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## **Elite Minds: A Serious Game for Assessing Cognitive Abilities in Police Special Operation Forces Recruitment**

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### **Abstract:**

Police special operation forces perform both physically and mentally demanding, invaluable tasks in combatting terrorism, organized crime and in hostage situations. To guarantee mission success, it is indispensable for police special operation forces to have the personnel that is able to match physical and cognitive requirements of the job. Whereas physical abilities can be assessed objectively, assessment tools that uncover cognitive abilities such as, amongst others, teamwork, success orientation, logical reasoning, or problem solving often do not reveal the real abilities of the candidate. The serious gaming approach has not been evaluated as an assessment tool of cognitive abilities in the recruitment process. We therefore adapted such an approach and proposed an interactive tabletop serious game to the special operation forces of a Swiss cantonal police for the evaluation of its potential as an assessment tool of cognitive abilities in the recruitment process. In a test run with operators (n=8), the assessors of the corps evaluated its suitability and were able to observe seven out of nine desired cognitive competency dimensions. Consequently, the special operation forces division of the respective cantonal police is highly likely implementing the serious game as an assessment tool in the regular recruitment process in the future. By doing so, they intend to more accurately assess cognitive abilities of applicants to select the right personnel for this demanding employment.

**Keywords:** Serious Game, Police Special Operation Forces, Assessment, Cognitive Abilities, Switzerland.



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## Introduction

Police special operation forces in the military and law enforcement face tremendous demands in their missions. Despite being extensively and intensively educated, and despite being meticulously briefed for their missions, they will face situations and environments of uncertainty during a mission. Coping with high levels of stress, while simultaneously processing information, analyzing situations, and taking decisions, are decisive cognitive abilities on the job. Every mission is unique, and operators will often find themselves in a new scenario each single time. A very high level of adaptability and learning ability is therefore required of the members of special operation forces units.

Police special operation forces are learning organizations with learning individuals. They must always be at the cutting edge of events, technology, and other situational conditions to ensure effective and safe mission fulfillment. In addition to good levels of general intelligence, this continuous learning requires in particular a pronounced goal orientation, openness, curiosity and a positive attitude towards the respective reality—a high degree of adaptability and proven cognitive skills.

Cognitive abilities, such as logical reasoning, problem solving, or success orientation are therefore evaluated in the recruitment process. Applicants should be exposed to cognitive stress to assess their cognitive abilities under conditions that are as close as possible to real-world situations.<sup>1</sup> General intelligence, as a cognitive ability, proved to be a good predictor of performance of duty in both civilian and military occupational environments, and to play a particularly important role in the recruitment of personnel for special operations forces.<sup>2</sup> Research even shows that the results in tests to determine cognitive abilities are a better predictor of ultimate acceptance into the special unit than stamina or results of fitness tests.<sup>3</sup> As an example, the recruitment process for the special police task force the German state of Baden-Württemberg is divided into three stages, with a central focus on assessing cognitive competence.<sup>4</sup> Stress stability, success orientation, perceptiveness, and the ability to concentrate are evaluated in a first selection test, while social competence and physical aptitude are determined separately in further tests.

Traditionally, a certain degree of formal education or cognitive ability tests were used to infer the aptitude of applicants for the law enforcement service.<sup>5</sup> Alternatively, exercises with role-playing character are successfully used to forecast the performance of soldier recruiters, to train police special operation forces for stress management, or assess applicants in the selection process for military special operation forces.<sup>6</sup> Interactive serious games with corresponding assessment components seem promising for evaluating cognitive abilities as well.<sup>7</sup> While serious games are often understood as purely digital means of conveying knowledge, they can be as well imbedded with analog assessments with a rather role-playing and tabletop exercise character.<sup>8</sup> Using a tabletop serious game with roleplaying character to assess cognitive abilities under stressful police-related conditions may add a valuable tool to the assessor's arsenal. However, the use of a tabletop serious game for the assessment of applicants in the police special operations forces recruitment process seems to be under-researched. We are not aware of any published work evaluating such a combination. Therefore, the purpose of this case study was to gain insights on the attractiveness and usefulness of a prototype serious game tool for said selection processes. The research question that follows this purpose is:

RQ: To what extent is a serious game with interactive, experiential learning character useful for evaluating cognitive abilities in police special operation forces recruitment assessments?

## Method

We addressed the research question by first adapting the serious gaming approach of Muhly et al. to an assessment setting.<sup>9</sup> The serious game contains an interactive, experiential learning format and educates participants about rationales and techniques of social engineering. Participants consume a case study presentation on how a Swiss Army general was hacked by means of social engineering, before the participants are put in the shoes of a social engineer themselves. In three to four teams of two, participants construct a social engineering attack in a fictitious environment under time constraints, while competing against the other teams. Each team must then present its attack to the other teams. This process implies that participants have to process a lot of information, analyze, transform and apply them to a new situation in small groups.

We recruited a Swiss cantonal police special operation force to administer the game with current operators. Special operation forces assessors of said cantonal police would observe operators' behavior for key operator abilities, which they identified *a priori* to assess in the selection process. The researchers obtained the position of instructors and game masters during the 2-hour serious game session. Naturally, the game master function is crucial for the intensity and structural process of the game. Thus, the performance of the researchers in their instructor function was evaluated by the special operation forces' assessors, by contrasting the instructors' performance to their expectations on how the instructor function shall be filled in a stress-generating assessment situation using the serious game approach. Procedural and content-wise, the researchers adhered to the game master instruction sheet as in Muhly et al.<sup>10</sup> to guarantee standardization across sessions.

Swiss police special operation forces perform typical missions like US-SWAT teams and comparable police special operation forces in Europe. They operate for combating terrorism, organized crime, or free hostages in hostage situations. Although every police special operation unit may have different equipment and tactics, their goal to accomplish missions remains the same, and members of the teams are rigorously selected in every country and every force. Swiss operators therefore are not significantly different in terms of cognitive requirements.

The study was performed with eight professional police special operation forces operators participating in the serious game, and two assessors from the same unit. The unit was selected due to the high level of professionalism and the ease of approachability through the researchers' network. The team members of the unit train together every day, making it convenient to fix a date. Once the researchers' intention was communicated to the unit leader, he was committed to this innovative and explorative approach of applying new assessment tools.

The assessors evaluated the game, as well as the gaming process for its applicability as assessment tool. Both assessors possess experience as police special operation forces operators and lead the recruitment process of aspirant selection as assessors for seven years. The study was performed on a Monday afternoon and lasted for four hours. Once the serious game was finished, the recruiters filled out the questionnaire (Table 1) and further discussed their perceptions and opinions with the researchers.

**Table 1: Serious game evaluation questionnaire**

- |   |
|---|
| <ol style="list-style-type: none"> <li>1. Please briefly describe the challenges of the current selection process for screening suitable candidates and why alternative methods could help or improve the process.</li> </ol> |
|---|

2. Do you consider the serious gaming workshop to be a promising tool to be used in the selection process? If so, why? (Exposes cognitive skills, social competence factors, etc.)
3. Which cognitive and interpersonal selection dimensions are of particular interest to you?
4. Was the serious game workshop able to uncover such selection dimensions in the test subjects, and if so, which ones?
5. In your opinion, what are the strengths and areas for improvement of the workshop?
6. You are welcome to add further comments here that have not yet been covered by the above questions

## **Results**

Assessors' responses to our questionnaire showed, that the main challenge they faced in the selection process historically was the lack of assessment tools for cognitive abilities. According to the assessors, cognitive abilities were not part of the assessment in the past, and the selection process primarily focused on physical performance indicators (shooting tests, stress parkours, etc.), which led to the recruitment of good competitors and sportsmen that were lucky enough to be healthy and fit on that day. For the diverse and highly demanding tasks of police special operation forces, this was not enough. Thus, the selection process was amended to include the assessment of desirable physical competencies with transparent benchmarks and high face-validity some years ago. However, the assessors noted that many cognitive assessment exercises used so far are obvious, meaning that aspirants could easily adjust to the requirements by showing the desired behavior for achieving the passing threshold without necessarily exposing their real self. According to the assessors, choosing exercises where aspirants had to reveal as much of themselves and to test for social interaction and stress resilience factors was especially hard. Thus, they were constantly striving for assessment exercises that would «keep the aspirants in the dark». about the actual assessment focus of the assessors.

According to the responses and observations of the assessors during the study, the serious game is a promising tool with the potential to observe diverse cognitive abilities. In its administered form, the game consists of a front-led presentation that requires e.g. the ability to absorb and process information. In a second stage participants perform experiential and creative learning tasks in groups to two with group presentations and mutual evaluations. Thus, abilities like logical thinking, social interaction, appearance and argumentation skills were observable. With small adaptations they could easily integrate it in the selection process to observe, amongst others, beforementioned abilities. Table 2 presents desired abilities to be observed in the assessment process and abilities exposed by the serious game, as observed by the assessors. At this stage, assessors only evaluated the appearance of the desired abilities in a qualitative manner.

**Table 2: Desired competencies and exposed competencies observed by the assessors**

<b>Desired competencies</b>	<b>Abilities exposed by the serious game</b>
Logical thinking	YES
Decisiveness under time pressure	YES
Frustration tolerance	NO
Stress resilience	NO
Ability to take criticism	YES
Argumentation skills	YES
Appearance skills /rhetoric	YES
Solution-oriented thinking /creativity	YES
Information processing /structuring	YES

The assessors evaluated the serious game as a tool that is strong in exposing a variety of desired abilities necessary for the job in the police special operation force. In particular, it is the lack of predictability that makes it hard for participants to anticipate assessors' evaluation focus. The game consists of different stages and participants take on multiple roles during the game. Thus, providing the assessors the possibility to still assess participants individually.

The assessors also made suggestions for improving the proceeding and administration of the game to make it more effective as an assessment tool. In particular, they named the role of game masters as the main improvement potential. They reported that game masters should be required to strictly follow a certain playbook. Otherwise, it is hard to guarantee comparability among groups of participants over time. Moreover, game masters also obtain a decisive role in generating stress among the participants by setting the tone, the time constraints and by giving, or not giving, immediate feedback to participants during the game. The assessors named this as a further improvement potential. A lack of immediate feedback would put the participants in a situation of uncertainty what would make assessors able to observe participants' genuine behavior.

In addition to its appropriateness as assessment tool, it also provides participants an added value, as they learn about rationales and dangers of social engineering. One participant said:

*«I would have loved to play this game and learn about social engineering before our service during the World Economic Forum (WEF)».*

Another special characteristic of the game is its applicability to different assessment situations and audiences. While there exists a given game structure and general content, there is no given set of correct solutions, which makes its complexity increase and decrease with the degree of player abilities. For instance, the serious game played by a group of highly capable players could create highly advanced outcomes while this might not be the case for players with lower cognitive abilities. Thus, its advantage over existing tools and methods is its unpredictability for players. Standard tools are predictable in a way that participants might know in advance what answers are needed to satisfy the assessors. This has also been mentioned by the unit's leader and stated as a reason why he committed to test the serious game as an additional assessment tool with more unpredictability for the participants.

## **Discussion**

Scholars indicate that exercises with role-playing character or tabletop exercises are commonly used in military and law enforcement education situations.<sup>11</sup> We assumed that such exercises could be beneficial for evaluating cognitive abilities of police special operation force aspirants in the recruitment process, too. However, this field seems to be under researched so far. The case study

at hand intended to start filling this gap. The aim of this case study was to gather knowledge about the suitability of a serious game for the assessment of cognitive abilities in police special operation forces aspirants. The results of this study imply that the serious game approach of Muhly et al.<sup>9</sup> seems suitable to be applied in the selection process of police special operation force recruitment. Police assessors emphasized the variety of observable abilities in participants during the game and the accuracy of the test results. Participants' cognitive abilities assessed with the serious game matched to a very high degree to what the assessors observe in the study participants during training and on missions. While the results uncovered direct practical implications for the assessment of cognitive abilities in the selection process of police special operation forces, it could also trigger a more nuanced discussion about the reasonableness of standardized cognitive assessment tools. These tools favor the ones that best prepare for what is expected to pass the test, which is different to perform cognitively in highly uncertain situations like in the case of the serious game. The unit leader intends to further adapt the prototype serious game in cooperation with the assessors and test it in the regular selection in autumn 2024. The unit further decides to apply the method in the regular selection process from 2025 onwards (personal communication).

This research study was part of a broader research project that looks for new approaches in the assessment of aspirants for military or police special operation forces in Switzerland. However, the discreet nature of special operation forces service on one hand and the limited availability of special operation forces personnel to test the serious game approach resulted in a small sample at this point in time. Future research should build on the results to confirm the suitability of the serious game as assessment tool in a larger sample of special operation forces in police, as well as military units. As only male operators participated in this study, generalization of the suitability of the assessment approach to all special operation forces would be an oversimplification. However, due to the adaptability of the scenarios in the tabletop serious game, different special operation forces, such as intelligence agents, EOD specialists or drone operators could be assessed. Scenarios could as well be adapted to the cultural context of future missions. Further studies should focus on the validity of the tool to correctly predict cognitive performance—and, ultimately, mission success—of police special operation forces on the job, as a useful alternative to the use of formal education or cognitive ability tests alone. A scoring system reflecting the degree of ability expression should be applied in the future, and different scenarios should be developed to meet the requirements of different special operation forces.

In the study at hand, the focus lied on the general suitability of the serious gaming approach as means to assess cognitive performance indicators. The further application of the serious gaming approach in the recruitment process should be accompanied by using proven means of categorizing and scoring the desired abilities. The positive feedback received from the assessors and the integration of the approach in the regular selection process are strong indications for the serious game's attractiveness as assessment tool in police special operation forces recruitment processes.

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### **Disclosures**

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