



EMPIRICAL EVIDENCE ON ACTIVE SHOOTER RESPONSE AND RISK MITIGATION

Why are there Two Responses?



In New School Drills, Students Dodge Bullets, Not Bombs

January 27, 1993

Education Week

-Schools in perhaps a dozen districts have started holding "bullet" or "D.B.S."--drive-by shooting--drills to prepare students for gunfire in classrooms or on school grounds.

-Urban educators, however, are not alone in perceiving a need for gunfire drills.

At Fairfax Elementary School in Mentor, Ohio, for example, children are taught to take cover under their desks if they hear their teachers yell out "earthquake drill."

Two Lockdown concepts?

“DBS” Drill

- Fenced perimeter
- Incident happening on street
- Intended to last for a few seconds
- Red and Green Cards
- Law Enforcement already on Scene
- CPTED Layered Response (outside threat)
- Motel Style Schools
- Reverse Evacuation
- Close Drapes, turn off lights, hide below level of windows, away from the door

Earthquake/ Tornado Drill

- Copies part of the drill
- Lights out, Drapes closed
- Hide under desk/ in Bathroom or Closet
- Both restrict movement, both rely on gunman having no contact with victims, no plan for contact
- Utilized in buildings in which almost every room is occupied.
- Infrastructure design issues (Professional Risk Assessment not used)
- Single option, single location

ALICE Training

- Specifically developed for Active Threats/Violent Critical Incidents by Greg Crane in 2000.
- Five Components based on location of threat and location of people involved.
- No location dependent response. Portable skill set. (Similar to fire training concepts)
- 3 Response Concepts- Evacuation, Lockdown/Barricade, Counter.
- 2 Response Concepts for Alerting and Informing persons involved.
- Has a plan for contact- movement, noise, distraction, distance and swarming.
- Trains everyone to respond.
- Not infrastructure dependent.

No known study EVER conducted of actual human response in live action simulations!

- No human subject testing of the tactics or response for either paradigm.
- Anecdotal evidence indications from Columbine, Sandy Hook, Virginia Tech, Parkland, Aurora, Marshall, West Liberty-Salem, Mattoon, Evansville, Forest, Dixon and Noblesville incidents.
- No scientific fidelity testing of either response (or any other recommendations).
- Do the tactics translate from paper into the real world?

This Only Took Ten Years...

FAILURE

- Five years to find the origin of lockdown tactics.
- Three years and two rejections in peer review for publication.
- Throw away the data and start from scratch.

SUCCESS

- Dr. Melissa Moon and Dr. Cheryl Jonson.
- Published over 80 times.
- Reworked the study. First empirically evidence based scientific study to pass peer review, be accepted for publishing and be published by a journal.

The Data

- Two University Internal Review Boards (IRB) reviewed surveys for human subject testing. (4x)
- Informed consents.
- Shooter and test subjects not affiliated with or invested in ATI.
- Law enforcement officers selected as shooter.

Demographic	<i>n</i>	%	<i>M</i>	<i>SD</i>
Age		312	42.9	9.88
Sex				
Male	250	79.4		
Female	65	20.6		
Current occupation				
Law enforcement	150	47.6		
Nonlaw enforcement	165	52.4		
Years in occupation		302	14.6	9.56

Time to Resolution

- Range **22 to 290** seconds in traditional lockdown simulations.
- Range **4 to 70** seconds in ALICE simulations.
- Classroom average time to resolution traditional lockdown **195.77** seconds. (**3 minutes 15.77 seconds**)
- Classroom average time to resolution ALICE **16.31** seconds.
- Open Area average time to resolution traditional lockdown **168.31** seconds. (**2 minutes 48.31 seconds**)
- Open area average time to resolution ALICE **8** seconds

Note. Assessed with a paired sample t-test for total and across all 13 sites.

Time to Resolution in seconds for the classroom and open area simulations

Site	<i>n</i> (Classroom/Open area)	Traditional classroom time PT 1	Multi-option classroom time PT 3	Traditional open area time PT 2	Multi-option open area time PT 4
1	27/27	165.00	8.00	160.00	10.00
2	26/26	255.00	17.00	230.00	8.00
3	43/43	282.00	19.00	290.00	7.00
4	33/33	310.00	18.00	150.00	6.00
5	32/32	180.00	15.00	180.00	6.00
6	14/14	160.00	5.00	140.00	4.00
7	19/19	165.00	4.00	150.00	5.00
8	28/28	123.00	70.00	240.00	10.00
9	31/31	224.00	18.00	248.00	5.00
10	18/18	220.00	8.00	150.00	7.00
11	26/26	289.00	18.00	55.00	11.00
12	13/13	150.00	5.00	150.00	7.00
13	12/12	22.00	7.00	45.00	18.00
Total	13 sites	195.77	16.31*	168.31	8.00*

Percent Shot

- Traditional Lockdown simulations classroom mean **74%** per site (Range 36%-97%)
 - ALICE simulations classroom mean **25%** per site (Range 0%-48%)
 - Traditional Lockdown simulations open area mean **68%** per site (Range 33%-89%)
 - ALICE simulations open area mean **11%** per site (Range 0%-31%)
- * Paired sample t-tests found statistically significant differences in 92% of the classroom simulations and 100% of the open area simulations.

Note. Assessed with a paired sample t-test for each site and total across all 13 sites.

* $p < .05$; ** $p < .001$.

Percent shot in the classroom and open area simulations

Site	<i>n</i> (Classroom/Open area)	Traditional classroom shot PT 1	Multi-option classroom shot PT 3	Traditional open area shot PT 2	Multi-option open area shot PT 4
1	26/26	65.38	26.92*	61.54	7.69*
2	23/22	82.61	34.78*	68.18	13.64*
3	35/34	97.14	14.29*	91.18	8.82*
4	33/33	75.76	39.39*	57.58	6.06*
5	32/32	56.25	25.00*	53.13	9.38*
6	14/14	35.71	21.43	71.43	0.00*
7	18/17	77.78	16.67*	82.35	17.65*
8	23/24	56.52	13.04*	37.50	4.17*
9	28/26	75.00	25.00*	61.54	0.00*
10	18/16	77.78	38.89*	81.25	31.25*
11	21/19	85.71	47.62*	84.21	0.00*
12	13/13	92.31	23.08*	84.62	23.08*
13	10/10	90.00	00.00*	60.00	20.00*
Total	13 sites	73.76	25.13*	68.44	10.73**

OLS Regression Analysis

Only conducted in the multi-option scenarios because participants could choose their response.

No statistical significance was found and no variable was significant.

Six independent variables analyzed:

- 1) sex (percent male)
- 2) average age
- 3) occupation (percent law enforcement)
- 4) number of participants in each simulation
- 5) designated shooter was SWAT trained
- 6) percent that used counter.

Only one thing accounted for the percentage of people shot in the simulations.

The use of **differing** tactics (multi-option versus traditional lockdown), as opposed to **demographics** and/or **characteristics** of the situation, produced the differences seen in the percent shot across the simulations.

Policy Implications

FINDINGS

Based on the findings of both the critical analysis of prior school shootings and the simulation study, we propose drills informed by the multi-optioned paradigm appear to more effectively prepare civilians to respond and potentially survive a school shooting compared to drills based on the traditional lockdown paradigm.







Thank You