Promoting Cognitive Complexity Among Violent Extremist Youth in Northern Pakistan

Feriha Peracha
SWAaT for Pakistan, ferihaperacha@gmail.com

Sara Savage
Psychology Department, University of Cambridge, sbs21@cam.ac.uk

Raafia Khan
SWAaT for Pakistan, raafia.raees.khan@gmail.com

Asma Ayub
SWAaT for Pakistan, asmaayub01@gmail.com

Andleeb Zahra
SWAaT for Pakistan, andleeb.zahra15@gmail.com

Recommended Citation
Peracha, Feriha; Savage, Sara; Khan, Raafia; Ayub, Asma; and Zahra, Andleeb. "Promoting Cognitive Complexity Among Violent Extremist Youth in Northern Pakistan." *Journal of Strategic Security* 15, no. 1 (2022) : 14-53.
DOI: https://doi.org/10.5038/1944-0472.15.1.1943
Available at: https://digitalcommons.usf.edu/jss/vol15/iss1/2

Promoting Cognitive Complexity Among Violent Extremist Youth in Northern Pakistan

Abstract

This article reports on the results of an intervention to promote cognitive complexity (measured by integrative complexity, IC) and perspective taking for youth detained for violent extremism at the Sabaoon Center for Deradicalization and Rehabilitation in northern Pakistan. Participants are sixty-four males (mean age 19.77, SD = 3.26) comprising three cohorts: CVE Detained, CVE Reintegrated, and PVE At-risk.

The Sabaoon IC intervention consists of eight sessions with action learning contextualized according to an assessment of the push, pull and personal factors that shape the life experience of the youth. Pre and post testing results show significant gain in IC in the overall sample (Cohen's d= -1.80, 95% CI[-.87,-.49]), and in each cohort, indicating significantly increased ability to perceive validity in one's own changing views and others' differing views along with reduction in derogating or dehumanizing outgroups. Oral presentations showed expected IC scores showing differentiation, with the Reintegrated cohort showing higher order integrations and expressed confidence to be change-makers in their communities.

Two subscales from the Violent Extremist Beliefs Survey (concerning beliefs about inter-religious harmony and risk-taking behaviors) showed expected changes, but self-report perspective taking and empathy measures were insignificant.

Limitations: The entire Sabaoon sample was selected for the intervention, and due to time and operational constraints, it was not feasible to recruit a control group matched on important variables.

Implications for using IC measurement and method for detained and at risk populations are discussed.

Introduction

Policymakers continue to search for evidence-based intervention strategies that can safely reduce the risk of violence and radicalization for youth involved in violent extremism. Yet, according to a comprehensive review of the scientific literature on radicalization into violent extremism, many studies in the field lack systematic analysis.[1] In line with the review authors' recommendations, this article examines three independent variables: Push (structural, sociological) factors, pull (social psychological motivation) factors, and personal (physical, mental health) factors. The review authors stress the importance of analyzing how these factors interact to understand the dynamics in each context. In our analysis of youth involved in violent extremism in northern Pakistan, push, pull, and personal factors seem to be intensified by the rote educational method in Pakistan that focuses thinking on a single right answer, with pervasive cultural impact.

Based on this assessment, psychologists from Pakistan and the United Kingdom developed a countering violent extremism (CVE) intervention for a post militant insurgency context. The intervention aim was to promote more cognitively complex thinking concerning the push, pull, and personal factors that shaped participants' life experience. The intervention was delivered at the Sabaoon Deradicalization and Reintegration Centre in Khyber Pakhtunkhwa (KP) province, northern Pakistan to participants with the mean age of 19.7 years. The intervention's efficacy was assessed using the concept of cognitive complexity, measured by integrative complexity (IC), a cross-culturally validated measure that is predictive of behavioral outcomes concerning whether intergroup conflict and violence will increase or decrease.[2]

Overview of Article

In this article, we first outline the recent history of the Tehreek-e-Taliban Pakistan (TTP) insurgency in northern Pakistan. Second, we discuss push factors, pull factors and personal vulnerability factors. How these interact is understood, as mentioned, in terms of their intensification due to the pervasive rote educational method throughout Pakistan that focuses on a single right answer. The resulting black and white thinking style is observed in deficits in basic reasoning skills and absence of critical, complex thinking among the Sabaoon youths, which made them easy prey for recruitment into TTP

violent extremism. We go on to explain how the interaction of these factors informed the themes of the CVE intervention.[3]
Next, we provide some theoretical background on how cognitive factors such as cognitive complexity, meta-awareness and perspective taking can promote deradicalization and rehabilitation. We explain how these are outworked in the structure of the intervention concerning intervention themes relevant to push, pull and personal factors.

We then describe how the Sabaoon team piloted and trained facilitators to deliver the intervention to detained and reintegrated militants, along with an at-risk cohort, at the Sabaoon Deradicalization and Rehabilitation Centre. The aims of the intervention are first to enable the Sabaoon youths to emerge from cognitive radicalization. This, we argue, is marked by the low complex, black and white thinking of extremist ideology. The second aim is to support realistic, cognitively complex goal-direction to sustain their rehabilitation. We hypothesized that integrative complexity and perspective taking scores will increase, post intervention. Our results are followed by a discussion of how these results compare to other IC interventions, and how the intervention worked in the context of the overall Sabaoon program. We explore what broader lessons can apply to CVE efforts elsewhere. And finally, we discuss the limitations and future directions of this work to sustain rehabilitation in the face of the Taliban takeover of neighboring Afghanistan and increased activity by ISIS-K.[4]

Northern Pakistan Recent History

Pakistan's Swat Valley in KP province in northern Pakistan has suffered from violent extremism for years. This is due to Pakistan's proximity to volatile regions of Afghanistan with shared Pashtun ethnicity and cultural values. These cross-border loyalties underpin the following chain of events, summarized below.

Throughout the 1980s, Afghan mujahideen fighters countered the Soviet invasion of Afghanistan against the odds, helped by United States armaments and financial support. The Pashtun Taliban emerged in 1994 to become key players in the Afghanistan Civil War.[5] The subsequent Taliban takeover and repressive rule of Afghanistan (1996-2001) is well known. In response to the 9/11 attacks in New York by Al - Qaida, a North Atlantic Treaty Organization led coalition sought to destroy al-Qaida training camps hosted in Afghanistan, beginning in 2001. These attacks sparked another refugee flow of mainly destitute

Afghan women and children who fled to Pashtun tribal areas of northern Pakistan. Male refugee children, with few options in Pakistan, were placed in madrassas run by radical Pakistani clerics. From this chain of events a new generation of Taliban militants emerged, infused with religious and radical elements quite different from the traditional culture of Afghanistan.[6]

Tehreek-e-Taliban Pakistan began activity in 2002 in cross border tribal Pashtun areas. The group is an amalgam of disparate extremist groups, and is distinct from, although inspired by, the Taliban.[7] Tehreek-e-Taliban Pakistan dramatically increased their activity in Swat Valley, northern Pakistan, as the war on Afghanistan progressed. Tehreek-e-Taliban Pakistan's anti-Pakistan, anti-foreign presence agenda was able to ride on shared Pashtun loyalties in Swat Valley where young people identified themselves firstly as Pashtuns sympathetic to Afghans under foreign attack, rather than as citizens of a distant Pakistan. This perception was exacerbated by Swat belonging to the North West Frontier Province until that was changed to KP province, becoming part of Pakistan's Federally Assisted Tribal Authorities. The Tehreek-e-Taliban Pakistan (TTP) insurgency of 2007-2009 effectively took control of Swat Valley, imposing its violent regime in the name of Sharia, destroying 170 schools, preventing girls from being educated, enacting public punishments and executions, and posing a serious threat to the integrity of the nation of Pakistan.

Following the Pakistan Army's counter-insurgency operation in 2009, overt TTP control lessened, but their ideological influence within Swat Valley continued via its leading figures operating from Afghanistan's border provinces.[8] Some of the most shocking attacks in Pakistan's history, including the assault on a school that killed 132 children in 2014 and the shooting of Malala Yousafzai in 2012 were directly attributed to the (former) TTP leader Maulana Fazlullah. Fazlullah was killed by security forces and TTP leadership weakened.[9] Islamic State (IS) also attempted to gain a foothold in northern Pakistan from its Afghanistan base established in 2015, and some Taliban splinter groups began rebranding themselves as Islamic State to access resources and training. It is thought that over 200 Pakistanis joined the IS fighters in Syria over the last decade. During the period of this study, the fragmentation of extremist factions in Pakistan and Afghanistan continued, as the terrorist attack on the eve of the Afghanistan Eid ceasefire in July 2020 shows. At the time of writing, the complete withdrawal of United States forces at the end of August 2021 has led to

16

a rapid Taliban takeover of Afghanistan, now declared the Islamic Emirate of Afghanistan. The potential for this new chapter of upheaval to affect the home region of this study's reintegrated participants is explored in *Next Steps* section at the end of this article.

Context for the Intervention

The context for this study is the Sabaoon Centre for Deradicalizations and Reintegration. *Sabaoon,* which in Urdu means 'first light of dawn,' was established by the Pakistan Army in the Malakand region of Northern Pakistan in 2009. It is the only the deradicalization and rehabilitation center for young males from the Swat Valley region under the age of 18 at the time of their capture by the Pakistan Army, for involvement in TTP militancy in Pakistan.

The Army appointed a team of civil society clinical and social psychologists, headed by a neuro-psychologist, to develop and implement the Sabaoon program.[10] Since 2009, the Sabaoon team has assessed 241 ex-militant youth, of which 236 have been successfully rehabilitated and reintegrated to the wider community. There has been only one case of recidivism (0.4%) in the twelve years since Sabaoon was founded.[11]

Those inducted to Sabaoon revealed a diversity of needs and backgrounds, with some as young as 12 years old. Sabaoon's Mental Health Team (MHT) in collaboration with supervising psychologists assessed the youths through taking their personal histories and narratives, followed by psychometric assessment, academic assessment, family narrative, and medical examination, which provided insight into the push, pull, and personal factors discussed below.

Push Factors

Structural, sociological push factors for this study's participants are shaped by the upheaval connected to the TTP insurgency and regional under-development. The Sabaoon team of psychologists found through clinical interviews the following social conditions contributed to this sample's susceptibility to recruitment by TTP. Lack of employment in the local region meant that fathers often worked abroad in Middle East countries for years at a time, leaving these youths unsupervised and with little parental input. Many inductees were middle sons of large Swati families; 60 percent had over 6 siblings, and 22 percent had 9 or

more siblings. As middle sons of large families, they were less likely to remain in school. Such families could ill afford additional sons' school fees or the loss of earnings from middle sons taking on menial tasks. The average school drop-out rate is 72 percent by age 14, and many of the young males recruited by the TTP had already dropped out of school or had never attended school.[12] The youths had few employment options in the underdeveloped region and thus few attainable life goals. TTP recruiters easily filled a gap in the youths' lives by promising them a meal, a job, and a cause.

The team observed that Sabaoon graduate youths who maintained goal direction despite continuing structural factors in the region had the best outcomes post reintegration. Over the past twelve years, the Sabaoon team has made it possible for reintegrated youths to pursue their chosen educational or employment goals through practical and financial support. At the same time, the team thought it necessary for realistic decision making and family negotiation skills concerning job, marriage, and educational goals to be included in the intervention assessed in this article, to avoid these goals being derailed.

Pull Factors

Pull factors such as psychological motivations, community norms, and social attitudes contributed to these youths' vulnerability to violent extremism. These include negative perceptions of Pakistan state authorities, particularly police and security forces, which are perceived to support the "other", such as other nations, the nation of Pakistan, other religions, or other sects within Islam. The young men often expressed having poor relationships with authority figures, including fathers who as described above often worked abroad. For some of the adolescents, taking an oppositional stance against so called foreign Pakistan state authorities felt empowering, providing a counterbalance to these youths' oft reported sense of hopelessness concerning their futures.

As well, in Swat valley towns and villages, a tight sense of communalism prevails. This is often associated with mistrust and the fear of the other, and is intensified by geographic isolation between villages in KP's mountainous, Himalayan terrain.[13] Extensive research shows that a tight sense of communalism is among key cultural risk factors correlating with the frequency and severity of violent extremism attacks in a range of cultural contexts.[14] A tight sense of communalism

is related to low tolerance for difference, and a justification for strong punishments against deviation from cultural norms.

This norm of strong punishments is illustrated by fieldwork that the team undertook to identify culturally appropriate media to use in the intervention. The team gathered twenty-five examples of Swat folklore, proverbs, and traditional stories from villages in KP. Yet, all these stories had violence and punishment as a major theme, particularly against women who are depicted as untrustworthy and untruthful. To avoid reinforcing socialization impacts that might discourage trust, exploration, and independent thinking, these locally sourced materials were excluded. Instead, well known Pakistani cartoon film clips were selected to introduce session themes in a light touch, humorous way, to avoid provoking threat or reactance.

Another pull factor according to experimental research is that individuals who are fused with their group, as can occur in tight communalism contexts, are found to be more willing to sacrifice themselves for the group.[15] The Sabaoon team found that the youths felt they had to submit their personal goals to family or community expectations. In some cases, among Sabaoon detainees, family members and authority figures within the community played a role in encouraging the youth towards militancy, cohering with the norm of subsuming, or sacrificing one's life for the group.

The Sabaoon team discovered that the youths recruited by TTP were assigned new names by the militants. This new identity had the effect of detaching the individual from his former identity and family ties, becoming a part of a larger collective and a greater cause. Loss of former self-identity while immersing in a new group identity is associated with lack of personal agency, conformity to the group and obedience to authority.[16] The lure of belonging to a powerful group combined with the promise of blissful ease and even higher status in the afterlife. Overall, the Sabaoon team found that belonging was observed to be a more important for these youths than the tenets of the ideology per se. This is a finding in accordance with research showing that commitment to extremist ideology usually develops after committing to violent extremism.[17]

We incorporated these pull factors into the intervention themes and role play activities to promote agency and an ability to balance the individual's values and goals with those of the family and cultural

group. We developed activities to differentiate proportionate punishments for social norm breaking from those that are disproportionate. Unpacking young men's sense of hopelessness about local political corruption and its impact on their life chances involved activities to open the possibility of voting and involvement in local politics. This was explored based on objective rather than subjective criteria such as voting according to family and tribe loyalties. We explored science and traditional beliefs to open themes concerning fatalism, a belief that one's destiny and life events are predetermined by forces beyond one's control. These activities aimed to support discovering middle positions between extremes of inflated agency versus having no agency. A theme of male dominance was indirectly addressed by including group activities that promoted the welfare of and equal opportunities for females.[18] And, as individuals who are socialized to give up their personal goals in conformity to the group can have a greater tendency to compete with outgroups, and given the turbulence and trauma of the TTP insurgency, we designed two sessions around role played conflicts in which injustice is perpetuated toward the ingroup, using randomly assigned fictionalized groups to safely elicit overt ingroup and outgroup conflict dynamics.[19]

Personal Factors

Youths with a record of truancy, dropping out of school or running away from home also showed trends of impulsivity, anxiety, insecurity, and aggressive impulses.[20] As well, the team found a higher-than-normal frequency of neurological abnormalities, measured by electroencephalogram (EEG) and other neuropsychological tests, arising from head trauma such as obstetric/neo-natal trauma, untreated fevers in childhood, poor nutrition, and/or beatings by TTP. These indicate a range of early and sustained deprivations in the lives of these young people, with possible subsequent impacts on reasoning skills.[21]

We devised activities to provide emotion management skills in the intervention to calm anxiety, fear, and impulsivity to allow for more balanced reasoning. We included practical, sensory, and action-based activities to engage participants' varied learning styles to support reasoning skills. Below, we argue how push, pull, and personal factors were intensified by the singular rote method of education across Pakistan and Swat Valley schools impacting the *how* of thinking.

Push, Pull, and Personal Factors Intensified by Rote Education

Rote education in Pakistan schools affects every subject taught in school. Learning is based on rote repetition and memorization, and impacts those with abundant or little formal education. In addition, young people are socialized by their elders to see their social world as they are told to see it, in a binary, right/wrong manner. In answer to any question, a single right answer is assumed to exist. The Sabaoon team found that the youths often have anxiety about giving teachers or authority figures the wrong answer. Thinking can be a search for the teacher's expected answer, and proceeds mainly at the concrete level. The ability to apply higher level abstract principles to new contexts, as required by contextual reasoning or independent, critical thinking, is mainly out of reach. Below, we argue that rote education in this cultural context intensifies and integrates the push, pull, and personal factors described so far.

Sabaoon youths' way of thinking about the structural pull factors in their lives was in black and white terms, as a victim oppressed by the other, as a member of the good ingroup versus the bad outgroup, or as helpless in the grip of fate. Pull factors, such as the need for belonging and identity, involved black and white group categorizations of inclusion or exclusion, monocausal assumptions about blame, agency, outcomes, with categorical rules governing behavior without exception. Achievement means giving the expected answer to teacher or authorities. As argued above, the rote educational method prevailing in Pakistan tends to creates a climate of certainty through the expectation that there is a single right answer to any question.[22]

The combined effect is described as follows, "cultural systems that have a strong emphasis on certainty create a strong press for coherence which results in a collapse of complexity—or more simplistic Black–White thinking."[23] The authors of this research acknowledge that a collectivist, communal culture is not a direct cause of low complexity thinking. Instead, collectivist, communal culture may be a moderator variable if other factors such as rote education and limited life chances are strongly present. This accords with our analysis of rote education as intensifying and integrating push, pull, and personal factors.

As part of clinical interviews, the Sabaoon team assessed the inductees' reasoning abilities using the Standard Progressive Matrices (SPM). The SPM is a culture free nonverbal assessment of individuals' logical

reasoning abilities, and includes the ability to make meaning out of confusion, and to formulate new concepts when faced with novel information.[24] The team found that over 90 percent of the Sabaoon population were below the bottom 25th percentile on reasoning skills in comparison with the SPM's international database. As well, the team analyzed verbal data from clinical interviews across four contrasting individual cases from low to high academic achievers. Each case was analyzed for integrative complexity (IC), a measure of cognitive complexity.[25] All four cases showed low IC scores[26] indicating a low complex, black and white structure of thinking, regardless of academic or intellectual ability. Ideas were either right or wrong, people were either good or bad, outcomes of actions were certain, with little in-between. Given that the youths already thought about their social world in black and white terms, it was easy for TTP to shift them to a purportedly more empowering but equally black and white extremist ideology. This lack of ability to critically examine arguments meant that the Sabaoon youth were easily persuaded by TTP that they were fighting foreign forces in the nation of Pakistan, as decreed by the Qur'an, despite the lack of Qur'anic evidence for this.

In a similar vein, researchers Gambetta and Hertog found that university graduates with engineering and science degrees in Middle East and North African contexts show unexpectedly high participation in violent extremism despite their extensive education.[27] According to the study's authors, this was explained at least in part by teaching methods geared to finding a single right answer which reinforces a tendency, even among university graduates, towards low complex, black and white thinking, which is also a linguistic feature of extremist ideologies generally.[28] The Sabaoon team similarly observed that most male students in the Swat region are expected to take up sciences rather than liberal arts, reinforcing the quest for a single right answer even among the highly educated.

In short, the Sabaoon youth seemed less able to think critically or complexly, regardless of their academic ability or years in formal education. They were less able to question or perceive other perspectives, intensifying the impact of the other limiting factors in their lives. They were unable to see through the black and white TTP ideology which presented an empathetic face towards Swatis' ingroup while denouncing their outgroups – a binary strategy pitting 'us against them' that is widely used by violent extremist groups.[29]

So far, we have described how the push, pull, and personal factors were intensified by the pervasive impact of rote education. Researchers often consider the process of cognitive radicalization to be less important to understand or address compared to causes for violent behavior. But here, once the youth were cognitively engaged and recruited, steps towards violence were prosaic. The team learned through clinical interviews that most of the youths recruited by TTP were initially assigned menial tasks. Once recruits were observed to be loyal to the relevant commander, they were considered for further training. Those deemed to be of low cognitive ability were generally assigned to suicide bombing training as a one-off contribution to the group's mission, whereas those considered to have higher cognitive abilities were used for longer-term goals. These youths were given physical and weapons training to prepare them for higher status militant missions.[30]

In summary, our analysis of the process of radicalization is that it was not strongly motivated by perceived political grievance. Rather, perceived rewards of belonging, mission, and status inherent in TTP recruitment provided an alternative to the structural push, pull and personal factors limiting their lives. The youths were already tilted towards black and white thinking through the pull of their socialization and its intensification through rote education. This accorded with the binary logic of TTP ideology, which the youths were unable to question. In the words of the Sabaoon team: "These youths were not dangerous in themselves, but they could be made to do dangerous things."[31]

Psychological Concepts that Structure the Intervention

Sabaoon commissioned the intervention using the IC thinking method (explained below), funded by the Netherlands Government in 2018. We next explain how the youths' black and white, low complex thinking provided an *entrée* for the intervention's engine of change, which is the leveraging of more complex and critical thinking. This is explained through the psychological concepts below.

Cognitive Complexity

The IC thinking method draws on the concept of cognitive complexity, measured by integrative complexity (IC). Integrative complexity concerns one's ability to differentiate and integrate multiple perspectives or dimensions on an issue.[32] Decades of IC research by Peter Suedfeld and colleagues demonstrate that IC is a reliable

psychological predictor of violence in intergroup conflict. Recent research shows that the ideologies of extremist and violent extremist groups also show low IC.[33] Low IC indicates a propensity for binary, black and white thinking that precludes acknowledging validity of different viewpoints, thus preventing collaborative conflict resolution. Low IC is evident across a range of extremist discourses (Islamist, sectarian/territorial, white supremacist, and animal rights), and violent extremists demonstrate statistically lower complexity than nonviolent but ideologically similar counterparts.[34] Analyses of archived communications of political and military decision-makers involved in conflicts, such as the American Civil War, World War 1, World War 2, Cuban Missile Crisis, and Gulf War 1, show that a significant drop in decision makers' IC predicts intensified conflict and violence in subsequent real world events.[35]

Conversely, increases in complexity of thinking typically result in nonviolent strategies for conflict resolution.[36] Higher IC can render individuals or groups more amenable to mutual understanding, which can predict more peaceful outcomes to conflict. In line with the research on IC, the target of an IC intervention is not participants' beliefs per se, but rather the *how* of thinking: The black and white, binary, categorical, mono-causal, single perspectives on which violent extremist ideologies are built. As argued above, this binary structure can be appealing to individuals whose ability to engage with complexity is constricted due to the push, pull, personal, and rote educational stressors in their lives.

Because IC analysis concerns a person's structure of argument rather than substantive content such as attitudes or beliefs, proponents argue it is less prone to demand characteristics or social desirability. This can help to address a concern amongst CVE intervention practitioners about faked compliance. With IC scoring, a small amount of impression management is possible, but this is easily identified by experienced coders, and once identified, is excluded from results.

Meta-awareness

Meta-awareness involves changing one's focus of attention, a skill that can reduce negative reactance. Reactance is a defensive cognitive response marshalled when a person detects that they are being persuaded to change their thinking. Ironically, in response to deradicalization efforts, people can often double down on their thinking

and become even more extreme as they defend their thinking against change.[37] The Sabaoon team earlier had observed that rational arguments to counter TTP ideology were often not accepted by inductees. They also found that suggesting new counter narratives to replace violent extremist narratives had only fleeting impact. In fact, those with higher cognitive abilities marshalled even stronger reactance, and were more adept at screening out new information, than those with lower cognitive abilities. Reactance is likely to be a factor in the lack of empirical evidence for deradicalization efforts that rely mainly on logical thinking and correct information in a range of countries.[38]

We designed learning activities to enable participants to shift attentional awareness, or to shift perspectives, within themselves - a process referred to as decentering or meta-awareness.[39] Meta-awareness involves stepping back and shifting attention to sensory perception in the present tense, to gain some safe psychological distance from the power of negative black and white judgements or emotions. This stepping back allows one to reflect on how one's way of thinking is a malleable process over time, influenced by multiple factors such as current bodily state, emotions, sensory perception, and how many elements are currently being considered. The process supports the management of emotions concerning hot topics of group identity, inter-group conflicts and loyalties to an extreme group or ideology.

In short, a key skill developed in the IC intervention is meta-awareness, a form of metacognition that enables a person to 'see one's thinking' and reflect up on it over time.[40] With the help of meta-awareness, low complex, black and white thinking can be incrementally shifted towards higher levels of awareness and more complex thinking, without provoking threat. Integrative complexity interventions enable alternative perspectives to be perceived without a defensive collapse back into black and white thinking. This process leads to an ability to see through the manipulative strategies of any extreme ideology.[41]

Perspective Taking

One of the most common approaches to increasing cognitive complexity in intergroup conflict interventions is to promote perspective taking, which, to some degree involves empathy. Previous studies have found that empathy when used to help reduce violent

extremism can have mixed results, particularly as extremists often exploit emotional concern and identify fusion with a selected group, which is then used to legitimize aggression against other groups.[42] Cognitive empathy, which is motivated to understand another's way of thinking, seems safer to leverage in this context. We created group roleplays that avoid threat to group identity by using randomly assigned subgroups, to avoid exacerbating threat concerning who has power and who does not regarding an intergroup conflict.[43]

Course Structure

To recap, the course themes above arising from push, pull, and personal factors are structured by cognitive complexity, meta-awareness and perspective taking. The intervention's eight sessions each has a four step pattern designed to promote cognitive complexity and perspective taking, as follows:

- Step A) playful exploration of social dilemmas using cultural themes described above;
- Step B) increase in tension and polarization to provoke low complexity responses in group activities, followed by meta-awareness prompts;
- Step C) exploration of emotions and value ranges underpinning conflicts to promote differentiation; and
- Step D) integration, reframing and resolve.[44]

To enable emotion management in Steps A and B, meta-awareness prompts are used. As previously mentioned, meta-awareness shifts awareness to present experience involving thinking, feeling, and sensing.[45] The resulting increased psychological distance can help people to disidentify from their thought content and inner experience, thus reducing the impact of negative emotions at key points in the sessions.[46] This helps to make negative internal experience, often concerning the other, easier to tolerate.[47] Towards the end of the course, meta-awareness is also used to foster awareness of the rhetorical strategies used in speech and media that are intended to polarize or radicalize, and to observe one's own emotional responses to these messages. In each session, direct reference to Swat or Pakistan specific extremism was intentionally avoided in designing the course, to minimize reactance to allow participants to build and practice cognitive and emotional skills with more distant (but parallel) narratives. [48]

To scaffold cognitive differentiation (the ability to perceive some validity in shades of grey, multiple dimensions, or differing perspectives) in Step C, we identified a set of culturally appropriate value tensions relevant to the cultural themes above. These are taken from a range of human value universals backed by empirical research.[49] We selected the following value tensions:

> (a) Mercy/benevolence vs Obedience/punishment,
> (b) Individualism vs Tribe/Family
> (c) Individual Achievement vs Conformity to social group norms and roles, and
> (d) Justice for all vs. Power/security for the ingroup.

Values research has shown that perceived threat to a group's own values can shift people towards a defensive single value (for example, favoring power, security, and traditional roles at the complete expense of openness, universalism, and individual achievement). In doing so, thinking becomes more one sided and less complex. This lack of complexity inclines thinking towards more extreme positions. However, enabling participants to perceive at least some validity in more than one of their own or others' important values promotes more complex thinking.[50] In Step C, values spectrums are created using signs placed on the floor at opposite ends of the room, and enacted spatially by walking along the values spectrum to experience and identify value tensions, personal tradeoffs, and shades of grey.[51]

In Step D in each session, role played resolutions to social tensions and dilemmas occur through randomized small groups.[52] Participants end up role playing randomly assigned and varying sides of a conflict within a session. This makes it harder to place all blame on the outgroup or to dehumanize them. Step D provides the opportunity to reappraise the social tension and examples of extreme rhetoric in more adaptive ways, a reframing process that is associated with better health and mental health outcomes as well as better intergroup attitudes.[53] As participants become aware of the malleability of one's own and others' cognitive perspectives, a willingness to come to the table to resolve conflicts through negotiation and problem solving increases.[54] By giving participants practical skills in maximizing a range of their own values while respecting the values of others, they are able rehumanize the other, and opt for a range of prosocial ways to resolve conflict rather than resort to violence. Throughout, course activities address and

resolve identification with one's own group as the only way of protecting against uncertainty.[55]

Hypotheses

Based on the prior results showing significant IC gain in 80 out of 80 similarly structured IC courses in nine different cultural contexts, two main hypotheses concerning IC are proposed.[56] One, following the IC intervention, participants will demonstrate higher IC scores in written responses to open ended prompts regarding participants' self-identified ingroup/s and outgroup/s. Two, following the IC intervention, participants' oral presentations will show IC scores indicating differentiation (IC scores 2, 3 and above) at the end of the course.

As trends using perspective taking and empathy measures are not consistent across other IC courses, hypotheses regarding perspective taking and empathy are exploratory. Exploratory hypotheses are as follows. One, following the intervention, participants will demonstrate higher self-report scores in perspective taking and empathy measures. Two, following the intervention participants will demonstrate expected changes in self-report scores on a Violent Extremism Belief Scale concerning attitudes relevant to violent extremism.

Method

Participants

At the time of the study, the Sabaoon intake totaled 74 males. Course participants were selected from the 74 according to the following criteria:

- Middle scores between a percentile rank between the 5th to 75th percentile on the Standard Progressive Matrices (SPM) test. (As mentioned previously, SPM is a non-verbal, culture-free test of reasoning abilities that affords internationally comparable score ranges).[57] Selecting the middle SPM scorers avoids the extreme differences between high and low SPM scorers in Pakistan which could skew results.
- Age range (13-26 years).
- Availability and willingness of the youth to participate in the intervention.

28

Based on the above selection criteria, 64 Sabaoon youths completed the 16-hour IC intervention in three cohorts:

1. 13 currently detained for TTP militancy (CVE Detained cohort), 20.3 percent;
2. 38 formerly detained militants undergoing reintegration (CVE Reintegrated cohort), 59.4 percent;
3. 13 at risk students (PVE At risk cohort), 20.3 percent. Mean age is 19.77 years (SD = 3.26, age range is from 13-22 years of age). All participants are male.

Piloting and facilitator training

The authors collaborated through in person work weeks in the United Kingdom and in Pakistan to develop the draft content. Eight sessions (16 contact hours) of group activity were designed drawing on the themes, psychological concepts, and value tensions, described above. When the session materials were complete, the director and senior management of Sabaoon approved the course content and assessment protocol. These were then translated into Urdu. Facilitator Guides for group activities, media rich PowerPoints, handouts and homework assignments were created.

A second visit to Pakistan provided IC facilitator training to the Sabaoon team. We filmed an inhouse pilot course which was used to refine course content based on challenges encountered. Next, the senior Sabaoon team trained thirteen potential local facilitators (from the Mental Health Team staff working at Sabaoon and Monitoring Center along with social workers) over two weeks of immersive training. Six were shortlisted to become facilitators of the IC course.

The six trained facilitators conducted a second pilot course with Sabaoon teaching staff to test the materials and prepare for possible challenges that some participants may pose, whether disruptive, withdrawn, argumentative, and so forth. All sessions were videotaped so that the facilitators could identify and address any problems. A third pilot was tested on a Punjab group of male secondary school students. Of the many schools contacted only one school for boys showed comparable demographics to the target population at Sabaoon, yielding a sample of 74 males (ages 13 to 17 years). These participants were similarly given the SPM reasoning test. A sample of 16 boys was selected to participate in the intervention based on SPM scores

matching the prospective Swat sample, excluding the extreme differences between high or low SPM scorers (according to the internationally comparable score ranges) to avoid skewing results.

Course Delivery

The same procedure with SPM was carried out in advance of course delivery to Sabaoon participants. The eight-session intervention was entitled "*Hum Aur Hamara IC*" (Urdu for 'Us and Our IC') was then delivered to the CVE Detained, CVE Reintegrated, and PVE At-risk cohorts, starting with a pre-testing session. Participants completed pre-test measures before the beginning of the course and post-test measures after the final session. For Pashto-speaking participants for whom written Urdu is difficult, written responses were given orally and transcribed verbatim by a facilitator. In pairs, two trained facilitators, each with around 10-15 participants, delivered the course (16 contact hours) over three to four weeks to the three cohorts at Sabaoon.

Measures

Integrative Complexity

Integrative complexity (IC), a measure of cognitive complexity, is scored on a scale from 1 to 7, using standard coding procedures.[58] A score of 1 represents the most simple cognitive structures (for example "our group is completely right"), a score of 2 represents emerging complexity (for example "sometimes what the other group says makes a bit of sense"), and a score of 3 represents fully differentiated cognitive structures that acknowledge the validity of different perspectives (for example "our main concern is equality between the groups because it is so important for human dignity, whereas they are concerned with overall economic prosperity, which of course is needed too"). Scores of 4-7 represent higher level integrations and more advanced complexity of cognitive structures, for example, "everyone needs to have enough to live on so both are important. But these are in a tug of war; maybe we can find a middle position that at least minimally serves both needs."

Participants' written verbal data for IC scoring was elicited using a Paragraph Completion Test (PCT). Paragraph Completion Tests are widely used to assess conceptual complexity's integrative component.[59] PCT using IC scoring shows satisfactory test-retest reliability and convergent validity using cognitive and personality variables, according

to previous research.[60] As a measure of structure of thinking and argument, rather than content, IC is difficult to fake. When participants are speaking or writing, their attention is focused on mental content, not its underlying structure, making the measure less susceptible to demand characteristics.

The PCT asks the participants first to write down the group or community with which they identify and then to write down the group/s that are different or opposite to their group. These are chosen from a list of group identity options relevant to northern Pakistan. Participants are instructed to select any they feel apply, or to come up with their own. Participants are next prompted to write paragraphs in a free-flowing way in response to two open-ended prompts:

1. "When I think about my group" and
2. "When I think about the other group".

Participants wrote eight coded paragraphs (four paragraphs in the pretest, and four in the post test).

Three trained Urdu speaking IC coders reviewed and coded all paragraphs (512 total, with no missing data). Participants' mean IC score was 1.28 at baseline (pretest), which is comparable to other IC scores using PCT data. Coders achieved perfect agreement on 85 percent of scores, and scores that differed between the coders were moderated through discussion. A 30 percent sample of PCT paragraphs covering the range of scores across pre and posttest was translated into English and coded independently by an English-speaking IC coder, achieving perfect agreement with the Urdu speaking coders.

Participants' oral presentations were given to the whole group at the end of the course, and were scored for IC. This task allowed participants to prepare in advance their responses to two prompts, "What did you experience during the course?" and "How did the course effect your thinking?" Oral data from Pashto presentations were translated into Urdu, and an Urdu speaker translated the presentations into English. Urdu and English-speaking coders coded the entirety of the videotaped oral presentations. The three coders achieved perfect agreement on 84 percent of cases and full agreement on the remaining scores through discussion.

Perspective Taking and Empathy

Perspective taking was measured using the Interpersonal Reactivity Index, which has good validity and reliability cross-culturally.[61] Two subscales were used: Perspective taking and Emotional empathy. Participants responded by giving their ratings on a five-point Likert scale. Empathy was further measured using the Basic Empathy Scale. Two subscales were used: Affective empathy (emotional congruence with another person's emotions), and Cognitive empathy (ability to understand another person's emotions).[62] Participants responded by giving their ratings on a five-point Likert scale.

Violent Extremist Belief Scale

The Violent Extremist Belief Scale (VEBS) was administered at the end of pre and post testing. This scale was developed to measure factors that arise in the CVE literature, to provide guidelines for interviewing skills. Factors are: Religious power relating to extremism and religious legitimation of violence; Power politics relating to the desire to attain power through politics; Lack of positive thinking concerning religious harmony and tolerance towards humanity; and Risk taking and impulsive behavior.[63] Participants responded by giving their ratings on a five-point Likert scale.

Results

Cognitive Complexity Measured by IC Using a Paragraph Completion Test

Results from paired samples t-tests show statistically significant increases in cognitive complexity overall, and for each cohort, CVE Detained, CVE Reintegrated, and PVE At risk. Effect size overall and for each cohort is very large. The PVE At risk cohort shows the largest increase in IC (a gain of 1.21), with the CVE Reintegrated cohort second (0.63). The CVE Detained cohort shows the smallest yet still significant IC gain (0.31). Please see Table 1. Pre and Post-test Mean IC Scores from Paragraph Completion Test, below.

Table 1. Pre and Post-test Mean IC Scores from Paragraph Completion Test

	Variable	Pre test		Post test		t (df)	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
Overall Sample N=64	IC score	1.28	.31	1.96	.78	-7.16 (63)	.000*	-.87	-.49	-1.80
PVE At risk cohort N=13	IC score	1.21	.27	2.42	1.03	-3.86 (12)	.002*	-1.90	-.53	-2.22
CVE Detained cohort N=13	IC score	1.19	.21	1.50	.49	-2.79 (12)	.016*	-.55	-.07	-1.61
CVE Reintegrated cohort N=38	IC score	1.33	.19	1.96	.86	-6.337 (37)	.000*	-.83	-.43	-2.08

Note. CI = Confidence Interval, LL= Lower Limit, UL = Upper Limit. Asterix (*) point out IC mean differences that showed significant gain.

Overall, gain in IC is highly significant regarding participants' self-identified Ingroup (t=-3.37, p>001) with a large effect size. Gain in IC is highly significant regarding participants' self-identified Outgroup/s (t=-7.12, p<0.000) with a large effect size. See Tables 3 and 4 in the Appendix A and B for additional details.

Oral Presentations

Individual presentations were given at the end of the course to the whole group. Mean IC score for the overall sample was 2.67. The CVE Reintegrated cohort shows the highest mean IC score (2.87), CVE Detained mean score is 2.54, and PVE At risk mean score is 2.23. Please see Table 2. IC Scores for the Sample, below.

Table 2. IC Scores for the Sample

Group	N	M (SD)	min.-max.
Overall	64	2.67 (1.01)	1-6
PVE At risk	13	2.23 (.60)	1-3
CVE Detained	13	2.54 (.66)	2-4
CVE Reintegrated	38	2.87 (1.28)	1-6

Perspective Taking, Empathy, and Violent Extremist Beliefs

The subscales used from the Interpersonal Reactivity Index and the Basic Empathy Scale each showed non-significant results. See Table 3 in Appendix A.[64] Two VEBS subscales showed expected decreases in the post test: Lack of positive/moderate thinking about humanity and religious harmony (t = -2.19; p <0.03) and Risk taking/ Impulsive behavior (t= 2.01, p<0.04). The two other scales, religious power, violence, and extremism (t = -0.68; p<0.50) and Power politics, desire to attain power through politics (t = 1.84; p<0.07) were not significant. There was no overall VEBS significance (t = -1.32; p< 0.19). See Table 4 in Appendix B.

Discussion

Integrative complexity scores

The main hypothesis is supported by significant increases in IC scores in posttest written responses to open ended PCT prompts. There are significant increases for the overall sample and for each cohort. Before the IC intervention, participants' written responses about their Ingroup

34

and Outgroup were mainly structured simply, dichotomously, and in black and white, categorical terms. After the intervention, their written responses show more complex, qualified evaluations of the both Ingroup and Outgroup as having both some good and bad qualities. They show acknowledgement of at least some validity in different or opposing viewpoints, and acknowledge some shared values. Participants' written responses show awareness of multiple causes of grievances, multiple factors involved, and an awareness of how their own thinking has changed over time. This increase in complex thinking is slightly stronger in paragraphs written about participants' designated Outgroup compared to Ingroup, across all three cohorts. It is encouraging to see that despite participants' low reasoning scores and rote educational background the overall gain in IC is consonant with the gain in IC found with similar courses designed and delivered in far less challenging contexts. These less challenging contexts include PVE courses for high schools, community organizations, or for youth deemed at risk in a community setting.[65]

Countering Violent Extremism (CVE) Detained cohort

Before the IC intervention, participants still detained for violent extremist activities showed dichotomous, unidimensional, unqualified positive evaluations of their Ingroup/s, and unqualified negative evaluations concerning their designated Outgroup/s. In social psychological research, one of the main determinants of negative attitudes and prejudice towards outgroups is perceived threat posed to the ingroup.[66] In response to perceived threat, a negative view can be intensified by extremist ideology to the point of derogating and dehumanizing outgroups. As the all-good ingroup is pitted against the all-bad outgroup, as analysis of extremist ideology reveals, this is associated with legitimation and acceptance of aggression and violence towards the outgroup. It is particularly extreme when the outgroup comes to be viewed as less than fully human and thus not deserving of humane treatment.[67]

After participating in the IC course, the cognitive structure concerning participants' self-identified Ingroup/s and Outgroup/s shift. The CVE Detained cohort's cognitive complexity towards the Outgroup increased significantly, indicating that the designated Outgroup/s are no longer seen in wholly negative terms. Instead, there is an implicit acceptance of some validity in the Outgroup's viewpoints and values. This increase in IC signifies a lessening of

adherence to extremist ideology that legitimates violence against Outgroups. Interestingly, there was a trivial decrease in IC regarding CVE's Detained cohort's Ingroup. This non-significant, slight decrease may indicate that CVE Detained cohort's energy and attention was taken up in reframing the Outgroup, or it may point to having more positive perceptions of a more broadly defined Ingroup, explained more fully below.

Countering Violent Extremism (CVE) Reintegrated Cohort

The CVE Reintegrated cohort, like the CVE Detained, previously were captured by the Pakistan Army for involvement in violent extremist activities. The Reintegrated are now in a monitored process of reintegration. Generally, they have a longer experience of the Sabaoon program and Monitoring Centre than the other two cohorts, and their results seem to illustrate a Sabaoon effect: A slightly higher pre-test IC mean across both Ingroup and Outgroup, and more even-handed gain in IC regarding both Ingroup and the Outgroup. These results suggest that the IC course had a particularly broad impact for the reintegrated cohort. The post test scores also confirms that the criteria for Sabaoon team decisions about readiness for reintegration were valid and robust. Given that human behavior is generally motivated according to one's perception of the social world, negotiated means of addressing conflict only becomes possible once these perceptions open in complexity, as they did in this study.

Preventing Violent Extremism (PVE) At Risk Cohort

The PVE At risk cohort had not been involved in prior violent extremist activities, although they had been identified as at risk by authorities, often due to family members' support or involvement in violent extremism. Preventing Violent Extremism cohort's IC gains are higher compared to CVE Detained and Reintegrated cohorts. This suggests there is perhaps a steeper climb to emerge from black and white thinking for those who have engaged in the potentially traumatizing effect of violent activity and being captured. The PVE At risk cohort show the highest gain in IC regarding the Outgroup, a score that is higher in comparison with written data from most other IC courses delivered in less challenging contexts.[68] Unfortunately, due to the sensitive nature of this research, direct participant quotes are not provided.

Oral Presentations and IC Scores

Oral presentations prepared in advance by everyone was given to the whole group at the end of the course. Overall scores show that implicit differentiation (IC score 2) has been reached by nearly all, and explicit differentiation (score 3) has been reached by around half of the 64 participants. Nine participants (mainly CVE Reintegrated) showed IC scores 4, 5 and 6.

Analysis of the video films made clear that it was difficult, particularly for the CVE Detained and PVE At risk participants, to reveal their thinking in the group context. The social space in Swat is closely governed by social norms, and there is immense pressure to conform. Despite this challenge, all participants' oral presentations showed they achieved the ability to see some validity in differing perspectives (with an overall mean score of 2.67). The CVE Reintegrated cohort were the stars here, showing unusually strong IC scores through their oral presentations. Nearly half (45 percent) of Reintegrated cohort's oral presentations show elaborated argument structures understanding both sides of a conflict (at IC score 3). Nine Reintegrated participants achieved IC scores of 4, 5 and 6. These scores show integration, the ability to see higher order links between several different views, values, causes, and outcomes, making sense of how reasonable people can view the situation so differently. Integrative complexity scores of 5 and 6 show multileveled complexity, which is expected to be found in the balanced judgements of supreme court judges. These are high IC scores compared to oral presentations in other IC courses. These high scores may reflect their longer exposure to the Sabaoon program and Monitoring Centre which may have encouraged their confidence to share the breadth of their thinking to the wider group. They are remarkable findings given these participants' status as former militants with prior low reasoning scores and limited, rote education which predisposes the search for a single right answer.[69]

As well, participants' personal experiences of nutritional deprivation, mental health and head trauma issues provide ample reasons for a critical thinking intervention to fail. By using the IC method employing the A, B, C, D steps with meta-awareness while engaging sensory, embodied, practical, and emotional learning styles concerning cultural themes relevant to life experiences, participants were able to overcome some of these personal challenges. CVE Reintegrated participants' oral

presentations particularly displayed an increased sense of empowerment. In their oral presentations, they often expressed a desire: To use these thinking skills for pro-social conflict resolution as they return to their communities. As one Reintegrated participant said (transliterated for reasons of sensitivity), "I never heard of this before. I did not know about this kind of thinking. I never did this before. But I can do this. And I can bring this to my community to help them solve problems."

Perspective Taking and Empathy Subscales

The non-significant results from the self-report perspective taking and empathy subscales may suggest participant fatigue. These scales were administered after the PCT which was two times longer than usual. For this study, we were concerned that it might be difficult for Sabaoon participants to write freely in the PCTs, so we devised the PCT to require a total of eight paragraphs. This doubled the normal length of the PCT in comparison to other IC courses. In retrospect, we think the participants were flagging after the PCTs, which may have affected these results. Nevertheless, the post-test PCT paragraphs do show many examples of implicit and explicit perspective taking coded at IC scores 2 and 3, particularly concerning designated Outgroups. Doing so depends upon the ability to see some validity in others' perspectives.

Violent Extremist Belief Scale

Two of the four VEBS subscales showed the expected decrease in Lack of positive/moderate thinking concerning inter-religious harmony and Risk taking/ impulsive behavior. These changes appear to reflect the impact of conflict resolving course activities that require some trust and willingness to engage with the other, and an ability to manage emotions and reactions while doing so. The other two scales showed did not show significant change. However, a slight, non-significant increase among the Reintegrated cohort in Power Politics items was surprising and invited further scrutiny.

The VEBS scores and PCT verbal data taken together made good sense given that the Swati youths had not been motivated by political or religious ideology when they were recruited by TTP. [70] At that point, the youths had scant (if any) political identification with Pakistan as a nation. They had little prior understanding of Islam, having only read the Qur'an in Arabic (if at all), rendering the claims of the extremist

narrative believable. At Sabaoon, holistic and remedial education delivered both civics education and moderate religious instruction. For many youths, this was the first time they made a meaningful connection with their own nationality and religion. We think this shift to reframing their religion and Pakistan nationality in a more inclusive and positive light occurred during the rehabilitation program at Sabaoon, prior to the IC sessions. The IC intervention reinforced this new perspective, evidenced in increased positive identification with national and religious elements of Ingroup identity in the post test written data.

It is also interesting that participants' posttest written data show a broader, more inclusive framing of their Ingroup, for example, beyond their local region, or beyond their version of Islam, and in some cases, inclusive of other religions. As above, the posttest PCTs do show a significant increase in IC scores concerning their Outgroup, a shift predictive of reduction in violent intergroup conflict and increased social harmony. Thus, it seems that participants' slightly increased scores on these two VEBS scales does not indicate future support for violent extremism itself, but rather increased identification with a more positive and inclusive religion and polity, assuaging of one of the radicalization factors explained earlier.[71] As the two other VEBS scales decreased as expected, there was no overall result indicating support for violent extremism.

Applying Lessons to Other CVE Interventions

The results of this study touch on questions raised by other CVE efforts. What does IC method and measurement add to other CVE efforts? Meta-analyses of CVE initiatives in a range of countries show that it is difficult to establish the efficacy of deradicalization interventions that rely mainly on instilling logical arguments and correct information. We argue this is due in part to such interventions provoking reactance (cognitive resistance to making changes in thinking).[72] As IC is arguably held at a less than conscious level, IC method and measurement may address the potential for extremists to respond with either a reactant, doubling down response, or to give a fake, socially desirable response.[73] IC measurement, as part of an array of regionally specific measurement tools, could improve measurement for other deradicalization interventions.

Secondly, what does the IC intervention add to a holistic, multi-disciplinary program like Sabaoon? Sabaoon already encompasses most of the successful features found in the Saudi, Malaysian and Indonesian deradicalization models. Sabaoon's distinctives include individually tailored, extensive clinical assessments and psychosocial interventions for individuals, families and groups which informs a flexible program for each inductee. Inductees can be resident in the Sabaoon program from 6 months to five years, with an average duration of two to three years. Sabaoon provides mainstream education with remedial and accelerated education to cater to the range of slow learners and high achievers. The more academically inclined are supported to go on to higher education after rehabilitation. Vocational training for the less academically inclined is geared towards working in the local economy. Sports serve a therapeutic purpose and are provided for all. Religious instruction is provided to address misuse of Qur'anic verses taken out of context, encourage verification of Qur'anic texts, and to augment often limited religious understanding through an approach that emphasizes humanism, tolerance, and harmony between all faiths. Each Sabaoon graduate receives ongoing support from the Monitoring Centre as they reintegrate into their villages and pursue chosen life goals. These features combine to produce Sabaoon's extremely low rate of recidivism (0.4 percent), mentioned above, over 12 years since its founding in 2009.[74]

In answer to the question concerning what an IC intervention adds to an already successful program such as Sabaoon's, the first point is that the intervention followed on from Sabaoon's provision of practical support and funding for youths' chosen education or employment goals. Sabaoon's record of accomplishment of low recidivism does imply that at least some targeted mitigation of structural push factors such as education and employment is needed for successful deradicalization and reintegration. However, it seems a false dichotomy to expect mitigations to structural factors on their own to be sufficient if graduates also lack the cognitive ability to navigate the pull factors of their social context. The IC method was commissioned so that the youths would become cognitively resourced to emerge from black and white thinking, navigate their social world going forward, avoid derailing their goal direction in the face of unchanged push, pull and personal factors, as well as to become resilient to the lure of belonging, status, and reward promised by extremist groups generally.

Timing is important to consider. The Sabaoon team consider that introducing some initial IC course sessions for selected individuals at approximately at a one-year juncture from the start of detention could help to hasten the resolving of binary cognitive structures to promote deradicalization. The team reports that at the time of induction at Sabaoon, the youths' ability to think logically is limited. Inductees may feel traumatized, fearful, or confused. After one year at Sabaoon, inductees' reasoning abilities improve, measured by the SPM assessment. This improvement at one year on seems to be a result of individually tailored psychosocial interventions, which in turn produces a readiness for the IC intervention.

The second point at which an IC intervention may be beneficial for other CVE programs is after the deradicalization process has been successfully achieved, to ensure that participants' structure of thinking has in fact emerged from black and white thinking, before commencing reintegration. As mentioned above, the CVE Reintegrated participants' post test IC scores confirmed that the criteria for reintegration taken by the Sabaoon team had in fact been valid. A hard to fake measurement like IC, tailored to an intervention designed to increase IC, could be a helpful, discriminating tool to be used along with other locally validated measures for other deradicalization programs.

A third point for implementing additional IC sessions is soon after reintegration, when it is natural that these individuals will encounter differing perspectives, daily tensions, complex social issues, and the pull of social norms. In this article, the oral presentations of the CVE Reintegrated youth showed a surprising prowess in achieving high levels of differentiation and integration in their thinking. It seems that these increases in IC turbocharged the impact of the Sabaoon program. Their oral presentations demonstrated their skills of thinking flexibly and critically for themselves, seeing through manipulative communications, generating alternative perspectives, charting realistic trajectories, addressing issues related to stigma, and reforming bonds at the family and community level.

Limitations and Challenges

Could factors other than the IC thinking course be responsible for these results? This cannot be answered by this study as it was not feasible to have a control group. The reasons for this are as follows. Given that the

entire current Sabaoon population was selected for the intervention, it was not feasible to recruit and gain consent from other populations matched on important variables such as demographics and SPM scores, given the scope and timescale of the funded project. However, control group comparisons matched on these variables are now available in other projects. A follow-on project to this study has been completed for a large sample of Pakistan secondary school students (n = 687, mean age 14.8 years of age) with a control/intervention design.[75] This IC critical thinking course was delivered in secondary schools in vulnerable regions in Swat Valley and in Punjab. Here, the control and intervention groups were matched on age, gender, educational attainment, and SPM scores. These results show significant gain in IC for the intervention group, and virtually no gain in IC for the control group. Additionally, an IC critical thinking course designed for secondary schools in the United Kingdom (n = 199, mean age 14.7) shows significantly higher IC gains for the intervention group compared to the control group.[76] Both sets of control/intervention results indicate that IC gain was due to the IC intervention, and not to other influences.

It would have been preferable for the IC coding to be carried out by coders completely independent from Sabaoon psychologists and developers of the course. However, this study was carried out in high-risk security context. As such, it was necessary that the analysis of raw verbal data was carried out by the appointed Sabaoon team of psychologists.

Lastly, the greatest challenge to this project was the pervasive impact of rote education on *how* participants think. Adaptations of the IC method are needed for each context, and in this study, a great deal of effort was spent in addressing the impact of rote education and low reasoning abilities by creating sequences of small steps to enable a transition from concrete, right/wrong thinking, and to assuage the fear of being wrong, to support participants to think more independently, flexibly, and critically. When something did not work out in piloting as planned, it was often traced back to having missed out some of these small steps to address the constraints arising from rote education.

Next Steps

In addition to the IC critical thinking course delivered to Pakistan secondary schools mentioned above, a short version of that IC critical

42

thinking course has been delivered online in Pakistan, with promising results. In response to the COVID era, we have developed online methods of training facilitators, monitoring courses, scalable IC related measurement, with significant results. We are currently delivering advanced IC critical thinking courses in universities in northern Pakistan and Punjab, leveraging topics in history and political science to increase cognitive complexity and critical thinking. In short, we hope to take all that we are learning to inform a range of scalable IC courses and teacher training for primary, secondary, tertiary, and adult education.

An urgent question remains. Can the gains reported in this study be maintained over time, or in the face of challenges such as the current Taliban takeover of neighboring Afghanistan and resurgence of other extremist groups such as ISIS-K? To answer this question, a longitudinal study two years following this study has been undertaken with Sabaoon reintegrated graduates by one of the authors, Raafia Raees Khan (forthcoming), showing that IC gains are maintained up to a two year interval, in accordance with independently observed participant behavior change reported in studies of other IC interventions.[77]

Conclusion

To our knowledge, the study presented here is the first assessment of an empirically based intervention delivered to young males who were involved in fighting for Tehreek-e-Taliban Pakistan (TTP). The Swati youths who had been apprehended by the Pakistan Army, and subsequently participated in this study, were lacking in family supervision and many had dropped out of school. Without much hope for finding employment in the under-developed northern Pakistan region, subjected to the prevailing tight communalism and rote education which habituated them to black and white, right/wrong thinking, these young men lacked basic critical thinking abilities. They were unable to see through the false promises of the militants. These low IC youths were fortunately stopped in their tracks. Sabaoon was, for these young males, the first light of dawn.

The IC intervention results show the expected gain in cognitive complexity measured by IC comparing pre to post test, consonant with increased critical thinking and reframed self-identifications concerning Outgroup/s and Ingroup. Course content capturing participants'

everyday social tensions allowed the young men to explore their thinking as it is entwined with emotions, to step back, get some distance, reduce a sense of threat, and use a greater range of values and thinking skills to find new solutions to intra and intergroup tensions exploited by extremism, and to see through the lures to extremism. Despite some initial positive economic development taking place in the KP region, many hard structural factors remain. As mentioned above, push factors need to be addressed at the structural level. Equally important is the need to seed a virtuous cycle based on cognitive skills to reduce the black and white thinking that heightens vulnerability to extremist ideology. In sum, we think the addition of the IC course to the Sabaoon program helped to accelerate deradicalization and support rehabilitation. It is our aim to introduce this method for other deradicalization centers and prison populations.

44

Appendix A

Table 3. IC Scores for Ingroup (PCT)

		Pre-test		Post-test		t	p	95% CI		Cohen's d
	Variable	**M**	**SD**	**M**	**SD**			**LL**	**UL**	
Ingroup Overall Sample	IC gain	1.31	.40	1.63	.71	-3.37	.001*	-.50	-.13	-0.84
Ingroup PVE group	IC gain	1.27	.39	1.73	.83	-1.85	.09	-1.00	.08	-1.06
Ingroup CVE group	IC gain	1.31	.43	1.23	.33	.62	.55	-.19	.35	0.35
Ingroup RI group	IC gain	1.33	.41	1.72	.73	-3.30	.002*	-.64	-.15	-1.08

Note. CI = Confidence Interval, LL= Lower Limit, UL = Upper Limit. Asterix (*) point out IC mean differences that showed significant gain.

Appendix B

Table 4. IC Scores for Outgroup (PCT)

	Variable	Pre-test		Post-test		t	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
Outgroup Overall Sample	IC	1.25	.41	2.30	1.15	-7.12	.000*	-1.35	-.76	-1.79
Outgroup PVE group	IC	1.15	.24	3.12	1.52	-4.29	.001*	-2.96	-.96	-2.47
Outgroup CVE group	IC	1.08	.19	1.77	.86	-2.84	.015*	-1.22	-.16	-1.63
Outgroup RI group	IC	1.33	.48	2.20	.96	-5.68	.000*	-1.17	-.56	-1.86

Note. CI = Confidence Interval, LL= Lower Limit, UL = Upper Limit. Asterix (*) point out IC mean differences that showed significant gain.

Appendix C

Table 5. Perspective Taking and Empathy Questionnaire Scores

Variable	Pre-test		Post-test		t (59)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Perspective Taking	19.07	3.26	19.37	3.25	-.52	.60	-1.45	.85	.07
Affective Empathy	39.59	5.37	38.88	5.72	.99	.33	-.73	2.15	-.13
Cognitive Empathy	34.69	4.20	33.77	3.73	1.41	.16	-.39	2.25	-.19

Note. CI = Confidence Interval, LL= Lower Limit, UL = Upper Limit.

Appendix D

Table 6. Violent Extremism Belief Scores (VEBS)

Variable	Pre-test		Post-test		t (54)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
VEBS total	51.89	24.77	56.60	7.75	-1.32	.19	-11.88	2.46	.18
Religious power violence and extremism	22.25	13.42	23.50	5.39	-0.68	.50	-4.90	2.40	.09
Lack of positive thinking	12.36	4.31	13.78	1.80	-2.19	.03*	-2.73	-.12	.32
Power politics	10.48	5.64	9.00	3.77	1.84	.07	-.12	3.09	-.25
Risk taking and impulsive behavior	9.13	2.86	8.19	2.57	2.01	.04*	.04	1.83	-.31

Note. CI = Confidence Interval, LL= Lower Limit, UL = Upper Limit. Asterix (*) point out IC mean differences that showed significant gain.

Endnotes

1   Matteo Vergani, Muhammad Iqbal, Ekin Ilbahar, and Greg Barton, "The Three Ps of Radicalization: Push, Pull and Personal. A Systematic Scoping Review of the Scientific Evidence about Radicalization into Violent Extremism," *Studies in Conflict & Terrorism* 43, no.10 (2020): 845 - #. URL/DOI Missing

2   Peter Suedfeld, "The Cognitive Processing of Politics and Politicians: Archival Studies of Conceptual and Integrative Complexity," *Journal of Personality* 78, no.6 (2010): 1669-702, https://doi.org/10.1111/j.1467-6494.2010.00666.x

3   Kamaldeep Bhui, Nasir Warfa and Edgar Jones, "Is Violent Radicalisation Associated with Poverty, Migration, Poor Self-Reported Health and Common Mental Disorders?" *PLOS One* 9, no. 3: e90718, (March 2014), https://doi.org/10.1371/journal.pone.0090718

4   Niamatullah Ibrahimi and Shahram Akbarzadeh, "Intra-*Jihadist* Conflict and Cooperation: Islamic State–Khorasan Province and the Taliban in Afghanistan," *Studies in Conflict & Terrorism* 43 no.12 (2020): 1086-1107, https://doi.org/10.1080/1057610X.2018.1529367

5   Ahmed Rashid, *Taliban: The Power of Militant Islam in Afghanistan and Beyond* (London: I.B. Tauris & Co. Ltd, 2010).

6   Lindsay Maizland, "The Taliban in Afghanistan," Council on Foreign Relations, August 3, 2021, https://www.cfr.org/backgrounder/taliban-afghanistan

7   Antonio Giustozzi, "The resurgence of the Tehrik-i-Taliban Pakistan," August 12, 2021, RUSI Royal United Services Institute, https://rusi.org/explore-our-research/publications/commentary/resurgence-tehrik-i-taliban-pakistan

8   Ahmed Rashid, (2010) Taliban: The Power of Militant Islam in Afghanistan and Beyond, (London: I.B. Tauris & Co. Ltd).

9   Anita M. Weiss, *The Tehrik-e-Taliban in Swat. In: Interpreting Islam, Modernity, and Women's Rights in Pakistan* (New York: Palgrave Macmillan, 2014), 131-135.

10 SWAaT NGO (Social Welfare, Academics and Training for Pakistan).

11 Feriha Peracha, Raafia Khan and Sara Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," in *Expanding Research on Countering Violent Extremism,* ed., Sara Zeiger (Abu Dhabi: Hedayah and Edith Cowan University, 2016), 85-104.

12 Feriha Peracha, Raafia Khan and Sara Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," 85-104.

13 Feriha Peracha, Sara Savage, Raafia Khan and Asma Ayub. "Intervention of Integrative Complexity Thinking with the Violent Extremist Youth of Sabaoon: Inducted, Enrolled and Reintegrated," Final (unpublished) Report submitted to the Government of the Netherlands (Nov 2019).

14 Michele J. Gelfand, Gary LaFree, Susan Fahey and Emily Feinberg, "Culture and Extremism," *Journal of Social Issues* 69, no. 3 (2013): 495-517, https://doi.org/10.1111/josi.12026

15 William B. Swann, Angel Gómez, John F. Dovidio, Sonia Hart and Jolanda Jetten, "Dying and Killing for One's Group: Identity Fusion Moderates Responses to Intergroup Versions of the Trolley Problem," *Psychological Science* 21, no. 8 (2010):1176-1183, https://doi.org/10.1177/0956797610376656

16 Stanley Milgram, "Behavioral Study of Obedience," *The Journal of Abnormal and Social Psychology* 67, no. 4 (October 1963): 371–378, https://doi.org/10.1037/h0040525; Philip Zimbardo, "Pathology of Imprisonment," *Society* 9, no. 6 (1972): 4-8; Michael Hogg, Arie Kruglanski and Kees van den Bos, "Uncertainty and the Roots of Extremism," *Journal of Social Issues* 69, no. 3 (September 2013): 407–418, https://doi.org/10.1111/josi.12021

17 Marc Sageman, "Leaderless Jihad: Terror Networks in Twenty-First Century," *Policing: A Journal of Policy and Practice* 2, no. 4 (2008): 508–509, https://doi.org/10.1093/police/pan057; John Horgan, *Walking Away from Terrorism: Accounts of Disengagement from Radical and Extremist Movements*, (London: Routledge, 2009); Tore Bjørgo ed., *Root Causes of Terrorism: Myths, Reality and Ways Forward* (London: Routledge, 2005).

18 Robert J. House, Paul J. Hanges, Mansour Javidan, Peter Dorfman and Vipin Gupta eds., *Culture, Leadership and Organizations: The GLOBE Study of 62 Societies*, (Thousand Oaks, California: SAGE publications Inc. 2004).

19 Harry Triandis, *Individualism and Collectivism: New Directions in Social Psychology*, (Boulder: Westview Press, 1995).

20 Barbara K. Keogh, Carol E. Smith, "Group Techniques and Proposed Scoring System for the Bender-Gestalt Test with Children," *Journal of Clinical Psychology* 17, no. 2 (April 1961): 172–175, https://doi.org/10.1002/1097-4679(196104)17:2<172::aid-jclp2270170222>3.0.co;2-l; Feriha Peracha, Raafia Khan, Arooj Ahmad, Sadia J. Khan, Sahar Hussein and Haroon Rashid Choudry, "Socio Demographic Variables in the Vulnerable Youth Predisposed Towards Militancy (Swat, Pakistan)," *Psychiatry, Psychology and Law* 19, no.3 (2012): 439-447, https://doi.org/10.1080/13218719.2011.598635

21 Peracha, Khan, Ahmad, Khan, Hussein and Choudry, "Socio Demographic Variables in the Vulnerable Youth Predisposed Towards Militancy," 439-447.

22 Hogg, Kruglanski and van den Bos, Uncertainty and the Roots of Extremism, 407.

23 Gelfand, LaFree, Fahey and Feinberg, "Culture and Extremism," 495-517.

24 John Raven and Jean Raven, "Progressive Matrices," in *Handbook of Nonverbal Assessment*, ed., R. Steve McCallum (New York: Springer, 2003).

25 Gloria Baker-Brown, Elizabeth J. Ballard, Susan Bluck, Brian de Vries, Peter Suedfeld and Philip E. Tetlock, "The Conceptual/Integrative Complexity Scoring Manual," in *Motivation and Personality: Handbook of Thematic Content Analysis*, eds., Charles P. Smith, John W. Atkinson, David C. McClelland, and Joseph Veroff, (New York: Cambridge University Press, 1992), 401-418.

26 Peracha, Khan and Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," 85-104.

27 Diego Muro, *Engineers of Jihad: The Curious Connection between Violent Extremism and Education*, by Diego Gambetta and Steffen Hertog, Terrorism and Political Violence 29, no. 6 (2017): 1154-1156, https://doi.org/10.1080/09546553.2017.1377559

28 Lucian G. Conway III and Kathrene R. Conway, "Terrorist Rhetorical Style and Its Consequences for Understanding Terrorist Violence," *Dynamics of Asymmetric Conflict* 4, no. 2 (2011): 175–192, https://doi.org/10.1080/17467586.2011.627940

29 Conway and Conway, "Terrorist Rhetorical Style and Its Consequences for Understanding Terrorist Violence," 175-192.

30 Peracha, Khan and Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," 85-104.

31 Peracha, Khan and Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," 85-104.

32 Baker-Brown, Ballard, Bluck, de Vries, Suedfeld and Tetlock, "The Conceptual/Integrative Complexity Scoring Manual," 401-418.

33 Peter Suedfeld, Ryan W. Cross, and Carson Logan, "Can Thematic Content Analysis Separate the Pyramid of Ideas from the Pyramid of Action? A comparison Among Different Degrees of Commitment to Violence," in *Looking Back, Looking Forward: Perspectives on Terrorism and Responses to It*, eds., Hriar Cabayan, Valerie Sitterle, and Matt Yandura, (Washington DC: Pentagon Strategic Multi-layer Assessment White Paper, September 2013), http://nsiteam.com/perspectives-on-terrorism-and-responses-to-it/

34 Lucian G. Conway III, Laura J. Gornick, Shannon Houck, Kirsten Hands Towgood, and Kathrene R. Conway, "The Hidden Implications of Radical Group Rhetoric: Integrative Complexity and Terrorism," *Dynamics of Asymmetric Conflict: Pathways toward Terrorism and Genocide* 4, no. 2 (2011): 155-165, https://doi.org/10.1080/17467586.2011.627938.

35 Peter Suedfeld, Dana C. Leighton, D.C., and Lucian G. Conway III, "Integrative Complexity and Cognitive Management in International Confrontations: Research and Potential Applications," in *The Psychology of Resolving Global Conflicts: From War to Peace*, eds., Mari Fitzduf and Chris E. Stout, (Westport: Praeger Security International, 2006); Lucian G. Conway III, Peter Suedfeld and Philip E. Tetlock, "Integrative Complexity in Politics," in *Oxford Handbook of Behavioral Political Science*, eds., Alex Mintz and Lesley Terris (Oxford: Oxford University Press, 2018).

50

[36] Lucian G. Conway III, Peter Suedfeld and Philip E. Tetlock, "Integrative Complexity and Political Decisions that Lead to War or Peace," in *Peace, Conflict, and Violence: Peace Psychology for the 21st century,* eds., Daniel J. Christie, Richard V. Wagner, and Deborah D. Winter, (Prentice Hall/Pearson Education, 2001), 66-75.

[37] Jonah Berger, *The Catalyst: How to Change Anyone's Mind*, (New York: Simon & Schuster, 2020).

[38] Rachel Briggs and Sebastian Feves, *Review of Programs to Counter Narratives of Violent Extremism: What Works and What are the Implications for Government?* (London: Institute for Strategic Dialogue, 2013) https://www.dmeforpeace.org/peacexchange/wp-content/uploads/2018/10/Review-of-Programs-to-Counter-Narratives-of-Violent-Extremism.pdf

[39] Sara Savage and Patricia Andrews Fearon, "Increasing Cognitive Complexity and Meta-Awareness among At -Risk Youth in Bosnia-Herzegovina in order to Reduce Risk of Extremism and Inter-Ethnic Tension," *Journal of Peace and Conflict* 27, no. 2 (May 2021): 225-239, https://doi.org/10.1037/pac0000557

[40] Amit Bernstein, Yuval Hadash, Yael Lichtash, Galia Tanay, Kathrine Shepard, and David Fresco,
"Decentering and related constructs: A critical review and metacognitive processes model," *Perspectives in Psychology* 10, no. 5 (2015): 599-617, https://doi.org/10.1177/1745691615594577

[41] Jose Liht and Sara Savage, "Preventing Violent Extremism through Value Complexity: Being Muslim Being British," *Journal of Strategic Security* 6, no. 4 (2013): 44-66, http://dx.doi.org/10.5038/1944-0472.6.4.3

[42] Emile G. Bruneau and Rebecca Saxe, "The Power of Being Heard: The Benefits of Perspective-Giving in the Context of Intergroup Conflict," *Journal of Experimental Social Psychology* 48, no. 4 (2012): 855-866, https://doi.org/10.1016/j.jesp.2012.02.017; Eugene M. Caruso, Nicholas Epley, and Max Bazerman, "The Good, the Bad, and the Ugly of Perspective Taking in Groups," in *Ethics in Groups 8 (Book series:Research on Managing Groups and Teams)*, ed., Ann E. Tenbrunsel, (2006), 201–224, https://doi.org/10.1016/S1534-0856(06)08010-8; Christopher Paul, "As a Fish Swims in the Sea: Relationships Between Factors Contributing to Support for Terrorist or Insurgent Groups," *Studies in Conflict & Terrorism* 33, no. 6 (2010): 488-510|, https://doi.org/10.1080/10576101003752630

[43] Rom Harre and Fathali Moghaddam, "The Self and Others in Psychology and Positioning Theory," in *The Self and Others: Positioning Indiviudals and Groups in Personal Political and Cultural Contexts*, eds., Rom Harre and Fathali Moggadam (Westport, CT: Praeger, 2003), 1-11.

[44] Sara Savage, Lucy Tutton, Ellen Gordon, Emily Oliver and Alex Ward, "Developing Cognitive Complexity and Value Pluralism within Prevention Curricula: An Empirical Assessment of the 'Living Well with Difference Course' for Secondary Schools in England," *Journal of Social Science Education* 19, special issue (2020): 43-65, https://eric.ed.gov/?id=EJ1260578.

[45] Zindel V. Segal, J. Mark G. Williams and John D. Teasdale, *Mindfulness-Based Cognitive Therapy for Depression* (2nd ed.) (New York: Guilford Press, 2013).

[46] Savage and Andrews Fearon, "Increasing Cognitive Complexity and Meta-Awareness," 225-239.

[47] Lawrence E. Williams, Randy Stein, and Laura Galguera, "The Distinct Affective Consequences of Psychological Distance and Construal Level," *Journal of Consumer Research* 40, no. 6 (2014):1123-1138, https://doi.org/10.1086/674212

[48] Daniel Goleman, (1996), "Emotional Intelligence. Why it Can Matter More than IQ," *Learning* 24, no. 6 (1996): 49-50.

[49] Shalom H. Schwartz and Klaus Boehnke, "Evaluating the Structure of Human Values with Confirmatory Factor Analysis," *Journal of Research in Personality* 38, no. 3 (2004): 230-255, https://doi.org/10.1016/S0092-6566(03)00069-2.

[50] Liht and Savage, "Preventing Violent Extremism through Value Complexity," 44-46.

[51] Philip J. Barnard, David J. Duke, Richard W. Byrne and Iain Davidson, "Differentiation in Cognitive and Emotional Meanings: An Evolutionary Analysis,"

Cognition and Emotion 21, no. 6 (2007): 1155-1183, https://doi.org/10.1080/02699930701437477.

52 Henri Tajfel, "Experiments in Intergroup Discrimination," *Scientific American* 223, no. 5 (1970): 96–102, https://doi.org/10.1038/scientificamerican1170-96.

53 Özlem Ayduk and Ethan Kross, "Enhancing the Pace of Recovery: Self-Distanced Analysis of Negative Experiences Reduces Blood Pressure Reactivity," *Psychological Science* 19, no. 3 (2008): 229, https://doi.org/10.1111/j.1467-9280.2008.02073.x; James J. Gross, "Emotion Regulation: Current Status and Future Prospects," *Psychological Inquiry* 26, no. 1 (2015): 1-26, https://doi.org/10.1080/1047840X.2014.940781; Eran Halperin and James J. Gross, "Emotion Regulation in Violent Conflict: Reappraisal, Hope, and Support for Humanitarian Aid to the Opponent in Wartime," *Cognition and Emotion* 25, no. 7 (2011): 1228–1236, https://doi.org/10.1080/02699931.2010.536081

54 Amit Goldenberg, Smadar Cohen-Chen, J. Parker Goyer, Carol S. Dweck, James J. Gross and Eran Halperin, "Testing the Impact and Durability of a Group Malleability Intervention in the context of the Israeli–Palestinian conflict," *PNAS Proceedings of the National Academy of Sciences of the United States of America* 115, no. 4 (2018): 696-701, https://doi.org/10.1073/pnas.1706800115

55 Michael Hogg and Janice Adelman, "Uncertainty–Identity Theory: Extreme Groups, Radical Behavior, and Authoritarian Leadership," *Journal of Social Issues* 69, no. 3 (2013): 436–454, https://doi.org/10.1111/josi.12023

56 Christine Nemr and Sara Savage, "Integrative Complexity Interventions to Prevent and Counter Violent Extremism," (Policy Brief) *Global Center on Cooperative Security*, (January 2019), https://www.globalcenter.org/publications/integrative-complexity-interventions-to-prevent-and-counter-violent-extremism/.

57 Raven and Raven, "Progressive Matrices."

58 Baker-Brown, Ballard, Bluck, de Vries, Suedfeld and Tetlock, "The Conceptual/Integrative Complexity Scoring Manual," 401-418.

59 Gareth S. Gardiner, and Harold M. Schroder, "Reliability and Validity of the Paragraph Completion Test: Theoretical and Empirical Notes," *Psychological Reports* 31, no. 3 (1972): 959-962, https://doi.org/10.2466/pr0.1972.31.3.959; Peter Suedfeld and Philip E. Tetlock, "Integrative Complexity at Forty: Steps Toward Resolving the Scoring Dilemma," *Political Psychology* 35, no. 5 (2014): 597-601, https://doi.org/10.1111/pops.12206

60 Ernst H. Bottenberg, "Instrumental Characteristics and Validity of the Paragraph Completion Test (PCT) as a Measure of Integrative Complexity," *Psychological Reports* 24, no. 2 (1969): 237-238, https://doi.org/10.2466/pr0.1969.24.2.437.

61 Mark H. Davis, "Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach," *Journal of Personality and Social Psychology* 44, no. 1 (1983): 113-126, https://doi.org/ 10.1037/0022-3514.44.1.113

62 Darrick Jolliffe and David P. Farrington, "Development and Validation of the Basic Empathy Scale," *Journal of Adolescence* 29, no. 4 (2006): 589-611, https://doi.org/10.1016/j.adolescence.2005.08.010

63 Feriha Peracha, Asma Ayub, Raafia Khan, Zaeema Farooq and Andleeb Zahra, "Development and Validation of Indigenous Violent Extremism Beliefs Scale (VEBS)," *Journal of Psychology and Behavioral Sciences* 5, no. 1 (2017): 53-62, https://doi.org/10.15640/Jpbs.v5n1a7; VEBS is a scale which provides guidelines for interviewing skills – not to predict behaviors.

64 Mark H. Davis, "Measuring Individual Differences in Empathy," 113-126.

65 Nemr and Savage, "Integrative Complexity Interventions to Prevent and Counter Violent Extremism"; Eolene M. Boyd-MacMillan, Patricia Andrews Fearon, Amanda M. Ptolomey and Laura J. Mathieson, "I SEE! Scotland: Tackling Sectarianism and Promoting Community Psychosocial Health," *Journal of Strategic Security* 9, no. 4 (2016): 53–78, http://dx.doi.org/10.5038/1944-0472.9.4.1556; Liht and Savage, "Preventing Violent Extremism Through Value Complexity," 44-46; Savage and Andrews Fearon, "Increasing Cognitive Complexity and Meta-Awareness," 225-239.

66 Walter G. Stephan and C. Lausanne Renfro, "The Role of Threat in Intergroup Relations," in *From Prejudice to Intergroup Emotions,* eds., Diane M. Mackie and Eliot R. Smith (New York: Psychology Press 2002), 191-208.

[67] Luca Andrighetto, Cristina Baldissarri, Sara Lattanzio, Steve Loughnan and Chiara Volpato, "Humanitarian Aid? Two Forms of Dehumanization and Willingness to Help after Natural Disasters," *British Journal of Social Psychology* 53, no. 3 (2014): 573–584, https://doi.org/10.1111/bjso.12066; G. Tendayi Viki, Daniel Osgood and Sabine Phillips, "Dehumanization and Self-Reported Proclivity to Torture Prisoners of War," *Journal of Experimental Social Psychology* 49, no. 3 (2013): 325-328, https:/doi.org/10.1016/j.jesp.2012.11.006; Conway and Conway, "Terrorist Rhetorical Style and Its Consequences for Understanding Terrorist Violence," 175–192.

[68] Boyd-MacMillan, Andrews Fearon, Ptolomey and Mathieson, "I SEE! Scotland: 53–78; Savage and Andrews Fearon, "Increasing Cognitive Complexity and Meta-Awareness," 225-239.

[69] Nemr and Savage, Integrative Complexity Interventions to Prevent and Counter Violent Extremism.

[70] Sageman, "Leaderless Jihad," 508-509.

[71] Savage and Andrews Fearon, "Increasing Cognitive Complexity and Meta-Awareness," 225-239.

[72] Rachel Briggs and Sebastian Feves, *"Review of Programs to Counter Narratives of Violent Extremism."*

[73] Rachel Briggs and Sebastian Feves, *"Review of Programs to Counter Narratives of Violent Extremism."*

[74] Peracha, Khan and Savage, "Sabaoon: Educational Methods Successfully Countering and Preventing Violent Extremism," 85-104.

[75] Sara Savage, Feriha Peracha, Raafia Khan, Andleeb Zahra, Izza Khan, and Asma Ayub, "My Thinking Your Thinking Critical thinking course for secondary schools in Pakistan," Final (unpublished) Report (August 2021) to the United States Institute of Peace.

[76] Savage, Tutton, Gordon, Oliver and Ward, "Developing Cognitive Complexity and Value Pluralism within Prevention Curricula," 43-65.

[77] Eolene M. Boyd-MacMillan, "Increasing Cognitive Complexity and Collaboration Across Communities: Being Muslim Being Scottish," *Journal of Strategic Security* 9, no. 4 (2016): 53-78, http://dx.doi.org/10.5038/1944-0472.9.4.1563; Savage and Andrews Fearon, "Increasing Cognitive Complexity and Meta-awareness," 225-239.