



White Paper

**Applicant Dropout:
Completion Rate Drivers
and Consequences**

 Modern Hire

Job candidates dropping out of the application process cause no small amount of hand-wringing among hiring teams. Many practitioners assume the primary drivers of dropout are that candidates find the process too long, clumsy, or otherwise functioning as a barrier to the job.

Why we care about completion rates

This white paper examines these assumptions, breaks down research findings that point to the real reasons candidates leave the application process, and explains why hiring teams may be able to relax knowing some dropout is actually good dropout.

Like almost any facet of hiring, the reasons job candidates drop out of the hiring process can be scientifically identified, studied, and understood. Every one of our clients laments the dropout dilemma at some stage of our relationship with them. And because this issue is important to our clients, it's important to us.

Given the lack of scholarly research on the topic, we first undertook our own research initiative several years ago to help our clients not only better understand the topic but provide them with data to help educate stakeholders on best practices for how to address concerns when they arise.

We know that a vendor undertaking or promoting their own research is often met with skepticism.

But the truth is not only do we mean it when we say our Modern Hire scientists are committed to advancing the field of selection science, but we are practically obligated to contribute to best practices because of the unmatched amount and quality of our hiring data. With our pre-hire assessments being taken by nearly 30 million applicants over the last two years across jobs, industries, and otherwise representative of the entire labor market, firms rooted in research and practice like Modern Hire are best equipped to take a broad look at a topic like completion rates.

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When we started our research efforts we did not just want to do good research by the standards of a consulting firm, we wanted to do good research by any standard, and to us that means we share our work in peer-reviewed outlets such as journals and at academic conferences. And while this process takes time, since we started researching completion rates we have published our work in the [Journal of Applied Psychology](#), the [International Journal of Selection and Assessment](#), and as a symposium at an annual conference of the Society for Industrial and Organizational Psychology (SIOP).

All of this research is freely available on our website, but this white paper provides a summary of everything we have learned about completion rates to date. We have sought to be purposeful about our research and outline a clear agenda that focused on the big questions. Much of our work (and therefore data) comes from analyzing assessment completion rates for our own clients.

What are completion rates?



A lot of practitioners define completion rates differently. Because this topic is still relatively new and understudied, no formal definition exists. For example, if we were to claim an 85% completion rate for our assessments how many different ways could that number be interpreted? We can all agree on the numerator: those who completed the assessment. But should the denominator be anyone who was sent an email invitation to complete the assessment? Anyone who viewed the assessment instructions? Limited to those who actually started the assessment? We routinely see examples of each.

Ultimately, arriving at a universal definition of completion rates is difficult because each job application process is different. Recognizing and accounting for these differences when reporting completion rates is essential. For numerous clients we report dropout rates at multiple stages—those who were invited, those who started the assessment, and those who spent at least x amount of time in the assessment.

In fact, dropout occurs at every step of a job application, but it is often not measured or tracked. Common claims that the assessment stage is the only point of appreciable dropout in the hiring process never stand up to scrutiny and highlight the importance of organizations owning their hiring process. The first step toward doing so is to create a map of the entire hiring process and review dropout at each step. We have observed that every single additional click or page of an application has dropout, even if it is only amounts to a handful of candidates out of thousands.

What is a good completion rate?

Perhaps the most common question we are asked by organizations looking into using pre-hire assessments is about our completion rates. This inquiry may seem reasonable on the surface, but in practice it's difficult to answer because many—if not most—of the factors that impact completion rates are dependent on factors outside of our control as a solution provider.

The next question clients ask is what qualifies as a “good” completion rate. But using a single number as an index is an oversimplification of what goes into factoring completion rates. **Declaring 70%, 80%, or 90% as a good completion rate is not a practical measure of an assessment's efficacy.** Numerous factors influence assessment completion rates such as role type, how desirable the job is, if it is mobile-optimized, and where it appears in the overall application process. We will discuss such factors later.

We know from experience and the variables discussed above that a 100% completion rate is unrealistic for most unproctored assessments. Still, some practitioners assume their completion rates are at or near 100%. This confidence is primarily the result of a lack of transparency, as we have found that many vendors do not report completion rate statistics. Accordingly, our reporting numbers below someone's mental benchmark raises red flags. So why are expectations for completion rates so high? Even when practitioners do not assume a perfect rate, their expectations probably still exceed what they are seeing in their candidate behavior.

Seasoned practitioners remember and are influenced by a world before job applications were completed online. If they used assessments they were probably proctored, and, predictably, completion rates were commonly 100% for those who showed up. However, even in such instances, this 100% completion rate was a function of how completion rates were being measured. Candidates who did not show up to complete the assessment were not included in calculating the completion rate.

A more likely reason for elevated completion rate expectations is the discrepancy in how companies and candidates view the application process. Our experience suggests that most applicants do not consider themselves all that serious about the application until after they complete it, whereas most companies think an applicant is serious as soon as they offer their name. Ultimately, **the responsibility falls on us as practitioners to educate, and in doing so we hope to set appropriate expectations for both how to study and understand the impact of completion rates.**



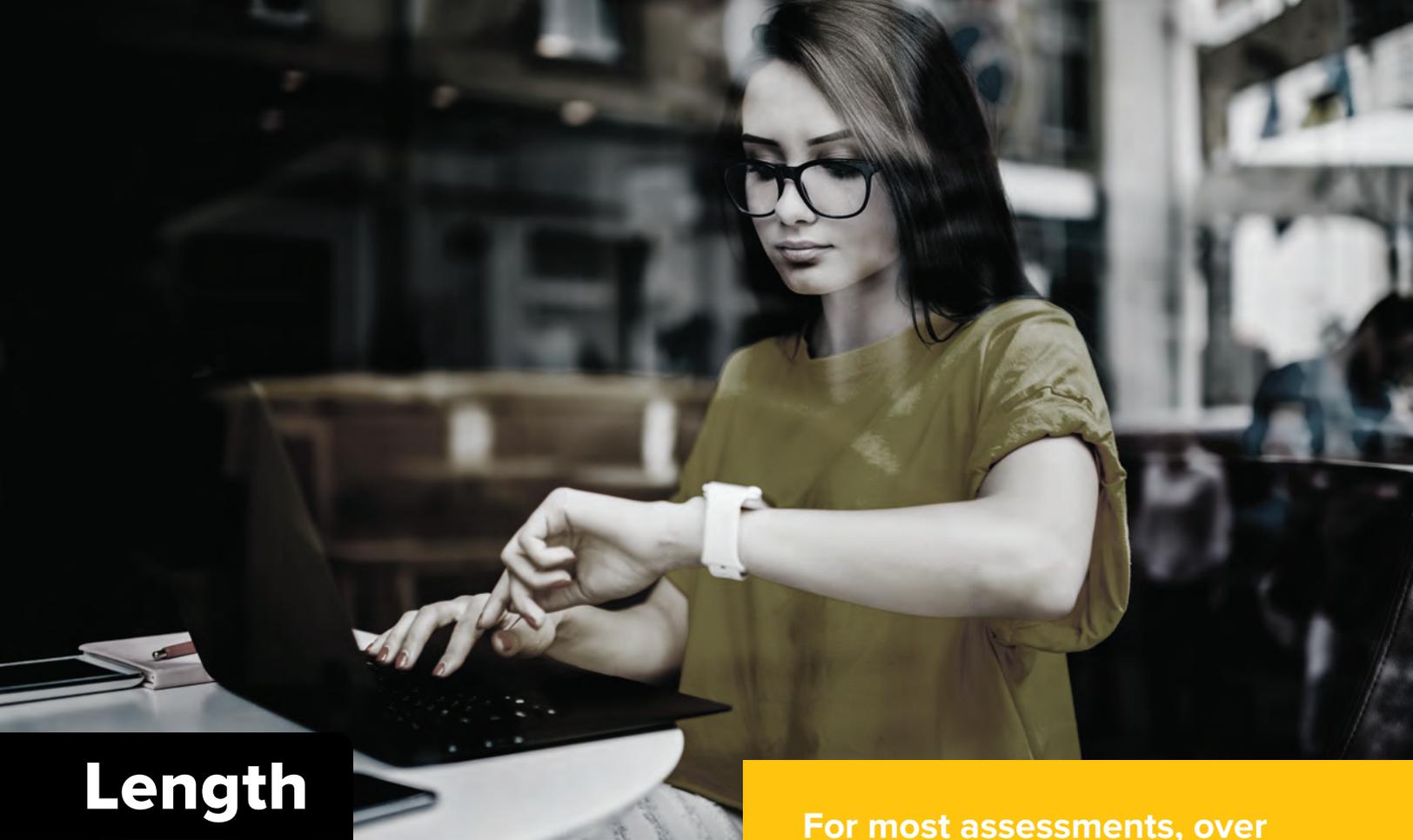
What impacts completion rates?

This question of what drives completion rates was the basis for [our 2017 study](#) published in the *Journal of Applied Psychology*. In this study we examined almost a quarter of a million applicants across 69 selection systems and 29 different organizations varying in size and industry. We coded each one of these selection systems for a number of factors representing every theory and opinion we knew of that might characterize a job (e.g., prestige of job, salary), an organization (e.g., industry, if fortune 500), and the assessment itself (e.g., length, type of assessment).

Our clients always have a pre-conceived notion of what drives completion rates at their organization. This study attempted to include as many of those theories as possible and find out if or how they really influenced completion rates.

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Length

Perhaps the most common assumption we hear—and one of the most striking findings from the study—is related to the issue of assessment length. Just as there is no one standard for what should be considered a high or acceptable completion rate, there is also no standard for what is considered a long or short assessment. Our clients with hour-long assessments will tell us 45 minutes feels more appropriate, those with 45-minute assessments wonder if 30 minutes is better, and so on. We have a small number of clients using assessments in the 10-15 minute range, and even these clients can't resist urging us to find a way to streamline the assessment to make it appear more palatable. We have learned that, regardless of how long the assessment is, clients always want something shorter.

For most assessments, over half of dropout that takes place occurs in the first 5-10 minutes.

We could devote an entire paper to the topic of assessment length. But **a primary finding of our study is that assessment length was not a predictor of completion rates at all.** For example, if you cut a 45-minute assessment to 30 minutes, our research shows us to expect completion rates to increase only by *potentially* 1-2%. The reason for this meager improvement is that dropout *always* occurs early—typically, within the first few minutes of the encounter. For most assessments, over half of dropout that takes place occurs in the first 5-10 minutes. If you have an assessment with an 80% completion rate, and 75% of the dropout occurs in the first 5 minutes, cutting your assessment from 60 minutes to 20 minutes will not move the completion rate needle.

Figure 1 shows an assessment with a length of 51 minutes. Many hiring teams would describe this assessment as long. If length were closely linked to complete rate, you would expect a low completion rate for this assessment. However, this assessment has a completion rate of almost 92%. Again, most candidates who leave do so in the first few minutes. We have marked each section of the assessment, and you can see that if this client shortened it from 51 minutes to 39 minutes their completion rate would go up by less than 1%.

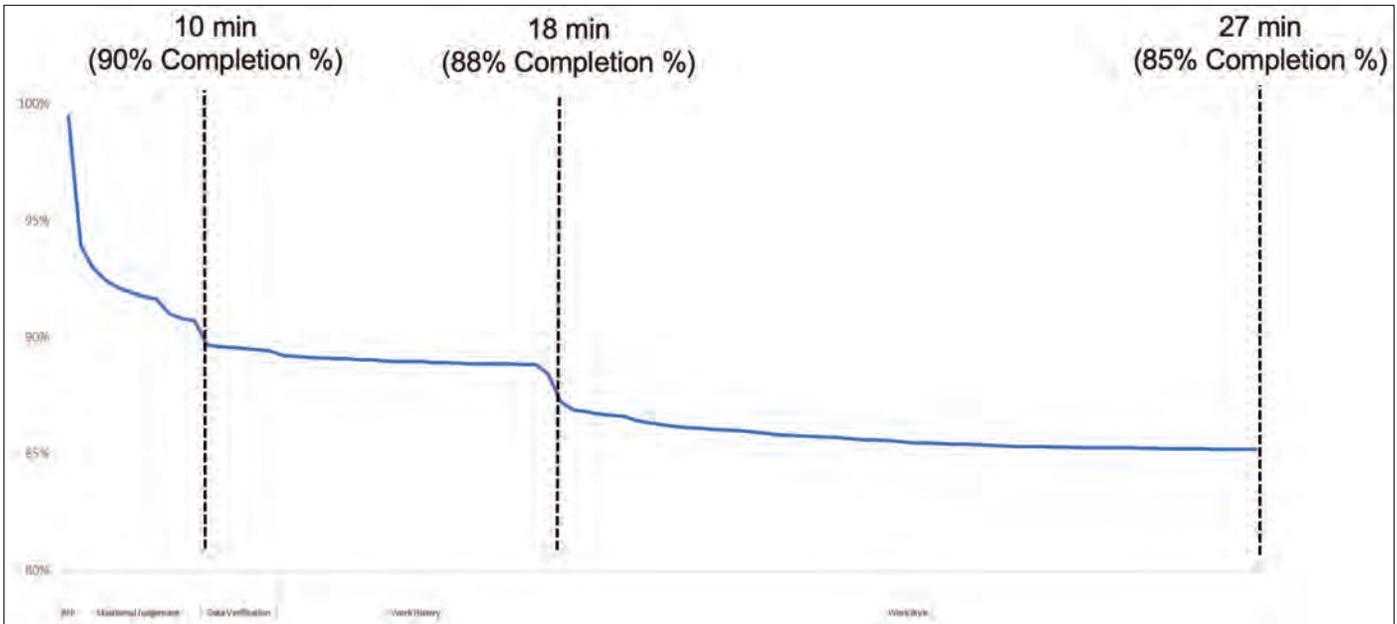


Figure 1: Dropout from a call center assessment

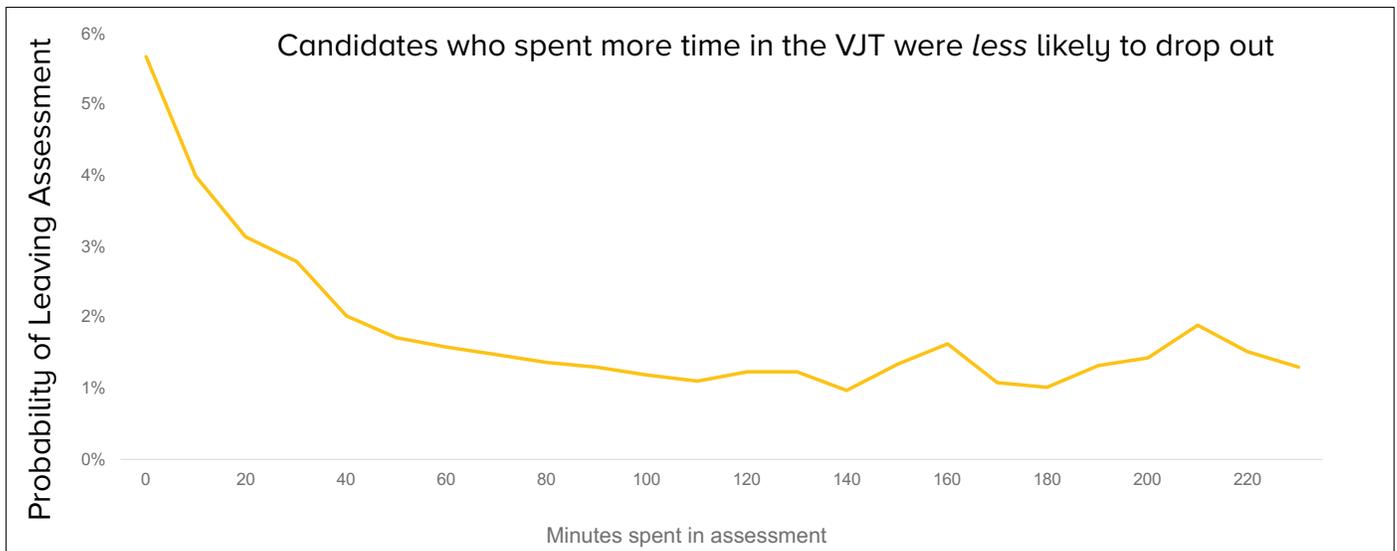


Figure 2: Dropout trend across 69 selection systems

While Figure 1 represents only one assessment, the trend highlighted in **Figure 2** holds in nearly every assessment we have ever scrutinized. Below is the aggregated curve from our study looking at 69 different assessments across various roles and industries. You will see the same trend of dropout risk as highest early in the assessment and then leveling off.

One practical recommendation that came from this study was that companies should be transparent and realistic about assessment length.

All of our assessments show estimated test length to candidates at the outset. And frequently we receive pressure from clients to keep this number low, for fear that longer estimates will scare applicants. But we have evidence that the very opposite is true—better results come from overestimating assessment length (e.g., telling candidates an assessment will take 30 minutes even if median completion time is in the low 20s).

For many candidates, applying for a job is a high-stakes endeavor, as a person's livelihood may depend on their performance. As such, the general assumption for organizations should be that their candidates are committed to the application process, so be forthright with them. Communicating time expectations up front not only gives jobseekers a reason to trust you, it allows them to plan their time more effectively, increasing the likelihood that they will see the assessment through to the end.





Device type

Our first study was published in 2017 and used data collected in 2016. If we were to update this study we would include an analysis of device type. These days, most assessments are mobile-optimized with the only exception being jobs considered PC-heavy and a candidate being able to demonstrate computer skills is deemed highly job-relevant. We have had several cases of working with clients to update their assessments to be mobile-optimized and were able to examine the impact of these changes on completion rates. **Several of these case studies showed that about one-third of mobile applicants would simply drop out of the assessment if it was not available for their device type.**

These days, most assessments are mobile-optimized with the only exception being jobs considered PC-heavy and a candidate being able to demonstrate computer skills is deemed highly job-relevant.

For example, if 60% of your applicants were applying from a mobile device (which is on the high side for most jobs), your overall completion rate would drop by about 20 points if you did not offer a mobile option. Two-thirds of mobile applicants would switch devices, and one-third would quit. We found that for managerial job applications, which have lower rates of mobile usage, not having a mobile option is less important than for entry-level roles, where mobile applications are usually the most common type.



One consistent effect we have seen is that PC and tablet users have higher completion rates than mobile applicants, usually by several points.

Ultimately, we arrive at a somewhat counter-intuitive finding that offering your assessments on mobile devices will *increase* your overall completion rates, but mobile users will themselves have lower completion rates. The reasons behind this need to be studied in greater detail, but we theorize that this is a function of the interaction between key individual differences and the convenience of a mobile device.

Candidates who are sitting down with a tablet or at a PC are intentionally preparing themselves to be more focused and committed to the process. Conversely, candidates who choose to access an assessment from their mobile devices are far more likely to be less serious about the process as they may be in distracting environments, multitasking, or possess a more external locus of control (indicative of their presumably unworried use of a mobile device to take a potentially high-stakes assessment) that leads them not to finish.

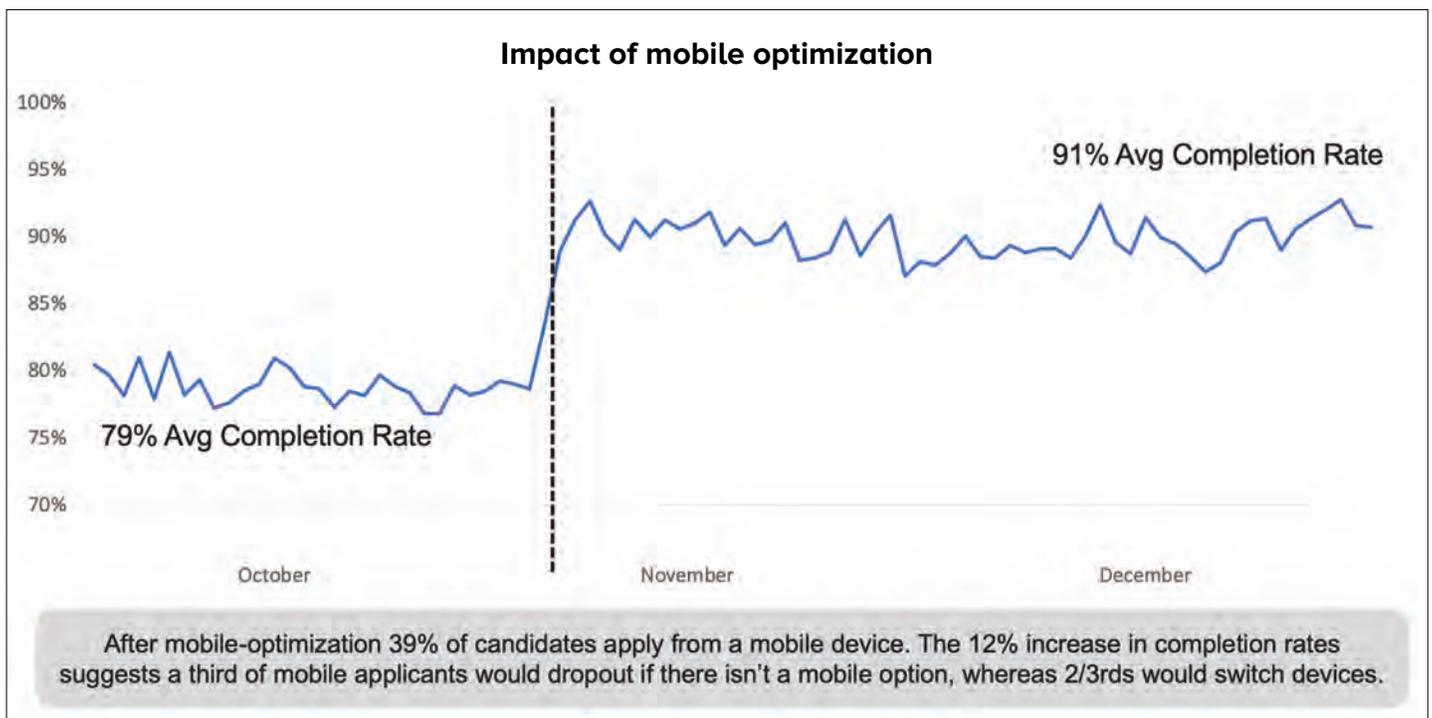


Figure 3: Impact of mobile optimization on completion rate



Applicant Tracking System (ATS)

Regardless of how strong a solution is or the outcomes it promises, candidates are likely to leave the selection process if all its pieces are poorly integrated. How an organization chooses to combine all the aspects of an application (e.g., background checks, interview scheduling, tracking candidate demographic data, etc.) is a major factor in candidate dropout.

The highest completion rates are for all-in-one hiring experiences, when all the parts of the process can be handled seamlessly and in one session for a candidate. There is no denying that our world is more streamlined now than ever before. **If you are unable to offer candidates a convenient and efficient experience, you are going to lose out on quality hires.**

In fact, when polling candidates to find out why they did not complete an application process, we frequently hear that the steps of the process are sometimes so inelegant that **candidates didn't realize they had not finished it**. Our own work suggests that an ATS and how it integrates with an assessment solution is one of the biggest drivers of completion rates. If you are using an ATS that is not integrated with the rest of your hiring steps, you are creating obstacles for your candidates, which can result in significant drops in completion rates—by up to 20 points in some instances. Simply switching from one ATS to another may change your completion rate by a significant percentage.

When a candidate opts to move to the next step of an application, they should not have to wait for an email link, find a different company name attached to the next step, or have to decipher how to proceed. Broadly speaking, our data and experiences suggest that **transparency and clear directions can go a long way to reduce attrition that is driven by confusion**. Organizations should review their application process to get a full view of its experience for candidates as the starting point for improving it.



Other factors

Compensation is the last pillar of completion rates— and perhaps the least surprising.

Applications for jobs offering higher rates of pay are more likely to be taken seriously as candidates are more motivated. [The published study](#) goes into more detail, but at a high level, when controlling for everything else, **higher paying jobs will have better completion rates than lower paying jobs, with opt-out decreasing by 36% for every \$10,000 in salary.**

Higher prestige (e.g., nursing) and supervisory positions (e.g., manager) will have higher completion rates than lower prestige and non-supervisory positions. Candidates applying for supervisory positions opt out 38% less often than those applying for hourly positions. A similar effect was observed when the assessment included job simulations, which had 14% higher completion rates.

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Who is dropping out?

No matter the reason, many stakeholders assume the best candidates are the ones dropping out, that high-quality candidates have many job opportunities available to them and do not want to be bothered with completing an assessment. This concern is reasonable; we often assume the worst. If an individual responsible for filling a position is searching for strong candidates and find that multiple candidates dropped out before reaching the hiring decision stage, fear might naturally go to assumptions about missing out on high-quality candidates. This anxiety might be understandable, **but we can empirically examine if it aligns with reality.**

This question of who is dropping out was the central issue in our paper, **“Quitters would not prosper: Examining the relationship between online assessment performance and assessment attrition behavior,”** recently published in the *International Journal of Selection and Assessment*.

Our data suggests candidates who self-select out of an assessment ultimately would not have performed well on the assessment had they completed it. We came to this conclusion in two ways. First, by gathering information from candidates to understand why they leave. Second, by looking at data gathered before the candidate opted out to learn more about how they were performing on the assessment and, accordingly, their potential performance in the job.

>66%

of candidates did not select a reason why they did not finish the assessment.

This lack of feedback is illustrative of the problem of understanding quitters: If they are not going to finish the assessment, they also are unlikely to respond to a question asking why they are not finishing the assessment.

Our first line of research into this question involved prompting a questionnaire to pop up for candidates leaving an assessment before the end asking them why they were leaving. Candidates could select from among various options, including that they were no longer interested in the job or did not have time and would return later. We found that over two-thirds of quitters did not select a reason.

This lack of feedback is illustrative of the problem of understanding quitters: If they are not going to finish the assessment, they also are unlikely to respond to a question asking why they are not finishing the assessment. But 28% indicated that they did not have time and planned to return. As you might expect, candidates rarely returned to complete the assessment. Only half of a percent of candidates responded that they were no longer interested. Ultimately, asking candidates why they are leaving was not particularly useful as collecting that information was challenging and most candidates who offered a reason indicated that they planned to return.

This finding leads us to a counter-intuitive answer to one of the most common questions we are asked: *How do we increase our completion rates?*

Our next approach was to use early assessment data as a predictor of assessment completion. As detailed above, we have evidence that most candidates who drop out do so early. So while we have incomplete data on those who drop out, we usually have *some* data. And for high-volume assessments we have sufficient early assessment data to predict the likelihood of dropout.

In this study we used samples from several different types, including a large distribution center role, a retail position, a bank manager job, and an urgent care nurse position, totaling well over two million job applicants. We discovered that **early assessment performance is a very strong predictor of subsequent dropout**, or more specifically, a one standard deviation increase in early assessment performance was associated with a 21% to 77% reduction in attrition odds across the seven distribution center roles. This effect generalized across several roles and assessment types including tests of Person-Job Fit (lower fit opted out at higher rates), situational judgment, and job simulations, suggesting the finding generalizes across job and assessment types.

This finding leads us to a counter-intuitive answer to one of the most common questions we are asked: *How do we increase our completion rates?* We have the data to respond with: *Are you sure you want to increase your completion rates?*

The assumption is that increasing completion rates will increase the pool of qualified applicants, but our research shows the opposite may be true—you may be conceding to lower-quality applicants you would prefer were not in your candidate pool. **The data-driven answer to how to increase completion rates is not to obsess over completion rates because much of the attrition that occurs during an assessment is actually healthy attrition.**

While the data points to lower-quality applicants as the ones leaving most often, it does not specifically explain how this effect is occurring. One interesting effect we have observed is that increased dropout seems to be specific to certain item types, such as measures of problem solving (i.e., cognitive ability). Problem-solving measures in our assessments are more transparent to candidates in terms of how well they are doing, relative to other item types like situational judgment or personality, where a candidate likely can't predict how they are performing. During a problem-solving task, where candidates know there is one correct answer, those who know they are guessing probably begin to feel that they ultimately aren't going to do well on the assessment. Accordingly, they may drop out because they assume they are going to fail and their time is better spent elsewhere.

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Are completion rates even a good metric?

So often practitioners see a number, call it a metric, and then make it their job to improve it.

They like being able to present concrete numbers as evidence of their effectiveness. It's a form of accountability many welcome because it makes proving their value that much easier.

In our quarterly reports one of the numbers we track is completion rates. As previously lamented, not much research on the topic of completion rates exists, and, as such, standards for what a “good” completion rate looks like do not exist either. Completion rates vary widely across our clients, varying from 50% to 100%. And, as described above, a huge number of factors impact this number. But no matter the number, clients invariably ask how to improve it. Clients with completion rates in the mid-90% range are often just as adamant that their completion rates need to be improved as those with much lower metrics.

We previously explained that **an organization may not want to improve their completion rates if doing so increases the number of low-quality applicants in their candidate pool.** But this explanation overlooks that sometimes organizations find they do not have the luxury of being particularly choosy—that even if dropouts are lower-quality applicants, shrinking a candidate pool can make some hiring teams nervous and argue that those candidates may still be viable hires.

Clients with completion rates in the mid-90% range are often just as adamant that their completion rates need to be improved as those with much lower metrics.

A high-volume call-center client accustomed to needing a large number of applicants to fill each role was very focused on the administrative efficiency of their hiring process. For the purposes of workforce planning they knew how many applicants they needed to successfully fill each opening. Prior to enlisting our help, they had a relatively traditional application process, including an application/resume review by an RPO, phone screen, onsite interview by the RPO, onsite interview by a hiring manager, and then a conditional offer and drug test. Looking to expedite the process, they added an assessment at the top of the funnel and made no other changes to their application process, the assumption being adding more steps would make it less efficient and risk losing more candidates along the way. But the data suggested otherwise.

The assessment did such a superior job of identifying best-fit candidates that the company only needed to phone screen 2.1 candidates per hire and only 1.7 per hire for the onsite interview by a hiring manager.

Before implementing the assessment this organization needed 9.4 applicants for every opening. So if they needed 100 new hires, they needed to source 940 applicants. Of these 9.4, 8.5 made it to the phone screen, and 3.8 candidates to the onsite interview by a hiring manager. That is, for every 1 hire the hiring manager talked to around 4 candidates and over twice that many were put through a phone screen. They implemented an assessment that only had a 73% completion rate, meaning 27% of candidates never finished it. And a hard cut on the bottom 30% were filtered out as well. In all, the assessment removed over half the applicants before they could proceed past the start of the process.

But the assessment did such a superior job of identifying best-fit candidates that the company only needed to phone screen 2.1 candidates per hire and only 1.7 per hire for the onsite interview by a hiring manager. The final result is that the client now only has to source 8.3 applicants for each new hire. If somebody had looked at the 73% completion rate with alarm and insisted on increasing it—or worse, wanted to remove the assessment to increase the candidate pool—the company would actually need to source *even more candidates*.

After implementing a predictive, data-driven assessment, the company needed to source 12% fewer applicants, hold 75% fewer phone screens, and interview 55% fewer applicants onsite. None of this story even accounts for the improvements to quality of hire and reduction in turnover.

This case study was presented at the 2017 SIOF annual conference. In this case the assessment made the hiring process so much better at quickly identifying high-potential talent that in spite of losing over half their candidates to the assessment (27% dropout and 30% of completes automatically failing), they still needed fewer candidates to apply. And strictly from the perspective of limited HR-resources, phone screens and in-person interviews are exponentially more expensive than an assessment. While this case study is not about completion rates it does illustrate why focusing too much on completion rates may be a poor use of time. Earlier we recommended focusing on the hiring process more holistically and not looking at the completion rates of specific parts, and this case study makes it clear why we give this advice.

After implementing a predictive, data-driven assessment:

12%

fewer applications

75%

fewer phone screens

55%

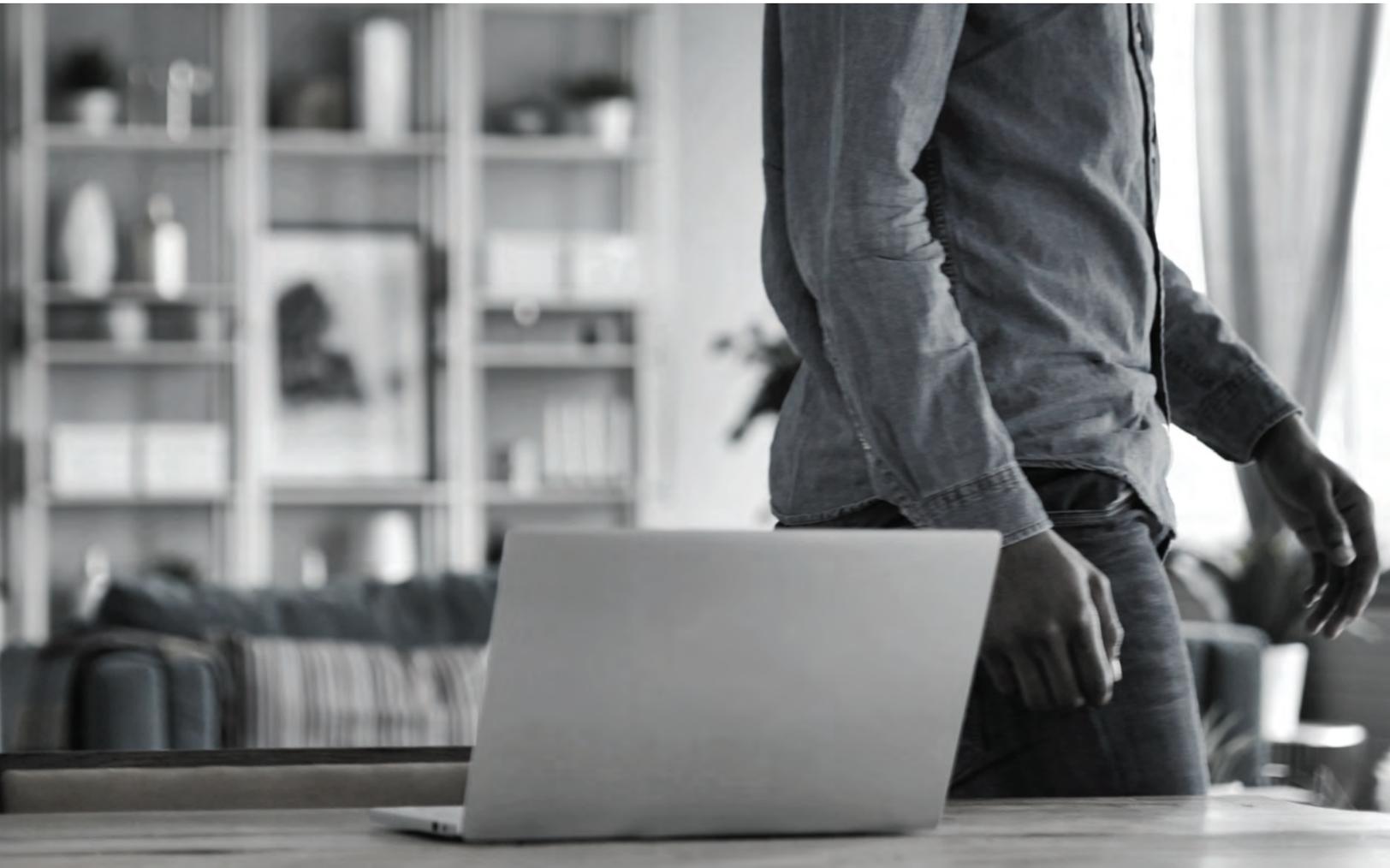
fewer applicants onsite

Is dropout an issue in other stages of hiring?

Much of our research has focused on assessments, but the truth is that dropout occurs throughout the hiring process, from the decision to begin the application to the day an employee actually starts the job.

A client partnered with us to look at dropout through the entire hiring process. We found that dropout occurs at every step. In fact, 7.7% of candidates left when asked for their contact information. We have heard from stakeholders that nobody drops out during the core aspects of an application because candidates expect to be asked basic things such as contact info, availability, and basic eligibility to work. But the reality is that we see dropout at each of these stages.

In our study we framed it as *percent of candidates who made it to this stage who dropped out*. So 7.7% of candidates who began the assessment left on the first page, while 3.6% of those who made it to the general biographical questions dropped out. This effect carried on at each stage in the assessment process. We ultimately found that 62% of the attrition that occurs during the hiring process occurred during the application, meaning 38% of the candidates who dropped out did so post-application. Based on our earlier research, we know that much of application attrition may be positive attrition, where candidates left because they were doing poorly or were simply not interested in the role.



But one of the most interesting findings from this study is that **assessments scores were also a predictor of post-application attrition**, after somebody has completed the application but before starting the job. Except that the prediction was flipped, where higher scores on the assessment were associated with a *greater* likelihood of dropout.

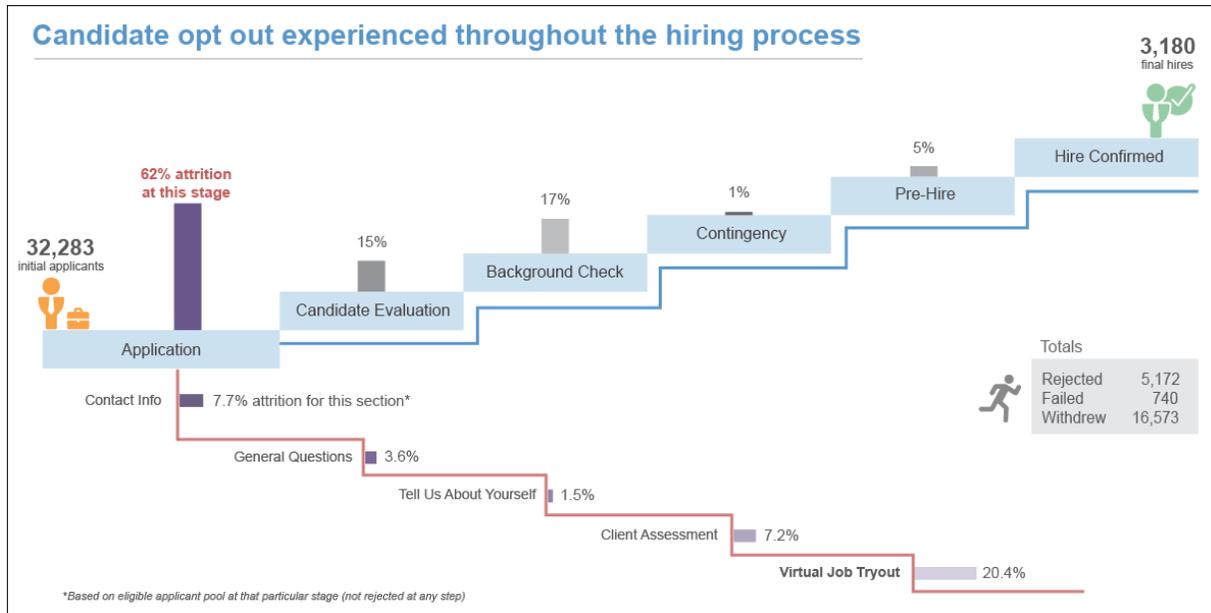


Figure 4: Dropout by hiring stage

This company collected data on why people were dropping out, either selected by the candidate or coded by a recruiter. Turns out the biggest reasons were all related to accepting other offers. **Approximately two-thirds of applicants left because they accepted another offer.** This finding fits with the notion that higher-quality applicants are dropping out at higher rates post-application: these people have more options. This study speaks to the importance of reducing time to fill, because it appears that dropout post-application is more likely to be *negative* attrition. Many companies focus on dropout rates in assessments or on trying to shorten their application when the largest source of negative attrition is not caused by these factors but more likely to happen post-application.

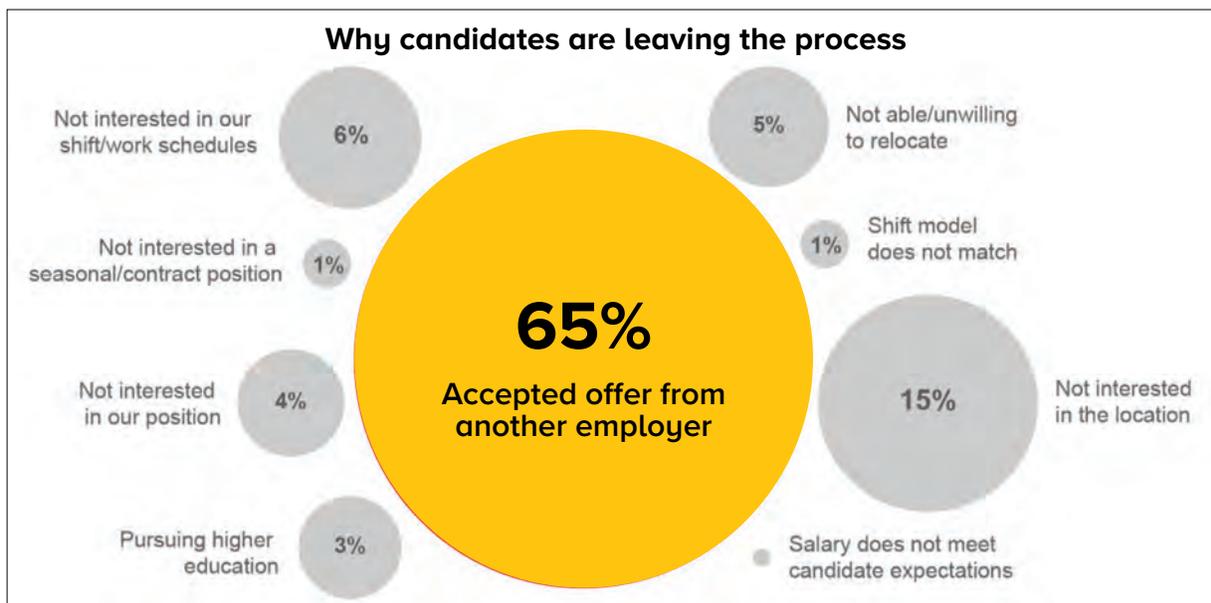


Figure 5: Why candidates are leaving the hiring process

Conclusions

Before you can do anything about completion rates you first must understand them.

We hope our research will help inform popular thinking about candidate dropout and provide insights that can improve hiring processes. While most practitioners are unlikely to have ever received any formal training on the issue, if you work in hiring you will likely be asked to speak to completion rates at some point in your career.

Many of the findings from our research are counter-intuitive, surprising, and simply the opposite of what many people have long assumed. While we have focused largely on assessment dropout in the past, as Modern Hire we now have access to all new sources of data we can examine to understand interview completion rates.

So we are starting to ask new questions.

Do live interviews result in better turnover than asynchronous interviews? Are assessment scores a predictor of interview completion? Does candidate self-scheduling improve follow through?...

Our next investigations have only just begun. All of the above research started with questions raised by our clients and companies we talk to, and we hope they continue to challenge us to find the data-driven answers to the questions that will help them efficiently and effectively create their workforces of the future.



About Modern Hire

Modern Hire's all-in-one enterprise hiring platform enables organizations to continuously improve hiring results through more personalized, data-driven experiences for candidates, recruiters and hiring managers. CognitiOn by Modern Hire™, the nucleus of Modern Hire's platform, merges expertise in industrial-organizational psychology, talent selection science, advanced analytics, candidate experience, employment law, data science and the practical application of ethical AI. This trusted science predicts performance, ensures fairness and automates workflow enterprise-wide, combining AI, predictive analytics, workflow automation, assessment and interviewing technology in a single SaaS solution that integrates with leading HCM systems and is trusted by 47 of the Fortune 100.

Modern Hire delivers the best experience for everyone involved in the hiring process.

To learn more about the company's vision for making hiring personal, visit

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