

PIRACY IN SOMALIA: INTERBEHAVIORAL ASSESSMENT AND INTERVENTION

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ABSTRACT: Maritime piracy off the coast of Somalia has been thrust into the international spotlight due to its effects on international financial markets and, hence, the livelihood of many individuals around the world. Furthermore, the history of Somalia itself is one of continuous failed attempts at establishing stability in the country. While the recent piracy literature offers suggestions for intervention, they are in need of further elaboration and specification. Given these factors, the author provides an analysis of this pressing issue from a behavior analytic perspective. The issue of how and why a science of individual behavior is relevant to cultural issues will be addressed utilizing Kantor's interbehavioral system of cultural psychology, which precisely delineates the subject-matters of psychology from other sciences. As such, two specific interdisciplinary assessment-and-intervention plans are outlined that are fully integrated with recent behavior analytic research; one plan involves consultation with maritime academics while the other requires behavior analysts to immerse themselves in Somali culture. An explicitly scientific approach may be what is needed to combat maritime piracy in Somalia.

KEYWORDS: interbehaviorism, maritime piracy, Somalia, interdisciplinary solutions, metacontingency, macrocontingency

The past year has seen a significant increase in piracy, with a total of 889 hostages taken worldwide—a 207% increase from 2007 (Chalk, 2009). The greatest concentration of piracy is in the vicinity of Somalia and the Gulf of Aden through which tens of thousands of commercial ships, and 12% of the world's oil, pass annually (Chalk, 2009, Gettleman, 2009; Kraska & Wilson, 2008). In 2008, approximately 95 attacks occurred off the coast of Somalia alone, 40 of which resulted in successful hijackings. The pirates involved in those 40 hijackings earned tens of millions of dollars in ransom, and took an estimated 300 crewmembers hostage (“Captain crooks,” 2008; Gettleman, 2009).

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Piracy gained worldwide attention in 2008 with two hijackings off the coast of Somalia that shocked the world. The first involved the hijacking of a Ukrainian ship loaded with Russian tanks and ammunition in route to Kenya (Kraska & Wilson, 2008). Two months later, pirates made an even more daring hijacking of the *Sirius Star*, a Saudi-owned supertanker carrying \$100 million worth of oil to the United States, which sent ripples through financial centers around the globe (Kraska & Wilson, 2008). The capture of the supertanker was unquestionably the most daring pirate attack in modern history due to the size of the ship as well as the fact that the attack took place 400 miles off the coast of Somalia. The sheer distance involved indicates that the pirates are utilizing the automatic identification system (AIS) to target ships, a system on which international ships transmit their locations around the globe (Kraska & Wilson, 2008). In 2009 alone, Somali pirates have launched 63 attacks, 21 of which were successful, with 247 crew members being held captive as of April 20th (International Maritime Bureau, 2009).

Because maritime piracy constitutes a significant threat to global financial markets and, hence, the livelihood of many individuals around the world, it has garnered international attention. Furthermore, there are emerging concerns that Somalia could become a new center for the proliferation of global terrorism (Hastings, 2009). The global visibility of maritime piracy can be treated as an opportunity for behavior analysts to seize upon their pragmatic technology of behavior change to help reduce the incidence and prevalence of piracy (Biglan, 1995), and offer a better way of life to millions of Somalis. If successful, such acts could subsequently thrust behavior analysis itself onto the global stage.

Although a healthy literature exists regarding analyses and solutions to piracy, these can be elaborated on to more specifically suggest assessment and intervention plans related to short- and long-term goals for the region. As of yet, no behavior analysts seem to have tackled the issue of maritime piracy. In doing so, a critical issue regarding how and why a science of individual behavior should have any relevance to cultural problems is addressed. For example, much of the data regarding piracy is not behavioral or psychological. Rather, it is better interpreted as sociological (i.e., emphasizing groups) versus psychological (i.e., emphasizing individual behavior in current and historical contexts). Lastly, as the following historical analysis of Somalia will indicate, the country has been a failed state with no functioning government since the early 1990s. Although various international efforts have been made to establish order, none have succeeded. What may be needed, then, is a thoroughly scientific perspective from which to guide efforts toward such lofty goals.

With this focus in mind, the current author draws upon the highly systematized system of cultural psychology developed by noted interbehaviorist J. R. Kantor (Kantor, 1982). Kantor's (1982) underutilized approach to cultural psychology nicely parses out those elements of piracy which are properly-termed psychological as against phenomena of a sociological sort (also see Hayes & Fryling, in press). This paper will outline the role of the psychologist in dealing with piracy, how psychological events interrelate with sociological events, and how Kantor's system can supplement assessments and interventions to piracy that are of a more specific nature than those typically seen in the current literature.

THE INTERBEHAVIORAL APPROACH TO SCIENCE

Because most behavior analysts are versed in Skinner's (1938, 1956) experimentally-based radical behaviorism, a brief discussion of Kantor's approach as a scientific philosopher deserves comment. While Skinner may have started his approach with laboratory data, Kantor began his approach, which is regarded by many as the most thoroughly systematized and naturalistic psychology to originate since the time of Aristotle, with the clarification of scientific assumptions (Kantor, 1963, 1969; Midgley & Morris, 2006). As seen in the following pages, his assumptions lead directly to specific interdisciplinary assessment and intervention strategies for Somalia.

Interbehavioral psychology has one primary goal: a natural science description of concrete things and events localizable in space and time. Kantor distinguishes between the description of events (i.e., constructs; verbal reactions on the part of an investigator) and events themselves, and seeks to eliminate any constructs having their origins in spiritistic cultural sources seen in the history of civilization and transmitted into the present day (for an exhaustive analysis of this very phenomenon see Kantor's [1963, 1969] two-volume analysis of the history of psychology). Such constructs have no referents in space and time and can lead the scientist astray in his/her investigation of naturalistic events (e.g., inner determiners in classical mind/body dualism and the mere substitution of "brain" for "mind"). Kantor's approach acts as a check for the verbal behavior of the interbehavioral scientist who is in a perpetual struggle to align his/her constructs with actual events.

In addition, interbehavioral psychology is actually one part of a larger interbehavioral approach to all sciences, each of which has interrelated functions as their subject-matter, but with respect to objects and events specific to the particular science. For example, while psychology may study interrelations between the simultaneous acts of stimulating and responding with respect to an individual organism as they occur in the ever-evolving present moment (e.g.,

hostile piracy acts), sociology may study interrelations between groups (e.g., between governments) (Kantor, 1953, 1958). In this sense, interbehaviorism provides a clear answer to the question of how and why a science concerned with individual behavior should be relevant to cultural issues. Interbehaviorism allows behavior analysts to effectively describe and outline intervention plans pertinent to maritime piracy in a way that: (a) avoids endowing spiritistic inner determinants upon group phenomena by reducing them to individual behavior and (b) clearly specifies interrelations between individual and group phenomena for productive interdisciplinary collaboration. In the likely event that behavior analysts should work with members of other sciences when seeking solutions to piracy (e.g., in conjunction with the United Nations), Kantor's serious consideration of other subject-matters would likely help in productive interchanges with such individuals, even though their perspectives would likely not be of an interbehavioral, or behavior-analytic, orientation.

Though the current paper focuses on Kantor's position, it is worth noting that the past 20 years have seen the emergence of important and innovative cultural analytic work with respect to meta- and macrocontingencies (Glenn, 1988, 2003, 2004; Glenn & Malott, 2004; Houmanfar & Rodrigues, 2006; Malott & Glenn, 2006). It must be stressed that the current emphasis on Kantor's system does not negate the utility of the meta- and macrocontingency. Rather, Kantor (1953 pp. 31-33, 1958, pp. 75-76) would conceptualize the meta- and macrocontingency as investigative operations, or processes related to the investigation and manipulation of a predefined subject-matter. For example, the reinforcement construct is an investigative operation employed by behavior analysts to gain knowledge about behavior in relation to particular environmental events.

Although debate currently exists as to the specific subject-matters involved in the components of the meta- and macrocontingencies (Houmanfar & Rodrigues, 2006), they are nevertheless interdisciplinary operations designed to facilitate analyses of psychological events interrelated with those of cultural sciences such as sociology and anthropology (Glenn, 1988; Malott & Glenn, 2006). Kantor's (1982) interbehavioral analysis and recent work in cultural analysis are therefore mutual supplements. On one hand the meta- and macrocontingency may benefit from a precise delineation of subject-matters. At the same time, Kantor's philosophical position stands to benefit from the employment of such operations insofar as they contribute to analyses of naturalistic events. Commonalities with the meta- and macrocontingency will be briefly mentioned below where appropriate. The assumptions of interbehaviorism are outlined elsewhere in extraordinary detail for the interested reader (e.g., Kantor, 1945, 1950, 1953,

1958, 1963, 1969, 1971). The analysis herein stems directly from Kantor's (1982) treatise *Cultural Psychology*.

PIRACY: PSYCHOLOGICAL CHARACTERISTICS

The interbehaviorist explicitly defines the subject-matter of psychology as an interrelation between the responding of a whole organism and the stimulating acts of stimulus objects (e.g., a lever or other experimental operandum) or stimulus events (e.g., the actions of another person, or one's own actions) set in a field of setting factors (e.g., discriminative stimuli). Thus, the psychological characteristics of piracy include the concrete acts of particular individuals (e.g., actual pirates or others involved in supporting roles) interrelated with particular stimulus objects or events. These include the acts on the "front end" of pirate attacks including the hostile boarding of ships, and the tracking of ships by individual pirates before a hostile encounter, but also includes the "back end" of piracy, including particular buyers standing by to distribute captured cargo, and various individuals involved in the infrastructure needed to carry out a sustainable pirating operation (e.g., individual personnel operating at land bases used in the holding of hostages; see Hastings, 2009, for an elaborated discussion of roles involved in pirate operations). In addition, a proper psychological account must describe the histories of particular individuals involved in piracy to understand how given stimulus objects and events acquire their functional properties.

However, psychological characteristics form only one component of piracy, and are intimately related to the sociological history of Somalia itself. For behavior analysts wishing to change complex social issues such as piracy, a consideration of sociological events (i.e., functional relations of the sociological sort), and the interrelations of those events and their products with psychological events, may be worthwhile. Gettleman (2009) touches on this by noting that "nearly an entire generation of Somalis has absolutely no idea what a government is or how it functions.... lounging on bullet-pocked street corners ... Kalashnikovs in their hands and nowhere to go" (p.69). Psychology can account for the stimulatory properties of Kalashnikovs and other objects and events responded to in the presence of a failed government with an analysis of individual histories within this generation. At the same time, a sociological analysis can account for the presence of these objects and events themselves.

PIRACY: SOCIOLOGICAL INFLUENCES ON PSYCHOLOGICAL EVENTS

To Kantor, the influence of one science upon another is a reciprocal interrelationship such that the events of one science function as setting factors that influence the events of another science. For example, the inheritance of a given

genotype is a biological event that may inhibit the development of certain psychological events (e.g., through learning potentials, the ability to see, etc.). On the other hand, a genotype may influence the development of one's physical appearance that, if judged to be attractive by the members of a culture, may facilitate the development of certain psychological events of the interpersonal sort (Kantor, 1958, 1982).

The same may be said of sociology. While psychological events entail an interrelation between the responding of a whole organism and the stimulating of stimulus objects and events, sociological events entail an interrelation between whole groups and their products. As such, the psychological functions and associated histories of particular individuals within a group are statistically masked (Kantor, 1982). Most importantly, in parallel with psychological events, it is the *interrelations* between groups and group products, not the activity of a group per se, that constitutes a sociological event. Thus, sociological events are irreducible to psychological events (i.e., they are not simply aggregated psychological events). In order to have an *interrelation* of the sociological sort, one must take the groups as whole entities.

Kantor (1982) considers the simplest type of sociological group to comprise the cumulative behavior of many people who don't necessarily have to interact with one another. This type of group is comprised of "psychological responses taken in mass" (Kantor, 1982, p. 15) whose psychological features (i.e., individual behavior) have been removed through statistical aggregation. The distinction here is that between a whole group and those individuals whose behavior gains them group membership (e.g., the percentage of a population that engages in piracy acts rather than the individuals that do so). Similarly, Malott & Glenn (2006) developed the concept of the macrocontingency in order to explain the origins of social problems which arise as the cumulative effect of many individuals' behavior over time (e.g., the cumulative amount of ransoms paid by shipping companies as a function of the prevalence of piracy attacks in the region). Importantly, the cumulative effects involved in the macrocontingency do not function to perpetuate the practice that produced it; the macrocontingency is merely an if/then relation between cumulative behavior and cumulative effects (Malott & Glenn, 2006). Though Malott & Glenn do not conceptualize their practices as "groups," they highly resemble Kantor's group. Thus, the macrocontingency may constitute one possible investigative operation pertinent to such groups.

However, as complexity increases, a sociological group may become an organization which may also develop subgroups, as when a business is organized into particular departments with particular functions assigned to them (Kantor,

1982, p. 14). Similarly, the metacontingency has been proposed to explain organizational phenomena as a function of those that purchase or otherwise interact with organizational products (e.g., the failed governments of Somalia and hostilities from Somali militias in response to their policies may be a failed metacontingency; Houmanfar & Rodrigues, 2006; Malott & Glenn, 2006). The metacontingency, then, may constitute one possible investigative operation pertinent to organizations.

The sociological characteristics of Somalia's piracy problem are presented below in a brief history of the country. The reader will note the ways in which sociological events have influenced the very stimulus objects and events that participate in the psychological characteristics of piracy, as when foreign governments pour money and weapons into a country, or when religious groups enter a country and disseminate verbal stimulus events across a geographic area. In 1960, Somalia gained its independence from European rule dating back to the 19th century (Gettleman, 2009). In the midst of the Cold War, Somalia was much sought-after by two sociological groups, viz., the governments of the Soviet Union and the United States, due to its strategic location close to the border of the African and Asian continents. Over the years, "a poor, mostly illiterate, mainly nomadic country became a towering ammunition dump primed to explode" (Gettleman, 2009, p. 63). Though officially governed by the dictator Maj. Gen. Mohamed Siad Barre, most of the country was out of his control. In 1991, the Barre regime (i.e., a sociological group) was overthrown and the sociological characteristics of Somalia began to change. The country, stocked with military weapons, was overrun by warlords whose clans turned on each other such that "every port, airstrip, fishing pier, telephone pole—anything that could turn a profit—was fought over" (Gettleman, 2009, p. 63). The country was in chaos, with rival sociological groups, armed to the teeth, tearing the country apart.

Shortly after the overthrow of the Barre regime, the United States sent in thousands of troops in support of a United Nations humanitarian effort to protect foreign aid shipments and, in 1993, attempted to oust the warlord temporarily in control. This failed attempt resulted in Somalis shooting down two U.S. helicopters killing 18 soldiers, whose bodies were paraded through Mogadishu (Gettleman, 2009). Shortly thereafter, the U.S. military (i.e., a sociological group) left Somalia which opened the door for the gradual influx of other sociological groups from the Middle East during the rest of the 1990s. Some beneficial sociological groups emerged as a result of the influx, such as schools and various community services, but a strict variant of Islam known as Wahhabi (i.e., a sociological product) came with them. In 2005, an extremist group, the Shabab,

separated from the moderate Islamists and took control of Mogadishu and soon gained a spot on the U.S. list of terrorist organizations (Gettleman, 2009).

In 2006, Ethiopian troops, aided by U.S. Special Forces, invaded Somalia, which established a U.N.-sponsored transitional government, in opposition to the existing Council of Islamic Courts (CTC) (Central Intelligence Agency, 2009; Gettleman, 2009). The transitional government was the 14th attempt at a government since 1991, and was largely criticized of being made-up of former warlords. Through their tough stance on radical Islamic groups, the government began losing support from Somali clans, which the Islamists used to regain popular support triggering a fresh round of fighting and displacing hundreds of thousands of civilians (Gettleman, 2009).

At the end of 2008, president Yusuf resigned and in January 2009, a new government was created combining elements of the previous Transitional Federal Government (TFG) with the Alliance for the Re-Liberation of Somalia (ARS) followed by the withdrawal of Ethiopian troops and the election of Sheikh Sharif as president (Central Intelligence Agency, 2009). Currently, efforts to replace Ethiopian troops with peacekeeping troops from the African Union are fledgling and heavy fighting has erupted in major Somali cities displacing many more civilians as a result (Crowley & Lawrence, 2009). Currently, the government is under a mandate to establish a Somali constitution and hold national elections to form a representative government by 2011 (Central Intelligence Agency, 2009). Many believe the government, whose enforcement of law is severely limited, is on the brink of collapse (Gettleman, 2009). The time since 2006, then, can be seen as a series of failed attempts at maintaining an essential sociological organization sponsored by the U.N. (i.e., a stable government).

PIRACY: PSYCHOLOGICAL INFLUENCES ON SOCIOLOGICAL EVENTS

Though the sociological influences on psychological events can be illuminating to behavior analysts investigating social issues, the interbehavioral perspective also warrants a consideration of the influential role of psychological events on the development of sociological events. For example, a central psychological factor in the maintenance of piracy concerns the receipt of large sums of money to individual pirates as a consequence of hostile piracy acts, the reinforcing functions of which largely outweigh the potential risks for the individuals involved. In fact, the current piracy literature distinguishes piracy from terrorism primarily on the grounds that the former revolves around the acquisition of money and other material goods (i.e., armed robbery at sea), rather than politically motivated actions with a blatant disregard for human life (Anyu & Moki, 2009; Kraska & Wilson, 2009).

However, piracy as a cultural phenomenon is more complex than a simple description of reinforcers for piracy acts. Though such reinforcers may help explain the psychological characteristics of piracy (i.e., the probability of individual behavior as a function of his/her current and historical environmental interactions), a sociological analysis can tell us more. First, it can tell us how the opportunities for such acts came about in the first place (i.e., the probability that particular stimulus objects and events are proliferated throughout a geographic area). Second, it can tell us how monetary reinforcers are redistributed throughout sociological organizations which constitute the complex infrastructure which facilitates piracy operations. In his detailed account of Somali piracy infrastructure, Hastings (2009) conceptualizes such infrastructure as the means by which pirates provide resources for themselves and their communities given Somalia itself is a failed state. This infrastructure, funded by the money gained as reinforcers for individual pirates, includes a variety of elements from corrupt Somali officials that provide intelligence on ship locations, to the administration of land bases for holding hostages, to the markets of China, India, and Iran that aid in the sale and disposal of captured ships and goods (Chalk, 2009; Hastings, 2009).

But while the pirates themselves stand to make large sums of money, ship owners are struggling to keep operating costs down (Chalk, 2009). Psychologically speaking, individual ship owners are faced with cutting costs in response to sociological products (e.g., finance reports from their own companies or the industry at large) related to annual industry losses of up to \$15-16 billion dollars, which is partly a function of insurance premiums skyrocketing by as much as \$15,000 for one voyage through the Gulf of Aden (Kraska & Wilson, 2008). The psychological actions of powerful people in an organization, such as ship owners, serve as influential factors in the overall performance of the organization and its interrelations with the activities of other organizations and their products (Goltz, 2003). Furthermore, such financial decisions taken in mass can influence the prevalence of piracy itself. For instance, in an effort to keep costs down, many shipping companies have installed advanced navigation technology which allows companies to reduce crew sizes in order to operate more efficiently. However, a reduced crew greatly influences the psychological events that take place during a voyage, most notably by reducing the capacity to maintain anti-piracy watches, which increases the ease to which pirates can overtake a ship and, thus, increases the prevalence of piracy as a whole (Chalk, 2009).

CURRENT SOLUTIONS AND OBSTACLES

Because piracy is a truly international problem, not restricted to the targeting of ships from any one country in particular, a sizeable response from the world's navies has followed. In the Fall of 2008, the United Nations Security Council (UNSC) passed a series of resolutions authorizing navies to enter Somali waters to attack and pursue pirates inland if necessary (Chalk, 2009). Immediately following the UNSC resolutions, the United States created the multinational group Combined Task Force 151 (CTF-151) in January 2009. CTF-151 was designed specifically for counter-piracy operations in the Gulf of Aden, Indian Ocean, and the Red Sea (Armed Forces Press Service, 2009; Chalk, 2009). In addition, the European Union created a similar force consisting of five navies, while at least nine other countries from around the globe have sent or are sending naval forces to the area to combat piracy in the Horn of Africa (Chalk, 2009). Private security firms such as Blackwater are engaging in counter-piracy activities in the area as well (Kraska & Wilson, 2008).

Data indicates that when militaries intervene on pirate hijackings, they work. For example, the navies of Indonesia, Malaysia, and Singapore banded together to significantly reduce the incidence and prevalence of piracy operations in Southeast Asia along the Malacca Straits (Kraska & Wilson, 2009). In Somalia, several cases of successful military prevention of hijackings and capturing of pirates have been recently reported (Kraska & Wilson, 2009). However, the Somali coastline itself is as long as the Atlantic seaboard of the U. S. with a total estimated operating area of pirate groups that exceeds 2 million square miles of ocean (Anyu & Moki, 2009; Kraska & Wilson, 2009). Some have called on the international community to provide the necessary resources to Somalia's neighboring countries such that they may effectively combat piracy in their own region (Anyu and Moki, 2009). Further complicating the matter are reports of pirate groups disguising themselves as fisherman, distressed civilian ships, or even military forces, which ease their ability to board ships (Kraska & Wilson, 2009).

In April of 2009, two days after U.S. Navy SEALs rescued Capt. Richard Phillips of the American ship Maersk Alabama, CNN reported Pentagon plans to intensify anti-piracy operations on the ground in Somalia (Crowley & Lawrence, 2009). One factor contributing to the move inland is the large span of ocean area involved, mentioned previously, which severely limits the response times of naval forces in the area. The size of ocean involved in the Horn of Africa is approximately 1-3 million square miles, severely limiting the response times of naval forces in the area (Chalk, 2009; Crowley & Lawrence, 2009; Kraska & Wilson, 2008). While Crowley and Lawrence (2009) reported that U.S. Naval com-

manders are condoning the use of special operations forces to combat piracy on the ground in Somalia, those commanders also note that such actions are only a quick fix. The overwhelming consensus in the recent literature is that long-term solutions to piracy in Somalia involve stabilizing governmental and economic conditions within the country.

For instance, in 2008, the *Middle East Times* reported Pentagon press secretary Geoff Morrell as condoning a “holistic approach from the international community at sea, ashore, with governance,” and “economic development” (Abdallah, 2008). In April 2009, CNN reported Vice Adm. William Gortney, commander of the U.S. Naval forces Central Command and the Combined Maritime Forces as saying piracy stems from lawlessness, and economic instability (Crowley & Lawrence, 2009). The same article also cited Defense Secretary Robert Gates as saying “there is no purely military solution...as long as you’ve got this incredible number of poor people and the risks are relatively small, there’s really no way in my view to control it.”

The problem is that no one has proposed specific solutions for piracy other than the following general suggestions: (a) that governmental agencies should work to combat piracy directly or to reestablish a functioning government, and (b) that shipping companies should train and equip their crews to effectively respond to hostile pirate groups (see, e.g., Anyu & Moki, 2009). Even if military intervention would successfully suppress piracy, the Somalis themselves would be forced to engage in other criminal activities to provide for themselves in their failed state (Anyu & Moki, 2009), unless appropriate interventions (discussed below) are designed with this in mind.

BEHAVIOR-ANALYTIC SOLUTIONS

The general strategies discussed previously are a good start toward the amelioration of piracy. However, greater specificity is needed regarding intervention plans, and the steady string of failed attempts to reestablish order in the country should prompt the scientific community to offer refined solutions. The pressing question, then, concerns the practical role of behavior analysts with respect to maritime piracy. The first step is to define key problematic psychological and sociological events involved in the complex phenomena of piracy. Such events then become the primary targets of intervention. Two assessment and intervention strategies which integrate Kantor’s analysis with the current behavior analytic literature are proposed in order to guide specific types of applied work in this area. One intervention strategy deals with short-term goals and emphasizes ship crews, while the second strategy will require significantly

more time and resources but deals with long-term goals and emphasizes conditions within Somalia itself.

With respect to short-term goals, a prime target for intervention concerns those events that constitute hostile interactions of pirates with ship crews. These interactions are at the core of the piracy problem and are the primary means by which pirates and their organizations acquire monetary resources to fund their operations. The problem here concerns an interaction between two groups (i.e., a pirate crew and a ship crew) which is, by definition, a sociological problem. However, the behavior analyst intervening on this aspect of piracy would undoubtedly interact with particular ship crews to improve interpersonal interactions among crew members in the event of a hostile encounter with a pirate group. Thus, a sociological problem (i.e., interactions between ship crews and pirate crews) would be dealt with by altering the psychological characteristics of crew members (i.e., a psychological influence on sociological events, as mentioned in previous sections).

The simple reality is this: ship crews will have to confront pirate groups for the foreseeable future. As such, the extent to which crews will be able to prevent pirates from seizing their ship will depend on the degree to which individual crew members can identify threats at sea early-on and effectively coordinate their verbal problem-solving responses to prevent an attack. Recent behavior analytic work regarding communication networks, organizational rules, and decision-making during sudden life-threatening crises could have relevance to the current intervention plan (Alavosius, Houmanfar, & Rodrigues, 2005; Houmanfar, Rodrigues, & Smith, 2009).

Behavior analysts regard organizational behavior, such as that found in work teams and ship crews, as largely verbal in nature (Alavosius, Houmanfar, & Rodrigues, 2005; Hayes, Bunting, Herbst, Bond, & Barnes-Holmes, 2006; Houmanfar, Rodrigues, & Smith, 2009; Malott, 1992). Part of this literature has focused specifically on the effects of explicit, implicit, and heuristic rules on problem-solving behavior (Chase & Bjarnadottir, 1992; Houmanfar, Rodrigues, & Smith, 2009). An explicit rule states all three elements in a contingency, including the behavior, the reinforcing or punishing consequences it produces, and the antecedent stimuli or setting which occasions the behavior (e.g., "If you go to the store today, I will cook you dinner."). An implicit rule, by contrast, states only part of a contingency (e.g., the command "Don't do that!" implies the receipt of punishing consequences for a specific behavior in a given setting). Lastly, a heuristic rule serves as a broad guide to the discovery of a solution, an example of which will be given below.

Under certain situations, certain types of rules (e.g., given by leaders) can be more effective at achieving organizational goals than others. In situations characterized by routine behavior patterns such as customer-service procedures, or routine crew tasks on a ship at sea, explicit rules given by a trustworthy source tend to minimize behavioral variability and maintain productivity. On the other hand, incomplete rules in the same situation can generate a degree of environmental ambiguity and a degradation of performance, including the emergence of unproductive attempts at verbal problem-solving (e.g., rumor and gossip) among group members which further degrades performance (Houmanfar, Rodrigues, & Smith, 2009). By contrast, given situations in which highly creative performance is desired (e.g., an advertising firm) implicit rules, or heuristic rules such as the metaphor “Customers are like big fish. If you try to reel them in too fast the line might break” (Houmanfar, Rodrigues, & Smith, 2009, p. 264), may improve performance while explicit rules may overly restrict behavior, leading to a decrease in productivity (Houmanfar, Rodrigues, & Smith, 2009). Such rules can evoke variability in responding, particularly in experienced employees, which can generate creative business solutions.

When such behavior is considered within the context of communication networks, an organizational structure emerges. Houmanfar, Rodrigues, & Smith (2009) define a communication network as “a description of the verbal interactions that mediate influences in between components and organized groups...and among individual members of a given organization” (p. 258). Alavosius, Houmanfar, and Rodrigues (2005) nicely illustrate the general ways in which communication networks can affect crisis-management with a behavioral analysis of the 9/11 Commission Report. A major finding was that the networks of information between various government agencies were designed primarily for Cold War threats from major world powers. These networks were insufficiently integrated for terrorist threats that have come to define world politics in the 21st century. Unlike a superpower, terrorist activities are of a more covert and decentralized nature. During the events leading up to the 9/11 attacks, information sharing between various governmental agencies was insufficient such that gaps of knowledge were created among agencies. Had these networks been better coordinated, the agencies could have taken better advantage of intelligence leading up to the 9/11 attacks, as well as the coordination of information between agencies as the attack unfolded. In essence, what should have been a fluid information-sharing system between different agencies acted instead as “stovepipes” that restricted information and led to information gaps in which Al-Qaida took full advantage.

When a ship crew finds itself in an inevitable confrontation with hostile pirate groups, it is a situation in which environmental ambiguity is relatively high, and the cognitive (i.e., verbal) capacities of crew members may be inhibited in such an emotionally arousing situation. Such situations may call for a few simple heuristic rules to guide the behavior of crew members who will have to work and communicate creatively and quickly over a massive ship in response to the sudden changes in organizational goals from those related to the timely delivery of cargo to those pertaining to the survival of the crew (Alavosius, Houmanfar, & Rodrigues, 2005). The latter may require a more fluid and integrated method of information sharing among crew members than may be necessary during normal operating conditions. The rules by which this behavior is evoked should be simple yet sufficiently general to allow creative solutions to emerge.

Two organizations, the Massachusetts and Maine Maritime Academies have recently incorporated anti-piracy training into their standard curriculum (e.g., weapons training and evasive ship maneuvering; Schworm, 2009). The before-mentioned behavioral literature relevant to this area of intervention could nicely supplement existing training curriculums in these and other training centers. In order to do this, however, behavior analysts need to contact these organizations and open up discussions related to the specifics of piracy encounters. From this, a baseline of sorts could be constructed regarding ship types, geographic locations, crew composition, and specific pirate characteristics. This information could direct effective intervention plans toward specific priority areas related to piracy encounters. Lastly, these interventions would be integrated with recent and relevant behavior analytic research.

The second general area of intervention pertains to long-term solutions to piracy. Though this area will likely require much more time and resources than the former approach, this approach is likely inevitable as behavior analysts venture into complex social issues. More specifically, this approach entails recruiting behavior analysts to spend time on the ground in Somalia. Methodologically speaking, this entails the use of ethnographic observations in which the researcher immerses him/herself in the culture under investigation (Ferraro, 2001; Smith & Davis, 2001). There is, of course, a catch: Thirty-two United Nations aid workers and staff have been killed on the streets of Somalia in 2008 alone. Even the few thousand African Union troops stationed in Mogadishu rarely venture far outside their base (Perry, 2008). Gettleman (2009) notes that, upon landing at Mogadishu's airport, passengers are asked to report their names, contact information, and caliber of weapon. Before he ventured out into the country, Gettleman took a friend's advice and hired 10 gunmen to serve as his escort. While such facts are discouraging, they do not render the possibility of this

intervention strategy out of the question—members of the media like Gettleman regularly visit Somalia as well as many other war-torn regions around the world. From a broader perspective, as previously mentioned, the history of Somalia can attest to repeated failures to establish any lasting stability in the country. Perhaps what is needed here is a scientifically-sound assessment and intervention on the problem like those that behavior analysts can provide.

Such ethnographic studies could provide a detailed assessment of the pertinent psychological events involved in the daily lives of Somalis living in various parts of the country, and how they influence and are influenced by sociological events. As behavior analysts, we would aim our investigations towards the similarities and differences in personal histories and current living conditions of pirates and non-pirates across different geographic regions. Anyu and Moki (2009) provide a starting point by suggesting that the most Somali pirates originate from the northeast Somali region of Puntland, which happens to be the poorest region in the entire country. Thus, important questions here concern the methods of employment, or modes of resource production (Harris, 1977, 1979; also see Biglan, 1995; Ward, Eastman, & Ninness, 2009) available to Somalis, including the factors influencing their availability and their utilization.

Like the previously-mentioned intervention plan, for an in-country intervention of this type to have any real effect, an accurate and relatively precise assessment of the problem is needed. Thus, behavior analysts need to talk to people who have spent time in the region (e.g., United Nations officials) and get on the ground in Somalia themselves. The data on Puntland is particularly revealing in its suggestion that piracy is not widespread throughout the country, but may be localized to specific regions. While Puntland may be the poorest region in the country, actual interventions of this type will require a community-by-community assessment of the specific factors contributing to low income and the factors promoting acts of piracy rather than other income-generating methods. We need data on the actual individuals who engage in piracy, their specific living conditions and how these differ in terms of the incidence (i.e., the frequency within a population) and prevalence (i.e., the percentage of a population) of piracy acts relative to different regions (Biglan, 1995).

In addition, examining the verbal communities (Skinner, 1957) correlated with piracy acts could be beneficial. For instance, Spector (2009) suggests that many pirates regard themselves as protectors of their coastlines who view their ransoms as compensation for the supposedly deleterious effects of commercial fishing—something behavior analysts have recently termed a “negative externality” or a negative by-product of organizational practices (see Biglan, 2009b). If this is merely a false-belief on the part of pirates themselves, Biglan’s

(2009a) recent call to incorporate the Acceptance and Commitment Therapy (ACT) literature into the alleviation of cultural problems could be relevant. As Biglan (2009a) describes, an important notion in ACT is psychological flexibility. Psychological flexibility involves the recognition of thoughts as just that and nothing more. When an individual recognizes this, they can defuse from those thoughts, or come to recognize that the thought is false.

Regarding piracy, then, if behavior analysts were to promote psychological flexibility in those individuals who verbally justify their actions as compensation for deleterious fishing practices, these individuals may come to see their thoughts as false, defuse from these thoughts, and engage in alternative means of income-generation. If, on the other hand, fishing companies have indeed produced deleterious effects on the natural resources of the region, then Biglan's (2009b) analysis of externalities itself may be of value (and the rest of the recent special issues of the *Journal of Organizational Behavior Management* (Volume 29, Issues 2-4) devoted to Behavioral Systems Analysis. One could view externalities in relation to their organizational originators as sociological phenomena that play a role in promoting piracy as a cultural practice.

Unlike the previously-mentioned short-term solutions, long-term community-wide interventions would primarily be sociological, not psychological in nature, in that they would target whole populations of a community with the implementation of new organizations and associated community programs that provide greater opportunities for the inhabitants of the community in question. The assessment leading up to the intervention, however, would provide psychological data (in conjunction with sociological data) that would allow a fine-tuned assessment of the appropriate community intervention. Lastly, such ethnographic interventions would likely involve behavior analysts working in conjunction with the United Nations in order to stabilize the region sufficiently for a lasting government to take root. As the history of Somalia suggests, interventions such as these may be necessary before stability will return to the country.

CONCLUSION

The current paper served to provide a behavior analytic account of piracy in Somalia. In doing so, an important issue regarding the role of a science of individual behavior in relation to cultural phenomena was addressed. Kantor's (1982) interbehavioral system of cultural psychology is designed around this very issue. In detailing the specific subject-matter of psychology, he simultaneously details the interrelations of psychology with the subject-matters of other sciences, which is invaluable given the interdisciplinary nature of social issues.

Kantor's systematic approach to science is particularly suited to address two primary issues with respect to piracy in Somalia. First, when one applies Kantor's detailed account to piracy, in conjunction with recent developments in behavior analysis, the existing piracy literature benefits from the further elaboration of relatively specific intervention areas in this complex social issue. Second, as previously stated, Kantor's approach is regarded by many as the most naturalistic and thoroughly systematized psychology since Aristotle. The repeated failures to stabilize Somalia in the last two decades may call for a more scientific basis for interventions than have been present before. The present analysis unquestionably stems from such a basis.

In closing, the amelioration of social problems has been at the philosophical core of behavior analysis since its inception (Skinner, 1948, 1953, 1971). The investigative operations characteristic of radical behaviorism have led to an effective technology of behavior change for a wide variety of psychological problems. However, Kantor's thoroughly systematized and naturalistic philosophical perspective can supplement such operations, and Skinner's original dream of cultural change, by recognizing the interrelations of psychological events with those of other sciences (Ward, 2008). In this interdisciplinary fashion we can contribute to real change on the world stage and to the development of a naturalistic, marketable, and sophisticated approach to the analysis and amelioration of social issues (Hayes & Fryling, in press). Gettleman (2009) notes "I've felt the incandescent fury of the Iraqi insurgency raging in Fallujah. I've spent freezing-cold, eerily quiet nights in an Afghan cave. But nowhere was I more afraid than in today's Somalia" (p. 62). Somalia is the ultimate challenge. If behavior analysts can produce change here, they can do anything.

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