

Validation Proposal: Video-based SJT for CPD

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Introduction

In September, City Police Department (CPD) approached me with a request to create and validate a revised version of their current promotional assessment for the rank of sergeant. Per the request of CPD, the new assessment will be a video-based situational judgment test (SJT), with the content of the test the same as the prior written SJT. CPD specifically requested a concurrent validation study to validate the new video-based SJT. The knowledge, skills, abilities, and other characteristics (KSAOs) assessed in the video SJT will be the same as in the written SJT, as the content will be the same. The validity of the video SJT will be assessed through a concurrent validity study, as requested by CPD. Test results will be compared to supervisor ratings of performance to verify that the new SJT adequately assesses the KSAOs.

Context

After several discrimination lawsuits, CPD was served a consent decree mandating they develop new hiring and promotion practices to increase racial/ethnic diversity within hiring and promotion outcomes. For promotion to the role of Police Sergeant, a SJT was added to a battery of written knowledge, personality assessment, and skill assessment with the goal of reducing adverse impact of the promotion process. Unfortunately, in 2020 it was found that there were still significant group differences on the SJT. CPD is seeking to rectify this situation.

The current SJT is in a written, multiple-choice format. It was developed based on a job analysis from 2015, and CPD believes the content of the test items are still job relevant. The plan is to retain the current content of the exam, but simply change the format of the SJT to a video-based format. CPD is seeking a concurrent validation study to ensure that the video-based SJT is reducing group differences while also maintaining the high standards of the CPD.

Situational Judgment Testing

In a Situational Judgment Test, participants are presented with a hypothetical scenario or event in the workplace in which a problem has arisen (Chan & Schmitt, 1997). The examinees are then asked to decide either what the best course of action is or to rate the efficacy of the action taken in the given scenario (Arthur Jr, et al., 2014; Chan & Schmitt, 1997; de Meijer, Born, van Zielst, & van der Molen, 2010). SJTs are a common method of assessment in recruiting and promotion (Webster, Paton, Crampton, & Tiffin, 2020; de Meijer, Born, van Zielst, & van der Molen, 2010), especially in fields such as law enforcement which involve high-stakes situations and “in-the-field” work (Taylor, et al., 2013). SJTs are of particular interest in talent assessment as they can be tailored to the context of the job and test job-related KSAOs (Arthur Jr, et al., 2014) with higher face validity and criterion validity than cognitive ability tests (de Meijer, Born, van Zielst, & van der Molen, 2010). In addition, SJTs are purported to have lower risk for adverse impact than cognitive ability tests, due to lower loadings on g.

Video-based SJTs have an even lower risk for adverse impact than traditional written SJTs (Chan & Schmitt, 1997). There are several reasons hypothesized for this, including high

fidelity of the assessment, lower cognitive demand, and less dependency on reading skills (Chan & Schmitt, 1997; Lievens & Sackett, 2006). Specifically, Chan and Schmitt (1997) found that the race x method effect on performance was mitigated after controlling for reading comprehension. In addition, video-based SJTs have higher face validity to participants, and higher fidelity due to their audio-visual nature (Chan & Schmitt, 1997; Lievens & Sackett, 2006). Lievens and Sackett (2006) also found that video-based SJT had significantly higher predictive and incremental validity for predicting criteria when compared to a written SJT.

Crafting the SJT

As CPD has an existing written SJT, we will need to adapt that content into a video format. This will require script writing, screenplay writing, recruitment of actors, filming sessions, and editing of videos. The scripts and screenplays will have to match the original written scenario, which will require collaboration between the writers, consultants, and the CPD. Once the parties agree that the scripts and screenplays accurately represent the written version of the SJT, then our firm will bring in between six to eight actors to act out the vignettes. Once the filming is complete, the footage will be edited so that each vignette will be no longer than five minutes. The exact timeline and cost of each of these steps will be outlined in the Timeline and Cost section.

Response Mode & Scoring

The video-based SJT will retain the multiple-choice options from the written SJT, and participants will rank the option they believe is the most appropriate for each scenario. Thus, the content of the test remains the same, per CPD's request. This will also save us time, as we will not need to create a new scoring system.

Scoring will be simple dichotomous scoring, with incumbents either getting an item correct or incorrect. Each correct item will add a point to their total score, and incorrect items receive a score of zero.

Validation Study

Per the request of the CPD, the new SJT will be assessed using a concurrent validation study. Current sergeants within the force will take the new SJT and their results will be compared to their performance appraisal scores to assess criterion validity. Further, there will be an assessment of subgroup differences to see whether the new video-based SJT has smaller group differences than the written SJT.

Sampling of Testers

The new SJT will be validated using a sample of 300 current sergeants, with 150 white, 150 non-white to evaluate subgroup differences. The even split between white and non-white participants is to ensure the potential differences between the groups are truly comparable, instead of risking a potentially too-small sample of non-white participants.

Validation of New SJT

To establish criterion validity of the video-based SJT, the scores that the participants get on the assessment will be compared to their most recent performance review ratings from their supervisors. The participants' scores on the SJT will not be disclosed to their supervisors and will only be used for the validation of the SJT. This is a precaution to prevent the incumbents' colleagues and supervisors from forming undesirable or inaccurate opinions about them based on the SJT.

Aside from comparison with performance ratings, subgroup differences will also be analyzed. The effect size (d statistic) between the white incumbents and the non-white incumbents will be found and tested for significance (See Chan & Schmitt, 1997). The effect size estimates of the new video-based SJT will also be compared to the most recent scores from the written version of the SJT to verify if the new SJT truly reduced subgroup differences, or if it increased them or they remained the same.

For the purposes of the CPD, even if the new SJT shows criterion-related validity, it will also need to show decreased subgroup differences in order for the department to meet its mandate. Analysis of Differential Item Functioning will also be conducted if the video-based SJT does not reduce subgroup differences. This will allow us to see if there are specific items/content areas that are especially problematic for non-white members of the police force.

Timeline and Cost

This project is expected to take about five weeks total, though the way those weeks are spread out is up to the discretion of CPD in conjunction with the firm. It will be based on availability of different personnel and potential events outside of this project. The expected total direct cost of this project is projected to be \$141,425 (See Appendix A). CPD will incur an expected indirect cost of about \$75,000 to compensate the 300 incumbent sergeants during the testing period. This was calculated by multiplying the average hourly salary of police sergeants by the number of incumbents and the number of hours expected for each incumbent to take the assessment (See Appendix B).

Week 1: Script and screenplay writing. Two consultants and a writer will work to convert the existing written SJT to viable scripts and screenplays for filming. This will be done over the course of 20 hours in the first week of the validation process.

Week 2: Filming of vignettes. A consultant will oversee the filming of the SJT vignettes with 6-8 semi-professional actors and additional staff to assist in filming (i.e., EMT/first aid, food vendor). This will take place over one week, with full-time workdays dedicated to the filming.

Week 3: Editing of footage. Three video editors will work full-time over the course of a week to edit the filmed footage down to 3- to 5-minute vignettes.

Week 4: Test administration. Five consultants will proctor the test to the 300 incumbents over the course of a week. Each consultant would proctor groups of 30 and run two sessions each.

Week 5: Data analysis & consulting. During this week, consultants will analyze the results of the validation study. After, consultants will work directly with the CPD to share the results of the analysis and discuss next steps with the department.

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References

- Arthur Jr, W., Glaze, R., Jarret, S., White, C., Schurig, I., & Taylor, J. (2014). Comparative evaluation of three situational judgment test response formats in terms of construct-related validity, subgroup differences, and susceptibility to response distortion. *Journal of Applied Psychology, 99*(3), 535-545. doi:10.1037/a0035788
- Chan, D., & Schmitt, N. (1997). Video-based versus paper-and-pencil method of assessment in situational judgment tests: Subgroup differences in test performance and face validity perceptions. *Journal of Applied Psychology, 82*(1), 143-159.
- de Leng, W., Stegers-Jager, K., Husbands, A., Dowell, J., Born, M., & Themmen, A. (2017). Scoring method of a situational judgment test: Influence on internal consistency reliability, adverse impact, and correlation with personality? *Advances in Health Science, 243-265*. doi:10.1007/s10459-016-9720-7
- de Meijer, L., Born, M., van Zielst, J., & van der Molen, H. (2010). Construct-driven development of a video-based situational judgment test for integrity: A study in a multi-ethnic police setting. *European Psychologist, 15*(3), 220-236. doi:10.1027/1016-9040/a000027
- Lievens, F., & Sackett, P. R. (2006). Video-based versus written situational judgment tests: A comparison in terms of predictive validity. *Journal of Applied Psychology, 91*(5), 1181-1188. doi:10.1037/0021-9010.91.5.1181
- Lievens, F., Sackett, P. R., & Buyse, T. (2009). The effects of response instructions on situational judgment test performance and validity in a high-stakes context. *Journal of Applied Psychology, 94*(4), 1095-1101. doi:10.1037/a0014628
- Lievens, F., Sackett, P. R., Dahlke, J. A., Oostrom, J., & de Soete, B. (2019). Constructed response formats and their effects on minority-majority differences and validity. *Journal of Applied Psychology, 104*(5), 715-726. doi:10.1037/apl0000367
- Martin-Raugh, M., Anguiano-Carrasaco, C., Jackson, T., Brenneman, M., Carney, L., Barnwell, P., & Kochert, J. (2018). Effects of situational judgment test format on reliability and validity. *International Journal of Testing, 135-154*. doi:10.1080/15305058.2018.1428981
- National Center for O*NET Development. Illinois Wages: 33-1012.00 - First-Line Supervisors of Police and Detectives. *O*NET OnLine*. Retrieved November 15, 2024, from <https://www.onetonline.org/link/localwages/33-1012.00?st=IL>
- Smith, K., Flaxman, C., Farland, M., Thomas, A., Buring, S., Whalen, K., & Patterson, F. (2020). Development and validation of a situational judgment test to assess professionalism. *American Journal of Pharmaceutical Education, 84*(7), 985-992.

St-Sauveur, C., Girouard, S., & Goyette, V. (2014). Use of situational judgment tests in personnel selection: Are the different methods for scoring the response options equivalent? *International Journal of Selection and Assessment*, 22(3), 225-239.

Taylor, T., Elison-Bowerrs, P., Werth, E., Bell, E., Carbajal, J., Lamm, K., & Velazquez, E. (2013). A Police Officer's Tacit Knowledge Inventory (POTKI): Establishing construct validity and exploring applications. *Police Practice and Research*, 14(6), 478-490. doi:10.1080/15614263.2013.802847

Teng, Y., Brannick, M., & Borman, W. (2020). Capturing resilience in context: Development and validation of a situational judgment test of resilience. *Human Performance*, 33(2), 74-103. doi:10.1080/08959285.2019.1709069

Webster, E., Paton, L., Crampton, P., & Tiffin, P. (2020). Situational judgment test validity for selection: A systematic review and meta-analysis. *Medical Education in Review*, 888-902. doi:10.1111/medu.14201

Appendix A.

Table 1. Cost Broken Down by Task

Task	Time (hr)	Amt of Ppl	Cost/hr	Details
Test Development				
Script & Screenplay Writing	20	3	150	2 consultants & a writer will convert the written SJT to viable scripts & screenplays
Filming of Vignettes - Video Staff	40	12	150	6-8 actors for the vignettes, plus additional staff to help film
Filming of Vignettes - Consultants	40	1	200	A consultant to be involved during filming
Editing Footage	40	3	75	3 video editors to work on editing the footage
Misc. Overhead	12	N/A	75	Additional cost to cover potential administrative costs
Test Validation				
Test Administration	40	5	150	5 consultants to proctor the test, each proctoring to 30 incumbents at once, each doing two 4-hour sessions
Data Analysis	15	3	125	3 consultants to do data analysis of the results
Consulting	15	2	200	2 consultants working directly with CPD to share the results of the analysis and discuss next steps
Misc. Overhead	12	N/A	75	Additional cost to cover potential administrative costs
Total Hours:	234			
Total Cost:	141425			

Appendix B.

Calculation of indirect cost to CPD.

Average hourly wage for police sergeant in Illinois: \$61.76 (via O*Net)

Hours spent taking assessment: 4

Number of incumbents: 300

$4 * 300 * 61.76 = \$74,112$

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