

HireVue

WHITE PAPER

**THE NEXT
GENERATION OF
ASSESSMENTS**

AUTHORS:

Dr. Nathan Mondragon – Chief IO Psychologist
Clemens Aichholzer – SVP of Game-Based Assessments
Dr. Kiki Leutner – Head of Science, Game-Based Assessments

FEBRUARY / 2019

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RECRUITING HAS ALWAYS BEEN ABOUT PREDICTION

ABSTRACT

Predicting performance, predicting turnover, predicting aptitude - hundreds of factors are at play in great hiring decisions.

When validated pre-hire assessments entered the employment space, they promised to bring scientific validity and reliability to what was previously an error filled intuition-driven process. They gave invaluable insight into the core competencies and traits using legacy assessments required for job success, so managers could focus their time on candidates they know can excel at the job.

Today, pre-hire assessments have evolved beyond their legacy standardized-testing roots to measure those critical competencies faster, more accurately, and in a way that enhances the candidate's experience.

A BRIEF HISTORY OF ASSESSMENTS

Validated pre-hire assessments - those that are designed around specific jobs and job-related competencies - gained wide use in the 1970s. Assessments were most often taken at designated testing centers, and usually took the form of a long multiple-choice questionnaire or test.

Through the decades, these multiple-choice assessment tests were transcribed onto the new technologies of the time. The 1980s saw the rise of tests delivered via phone, and the 1990s saw these tests delivered over personal computers and subsequently the internet.

Up until the early 2010s, pre-hire assessments remained largely the same (e.g. a multiple-choice, closed-ended test). All that changed was the modality: over the phone, on a PC, over the internet, etc. These assessments were the same legacy tests simply delivered in a different way. They were long, boring and didn't make for a great experience for anyone involved.

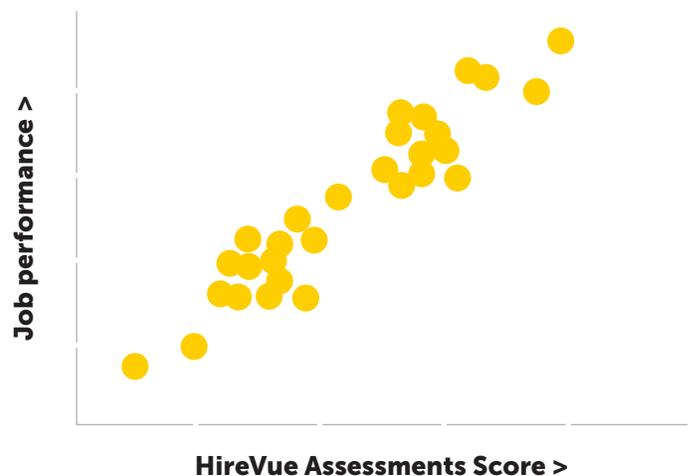
Today's technology is revolutionizing the concept of pre-hire assessment. They can be a quicker, more engaging experience, yet just as predictive as legacy pre-hire assessments.

WHAT'S THE VALUE OF PRE-HIRE ASSESSMENT TESTING?

The key factors that distinguish pre-hire assessments from other employee selection methods (interviewing, resume screening, etc) are scale and validation. A single recruiter cannot consistently and objectively screen thousands of applicants; a pre-hire assessment provides a consistently objective evaluation that can be deployed on a large scale.

Validation is the process by which a selection system is shown to reliably and consistently support valid inferences that relate to and predict job-related outcomes and behaviors. A validated assessment will have evidence to support how job-related behaviors or characteristics are measured, what is measured, and how that measurement process relates to valued outcomes, such as on-the-job performance, core competency behaviors, and retention.

In other words, the scores achieved by assessment takers are statistically correlated to the attribute the assessment is trying to measure. For example, if the ultimate goal is to predict job performance, assessment scores would be compared to new hires' performance data.



This scientific approach to hiring means that great decisions can be made consistently, and on highly relevant criteria.

THE GOLD STANDARD: COMPREHENSIVE MEASUREMENT OF CANDIDATES

The world of work is more complex than ever before. Even entry-level, hourly jobs require a unique combination of job-related competencies.

This is likely why cognitive ability (General Mental Ability or GMA) is the best predictor of job success.¹ Even so, people rarely work alone. Emotional intelligence, communication skills, and various personality traits are also critical for success on the job.

Unfortunately, legacy pre-hire assessments do not allow for the comprehensive measurement of job-relevant competencies in an efficient, candidate friendly manner. To evaluate candidates on a range of job relevant competencies and attributes several tests need to be administered to get a comprehensive evaluation of a candidate's employability. A test that measures personality traits won't measure cognitive ability or job-specific competencies; and a cognitive ability test won't give insight into personality or

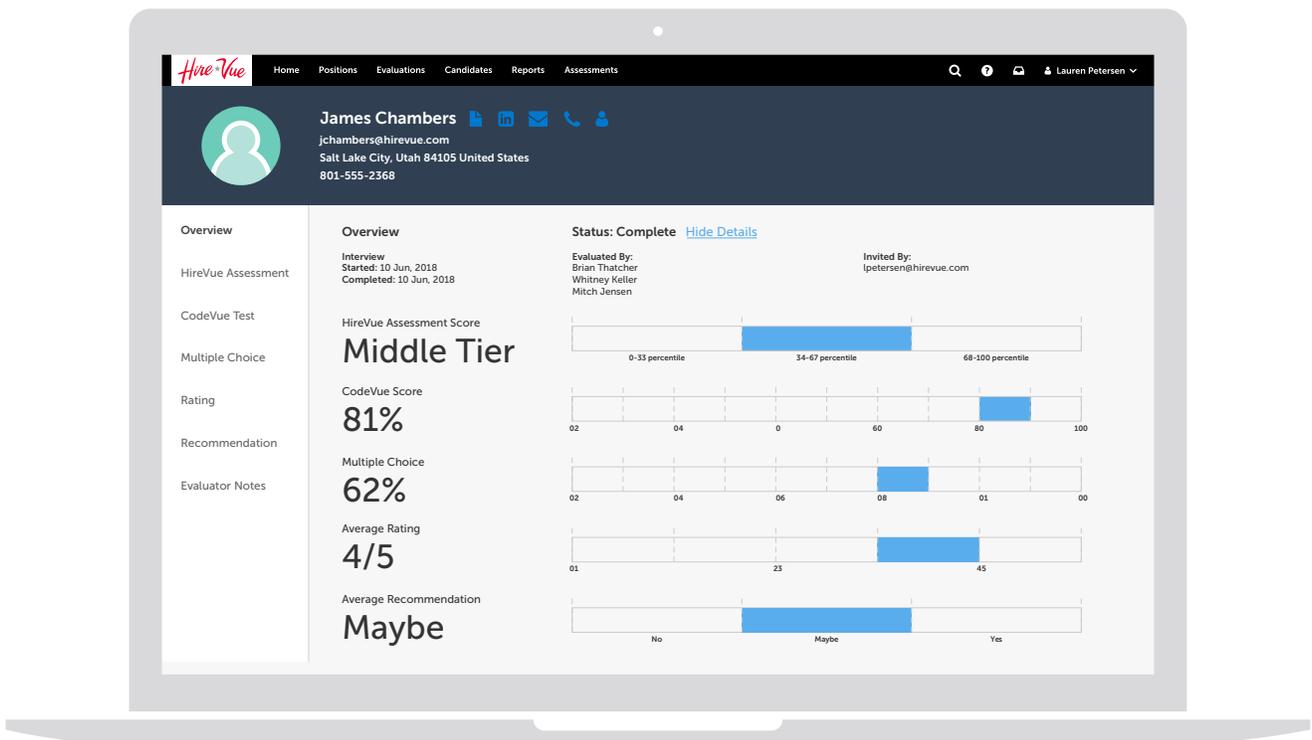
technical competencies. To evaluate candidates on a range of relevant competencies and traits using legacy assessments, several tests would need to be administered - referred to as a test battery.

Getting a complete evaluation of a candidate like this is unworkable for most roles. To gather enough data for a comprehensive, validated evaluation of a candidate, hours of testing would be required.

In the 21st century we can't expect candidates to spend one hour on an assessment, much less two or three.²

This is where today's technology - namely artificial intelligence - comes into play. Combined with time-tested IO Psychology, we can finally move beyond the legacy multiple-choice test and deliver assessments in an expedited, candidate-friendly delivery modality.

Rather than put a candidate through an hour or more of testing, we can evaluate a candidate's employability - the optimal combination of personality traits, cognitive ability, and competency areas for a target set of job roles - in under 30 minutes.



HIREVUE'S APPROACH TO MEASURING EMPLOYABILITY

HireVue's overarching framework draws on over 100 years of research insights in the field of Industrial-Organizational (IO) Psychology.³ As outlined with select competencies in Figure 1 below, the individual factors critical for job effectiveness are the following:

- **Work with People:** The extent to which people can form productive and rewarding relationships with others
- **Work with Information:** The extent to which individuals have the cognitive abilities to effectively process information and data they encounter in the role to drive decisions and action
- **Work Style & Personality:** The extent to which individuals have the right level and mix of personality, motivation, and attitudes to meet the people, data, and information demands of the job
- **Job Specific Knowledge / Technical Skills:** The extent to which individuals have job specific knowledge and skills required for effective performance in a role

Figure 1:
COMPETENCY-BASED MODELING FRAMEWORK



With the rapid pace at which jobs transform and new technology tools and systems constantly replace others, it is important to focus on broad abilities and personality skills that determine whether individuals can continuously learn and adapt. HireVue's assessment solution ensures individuals possess the comprehensive set of knowledge, skills, abilities, motivation, and personality critical for effective performance in specific job roles.

This is possible by harnessing two new and complementary assessment delivery modalities: AI-powered video-based and game-based assessments.

Assessments that measure different traits and abilities are additive. Combined together, they provide a better prediction of job success than if they were administered alone.¹

WHAT ARE VIDEO-BASED ASSESSMENTS?

Since 2015, HireVue has used artificial intelligence to transform OnDemand video interviews into a powerful, validated pre-hire assessment that reduces bias and augments talent decisions at scale.

HireVue OnDemand video interviews are asynchronous. Candidates record their responses to interview questions at the time of their choosing, on any device. In the same fashion, recruiters and hiring managers can review candidates' interviews side-by-side at any time. The average recorded interview is 15-20 minutes long.

There are thousands of data points in just 15 minutes of recorded video. It's important to note that the average, multiple-choice assessment only provides 100 or so data points, corresponding to the number of questions. The data in a video interview is the same data we parse in a traditional interview:

1) WHAT A CANDIDATE SAYS:

the content of the speech

2) HOW THEY SAY IT:

intonation, inflection, and other audio cues

3) WHAT THEY DO WHILE SAYING IT:

the emotions a candidate portrays, particularly in relation to what is being said at the time

A combination of leading-edge data science (a field that has only come into its own in the last decade), and Industrial-Organizational Psychology (a decades-old, established assessment sciences field) makes this new approach to assessment possible.

The questions candidates answer are not random. They are designed according to Industrial-Organizational Psychology best practices after an in-depth job analysis. The questions in a video-based assessment are crafted specifically to elicit responses predictive of job success. These are generally situational judgment, scenario-based, and past behavior interview-type questions.

Having candidates provide responses via video more closely approximates the job environment than traditional, legacy assessments and allows candidates to exhibit behaviors relevant to job performance (e.g., simulating communicating orally with team members through a video response), versus responding to static multiple-choice type questions. We are able to sample behavior in a substantially richer and more interactive

medium than could be achieved with close-ended multiple choice questions typically included in a legacy assessment.

Video-based assessments work by statistically linking the video data from those recorded interviews to job performance data and/or competencies. Then an algorithm is created to analyze the interviews for each job role. The algorithm undergoes full validation testing, as well as adverse impact mitigation.

In contrast, with legacy assessment design, adverse impact is not apparent until the test is completed. At this point an organization may decide to use the assessment so long as it is validated for the job with minimal adverse impact. Removing adverse impact causing questions is usually not an option; every question is critical for the accuracy of the assessment. Since video interviews are data-rich, any data that contributes to adverse impact can be removed from consideration without significantly impacting the assessment's accuracy.

The result is a highly valid, bias-mitigated assessment for specific job roles. The video interview medium - combined with AI - provides excellent insight into attributes like social intelligence (interpersonal skills), communication skills, personality traits, and overall job aptitude.

VIDEO-BASED ASSESSMENTS GIVE INSIGHT INTO:

- + ABILITY TO WORK IN TEAMS
- + PROBLEM SOLVING SKILLS
- + COMMUNICATION SKILLS
- + ADAPTABILITY
- + WILLINGNESS TO LEARN
- + CONSCIENTIOUSNESS
- + RESPONSIBILITY
- + DRIVE FOR RESULTS & INITIATIVE-TAKING
- + PERSONAL STABILITY / STRESS TOLERANCE
- + AND MORE

WHAT ARE GAME-BASED ASSESSMENTS?

Like video-based assessments, game-based assessments leverage breakthroughs in artificial intelligence to deliver pre-hire assessments in a new, candidate-friendly delivery modality.

Put simply, game-based assessments are a series of short psychometric games. Each game takes only a few minutes to complete, and different games give insight into a range of cognitive skills, including numeracy, problem-solving, and attention. Each of these skills is related to fluid IQ, or how well an individual processes completely new information. A complete game-based assessment typically involves a battery of different games, and takes only 6-15 minutes to complete.

While HireVue's game-based assessments provide a quick and engaging experience, they maintain a high degree of face validity. The games' assessment nature is not hidden behind cartoon avatars or amusing gameplay mechanics; candidates understand the games are measuring competencies directly related to the position for which they are applying (e.g., working memory for Call Center or Registered Nurse roles).

Like video data, game data is rich and complex. Games can collect a number of different data types. Actual game performance is the most obvious, but taps, swipes, and pauses also give insight into a candidate's thinking and problem-solving approach. HireVue's game-based assessments are dynamically progressive. They adapt in real time based on a candidate's performance. If a candidate successfully completes one task in a game, the next task they will be asked to complete will be more difficult. If they struggle and fail a task, they will be given an easier task.

Compare this to a legacy, 30-45 minute cognitive skills test. Since all candidates answer the same questions, there is a need for the test to be lengthy and comprehensive. A progressive, game-based approach means this time can be significantly condensed, as candidates complete challenges based on their skill level.

Game-based assessments work by statistically linking this data gathered during gameplay to job performance data and/or competencies. Then an algorithm is created to analyze the data; the algorithm is validated

against accepted measures of cognitive ability, as well as the job performance data and/or competencies. Similar to video interviews, HireVue's game-based assessments are data-rich, and go through our comprehensive process to mitigate adverse impact.

The game medium - combined with AI - provides excellent insight into cognitive attributes like analysis, decision-making, reasoning, and problem solving skills.

GAME-BASED ASSESSMENTS GIVE INSIGHT INTO:

- + *PROBLEM SOLVING SKILLS*
- + *MEMORY*
- + *ATTENTION*
- + *MENTAL AGILITY*
- + *VISUOSPATIAL REASONING SKILLS*
- + *NUMERACY*
- + *LEADERSHIP*
- + *PERSEVERANCE*
- + *AND MORE*

VIDEO-BASED + GAME-BASED ASSESSMENTS

While video-based and game-based assessments excel in their own right, their strengths are complimentary.

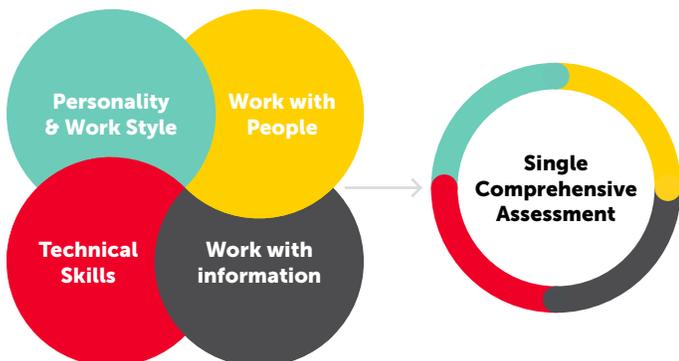
Video-based assessments excel in measuring emotional and social aptitudes like interpersonal skills, communication skills, and personality traits.

Game-based assessments excel in measuring cognitive aptitudes like fluid IQ, visuospatial reasoning, and memory.

Video-based and game-based assessments can be combined into a single experience, providing a comprehensive evaluation of each candidate in under 30 minutes.

Combining the strengths of a video-based assessment (measuring interpersonal skills, communication skills, and personality traits) with the strengths of a game-based assessment (measuring cognitive traits) means companies have the ability to assess a comprehensive range of relevant traits and competencies in under 30 minutes.

In today's competitive talent marketplace, the organizations that move fastest are frequently rewarded with the best hires. The combination of video and game-based assessments means companies can collect a comprehensive set of data on each candidate in a single hiring process step. Video-based and game-based assessment scores provide crucial decision support for recruiters and hiring managers, but they do not take away their discretion.



The comprehensive set of data available from these two assessment types also means adverse impact can be mitigated without affecting the accuracy of the assessment, as previously mentioned. Additionally, with insight into a range of different competencies, recruiting teams can enhance hiring decisions with consideration of complementary attributes - hiring to reflect the complexities of the modern workplace. Unlike a legacy assessment, where candidate scores are often provided with little context, recruiters and hiring managers can watch a candidate's corresponding interview and make their own evaluation augmented by structure and data-driven decision support.

CUSTOM ASSESSMENTS

Custom assessments are built around a job's specific performance data in a single organization. They are organization-specific, and designed to evaluate the competencies that uniquely lead to success. Custom assessments can be video-based, game-based, or a combination of the two. They can also be combined with coding challenges to provide a comprehensive assessment for technical roles.

Questions in a custom video-based assessment are unique for each organization based on the findings that emerge from a job analysis. They are designed to elicit responses predictive of job performance; every assessment will have a unique question set. Likewise, game-based challenges are chosen based on the unique competencies identified as crucial for success.

PRE-BUILT ASSESSMENTS

Pre-built assessments give organizations access to AI-driven assessments built around competencies indicative of success on the job. Job-specific pre-built assessments use a combination of video-based interview questions, game-based challenges, and - for software developers or other relevant technical roles - coding challenges to measure job related competencies and knowledge domains. Pre-built game-based cognitive assessments use game-based challenges to measure cognitive ability exclusively.

Pre-built assessments are built around common job roles to evaluate the competencies identified as critical to job success, and are configured for fast deployment after a job analysis confirms the assessment is a good match for a particular role.

| | CUSTOM | PRE-BUILT |
|------------------------------------|---|---|
| How the Assessment is Built | Custom question content and assessment algorithms are developed around an organization's unique job analytic and performance data for a specific job role | The assessment is pre-built with thoroughly researched standard questions and competency-based algorithms indicative of job success across specific job roles |
| Minimum Requirements | Requires job analysis and a minimum number of employees with matching performance data for algorithm build and launch | Includes detailed scoping and job analysis to ensure the competencies and questions are job-related before launch |
| Assessment Types Available | Can include video-based, game-based, and coding challenges | Can include video-based, game-based, and coding challenges |
| Time to Implement | Implementation timeline based on ability to collect data related to desired outcomes | Assessment configured for fast deployment |

Organizations may begin with a pre-built assessment, and then transition to custom predictive algorithms built around their specific performance data and outcomes. This allows recruiting teams to kickstart AI-driven assessment with pre-built algorithms for a quicker launch while still gaining the organization-specific insight that comes from a custom algorithm build over time.

THE CANDIDATE'S PERSPECTIVE MATTERS: THE IMPACT OF CANDIDATE EXPERIENCE

Ten years ago, candidate experience was not a concern when considering a pre-hire assessment. The labor market was saturated with top-tier talent ready and willing to wade through complex hiring processes. In today's fast-moving job market it is essential. Most highly qualified candidates are already employed, and do not need to change jobs. It is critical to make the pre-hire assessment as quick and easy as possible. The best candidates generally do not want to sit through hours of testing.

The candidate experience also has a direct impact on an organization's ability to recruit talent. According to the Talent Board's 2017 Candidate Experience Research Report, 82% of candidates with a great experience said they were "Extremely Likely" to refer others to the hiring organization.⁴ 44% of candidates with a terrible experience said they would "Definitely Not" refer.

There's a secondary impetus for organizations who sell to consumers. 74% of candidates who had a great experience said they would increase their business

relationship with the hiring organization. 46% of candidates with a terrible experience said they would sever their business relationship.

By combining two new, validated, assessment delivery modalities, talent acquisition departments get the best of both worlds. They can respect the candidate's time with a single, engaging assessment, while gaining crucial insight into a comprehensive range of job competencies.

HOW 1.5 MILLION CANDIDATES RATE HIREVUE INTERVIEWS

80%

Enjoyed the experience and appreciated the opportunity to differentiate themselves

85%

Thought it reflected well on the employer's brand

70%

Rated the experience as 9 or 10 out of 10

89%

Said it respected their time

CONCLUSION

Pre-hire assessments are a scientifically proven way of evaluating candidates and have a long history of success. But legacy assessment testing has not kept pace with the complexity of the modern workplace. Evaluating a comprehensive range of competencies required for job success would require hours of testing with conventional methods. This is neither realistic nor respectful to today's candidate.

Artificial intelligence has enabled the creation of two complementary, validated assessment types. Video-based assessments evaluate candidates' responses to video interview questions. These do an excellent job of evaluating candidates' emotional intelligence, communication skills, and personality

traits. Game-based assessments evaluate candidates' performance in games. These do an excellent job of evaluating candidates' fluid IQ, visuospatial reasoning, and memory. These can be combined into a single experience to provide complementary insight into a comprehensive range of attributes necessary for success on the job in under 30 minutes.

This time-efficient, combined approach increases the likelihood of completion and provides candidates with an engaging experience that respects their time, while accurately and objectively evaluating them on a wide range of job competencies so recruiting teams have the data they need to make the best possible hiring decisions.

CITATIONS

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**LEARN HOW THE NEXT
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