What are the impacts of war upon young people’s psychological development? Research with young men who survived Sarajevo’s siege sheds new light on how young people draw upon their social and spatial environment to make sense of violent experiences.

“… The next moment I was walking in a narrow passage reeking of urine and sweat. The tunnel was about five feet high, so I had to hunch down or I would hit my head. Dirt and water dripped on us, and we slogged through ankle-deep mud. I was carrying two bags and a backpack, and they seemed to get heavier with each step. You couldn’t stop to rest because there was someone one step in front and someone one step behind. When people passed out from exhaustion or lack of air, others would try to carry them, but the stream of people trudging through the miserable tunnel never stopped. We walked for thirty minutes, but it seemed like the longest walk of my life…” — Nadja Halilbegović (2008).
Twenty years have passed since the siege was lifted, yet the memories of the tunnel are still fresh, inscribed in the physical structure of Sarajevo and the minds of its inhabitants. The siege, which began in the spring of 1992, at the start of war that devastated Bosnia, is considered to be the longest military blockade of a city in modern history. For 1,335 days—a full year longer than the siege of Leningrad during the Second World War—approximately 300,000 citizens of Sarajevo were physically and psychologically cut off from the external world (Figure 1). Stern mountains encircling the city served as a physical barrier for the blockade that was enforced by the occupying troops, who controlled the flow of goods and prevented citizens from leaving. Nestled in a valley, the city was exposed to heavy artillery fire for over three years. On average, Sarajevo experienced 330 shell impacts a day, although there were periods—such as the summer of 1993—when more than 3,500 daily impacts were recorded. By the end of that summer, virtually all the buildings were damaged and more than 30,000 were completely destroyed (see Figure 2 for an image depicting destruction).

Figure 1. Sarajevo under siege, 1992–1995

Map developed by Dubravka Sekulić.

The destruction of the built environment abruptly transformed the everyday activities of civilians in a city that only eight years prior had hosted the XIV Winter Olympic Games. Supply of water, electricity, and other daily necessities was entirely disrupted during the first months of the siege, but later renewed in limited quotas. Public transportation within the city halted. For months on end, the daily life of Sarajevans became a continuous struggle for the acquisition of basic necessities. Amid the war and destruction, the everyday activities of children and adolescents also underwent substantial changes. Armed units of the territorial defense regularly appropriated school buildings

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1 See: [www.theguardian.com/cities/ng-interactive/2015/dec/14/sarajevo-portrait-city-20-years-bosnian-war-dayton](www.theguardian.com/cities/ng-interactive/2015/dec/14/sarajevo-portrait-city-20-years-bosnian-war-dayton).
for military purposes, forcing the relocation of educational activities to informal spaces underground, such as the basements of neighboring buildings.

**Figure 2. Example of city destruction due to daily shelling**

Photo reproduced with the permission of the Historical Museum of Bosnia-Herzegovina.

**Developmental affordances of the tunnel**

As the siege intensified, it became increasingly difficult to supply the city with basic necessities and to equip the army with ammunition. The confluence of civilian and military needs contributed to the decision to build a tunnel underneath the runway of Sarajevo Airport that would link the city with government outposts in the Neretva River Valley. From there, mountain roads could be used to reach the Adriatic coast, thus establishing a more reliable supply route.

Officially named Objekat Dobrinja–Butmir (now better known as the Sarajevo War Tunnel), the length of the tunnel at completion was 785.5 m (859 yds) with an average height of 1.5 m (4' 11") and an average width of 1 m (3' 4") (Branković 1993) (Figure 3). While a deeper and wider tunnel would have made transportation and movement easier, the geotechnical characteristics of the terrain—such as the dense presence of underground water streams—did not allow for a more robust engineering project (Zorlak 2014). Over the next two and a half years, this narrow tunnel served as a *de facto* lifeline of the city, with approximately 400,000 people and more than 3 million kg (6.7 million lb.) of food passing through (Šadinlija 2013).
The convergence of geotechnical and logistical elements limited the type and range of activities that adults could carry out inside the tunnel (see Figure 4). The constraints imposed by the built environment, together with ideological notions that tie war to masculinity, presented a unique situation for adolescent boys, given the tunnel’s specific environmental affordances. Affordance is a theoretical concept initially developed by American psychologist J. J. Gibson (1977) to describe the functionally significant properties of the physical environment—in other words, the opportunities the environment offers for human action. This concept was subsequently extended by psychologist Harry Heft (1989) to include symbolic properties, such as social, cultural, relational and causal features that enable development. Much like a neighborhood playground bears possibilities for various physical activities (e.g. running, jumping, climbing, swinging) it also affords opportunities for socio-cognitive development to occur, such as interacting, socializing and playing with others.

The developmental context for the boys of the Sarajevo War Tunnel was not, however, a traditional playground, but instead a narrow and muddy tunnel that frequently smelled of urine and sweat. Yet the boys matched its physical constraints perfectly. Short in height compared to adults while physically strong in contrast to younger children, they could carry heavy loads while standing upright and walking swiftly through the narrow and low cavity of the tunnel. For the duration of the siege, together with other army personnel, the boys frequently carried loads weighing 45 kg (100 lb.) or more, filled with army supplies and goods for civilian consumption.
Their daily activities were fraught with danger. Bosnian Serb forces occasionally shelled tunnel entrances; a shell in May 1995 killed 11 people waiting to pass. Access to the tunnel was at first strictly reserved for military use, but as the siege progressed the rules were relaxed and the transport of commercial goods was allowed. A dynamic underground economy (quite literally) swiftly developed, turning the tunnel into a major war profiteering center (Andreas 2008). Organizations that supplied the besieged city with meat, cigarettes, gasoline, sweets, alcohol, and other (otherwise unavailable) commodities frequently employed the labor of adolescent boys.

**Figure 4. Adult attempting to stand upright in the tunnel**

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**Trauma, PTSD, or socio-cognitive development?**

Psychology tends to emphasize terminal conditions and events. Research with adolescents in situations of armed conflict and urban destruction frequently focuses on trauma, emotional damage and delays across normative developmental processes experienced in the aftermath. This almost exclusive focus on psychopathology as a response to armed conflict and environmental destruction defines trauma in terms of the direct exposure of individuals to violence, and their reactions to these events in terms of automatic emotional responses. Although there is clear evidence that some young people growing up in Bosnia show psychological reactions consistent with posttraumatic stress disorder (Husain et al. 1998; Daneš and Horvat 2005), this is not the complete story. Essentially, we know very little about the broader range of developmental outcomes among children and youths growing up during the civil war. In order to fill this knowledge gap, the present study employs narrative inquiry to understand the socio-cognitive development of children growing up in a time of war, specifically the boys of Sarajevo’s War Tunnel.

As the quote by 12-year-old Nadja Halilbegović at the start of this article shows, passing through the tunnel was frequently interpreted as a dangerous, unpleasant and largely negative experience.
However, if not all individuals exposed to war test positive for PTSD, trauma or depression, how do the rest respond? Emerging research building on the work of Soviet psychologist Lev Vygotsky is beginning to suggest that children and adolescents growing up during a time of social, political or economic instability draw on symbolic affordances as means that enable psychological development spanning a wide spectrum of outcomes from trauma to resilience (Daiute 2010; Daiute and Lucić 2010; Lucić in press).

Preliminary interviews with participants (now 31 to 35 years old) point toward socio-cognitive functions enabled by specific sociocultural circumstances present during the siege. Developmentally, we can frequently trace diverse elements of these psychological functions to the symbolic affordances which arose out of this unique physical and social context. To illustrate this point, consider the following fragment of a story recounted by Yashar, currently 35, who started working in the tunnel when he turned 13, having just finished the 7th grade:

“… I was on my day off [from the Army] and I passed [though the tunnel] in one direction; they would note in my military ID that I passed in the direction from Dobrinja to Butmir… That was the regular method of passing through the tunnel, and then there were the irregular ways… when someone whispers in your ear, ‘Would you carry goods for Begler-beg?’ So they would form a group of about 20 of us, and that’s it… The commander tells you, this evening, from 7 till about 10 p.m. we are moving goods for Begler-beg—and 20 of us would show up at the entrance to the tunnel—no one else would be around, everyone clears off, as if Bill Clinton was coming to pass through the tunnel, no military police, no one.”

While a number of socio-relational features stand out when we examine the narrative content of Yashar’s story, we also notice that he does not draw on traumatic aspects to tell a tale that quickly grabs a listener’s attention. Rather, he chooses to invoke the covert elements of his experience in order to highlight the tunnel’s social and political function. By serving as the sole route in and out of the besieged city, the tunnel was a context for the formation of social and cultural capital, bringing together individuals of diverse ages, professions and intentions in time and space. As we can see from Yashar’s response, the physical context gave him opportunities to form social ties, to realize economic gain, and, perhaps most importantly, to reframe his social status from existence on the margins to living at the very core of society.

A second layer of meaning is revealed when we relate the formal properties of Yashar’s narrative to their functions—that is, when we focus on how it was said. Seen from this perspective, we can begin to understand how children growing up during war make sense of their experiences and, in so doing, develop psychological functions. While recounting his initial encounter with the tunnel, Yashar examines his experience by weaving together various cognitive functions, such as spatial (entrance to the tunnel, direction of movement) and temporal understanding (time of day, length of passage) as well as causal–relational reasoning (so they would form a group… commander, other boys). Moreover, he swiftly adapts to deviations from the expected (regular, irregular) at the instant when, rather than merely passing through the tunnel, he is recruited to smuggle goods. At this point, Yashar logically relates and integrates a series of events that may be interpreted by others as highly anxiety-provoking. Hence, we begin to observe that, in his case, a formidable cultural and physical context has given rise to a dynamic and eclectic array of psychological functions. Thus, to equate psychological response to armed conflict and environmental destruction to psychopathology is to obscure and oversimplify the rich diversity of human psychological reactions and possible developmental outcomes.

In conclusion, narrative data collected for this study demonstrates that the men who, as boys, worked in the Sarajevo War Tunnel continue to rely on psychological functions developed during the siege, in the context of their contemporary lives. Even 20 years after the siege of Sarajevo, these functions enable them to meet the challenges of life in an ethnically fragmented society where cultural scripts are often negotiated, rules are implicit, and norms intersubjectively defined. Despite 5 See: www.researchgate.net/publication/248437420_Situated_cultural_development_among_youth_separated_by_w ar.
the worrying socio-economic circumstances that plague Bosnian society (rates of unemployment among young people⁶ and adults⁷ are over 40%), almost all participants interviewed for this project were in full-time employment. Moreover, during interviews, they frequently mentioned that the interpersonal awareness, skills, confidence and intersubjective sensitivity—or as they frequently summed them up “the ways of thinking”—developed during the siege are “priceless and irreplaceable”.

Bibliography

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