selected based on a fair and impartial manner and that vulnerable individuals are not exploited.

Additional Principles Regarding Research Ethics

The Belmont Report was monumental in outlining a foundational framework for how researchers are to respond in regard to human subjects and decisions as they relate to research. The field of research is broad, though, and several works have been devoted to both the theoretical and empirical advancement of this area. Although the three principles that were delineated within the Belmont Report continue to be used and endorsed by researchers and those individuals that oversee the work done by researchers, there are several other principles of research ethics that are outlined within the literature on this topic (White, 2020).

Nonmaleficence

Nonmaleficence is typically classified as the principle that means to do no harm to others. This principle focuses on minimizing or avoiding harm that can result due to a decision that has been made. When considering how this is applied within

research, the principle of nonmaleficence can be utilized to justify the inclusion of termination of sessions early, the use of restraints as needed, or even conducting a functional analysis only on behaviors that are exhibited consistently prior to self-injurious behavior. This principle can be linked to beneficence as both are typically involved in discussions surrounding calculations about risks and benefits and whether or not the benefits gained by the research participant is worth the cost associated with conducting the research.

Avoiding Exploitation

There can be different times throughout a researcher's career where they find that the function of their own scientific behavior conflicts with the function of why the participant has opted to participate in the research study. For example, this can happen when the function of the behavior of the researcher is to see if an observation from a controlled laboratory setting is able to be viewed in a clinical setting. However, the function of the participant's behavior for participation in the study may be to increase their overall healthiness through exercise and diet. It may not be known to what extent the function of the behavior of the researcher and the participant aligns at any point. When the motivation for participating in research is different among the participant and the researcher, the chance that exploitation can occur increases.

Exploitation happens when the benefits and burdens are distributed unfairly among those that are involved in the research study (Emanuel et al., 2008). Avoiding exploitation is another principle of research ethics that can be used to justify decisions that are made that are ethical in nature. Avoiding exploitation is typically used to provide support for various ethical research decisions such as determining the amount of compensation that is right for each research participant without there being any undue influence, what the limits are for how research data should be used beyond that of the scope of the original research

question, and any additional protections that should be included when research is being conducted with populations that are considered to be vulnerable.

Anonymity and Confidentiality

The term confidentiality means that any of the information that has been disclosed between two parties should not be discussed or shared with others without the party's approval. Within the realm of behavior analytic research, confidentiality and anonymity insinuate that researchers will make sure that any personal health information or identifiable information about any of the participants in the study will not be shared or available (Wiles et al., 2008). A research participant has the right to remain anonymous and their personal and health information is to be kept confidential. These rights are, in turn, principles that are used to support various practices as to how a researcher can describe or name a research participant when publishing research findings. These principles also support the many rules that Institutional Review Boards (IRBs) have as they pertain to data storage, security, and maintenance protections.

Transparency and Accountability

Two newer principles that are meant to guide the decision making of a researcher are known as transparency and accountability. Within the area of research, transparency is known through ensuring the visibility of the methods, data, analysis, and researcher's interpretation of the study's outcomes so that other people are able to evaluate the research (Moravcsik, 2019). Furthermore, accountability is known as the analysis, creation, maintenance, and alteration of any of the contingencies that are involved in research conduct in an effort to maximize the integrity of the research. Through both of these terms, transparency can be viewed as the behaviors that a researcher may exhibit that allow the systems of accountability to be in motion as designed as a means to

maximizing the quality and integrity of the research that is being conducted as well as the accurate interpretation of the data that results from the study.

Both transparency and accountability are typically referred to as they relate to the dissemination of the findings of research when these findings are published or presented on at conferences (Moravscsik, 2019). In order to engage in these behaviors appropriately at the termination of the research process, researchers will need to exhibit a series of behaviors throughout the duration of the research process. For example, if a researcher wants to be able to transparently write regarding the research methods that were utilized in their study so that other researchers can replicate the methods in the study, the researcher would need to document completely and accurately what was completed during the experiment, regardless of when the writing of these methods occur.

Collegiality in the Social Enterprise of Science

Another ethical principle that is similar to but distinct from transparency and accountability is collegiality in the social enterprise of science and respect for colleagues. The subject of science is known as a social enterprise. Although an individual can learn about the happenings of the world and conduct research with limited contact with others, understanding how the findings of research coincide with past knowledge necessitates the participation from many different people. For example, previous researchers will have submitted their own research findings for publication. Other individuals assisted with getting this research published by engaging in a series of other behaviors. Once a researcher concludes a study, other researchers conduct a peer review and provide feedback to the original researcher. In an effort to continue to impact the science of behavior in meaningful ways, additional researchers would need to utilize the findings of the research that were gathered by the original researcher.

It has been noted that there are certain patterns of behavior that influence the cooperation that occurs among individuals that are working toward a common goal (Olivola et al., 2020). These patterns of behavior are able to help encourage cooperation between parties, particularly the cooperation between scientists within a specific field of study. Some of these behaviors that exist are associated with publishing the experimental methods within a study that would allow other researchers to replicate the study, the storage and documentation of the experimental data from a study that allows others to access the information in an easy or free manner, the creation and documentation of experimental tools that allows others to access the tools in an easy or free manner, the method for communication that occurs among other researchers as information is critiqued and supported, and the manner in which experimental roles are formed and authorship is ordered.

Objectivity/Avoiding Bias

When data are obtained through means of empirical research, this data usually acts as a visual stimulus. Researchers are typically taught during their graduate training how to respond to this visual stimulus through the interactions that they have with other peers or colleagues. The responses that are provided to this data that have been gathered are based on one's learned history. Each person is known to have a unique learned history as no two people have experienced everything in the same manner. Therefore, different researchers and individuals will respond in different ways to the exact same data set (Cox & Brodhead, 2021). Conclusively, researchers will tend to be biased to some degree when they are being tasked with interpreting data that have been obtained, selecting a methodology for use when conducting research, selecting the research questions that they want to have answered, how participants are recruited for a research study, and how research or manuscripts are reviewed that are being submitted for

publication in a journal. As a result, researchers are required to have an ethical obligation to be aware that they could be biased throughout the duration of the research process and that they should take any steps and precautions necessary to mitigate these biases.

The Belmont Report provided the foundation for individuals to collaborate with one another in order to develop and establish rules and contingencies that allow researchers the opportunity to move the scientific field forward while continuing to maintain and even enhance the rights, dignity, and well-being of the individuals that participate in research. Throughout the past forty years, more and more ethical principles and values have been established and integrated into the research practices of researchers and scientists all over the world. Some of these ethical principles and values include: nonmaleficence, avoiding exploitation, protecting the anonymity and confidentiality of those individuals that participate in research, transparency and accountability of the information gathered and processes used within the study, collegiality in the social enterprise of science, as well as objectivity and avoiding bias.

Section 2 Personal Reflection

Which ethical principle within the Belmont Report do you feel you need to work more diligently to ensure is occurring within research that you or your colleagues are conducting? Do you find that one principle over another is easier for you to include and why?

Section 2 Key Words

Accountability - the analysis, creation, maintenance, and alteration of any of the contingencies that are involved in research conduct in an effort to maximize the integrity of the research

Confidentiality - any of the information that has been disclosed between two parties should not be discussed or shared with others without the party's approval

Decision model - created to help the individual that is using them to make the best decision possible for the situation that they have encountered as it related to meeting a predetermined goal

Exploitation - when the benefits and burdens are distributed unfairly among those that are involved in a research study

Justice - equitable distribution of both the benefits and costs that are associated with conducting research

Nonmaleficence - focuses on minimizing or avoiding harm that can result due to a decision that has been made

Normative ethical behaviors - ethical principles, values, and theories that are in place to help justify why a researcher should follow along with various rules and guidance on how they are to behave in a situation

Respect for persons - delineated that individuals should be treated as an autonomous agent and that all individuals that demonstrate a diminished autonomy have the right to protection

Transparency - ensuring the visibility of the methods, data, analysis, and researcher's interpretation of the study's outcomes so that other people are able to evaluate the research

Section 3: Equity, Diversity, Inclusion, and Access

At the heart of ABA, there are seven dimensions that have been delineated: applied, behavioral, analytic, generality, conceptually systematic, effective, and

technological (Cooper et al., 2020). Although all seven of these dimensions are weighted equally, the applied dimension is important in understanding the value of diversity when discussing behavior-analytic research.

Behavior analysts should be mindful when engaging in research so that it is based on the needs, preferences, and strongest contextual fit for both the communities and cultures in which the research is being conducted. The applied dimension encompasses the view that behavior analytic research and practice should both be relevant to society and the individuals that reside within that society. Practices and research should represent the needs of the individuals that reside within these different communities and with the different cultures that are prevalent throughout society. Researchers should make note of and be responsive to the culture of those that are participating in research and how the researchers own culture coincides. Additionally, behavior analysts should also evaluate the dimension of generality through the views of philosophic doubt as culture and the evolution of culture contain many complex and interlocking contingencies that are unique and individualized to one's identity, subculture, and intersectionality. Furthermore, researchers should consider their own identities and cultures as they compare to that of research participants.

Equity, Diversity, Inclusion, and Access (EDIA) and Evidence-based Practices

According to the Ethics Code for Behavior Analysts (BACB®, 2020), the following variables have been stated as being related to diversity: age, disability, ethnicity, gender expression/identity, immigration status, marital/relationship status, national origin, race, religion, sexual orientation, and socioeconomic status. When diverse individuals are included, different ideas are fostered within an environment. Furthermore, culture exists when similar learning histories are

molded and developed by the environment and context in which an individual is in (Sugai et al., 2012).

The definition of culture by Sugai et al. (2012) can be further extended to encompass shared behaviors that are arranged by verbal communities through contingencies (i.e., reinforcement, punishment). Behaviors that occur are maintained through use of interlocking contingencies. In these situations, the behavior functions to affect other behaviors that have similarities (i.e., belief, values) until a common culture has been developed (Glenn et al., 2016). Additionally, Skinner (1981) even noted that the social environment is important as it is able to produce human behavior and that one's culture has an impact on their behavior. It is important to understand the impact that one's social environment can have on the behavior of participants, researchers, and scientific community and how that will impact the field of behavior analysis.

The identity of an individual can be a result of their learning history as well as the history of the verbal community, culture, or environment that they take part in. Groups, though, should not be defined by a single dimension as one person may have several different identities (Hugh-Pennie et al., 2021). There may also be different subcultures that exist with a larger cultural group. Environments with people from diverse backgrounds can help to create a platform for different ideas to be created whereas the lack of inclusion of individuals from diverse backgrounds may lead to the opposite (AlShebli et al., 2018).

The majority of research that has been published in the field of behavior analysis has been conducted predominantly in the English language. Additionally, this research has been a product of Western culture in the United States. This research may not contain a broader cultural diversity and has limitations when referring to what might be considered as evidence-based practice (EBP). EBP infers that interventions exist and are backed by empirical support. These

interventions are developed from research that has typically demonstrated the effectiveness of these interventions.

Ethical Decision-making During Research Process

There are several areas within the research process where diversity and the lack of diversity can influence the research that is conducted and disseminated. Some of these opportunities include the formation of a research team, recruitment of individuals for participation, and measures that are used proactively to prevent colonialist research from occurring.

Development of a Diverse Research Team

The field of behavior analysis is lacking in both racial and ethnic diversity, especially when evaluating individuals with a Board Certified Behavior Analyst (BCBA®) credential and BCBA® with a doctoral designation (BCBA®-D; BACB®, n.d.). Research within the field of behavior analysis is typically conducted and implemented by BCBA®s. The disparities that exist among BCBA®s when evaluating issues of EDIA in research will likely lead to research goals being selected mainly by White BCBA®s.

These mismatches that exist regarding culture and language between researchers and participants can cause difficulty with communication and the implementation of the research study. A mismatch in culture between these two parties can become a huge concern as the researcher is the one who decides which topics are researched and studied. These research topics may pertain to what the researcher determines as being socially significant issues to the community when the researcher does not have a shared learning history with the community in which they are researching.

These mismatches can also present concerns when a researcher recommends a socially significant goal if the researcher does not share the same values and experiences as those that are participating in the research study. For example, a researcher may determine that an intervention for an individual from an immigrant family should include teaching the young child from the family that they should not hug a stranger. In this situation, the researcher may define the term stranger as someone that has never been met before. However, when this child meets their aunt and uncle for the first time, they are able to complete this skill and refrain from hugging them. Unfortunately, this is then viewed as a sign of disrespect in the child's culture. Prior to implementing this intervention, the researcher should have learned the significance of hugging in the culture of this specific family which may have resulted in a different variable being selected for the intervention. Therefore, this example demonstrates the importance of a researcher designing a research study with the input from members of the community where the research study is taking place.

When the cultural identities of researchers on a team are not in line with the cultural identities of the participants, the researchers should make attempts to become familiar with the culture and expectations of the community prior to finalizing any of the protocols that will be used in the study or any of the variables are solidified. Individuals within the community or identity that are involved in the research study should be allowed the chance to be a part of the research process. One particular method for ensuring this is done is by working with local universities or community colleges that have similar areas of study to determine if students would like the opportunity to gain experience within research. Creating a research team that contains the values and identities that are being studied is a crucial step in ensuring that research is conducted in a responsible and culturally inclusive manner.

How to Recruit Participants Responsibly

Historically, research that has been conducted has been representative of White, Western, and English-speaking individuals that agree to participate (Apfelbaum et al., 2012). Factors that relate to diversity should not be considered arbitrary. An individual's learning history may differ from someone else's learning history as a result of different variables that are related to diversity. Primary reinforcers may also differ as a result of diverse factors. For example, an individual that experiences being hungry often may have a much stronger establishing operation for the presence of food when compared to someone that resides in an area where food is offered regularly. Therefore, socioeconomic status may be a variable that should be considered when conducting research.

The Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavior Research, 1979) delineated the importance of including participants from diverse backgrounds as participants in research studies so that disproportionate research risks could be avoided within some of the communities. However, it may be difficult to determine the influence of these assumptions concerning variables associated with diversity on research that is conducted in the field of behavior analysis as demographic information is not universally being reported. Therefore, this lack of reporting further perpetuates the concern that a lack of diversity within research participants may continue to encourage a one approach fits all for consumers of research. Ultimately, this would not fit the needs of the individuals that are being served within different communities and with different diverse backgrounds (Zarcone et al., 2019).

Additionally, the inclusion of a specific diagnosis as criteria for participation in a research study may act as a barrier when research is warranted with diverse participants. Inclusion of a particular diagnosis or even educational classification may reveal different biases and inequities that are present in diagnostics. Various

diagnostic assessments and special education classifications rely on the clinical judgment of professionals when diagnosing or classifying an individual. This judgment can result in biases that are portrayed by those conducting the assessments (Cruz & Rodl, 2018). There are several geographic areas where a diagnosis may be challenging to acquire as a result of limited resources. Therefore, a researcher should take into consideration if the requirement of having a diagnosis in order to participate in a research study is equitable in the location where the research study is being conducted. This requirement may unintentionally not allow participants from other groups as they do not have equitable access to these resources that allow for a diagnosis. When a research study focuses on a specific population, it is important for the researcher to consider both the benefits and consequences that would be associated with limiting research participants to this certain criterion.

An additional inclusion criterion that may be a potential barrier to diversity within a research study is concerning attendance requirements. These attendance requirements may exclude some individuals from being able to participate in a research study as they may be required to commute to a research site. These participants may have limited access or even lack access to transportation that would allow them a means to the research site. Additionally, some research participants may practice a religion that would limit their participation in a research study during religious holidays. Daily prayer that occurs multiple times a day may impact the ability for sessions to be scheduled. The feasibility requirements of participating in a research study should be considered by the researcher. A research study may need to be conducted in an area that is able to be easily accessed by participants. For example, a research study may need to be conducted within a clinic that does not have access to public transportation. This may, in turn, inadvertently require the participants in the research study to have access to private transportation. Public transportation would also require

participants to have funding for access to this level of transportation. These factors may discriminate against different populations that do not have access to these items. Therefore it is important to consider these factors when designing a research study and the recruitment of participants.

Reporting of Demographic Data

According to the American Psychological Association Publication Manual seventh edition (APA, 2020), researchers are encouraged to report participant identities as the research participant reports the information. Additionally, language that implies binaries should be avoided. This means that implying a female is the opposite of a male is considered a binary approach and should be avoided as it ignores other identities. Furthermore, the use of language such as white and minority or white and nonwhite incorrectly implies that an individual's experience of being either inside or outside of a dominant culture would have an influence that is universal on the environment and behavior.

A researcher should also be cognizant of the language that is used to categorize or describe the participants that are involved in the research study. Many advocates are encouraging the use of identity-first rather than person-first language (Dunn & Andrews, 2015). It is encouraged that the research team ask for preferences from the disabled community and participants themselves concerning the terminology that is to be used when reporting information. If the preference of these individuals is not able to be ascertained, then this can be noted within the manuscript. Race and ethnicity should be noted with the use of capital letters (i.e., White, Black). It is recommended that researchers work to understand and use terminology that is appropriate as it relates to age, gender identity, socioeconomic status, disability, sexuality, and racial identity (APA, 2020).

Section 3 Personal Reflection

What are some additional areas within the research process where diversity and the lack of diversity could influence the research that is conducted and disseminated? How can you ensure that these areas are considered when research is being conducted?

Section 3 Key Words

Culture - exists when similar learning histories are molded and developed by the environment and context in which an individual is in

Evidence-based practice (EBP) - infers that interventions exist and are backed by empirical support

Section 4: Ethical Considerations when Balancing Clinical Effectiveness with the Design of the Research Study

Often, clinicians that are routinely involved in clinical practice may use informal methods to evaluate whether or not the intervention that is being implemented is effective. For example, a clinician may ask the individual receiving services if the targeted behavior has shown improvement, gotten worse, or not changed at all. Even if the individual states that the targeted behavior has shown improvement, the clinician is not able to tell with certainty if the intervention is what produced the improvement. Experimentation is required in order to determine if the intervention produced the change and to also rule out any extraneous variables that may have contributed to the change in the targeted behavior.

Single-case design is a form of experimentation that behavior analysts typically use to determine the effects associated with an intervention in both the research

and clinical realms. This type of design provides the framework for manipulation of an independent variable (i.e., intervention) to determine the effects that occur on the dependent variable (i.e., targeted behavior). Since the goal of behavior analysis is to inflict socially significant change for the individual receiving services, single-case design is typically employed by behavior analysts to determine if the behavior has changed and if these changes are meaningful to the individual. Therefore, single-case design is considered the gold standard for determining the efficacy of interventions within the field of behavior analysis.

How to Evaluate Effectiveness in Research and Clinical Practice

Single-case design includes a data-based approach that is used to assess and treat targeted behaviors within individuals receiving services. Within this approach, the key features include identifying the targeted behavior, determining an operational definition for the targeted behavior, choosing a measurement procedure to be used, and assessing the reliability of the data. Additionally, behavior analysts are ethically obligated to collect and graphically display data as well as interpret the data to determine the effectiveness of the intervention (BACB®, 2020b). Furthermore, data are often collected through direct observation as this method may be less prone to bias including whether or not the individual either likes or dislikes the goals outlined in treatment, the procedures being used, or the personnel that are involved. The repeated measurement component that is found within single-case design is important as it is used to determine the level, stability, and trend of the behavior that is targeted for treatment.

The purpose that is surrounding data collection should be at the forefront of a behavior analyst's mind. Data are important as they provide information regarding the individual's behavior and determine the variables that affect what the individual will do. Data that are collected during a functional analysis can help a behavior analyst to identify the different environmental conditions that are affecting the probability of occurrence of the targeted behavior. The data collected from a functional analysis can also be used to help formulate an

intervention for a targeted behavior and to determine the effects of a selected intervention within a single-case design.

Single-case designs allow for flexibility; the behavior analyst is able to refine, add, or remove different components of an intervention as a result of the data that are collected. If experimentation was not viable within a single-case design (i.e., data collection, manipulation of variables) a trial-and-error method would not be available for a behavior analyst to use to determine what does or does not work. Without data being collected, a behavior analyst would not be able to make a determination if there has been any change that has occurred within the targeted behavior. Through use of single-case designs, the analysis of behavior represents two of the foundational dimensions that are included in the field of behavior analysis. These two foundational dimensions include analytic and technological (Baer et al., 1968).

Another advantage that can be noted for using single-case designs is that feedback is able to be provided to a behavior analyst concerning the work that they are doing. Data that are collected allow a behavior analyst to determine if the intervention that they selected for a targeted behavior is effective. As a result, a behavior analyst is able to use data in a way that can improve their clinical skills. Furthermore, a behavior analyst is also able to aggregate data from multiple individuals that are receiving services to evaluate outcomes in a programmatic manner. Through use of systematic methods to analyze and evaluate interventions, this can lead to better outcomes for those receiving services.

There are several parallels that exist when comparing good clinical decision making with single-case designs. Each of these involved the collection of accurate data prior to the implementation of any treatment. Both clinicians and researchers will attempt to determine the frequency that the behavior occurs, the environmental conditions that are present, and develop hypotheses regarding the function of the behavior. Repeated measurement is used to ascertain the variability in the targeted behavior prior to the implementation of an intervention.

When clinical trials are being conducted, a behavior analyst may be confronted with a decision in which the research protocol states that one course of action should be followed while the behavior analyst's clinical judgment indicates that a different course of action should be followed. When these situations occur, clear, a-priori criteria should be outlined from when a research protocol should be continued and when to withdraw the participant from the protocol and switch to an alternative treatment. If a-priori criteria are not present, then the behavior analyst should lean toward the side of clinical judgment as being the best course to take for the participant. It may also be beneficial to reach out to peers that are not involved in the research or with the particular participant to obtain clinical guidance that is not biased. Furthermore, the participant should also be consulted if these decision points arise.

Recruitment and Retention

In any research design, participant recruitment and retention are at the forefront of the researcher's mind. Participants are typically recruited if they fit the needs of the research question that is being asked. For example, if the research question requires the use of an intervention that is designed to reduce problem behavior that is maintained by attention, then the participants should engage in problem behavior that is maintained by attention. Retention is also important to consider in research design. Attrition of participants can impact the findings of a study and can have implications for the practicality of the intervention that is being considered. For example, if several of the participants no longer participate in the study through completion, the data that is able to be collected from the remaining participants may be insufficient for producing results that are able to be generalized. A researcher may face challenges when attempting to balance the goals of both the research study and that of the individual research participants. These challenges can begin as early as in the stages of participant recruitment. Therefore, it is important to consider various factors associated with recruitment and possible concerns that surround participant retention.

IRBs work to ensure that safe and ethical research practices are balanced with the

risks that may be associated with each potential research study and the possibility of therapeutic benefit. IRBs determine whether or not the possible risks of participating in the research study are greater than minimal. If the risk is believed to be greater than minimal, then the IRB will require the prospect of direct therapeutic benefit and more than likely not approve the research study for implementation.

Some factors that are associated with an increased risk in a research study include the population particularly if a potential participant engages in severe destructive behavior (i.e., self-injurious behavior); the experimental procedures such as if a potential participant would be exposed to an establishing operation for severe self-injurious behaviors for long periods of time; or both. When a behavior analyst desires to conduct research that has greater than minimal risk, it is important that each individual prospective participant is considered and how the potential risks and benefits would impact the participant. On the other hand, research that does not include risk that is greater than the minimal allowed amount of risk does not require the prospect of therapeutic benefit and often proceeds with minimal oversight from the IRB. This does not mean that low risk studies have zero risk associated with them. Instead, the behavior analyst will still need to determine the risks and benefits associated with the potential research and how those align with each participant.

One of the risks that should be considered includes lost therapy time. This should be considered if the behavior analyst anticipates substituting the participant's therapy time with the time that they have allotted for participation in the research study. This participation in the research study is more than likely not going to be able to produce the same therapeutic benefit as therapy time would. Therefore, it may be best to consider involving participants that are from a nonclinical population as an alternative. It is important for a behavior analyst to consider that research that may appear to be low risk for one population may in fact be high risk for a different population.

An ongoing evaluation of both the risks and benefits should be conducted,

particularly when the research is considered to be of greater than minimal risk. Participation in the research will need to be ceased if the risk to benefit ratio changes so that the potential therapeutic benefits of continued participation in the study no longer justify the risk to the participants. Additionally, throughout the duration of the research study, it is important for a behavior analyst to remember that participation in the research study requires ongoing consent. A research participant or their guardian may withdraw their consent to participate in the study at any time. Therefore, it is important that continual dialogue takes place with the participants and their guardians to ensure that all parties understand the goals of the study and the progress that is occurring throughout.

Protocol Changes Based on Clinical Need

Patient results and the quality associated with behavior analytic services can be improved through use of a systematic and data-based approach to treatment. When research is conducted within a behavior analyst's clinical work, the behavior analyst must be able to work through this systematic approach in a manner that integrates both research and practice. For example, critical parts of a systematic approach include the behavior analyst ensuring that all stakeholders within the research study follow the research plan exactly as it is written and only allowing one change to be made at a time. However, there may be a point in time during the research study that certain conditions will warrant a deviation from the research plan that was originally delineated. Various clinical or administrative obligations may require a behavior analyst to make a decision that does not coincide with the original research study plan.

One consideration that a behavior analyst may be presented with aligns with the time that may be allotted for services to be rendered according to a third-party payor. An authorization for services may have reached the end date for services to be rendered or a change in insurance may have occurred for the family which would require a new authorization to be sought out. If services are going to be reduced or discontinued while a research study is taking place, a behavior analyst will need to be ready to make changes.

Another consideration that behavior analysts should be aware of is when there are competing contingencies in place. For example, a behavior analyst may only be allowed a certain percentage of time for nonbillable activities within the organization that they are employed by. A behavior analyst may not be able to implement an ideal training procedure for staff due to factors associated with time and organizational resources.

Additionally, there should be special consideration provided for certain populations as these populations may necessitate an understanding of the conditions that require a deviation from the originally proposed research plan. Individuals all have unique experiences and histories that are unknown to a researcher that may affect how contingencies are interacted with and as a result may change the way in which a researcher implements experimental procedures (Branch, 2021). For example, the number of sessions included in the baseline phase may need to be shortened if dangerous behaviors are exhibited that require an intervention to be put in place sooner instead of later. Furthermore, some settings may have their hands tied by external pressures. Funding sources, such as those from the Department of Education, may make it more difficult for the researcher to implement a baseline phase for longer periods of time. Within the field of behavior analysis, ongoing data-based decisions are continually made during research studies which allow researchers to determine if problems occur throughout the course of the study and for the research plan to be revised as necessary. For example, data that are collected may reveal that an increase in the targeted behavior during an experimental condition presents a safety risk for the participant and those implementing the intervention. In this situation, it is critical that those involved in the research study have a clear understanding of the inclusion and exclusion criteria surrounding involvement in each phase of the study.

It is important for behavior analysts to understand that research that is conducted within the parameters of daily clinical practice should also embrace both evidence-based and cost-effective care for treatment of individuals receiving services. A challenge that is presented once a research study has concluded

involves the ability for the effects of the intervention that were implemented during the research study to be maintained. This area continues to need further research. Some behavior analytic organizations may benefit from the addition of an advisory board that helps to guide the development of parameters for a research program within an applied setting. For example, an advisory board may be able to have knowledge of ethics as a potential area that they can provide guidance and direction for. Within this domain, the advisory board may be able to help behavior analysts with navigating different ethical dilemmas that are associated with research protocols in an applied setting. Even if a behavior analytic organization does not have an advisory board, behavior analysts and organizations in which research is being conducted will need to be able to recognize when the therapeutic goals of an individual move away in such a manner that they no longer coincide with the goals of the research protocol. Additionally, organizations that foster the implementation of research with participants should contemplate how a review of their research practices can be conducted.

Safety of Participants

There are several factors that need to be considered by the researcher as they relate to the safety of the participants when a research protocol is designed and implemented. A researcher should ensure that they have reviewed the procedures and determine if there are any implications for the safety of each of the participants. One step within this analysis is to determine the anticipated population of participants and the targeted behavior that will be involved with the research study. A researcher will also need to determine how this particular population could be more vulnerable to different safety risks that coincide with the targeted behavior and design of the research study. Additionally, the researcher will also need to consider if participation in their research study will benefit from input and discussion from other professionals or use of a multidisciplinary team.

Strict exclusion criteria, particularly if dangerous behaviors are targeted within the

research study or procedures that increase responding are used, should be delineated. Safety should always be kept in the forefront of the researcher's mind as a research protocol is designed and throughout the implementation of the research study. This will allow the researcher to determine the procedures that need to be used that will be the safest and allow the experimental question to be answered as well as how to make changes to these procedures if necessary. Also, a researcher should decide if session termination criteria should be outlined so that a therapist has a clear indication as to when a research session should be ended early in order for the safety of the participant to be maintained.

A researcher should always be knowledgeable concerning any clinic policies and requirements of IRB as they refer to the safety of participants. A research protocol should coincide with these requirements and the ethical guidelines that are delineated from any associated credentialing agencies. Any policies that exist on reporting incidents that happen during a research study should be followed. For example, if an adverse event occurs during a research study, the researcher may need to notify the IRB and the agency that the research took place in.

Section 4 Personal Reflection

What are some additional ethical considerations that should be considered when balancing clinical effectiveness with the design of the research study? How can you ensure that these considerations are integrated into the research process?

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