Arist

Improving organizational performance, at scale

How the tools we use each day can drive learning results while saving time

Foreword

4 years ago, while doodling in a college lecture about the economies of scale in modern education, I couldn't get the project my friends and I were discussing off of my mind. We needed a way to get educational content to students without internet access. We started by just texting them. The results were astounding. Students and peers — young and old — were trying out streams of messages we put online - saying they were foundational, helpful, applicable.

At the time we thought "learning design" was an Adobe program and "training" was something athletes went through, yet it was odd that adults with a wealth of information were so hungry for usable knowledge. College students sat through lectures, but everyone else had jobs that weren't just to absorb, record, and repeat. Students were measured by their ability to remember and regurgitate knowledge onto an exam. Everyone else was measured by their ability to apply simple knowledge they had learned.

Meanwhile, most workforce learning methods were still built for the student, not the professional.

That seemed wrong. **Mastery wasn't recalling. It was using, continuously.**

Our original white paper focused on a few concepts that at the time were considered edgy: microlearning, spaced-knowledge, and true ease-of-access to information. All are foundational concepts of what we do today. But we have since discovered something even more powerful: there's a way to use these principles to get people to apply what they have learned.

As we cross the threshold of delivering close to a million lessons per month, we can say we really didn't know what we'd started. From refugee camps in Sudan to hospitals in Washington to board rooms in San Francisco, we've seen through hundreds of engagements how learning leaders can have what they want: learners who enjoy learning, retain learning, apply learning, and get results with learning.

We're here to show you how.

Consider this a love letter to using what we've learned.

Ryan Laverty,
President & Co-Founder @ Arist

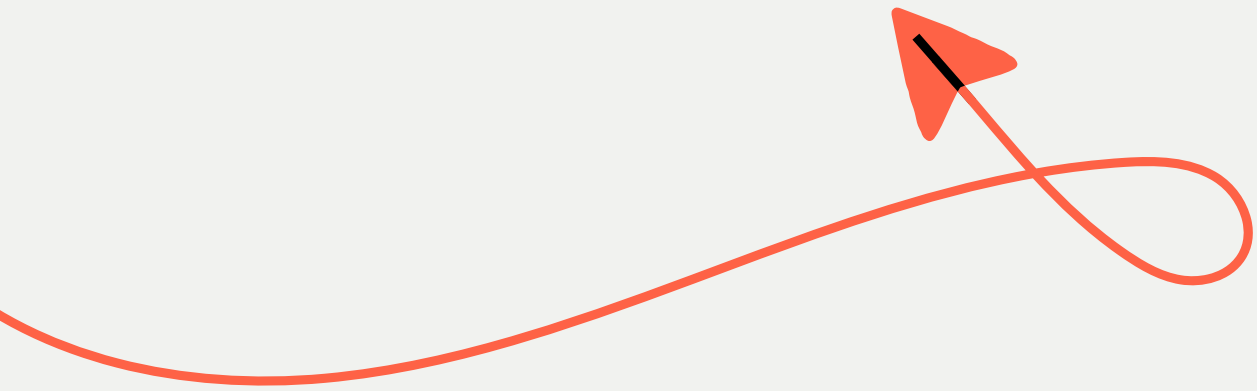
Abstract

It's been nearly three years since we released our last white paper. The landscape and importance of corporate learning has changed (a ton). We're working with over 15% of the Fortune 500 and learning from countless data points about what leads to increases in performance at organization scale.

These inputs have informed how we've built our microlearning platform and course model, as well as the internal research we've pursued. In this paper we'll outline both the largest issues we're seeing in learning initiatives, as well as research on the best ways to succeed in spite of these challenges.

In particular, this white paper will walk through the following topics:

1. The top barriers to Kirkpatrick Model reaction and how to avoid them
2. Why one-off trainings don't support Kirkpatrick Model retention and how we see continuous learning excelling
3. How the ability to perform an action, motivation, and nudges build real behavior change
4. How excelling at each step in the above topics feeds into organizational results



Blueprint for behavior change

Our messaging-tool-based learning platform began as a way to promote access to education. As we've honed our offerings and learned from many engagements, we've leaned into the notion that learning needs to meet learners where they are. Also, that minimizing friction is paramount to not only reaction, but retention, application, and organizational results.

In our experience, learning success looks like:

- Removal of frictions that stop learning teams at the first step of behavior change
- Continuous learning to aid reinforcement and opportunities to apply
- Pragmatic content that's immediately usable in the scale of information presented, topic choices, and delivery method
- Ability to increase learner touchpoints and outcome data to optimize delivery

We got to this point from continued conversations and engagements with learning teams at large organizations.

Minimizing friction is paramount not only to reaction, but retention, application, and organizational results.

From our early days we always prompted clients to think **"what are the few things I want everyone in my organization to do well?"** The answer is never AWS or SQL. It's empathy, planning, communication, customer-centricity, and leadership, among other skills.

Earlier generations of e-learning had success increasing access to hard skill training for specialists. Few organizations have the ability to deploy general development at scale. And this is what we help facilitate at Arist.

Learning for all vs learning for specialists

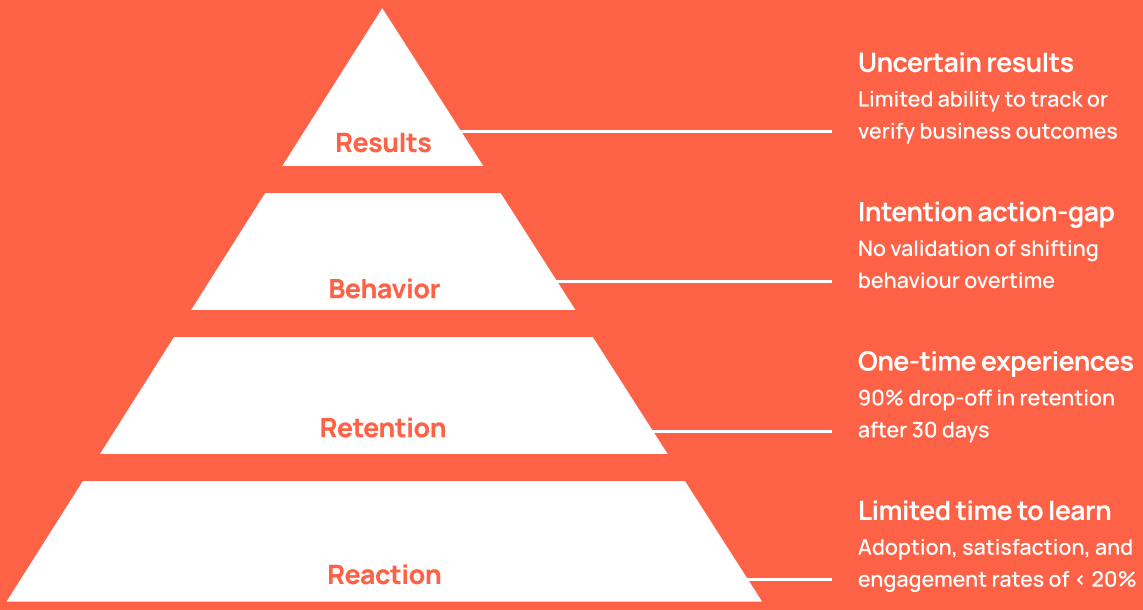
Learning for all Taking everyone in your organisation from 1 to 10 on a topic	Specialist learning Taking a handful of workers from 50 to 80 on a topic
Executive function	DevOps
Communication	Penetration testing
Inclusivity	Machine learning tooling
Experiment mindedness	Changing privacy laws
Leadership	Heavy machinery operation

Due to differences in how “learning for all” and “specialist learning” skills are best learned, we’ve built a platform, curriculum model, and template library based on first principles entirely distinct from much of the e-learning landscape of the last two decades.

Learning for all vs specialist learning methods

Learning for all Taking everyone in your organisation from 1 to 10 on a topic	Specialist learning Taking a handful of workers from 50 to 80 on a topic
Simple skills in many areas	Deep knowledge in one area
High need for transfer of context	Low need for transfer of context
Taught by “doing and reflection”	High-interaction, mentorship
Learning occurs in application context	Top down “sage on stage” accepted

Top issues for learning success by Kirkpatrick Model stage



We're the only microlearning platform that delivers learning natively in messaging apps with multiple delivery modalities with no learner app required. Compared to competing course models, we err strongly towards pragmatic information and prompts to apply learning immediately. These choices — and many others — are grounded in the focus areas we'll step readers of this white paper through, including:

- How to remove as many frictions as possible to get to learner **reaction**
- How to best embed learning and reinforcement in work to reach continued **retention**
- How to make our learning pragmatic and promote **behavior** with nudges
- How "learning for all" across an organization can drive non-learn **results**

We've repeatedly facilitated learning delivery and curriculum design choices that step learners quickly through levels of the Kirkpatrick Model. But it's worth keeping in mind that we aren't solving for one corporate education output, we're solving for organizational results built on behavior.

Reaching learners where they are

What are the largest barriers to reaction, and how do you avoid them? In the words of the New Kirkpatrick Model, “78% of training events measure Level 1 Reaction in some fashion. The current investment in gathering this type of data is far greater than the importance this level dictates” [1].

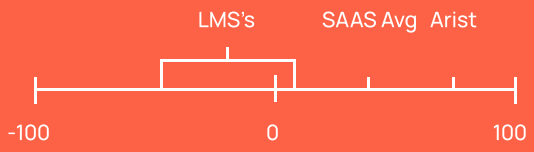
We regularly see two main issues when organizations have a strong focus on optimizing for reaction.

First, **measurement of reaction can come at the expense of measuring higher levels related to organizational impact**. Levels related to if people remembered, applied what they remembered, and used their new skills.

Secondly, **reaction isn’t even always positive**. Organizations tracking reaction metrics similar to “a learner logged in at least once in a month” are at risk of missing the more crucial questions of “when users react, is it positive?” And “is reaction feeding into higher levels of behavior change?”

A lacking positive reaction has been documented repeatedly for most major LMS’s. The net promoter scores (NPS’s) of major LMS’s range between -57 and 9 on a -100 to 100 scale [2][3].

Average net promoter scores



The Arist platform enables learning teams to reach average rates of >90% learner satisfaction by removing barriers to reaction. This level one success enables teams to focus on more impactful stages further up the model.

It’s worth noting that the average NPS for all SaaS products is 41, and it’s not until an NPS is at 20 or more that a product is viewed as ‘favorable’ [4].

Once you've managed to avoid the two pitfalls above, you can begin to optimize reaction in a way that supports higher levels of behavior change. Below we've outlined the main barriers to reaction as well as provided considerations on how your can avoid them.

Largest barriers to reaction

Largest barriers to reaction For the last twenty years, multimedia or video courses and in-person instruction have been the default standards for corporate education. Together, these learning methods compound all of the largest barriers to learner reaction: time, choice fatigue, poor usability, and the bulk of content being unusable.

Lack of time

Lack of time is the largest reported barrier to workplace development [5]. Activities that are extraneous to — but required to complete — learning are the major culprits within learning team control. The average number of clicks it takes a learner to reach LMS content is between 7 and 20. Travel is often required for in-person training (which has a higher relative cost now that many workers are remote).

"Short" workshops last anywhere between 45 minutes and 2 days [6]

Choice fatigue

Choice fatigue occurs when learners are provided with a large range of pieces of content , or even where a single learning resource presents many options for how to engage. **Hick's Law notes that "The time it takes to make a decision increases with the number and complexity of choices"** [7]. When learners are already starved for time, unnecessary choices compound friction.

While many learning teams have heralded "pull" learning delivery as a win for access to education, the lack of a "push" option in many learning scenarios additionally taxes learners through a need for self-direction and actions extraneous to learning itself.

Poor usability

Poor usability is one of the largest indicators of low learner engagement. In many learning exercises, poor usability begins with requiring learners to download and use a designated app, something 91% of learners dislike [8].

Information is also often many clicks away. Internal Arist research has found that an average of seven clicks are required for a learner to login and find learning in an LMS. A recent study on the perception of "long" and "short" information retrieval tasks — in which the "long" task comprised 7 clicks — **noted that a 7-click task was perceived as 50% more difficult than a task with fewer clicks** [9].

Most content is unusable

Very few learning exercises are optimized around attention span and working memory constraints [10]. **Miller's Law** dictates the the average human brain can hold seven (plus or minus two) pieces of information

[11] at a given time. This amount of information then needs time to become consolidated in longer-term memory.

Whether learning is usable is one of the largest indicators of learner engagement . Lessons and

learning activities that are beyond a handful of minutes often provide more content than is usable. Too much one-off information renders much of the information immediately unactionable

How Arist promotes reaction

The Arist platform and course model not only promote reaction, but positive reaction that can be built upon to reach higher levels of behavior change. At the heart of our design and curriculum choices is **pragmatism**, which can be summed up as the belief that there is much more learners should practice than that they need to know.

With all of this in mind, we see reaction-level success when:

- Learning is injected into contexts where learners already spend time
- There are minimal barriers to jumping into learning
- Learning moments are limited to <7 minutes and the volume of content sent is practical for this amount of time
- Content is pragmatic so information is meaningful

Creating time for learning

Arist lessons take between 5 and 7 minutes to complete. Unlike many learning initiatives, learning occurs in tools learners already utilize in as little as one click. In fact, learners check messaging tools an average of every 6 minutes throughout the day. Combined this drastically increases the likelihood that learners will engage with their learning.

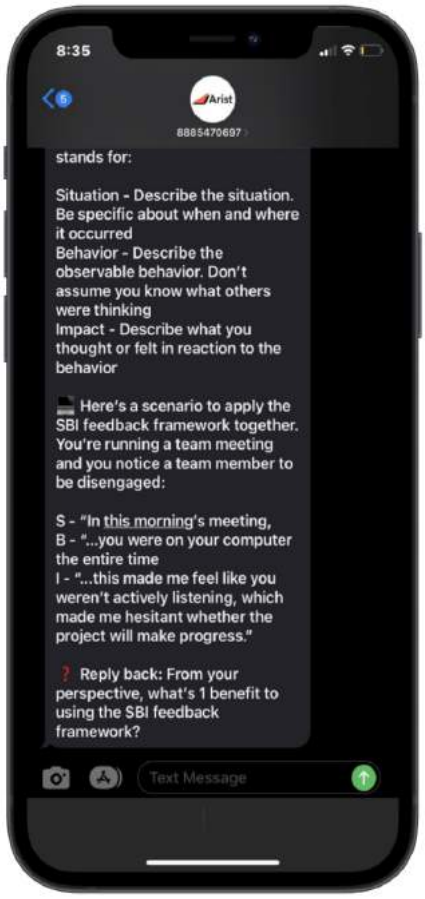
Minimizing friction is paramount not only to reaction, but retention, application, and organizational results.

Improving Learning platform usability

Arist learning begins with as little as one click directly within tools learners are already familiar with.

But usability is more than simply "can a user complete their task." Building delightful user experiences helps to build habits of use (and thus habits of behavior change).

Across 10,000's of polled learners, Arist has an average NPS of 79 on a -100 to 100 scale. 95% of lesson messages are opened within 3 minutes. And >85% of all lessons are completed, showing sustained reaction able to support more important levels of behavior change like retention, behavior change, and organizational impact.



Learner input on applied behavior within a sales methodology course

Usable content focus

Arist learning provides usable amounts of information in number of topics covered, the time we can expect learners to focus, and the practical nature of much of our lessons.

Most one-off educational training is simply too long to be practicable to any large degree. Miller's Law notes that the average human mind can process 7 (plus or minus 2) pieces of information. Selective sustained attention lasts for up to 15 minutes.

Content in Arist courses not only avoids information overload, but also promotes usability through prompts to use new material.

In a typical Arist lesson, learners are expected to spend roughly 50% of their time on application.

Combatting forgetfulness over time

In this section we'll dive into the second level of the Kirkpatrick Model, "learning." Common learning metrics include tracking whether a learner "knows" a piece of information or self reports

"I can do X right now." This is the extent to which many learning teams report they can effectively measure [1]. Even when learning is successful, a major issue for many learning teams is that learned information — even the intention to act — does not mean new learning will be applied.

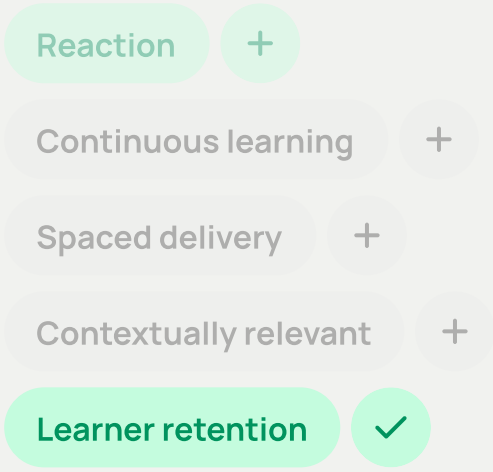
The intention-action gap is a phenomenon in which action never follows intention. This can occur for several reasons, including learning provided on a "one-off" basis as well as learning provided in a context too far removed from where application of new learning will occur [2][3].

Our research based best practices for creating retention that bridges intention and action include:

- Continuous learning to bypass the forgetting curve
- Presenting content that is usable at a time when it is useful
- Moving beyond "quizzes" using prompts to apply actions and reflect on outcomes in a variety of contexts

In this section we'll compare and contrast continuous learning with one-off engagements to show how the Arist platform enables learning that supports action and steps further up the Kirkpatrick Model.

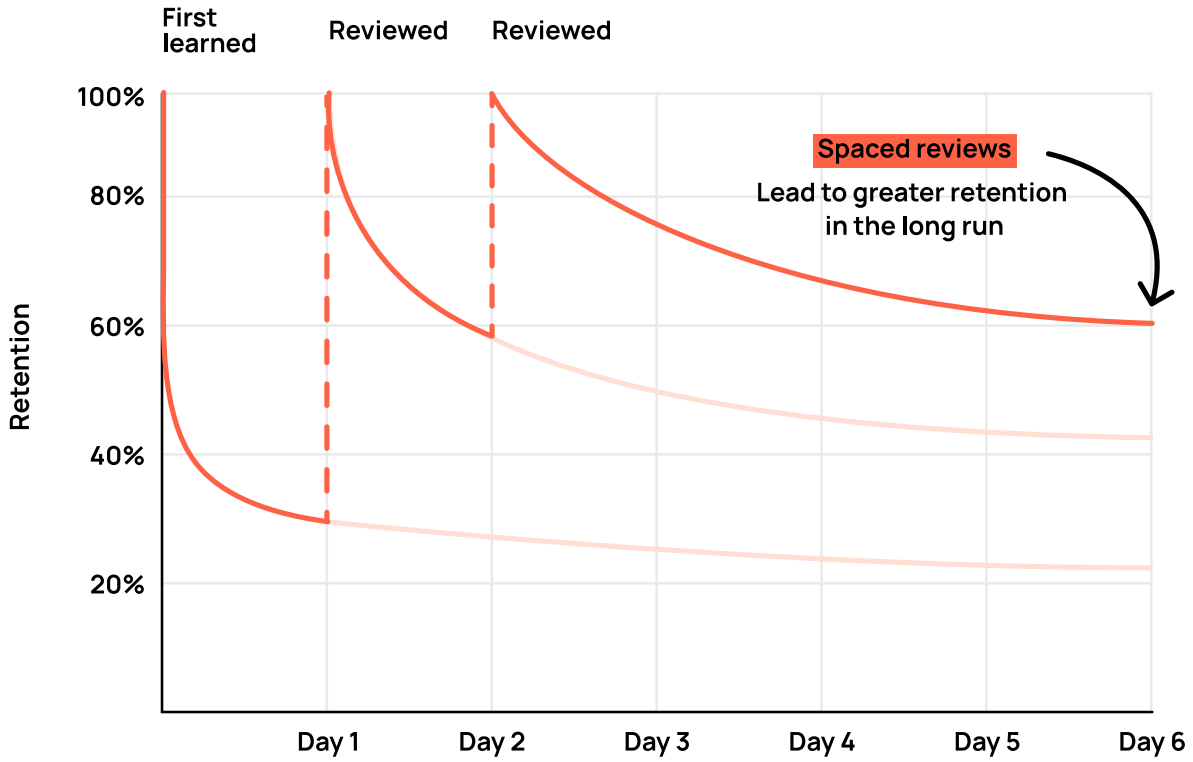
12% lift on medical exam scores all in 5-7 minutes a day.



The importance of repetition

Learners can't apply new knowledge if they can't remember it. And it turns out that without reinforcement, learners forget more than 70% of information from one-off trainings within 24 hours [5].

The Ebbinghauss Forgetting Curve



Did you know?

In 1885 Hermann Ebbinghauss noted "repetitions spaced in time tend to produce stronger memories than repetitions massed closer together in time" [6]. In the century since, the body of research around spaced repetition has grown to suggest specific reinforcement cadences for specific types of new knowledge.

The importance of context

Learning that is context-aware and that prompts application in a variety of settings has been shown to grow synaptic connections, improve self-efficacy in learning, and improve higher-order (strategic) thinking. In other words, learning that happens in the right context changes behavior [7][8].

The role that context plays in learning has long been studied, most notably in the contextual teaching and learning model (CTL). CTL "emphasizes the process of full involvement of [learners] to be able to find material that is learned and relate it to real life situations so as to encourage [learners] to be able to apply in their lives" [7].

Perhaps most notably, CTL emphasizes collaborative interaction between learners and prompts for learners to connect new learnings to a range of contexts in which they may be used [9].

Arist learning exists directly within the contexts in which work actions occur, nudging learners to try out new techniques repeatedly and in as many contexts as their messaging apps are. This supports continuous learning that combats the forgetting curve and is ready to be applied in a range of contexts.

Finally, learning needs to be context aware in the sense that it is not "one-size fits all." Our platform and ongoing research enable learning teams to make informed decisions on the best times to send and best content choices to be made in their unique focus, industry, and size

Saving lives with effective reinforcement

In 2021, the Arist partnered with the University of Washington School of Medicine in a novel study of the learning stage of the Kirkpatrick Model. In this study, OB/GYN medical residents — many of whom were already dealing with 80+ hour work weeks — needed to make time to study foundational concepts to begin their practice of medicine.

Of the 1,400 OB/GYN interns in the United States, 1,100 signed up for the messaging tool-based microlearning course. At the reaction level, 93% of participants described the process as 'extremely enjoyable.' With learning spaced out over 25 days, including initial lessons and feedback about responses, 82% of participants completed the course. The results: an average 12% lift on medical exam scores with more substantial gains for those who had performed more poorly prior to the course. All in minutes 5-7 minutes a day

Applying new information in work

For many, behavior change is the 'home run' of the Kirkpatrick Model. And few organizations are reliably leveraging change on this level [1]. At this stage we'll pick up where we left off in the learning stage to show how low friction, pragmatic curricula, and nudges to action help learners cross the intention-action gap.

You'll come away from this section with a notion of the most research-backed practices for reliable behavior change, and how the Arist platform is built to support these practices.

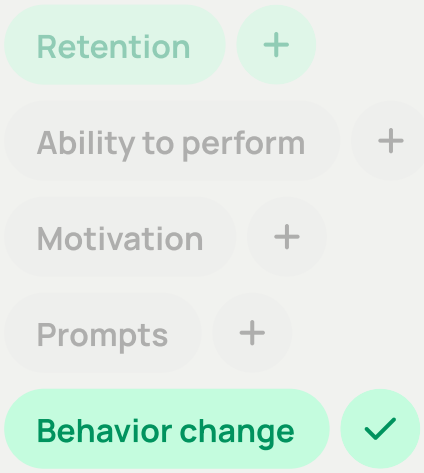
The Fogg Behavior Model

In the largest to-date review of scholarship around the intention-action gap, a handful of major barriers to reaching action from intention are highlighted including [2]:

- Differences in context between where intention is created and action is taken
- External factors like work culture and social contexts don't reinforce the new behavior
- Internal factors like existing habits, beliefs, or attitudes get in the way of change
- No clear prompt linking context x with desired action y
- There's insufficient or negative feedback about the action

The Fogg Behavior Model provides a more streamlined research-centered lens that largely agrees [3]. In this behavior model new behaviors occur when (1) the ability to perform an action, (2) motivation (including internal, external, and feedback-related factors above), and (3) prompts to perform the action coincide.

Motivation is finite. The more friction in the learning process, the less motivation is left over to actually change behavior.



What this means is that learners perform best when course delivery includes:

- The right content and nudges to instill knowledge of and confidence in ability to perform a task
- Prompts to reflect and wrangle with external factors effecting motivation
- Knowledge on why the action is important to promote motivation
- Prompts to apply new information repeatedly.

Building the ability to perform

Where other learning methods focus on an overabundance of new information, Arist content and delivery centers around providing the right amount of information to practice a given action.

Confidence in understanding how to apply an action begins in the learning stage of the Kirkpatrick Model.

In the event learners aren't self reporting enough (or good enough) application, nudges help to return focus to the action at hand before proceeding within a given course.

Together these choices lead to an average of more than 30% lift in perceived ability to perform a taught task across use cases and at scale

Motivation

Workplace advancement and skill development has transitioned from a "nice to have" to two of the top reasons for employee turnover [4].

Bridging the intention-action gap

The University of Pennsylvania Behavior Change for Good Initiative parternered with Walmart to conduct the largest-ever communication research study aimed at increasing flu vaccinations.

Recent studies by UPenn and Stanford have noted simple nudges to complete an action someone already intends to do can negate between one and two thirds of actions that would otherwise stall out before action.

If anything, this shows intrinsic learner motivation. But learning teams should remember that motivation is finite.

The more friction present in the learning process, the less motivation is left over to actually change behavior. Crafting delightful learning experiences is covered in great detail in our earlier section on the reaction stage of the Kirkpatrick Model. Additionally, the Arist course model directly alters motivation-contributing factors including habits, beliefs, and attitudes through our conversational prompts for reflection (more on this in the following case study).

Prompts

Prompts to apply an action help to combat existing habits, contextual differences, and cultural barriers to new behavior.

Some of the most studied prompt types are push notifications, which notably are a core component of each major messaging tool through which Arist delivers learning.

By pulling together support for the three components of the Fogg Behavior Model, Arist learning prompts reliable behavior change that builds off of the strengths of lower Kirkpatrick Model levels like retention and learning.

Driving organizational results with behavior change

Level four of the Kirkpatrick Model is the degree to which targeted business outcomes occur as the result of learning events and reinforcement. This seems clear enough. But in the words of the Intro to Kirkpatrick New World Model, **"level 4 holds the distinction of being the most misunderstood of the four levels"** [1]. Why is this?

Level 4 holds the distinction of being the most misunderstood of the four levels.

To quote again, "a common misapplication occurs when professionals or functional departments define results in terms of their small, individual area of the organization instead of globally for the entire company… resulting misalignment causes layers of dysfunction and waste." To clarify further, "every organization has just one Level 4 result." And it's related to the question of what the organization exists to do, deliver, or contribute.

For for-profit enterprise, **a level 4 result is some combination of their mission ("to bring X to the world") and profitability.**

Examples of common enterprise results include:

- Customer satisfaction
- Employee engagement
- Sales volume
- Cost containment
- Quality
- Market share

As enablement, L&D, operations, HR, and other business units run their own training that is highly specific, how can these constituent parts come together?

One of the most common ways we see clients reach level 4 with Arist starts with a question we've asked since our earliest days.

If you could teach a handful of things to your whole organization, what would they be?

Almost invariably, these are some collection of higher order thinking, leadership, and interpersonal skills. Sure you may need business analysts to gain more advanced knowledge of SQL. But no scaled organization needs everyone to know this. In fact, teaching everyone in an organization advanced analyst skills would almost assuredly be a negligent waste of resources, the opposite of success at level 4.

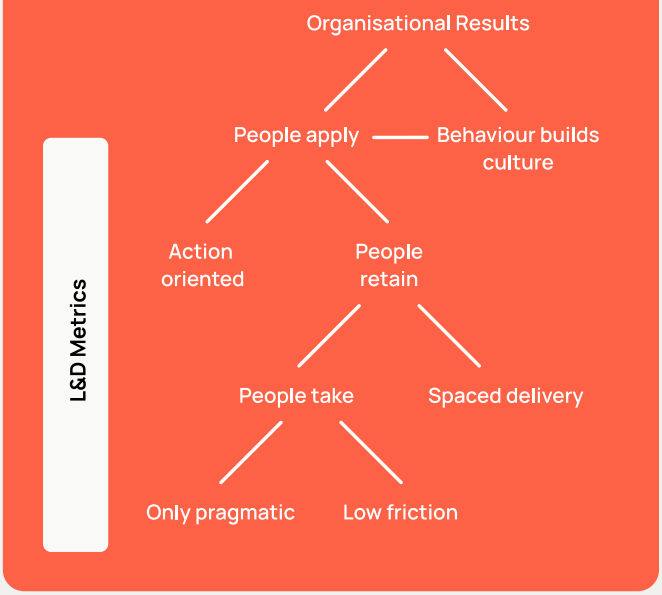
To put this another way, levels 1-3 provide learning-related outputs. These are outputs directly from the interactions between learners and L&D programming. Level 4 provides results from interactions between workers and the work they are tasked to do at scale.

For many learning teams, proof of impact is one of the largest hurdles. How do we show that a wide range of educational inputs led to specific change?

At Arist we do this by building off of each further level of the Kirkpatrick Model. To work backwards:

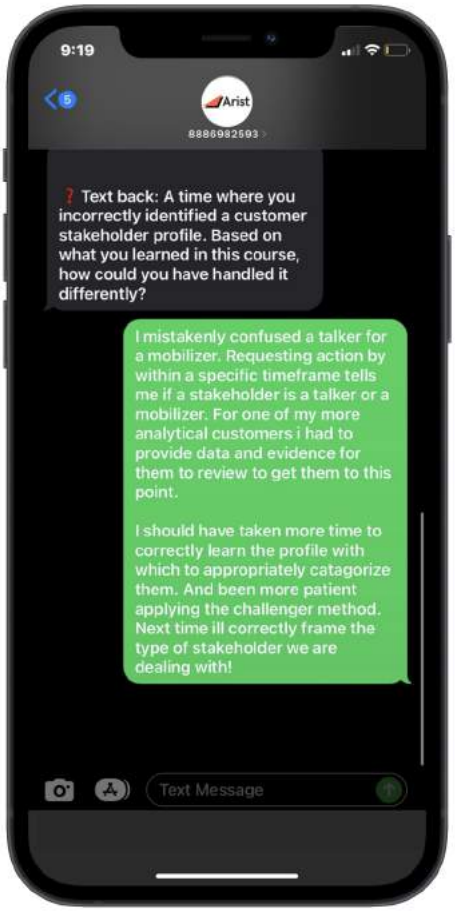
- Organizational results can't exist without workers applying knowledge correctly
- Learners can't apply knowledge correctly if they can't retain learning or if learning isn't action oriented

Building organization-wide results one application at a time



- Learners can't retain learning if they don't take learning or it's a one-off training
- Learners only repeatedly take learning if it's usable and the experience has minimal friction

By minimizing barriers and relying on the strengths of each earlier level of the Kirkpatrick Model, the Arist model provides all necessary prerequisites for impactful organization change. **With that done, the fourth level of the Kirkpatrick Model is a matter of simply getting to work.**



Learner input on applied behavior within a sales methodology course

How a leading healthcare multinational drove revenue with microlearning

A leading multinational healthcare company saw increased revenue and capacity of distributed sales team members in as little as 5 minutes a day.

Even though sales team members were globally distributed, the use of messaging-tool-based microlearning enabled all teams to stay engaged with the same material. Members of the global sales team rated their experience learning in this way 9.5/10. Sales leaders were provided with an actionable nearly-live view of team member confidence and ability to apply new sales methodologies and product knowledge. This information was critical not only for learning success, but for informing assignments.

Courses on the challenger sales method and product knowledge about new and upcoming medical products were much faster to update than higher fidelity learning mediums or in-person training. Prompts to apply information within the context of sales calls and then reflect about how application went, led to new behaviors. By the end of two micro courses, learners showed a 18.6% confidence lift in their newfound knowledge and skills. Tangible outcomes in sales settings drove organizational goals such as revenue-facing success in new product launches and meaningful conversations en masse.

Emerging maestro of behavior change?

Read more at arist.co

Reach out at sales@arist.co

Citations

Reaching learners where they are

[1] The New Kirkpatrick World Model
[2] Totera Learning LMS NPS Survey
[3] The Starr Conspiracy Corporate Learning Brand NPS Survey
[4] UserPilot SAAS NPS Benchmarks
[5] Forbes 'The number 1 reason employees say they've stopped learning'
[6] KU Community ToolBox L&D Techniques
[7] Hubspot 'What is Hick's Law and Why Does It Matter for UX?'
[8] Forbes '91% of us hate downloading apps'
[9] RescueTime 'Our research shows most workers can't go 6 minutes without checking email or IM'
[10] 'The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments'
[11] 'The magical number seven, plur or minus two: some limits on our capacity for processing information'

Combatting forgetfulness over time

[1] The New Kirkpatrick World Model
[2] 'Bridging the intention-behavior gap: the role of moral norm'
[3] 'Knowledge Retention after an Online Tutorial: a Randomized Educational Experiment among Resident Physicians'
[4] 'Corporate E-learning: Perceptions of Persistence and Satisfaction'
[5] 'Spacing Repetitions Over Long Timescale: A Review and a Reconsolidation Explanation'
[6] Über das Gedächtnis: Untersuchungen zur experimentellen Psychologie
[7] 'The Application of Contextual Teaching and Learning in Natural Science to Improve Student's HOTS and Self-efficacy'
[8] 'Contextual Teaching and Learning For Practicioners'
[9] 'The Effects of Educational Delivery Methods on Knowledge Retention'