

VR and Shooting in the Danish Home Guard

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Agenda

- **Danish Homeguard School**
- **Gaim.**
- **Opportunities and disadvantages.**
- **Test start-up and Feedback.**
- **Insights – Swedish Test.**
- **Group Activity – How would you do the evaluation?**
- **That's all.**



The Danish Homeguard School

Danish Homeguard

- 43.000 volunteers (18 – 85 years of age)

Danish Homeguard School

- 75 employees (10 in study/developing section)
- 200 courses each year

Activity (2024)

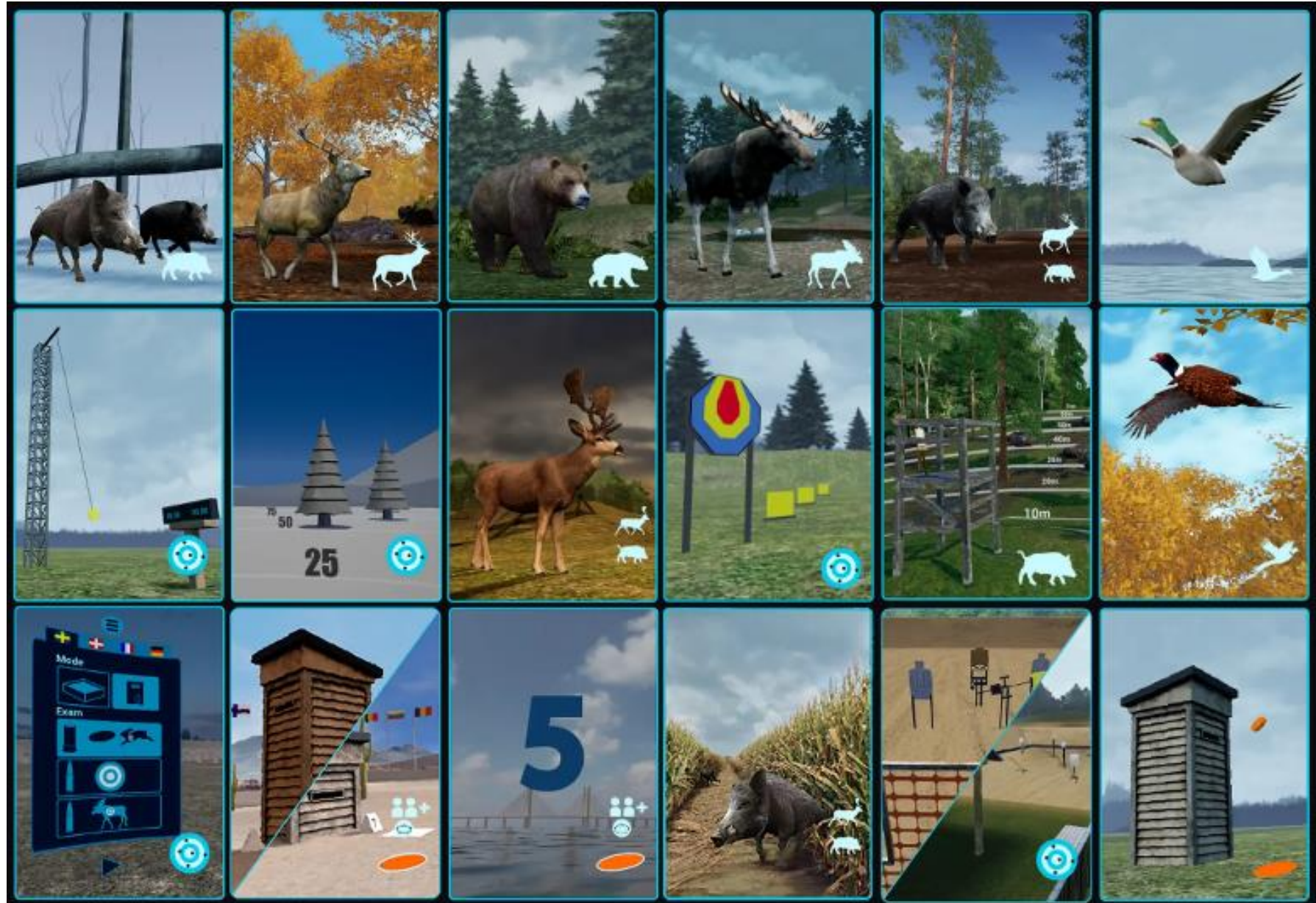
- 13,000 trainees (5k on-site, 8k online)
- 20,000 training days (↑ from 2023)

Why Local & Flexible Training Matters

- Volunteers balance civilian jobs & service
- Long travel reduces participation
- Accessible training = readiness, retention, motivation



Gaim Hunting:



CAIM
RANGE



38.94°/s

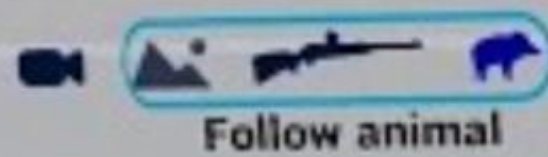
36.03°/s

Distance: 20.2m - Kill



Session
2/2

Set
1/1



1



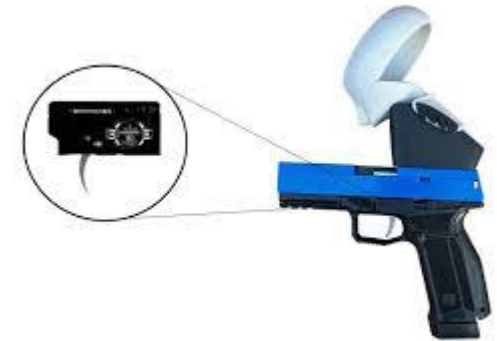
X1/4

How much does it cost?

What you need:

- VR: Meta Quest 3 - 512GB
- APP: Gaim Range
- Gun / Pistol

Price: 1000 Euro.(+-)



Opportunities and Disadvantages

Opportunities

- Flexible training anywhere
- No ammo = reduced cost
- Reflection and evaluation via replays
- Useful for training assessments
- No risk of injury
- Controlled training environment
- Admin time

Disadvantages

- No recoil.
- Limited psychological realism
- Reload
- Environment



Test start-up

Why:

- Supplement to shooting and SITTAL¹
- Maintain and develop skills.
- Flexibility for volunteers.
- New shooters

Gains



Disadvantages:



Learners in VR are:



PwC's VR Soft Skills Training Efficacy Study, 2020



¹:SITTAL - Small Arms Technical T, training Simulator

Feedback from Instructors and Trainers

What did the SME say?



Soldiers hate two things!



Changes and the way things are!

Evaluation from SME

Test focus

- Safety
- ~~New shooters~~ → Experienced shooters
- 360°
- Moving targets



Insights – Swedish evaluation



Purpose

Compare effectiveness of live-fire training vs. combined live-fire and VR simulator shooting.

Shooters: All with similar experience and training level.

Shooting Test:

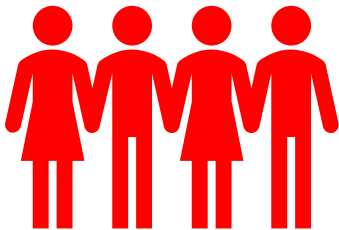
- Weapon: AK5C
- 3 targets at 30m
- Turn around on signal, shoot 2 standing shots per target
- Then kneeling, 1 headshot per target



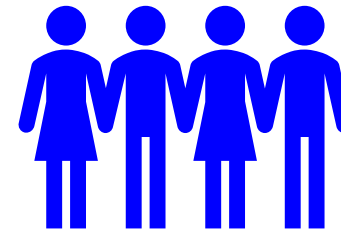
Insights – Swedish Test



A



B

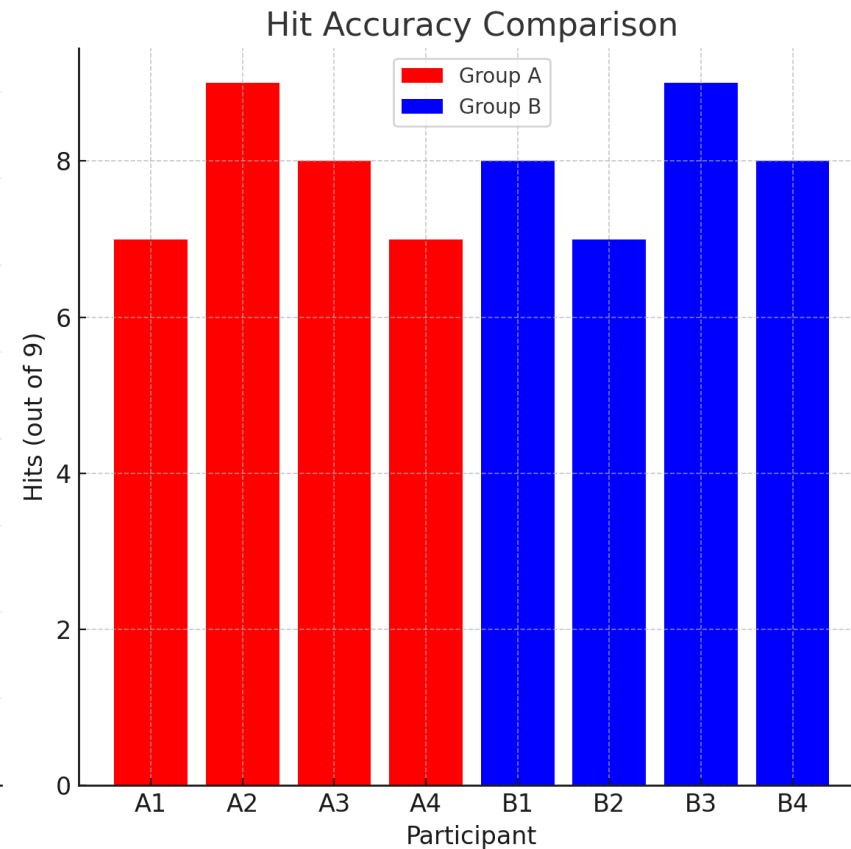
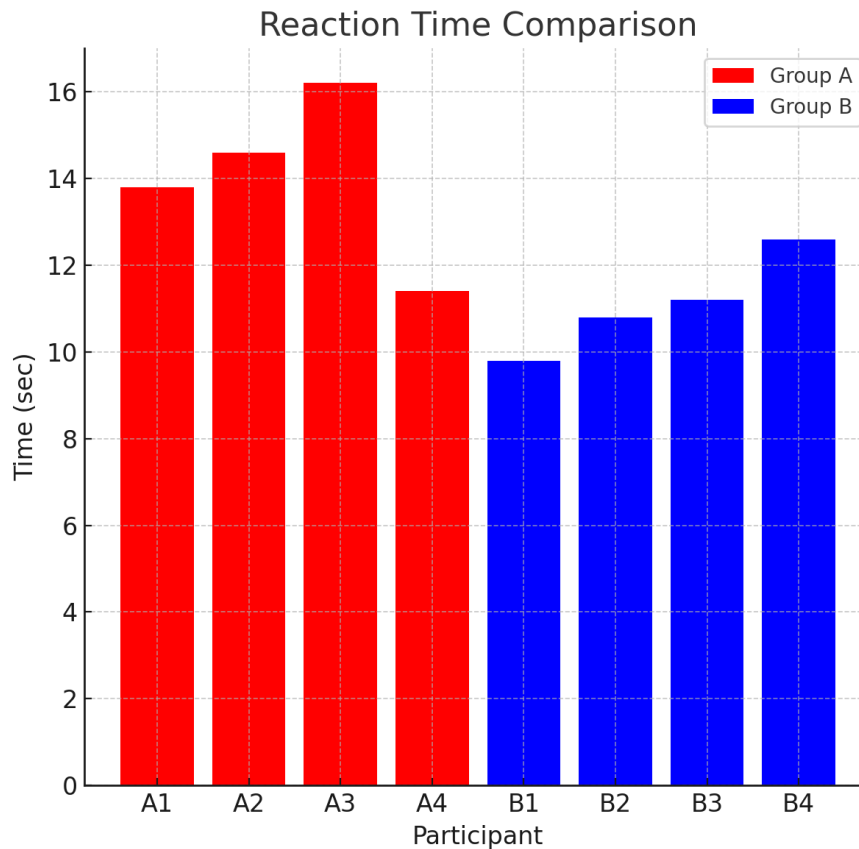
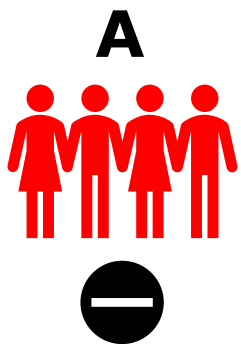


+



3 x 20 min

Conclusion – Swedish Test



Conclusion:

- VR simulator training improves execution speed.
- Slight improvement in accuracy as well.

They experienced:

Better muscle memory and smoother execution.



Evaluation?

Pair up in groups of 2

- How would you do the evaluation?





How would you do the evaluation?

Anonymous

We see that 3 groups of conscripts having the exact same live firing exercises over a period of 3-6 months.

Group 1: Only mandatory weapons education.

Group 2: Mandatory weapons education + VR to use when they feel for it, as often they want.

Group 3: Mandatory weapons education and fixed VR timeslots every day for the interest test period.

Anonymous

Look at the difference between 'guided' VR training vs remote 'at home' training.

Anonymous

Bring in the repetition opportunity. What if group a and b should at the shooting range 3 month later and group b could train at the vr on week before

Anonymous

The system is good for training skills to accuracy and speed of reaction, plus the ability to work on 360 and in air purposes, but the human factor, psychology shows that novice arrows do a bad time with the return of weapons sound, gun vibration, speed of reloading.

Anonymous

Biggest problem as you described for the homeguard is time. The test should focus on what training can i do at home.

Anonymous

Qualitative interviews combined with the data

Anonymous

Look at the difference between 'guided' VR training vs remote 'at home' training.

Anonymous

Great tool for practicing technique, hopefully real-life factors such as recoil, reaction to sound etc can be implemented in the future.

Anonymous

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Anonymous

Test with extra training for all, but 1 group has 1 hour in VR, the other 1 hour traditional training, to understand whether the VR is causing the improvement, rather than just extra training time.

Summer Rebensky

1. Make training time equal
2. Matched pairs based on participants per group
3. Gain trainee subjective feedback per skill
4. Counterbalance starting with VR versus live
5. Look at skill decay
6. Look at learning speeds
7. Consider assessment capabilities in both (may be able to assess better in VR even if equal)
8. Consider logistical challenges (time to don/doff, instructor training, sustainment cost)

Anonymous

Same Exercise and training time in both groups to reduce bias.

Bigger groups



Anonymous

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Bigger groups

Anonymous

use not comparable environments with the two groups. the value of the VR option is that it is available for the soldier every day, all day.

Anonymous

Take a larger group and test it multiple times at different times of day.
Test under different weather conditions.

Anonymous

More troops later in shooting training at longer distance.

Anonymous

Find out the bad shooters, give them more tools to catch up with rest. After shooters are OK level, then use VR as cost savings tool for keeping up the skill. Unlimited rounds and feedback compared to 40 rounds and holes on target. Difficult movement and shooting 180' scenarios that on range are not possible. Safe to fail environment.

Anonymous

Reducing time on the shooting range until you reach a minimum safe time.
To reduce the chance of both groups reaching a high competence level.

Anonymous

Larger sample size and wide demographic.

Anonymous

Bigger groups. More shots at the evaluation, make longer evaluation shooting so that students get exhausted.

Use different ranges.

The other group must receive same amount of training. E.g. "dry training" with real gun, handling etc.

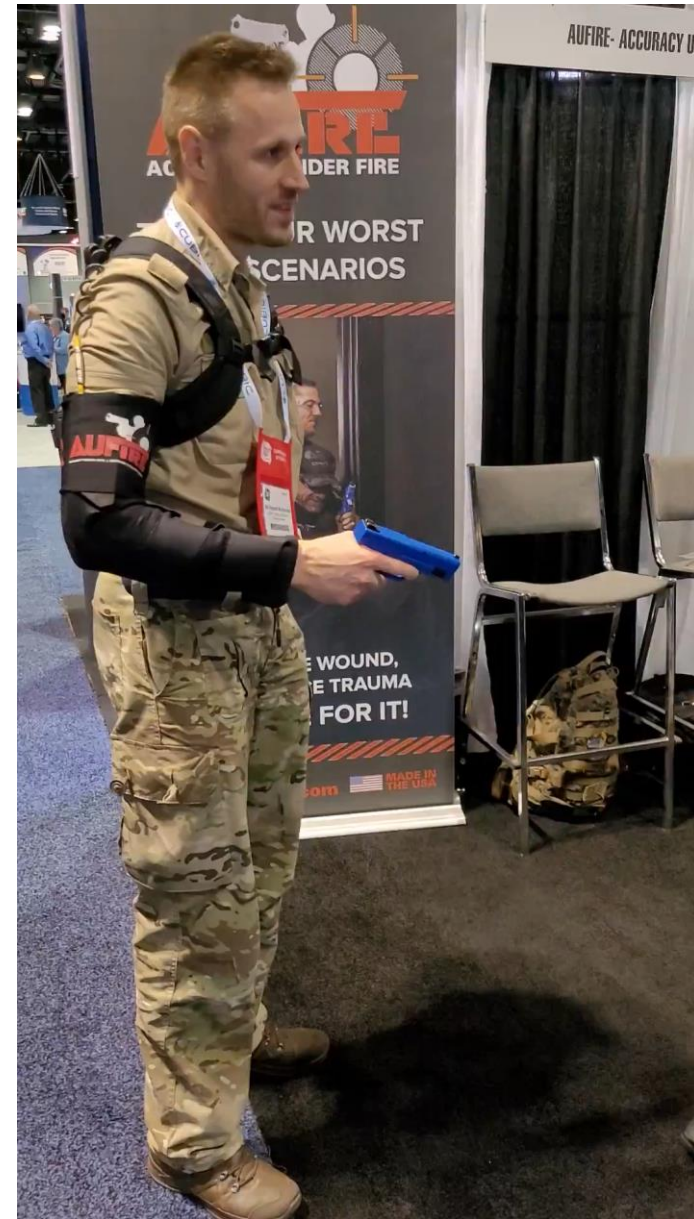
You also have to make sure, that background are equal. Remove all experienced shooters from both groups.



That's all

Questions and comments?

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"We might not be the best, but we do our best."

