

The Wetware of Project Management¹

Tobe Phillips

Summary

Project management is typically an exercise in guiding a group of individuals to completion of objectives. Each individual involved in the project brings a unique skill set or perspective a PM actively works to merge into a coherent approach toward the desired end state. While each project participant brings unique facets into play, we also possess general traits and patterns of behavior. Research in fields like psychology, neurology and behavioral economics shed light onto these patterns. These predispositions we possess to varying degrees can be based on the operations of our brain – our wetware. Understanding trends, or limitations, of our mental operations and behaviors equips a project manager to better ensure project success, as enhanced understanding of human behavior enables the crafting of approaches best suited to the project team. This paper highlights research findings in human behavior that, when practically applied into every day projects, could enhance project manager effectiveness.

Introduction

It's been said project management methodology is the accumulation of thousands of years of getting things wrong, and doing the opposite on the next project. And since the creation of pyramids, humans have been involved in those projects. We all participate in projects of some variety, whether in work, civic, or personal environments. For this reason, a case could be made that our project methodology is a massive, longitudinal effort to harness and unite the efforts of project participants to ensure a positive impact on projects. Operating under this presumption, it follows that an increased understanding of people, and in particular trends in our behaviors, should improve the frequency of project success. This knowledge should help reinforce those aspects of project management we do well now, help us to avoid common pitfalls, and potentially suggest novel methodologies.

While this paper speaks of projects methodology broadly, we all individually fall along some continuum of project management maturity in our personal practice and within our organizations. At one end is strong maturity – well defined scopes, tight governance, and ready access to stakeholders, for instance. At the other end is weak maturity – poorly conceived

¹ *Second Editions are previously published papers that have continued relevance in today's project management world, or which were originally published in conference proceedings or in a language other than English. Original publication acknowledged; authors retain copyright. This paper was originally presented at the 9th [Annual University of Texas at Dallas Project Management Symposium](#) in August 2015. It is republished here with the permission of the authors and conference organizers.*

timelines, lack of risk assessment and inadequate demand management. For those with strong project maturity, it is likely positively impacted by some combination of your personal effort, the support of leadership, and an organizational context conducive to project management. You work at it, you focus on it, you are always looking for new information and tips. For those at the end of lesser project maturity, you likely know where you want to be and probably even how to get there, but life (and maybe your organizational culture.....or leadership.....or.....?) intervenes. Most of us fall somewhere between the two ends and, no matter you lie on that spectrum, you are not alone. An enhanced understanding of the human impact on projects should enable a more mature approach to projects.

The science of human behavior – whether couched in terms psychological, economical or neurological – continues to grow. We know increasingly more about how we are built and wired at the level of our brain, and how this influences our manifest behaviors. Thus the driving question for this paper: How do our behaviors reflect the makeup of our brain and how can we address our ingrained abilities and predispositions to reinforce best practices, make better project decisions and avoid common mistakes?

This paper highlights the practical impacts of human behavior on project management in terms of:

- 1 key principle
- 3 properties of our brain
- 4 patterns of thought and their subsequent behaviors

1 Key Principle – Project Management is People Management

The introduction above pleads the case for this principle. Careful consideration of scope, time and cost are the foundations of project success. But these facets of a project are ultimately just tools for communicating with the project team. They are methods for aligning behaviors towards a shared goal, at a shared moment in time, with a shared pool of resources. It is the people who power the work being accomplished and people the project manager should ensure remain an area of focus throughout the project. It is only natural to concentrate on the more material aspects of a project like the schedule, budget and deliverables. The potential error here is in focusing exclusively on those aspects of the project while ignoring the people factors. A healthy balance of people consideration with methodology consideration is of benefit to project success.

Application 1

Ensure a regular focus or check-up with the end users of your methodology. Ask which tools or processes they are most likely to use, or which ones are adding value within a given project. Don't let a perfect methodology be the enemy of effective projects by concentrating all your

efforts on the plan or scope. By focusing on the people, you remain engaged with the ultimate engine of project success.

3 Properties of our Brain

So what does it mean to ensure a focus on people in your projects? Let's discuss three properties of your brain that could be applied onto how you engage with project participants, to help positively influence project success.

Auto-pilot vs. Focus

The brain is not designed to remain attentive and focused on a static stimuli for extended periods of time. In fact, such circumstances yield diminishing returns over time. That should not come as too big of a surprise to anyone who has ever sat through a presentation longer than 10 minutes. Our minds tend to lose focus unless the item of attention has a higher than average level of impact or interest to us.

This is partly because the brain actively works to ignore extraneous information. This is, in fact, a type of self-preservation. If the brain asked us to pay attention to everything, all the time, we would be unable to focus on needed tasks. To this end, our brains employ numerous tricks to get us through the day most efficiently and with the least mental & physical effort possible. As a result, it can take some very salient stimuli to get our attention. In the interim, the brain is humming along, trying to maintain homeostasis. Think of homeostasis as a calm, smooth, consistent pattern of operation interrupted only when absolutely necessary (for example, when a new opportunity arises or to kick in the 'fight or flight' response).

This is why we can experience "lost time" when driving, tend to tune out extraneous or repetitive sensory stimuli like the noise of an air conditioner, and are not actively *noticing our pants* right now. Our brains want to ensure we are ready for when its full attention is needed for some significant threat or opportunity. In the interim, it wants to conserve energy. Basically, if something isn't actively grabbing our attention, our attention can tend to wander away.

Application 2

A good project manager tends to love a good process. This can lead to using a favorite process repeatedly. However, repetitive project updates or processes can cause the brains of your stakeholders to turn off, quite literally. Ensure you are finding ways to elicit attention – through varied presentation approaches, involvement of stakeholders in the conversation (a good project manager is typically also a good meeting facilitator), or novel methods for displaying the project data. While establishing consistency in overall approach is conducive to

aligning your project team, in-the-moment interactions or presentations could benefit from energy or novelty to improve levels of attention.

System 1 (Automatic) vs. System 2 (Reflective) Thinking

Part of the reason our brain works to ignore non-essential information is that attention, or any form of thinking for that matter, takes energy. Our brain wants to conserve energy for when we might need it, and so as a result seems to have adapted two primary ways of thinking.

- System 1 (Automatic): Fast, unconscious, intuitive, ‘gut emotion’ oldest part of the brain, a function of conditioning over time.
- System 2 (Reflective): Conscious, intentional, deliberate, analytical, logical

Both systems are good and helpful, and work best when in balance. However, System 2 takes more energy than System 1, and so our brain looks for opportunities to use System 1 – sometimes to our benefit and sometimes not so much.

If we had to use System 2 processes for everything, and provide intense focus on all our activities, we wouldn’t get anything done – thus the term paralysis by analysis. System 1 are those things we do from muscle memory and are the behaviors and functions we can do “without thinking,” though our brain is still involved. This can be of benefit to us in that these behaviors tend to be learned over time. It is a way for our brains to guide our behaviors based on past experiences, while minimizing energy expenditure. However, our System 1 thinking can lead to some quick decisions, or mental short-cuts called heuristics, which we should sometimes be wary of as they are made in an attempt to not have to expend energy and not necessarily in an attempt to make the best decision.

For example, quickly answer this question. “A ball and a bat added together cost \$1.10. The bat costs \$1.00 more than the ball. How much does the ball cost?”

If you are like the majority of individuals seeing this question for the first time, you answered \$0.10. But look at the question more carefully and you’ll see the answer should in fact be \$0.05. So what happened there? Primed (we’ll talk about this later in the paper) by the words ‘quickly’ and ‘added’ in the question, your brain made a System 1 type of decision based upon a few key data elements and with little conscious or intentional thought. If I had instead asked “Carefully consider the following question and work out the math on paper before responding. A ball and a bat....,” your answer would likely have been much different. It would have taken longer and expended more energy, but ended in a more accurate response.

The goal is to achieve a balance of decision-making that uses both our learned gut responses to situations along with a more intentional approach to assessment. Most project managers

naturally lean toward use of System 2 types of meetings – careful consideration of a timeline or scope, for example. The opportunity lies in pulling for System 1 thoughts also, as they can reflect lifelong experiences we’ve embedded within our brains.

Application 3

Try varying your project meeting times or time boxing particular topics in a project meeting. Set aside space and time for intentional System 2 thought and analysis, and then create shorter times for quick responses intended to elicit System 1 types of thinking. Creating a sense of urgency through artificial time limits can elicit responses that might differ from more intentional thought. Neither type of thinking is good or bad – both add value to our lives and can add value to our projects, as well.

Seeking Balance

Speaking of balance in cognitive approach, let’s discuss how different parts of the brain influence aspects of our decision making, particularly rational versus emotional types of decisions. In general, rational thought is centered in your prefrontal cortex. This is the areas behind your forehead. Emotional thought is influenced primarily by the limbic system (your amygdala and related areas) in the interior portion of your brain.

Our brain systems are in constant communication with each other, and which part “wins” in a decision can influence our choices. We tend to associate poor decisions with emotional choices, as the emotional parts of our brain can sometimes overwhelm our rational portions. Think of it as not being able to have blood traveling to both the amygdala and frontal cortex at the same time – and so we can sometimes make an emotional decision versus a thoughtful decision. Thus phrases like “I wasn’t thinking” or “I lost my head.”

However, emotional decision making is not all bad. The emotional part of the brain’s job is to protect us by comparing incoming data with emotional memories. Emotionally based decisions can have positive effects and are key to decision making. However, over-activity in this area can lead to responses outpacing the level of reaction needed to meet the given situation because it has triggered emotion rather than reason, in which case the amygdala overtakes the frontal cortex (the thinking part of the brain).

Emotional decisions are best when there are consistent patterns you can compare to, as they then serve as a type of intuition, or the recognition of patterns stored in memory. This can be a good partner to rational thought patterns, as overthinking to the point of inaction can be detrimental to a project. Sometimes, our feelings are trying to tell us something.

Application 4

Intentionally ask questions about how stakeholders ‘feel’ about a project. This can be an excellent way to sum up a project meeting heavy on cognitive analysis. The goal is to ask participants to step back and look at the work from a different (emotional) perspective. Past experience may manifest itself as a gut feeling response to a project facet that bears further exploration.

Brain Pattern 1 – Inertia

As mentioned earlier, our minds are designed to help our bodies achieve homeostasis. In a perfect world, we would move through life in a straight line, staying healthy and free from risk. This is part of the reason we tune out unnecessary stimuli or default to auto-pilot when possible. Our mind wants us to conserve energy for when we might actually need it.

This can turn into a form of inertia, in that we can become generally wary of change. We are in some ways a behavioral manifestation of Newton’s physical laws in that, once we are on a given path of behavior, it can be hard to move us off of this. We tend to eat at the same restaurants or have trouble breaking habits. This has also been referred to as a ‘Status Quo Effect.’ We are inclined to keep things as they are. Marketers use this a lot. It’s why automatic renewals and trial periods are so successful – once the hook is in we find it hard to remove.

In a project this can manifest itself as a lack of willingness to challenge prevailing notions or a current course of action. You’ve likely been part of a project you believed was heading towards trouble, but may have had trouble building consensus around that risk or concern. It can appear to participants that the level of energy needed to address the concern is greater than the potential risk. This is a form of our inertia proclivity kicking in. Unfortunately, as a project increases in certainty or proximity to implementation and completion, it can become even more challenging to break inertia.

Application 5

This is a good example of where strong project methodology is reinforced by our enhanced understanding. Namely, we have risk assessment. So, periodically try to break the project. If you are conducting rigorous risk assessment, then you are doing this now. If not, consider starting with simple questions of “what could go wrong,” “what is going wrong right now,” or “what could be done to make this project more successful?” The goal is to challenge the current forward behavioral inertia of the project and ensure its current path is optimal. Build in an expectation of this practice from the beginning of the project to help elicit this behavior throughout the project lifespan.

Brain Pattern 2 – Framing

Words are powerful, and the framing effect is one way to elicit that power. Let's start with a small experiment: which of the following statements sounds better to you?

Statement 1: 90 out of 100 students passed the test.

Statement 2: 10 out of 100 students failed the test.

We react differently to those two statements, even though the content is identical. Test this effect another way. Try reading Statement 1 in a sad voice. Then try reading Statement 2 in a happy voice. It doesn't feel natural, does it? It probably even elicited a smile or laugh from you due to how absurd it sounds.

Framing is so powerful, in fact, that wording can influence your physiological reactions. In one study, cleaning personnel in hotels were informed that the considerable exercise they got every day conducting their jobs (pushing heavy carts, walking between rooms, moving items around, bending and pulling) satisfied government guidelines for living an active lifestyle. As a result, those who were told this fact lost more weight and body fat over a period of time than control subjects not given this message.

How something is framed, or presented, influences our behaviors towards it. How we view, perceive and name the components of our project can influence how we behave towards it. This is why you've likely had conversations about whether to call your internal stakeholders by the title of 'customers' or 'partner.' A slight change in wording can impact how you treat those individuals, what you believe your outputs to them are, and the dynamic that is engendered with them.

You are probably doing a version of this now, if you use any type of "red/yellow/green" project status reporting. You are framing up a project by its color coding, which typically indicates its level of health or risk to lack of completion. Many times, framing can be thought of as a form of expectation setting.

Application 6

Take the time to carefully consider the titles of the roles given on a project team, along with careful definitions of those roles. It is easy to assume participants know what their role is and the expectations of that role, particularly when working with participants you've had multiple experiences with. Intentional time during project initiation to clearly define expectations will pay dividends throughout the project by proactively managing expectations of behaviors. If the scope of a project suggests it to be appropriate, consider having participants sign their

agreements to a document outlining their role. Commitment to engage in a behavior is a positive predictor of that behavior occurring.

Brain Pattern 3 – Priming

While framing is about the words used in messaging, and sometimes about the order they are used in, priming (broadly speaking) is about the numerous other cues, both subtle and direct, that can influence our behavior. Priming is one way the automatic processes in your brain invoke subtle influences by increasing the ease with which information comes to mind through exposure to similar or related stimuli, thereby influencing behavior.

For example, the smell of popcorn can put you in the mood to see a movie. Retailers tend to make their shops colder when they put winter clothes on sale. And there is a reason subliminal messaging is now illegal, as even messaging or pictures displayed below your conscious level of awareness can influence your behavior.

Architecture is another example of priming. How a building is built and decorated can influence your presumption of appropriate behavior. In recent years hospitals made a concerted effort to be designed and decorated to feel more like a hotel or professional business, versus a more sterile feeling medical facility. This conveyed a message to both the patients entering on what to expect, as well as the employees of the hospital on anticipated behavior and treatment of the patients.

As an example of how subtly this can work, consider this experiment. Participants were asked to read a list of words that included items related to old age like 'gray,' 'wrinkled,' and 'Florida.' Participants who read these words were found to walk more slowly to the building elevator and the conclusion of the experiment than a control group who did not read the age-related items.

What we surround ourselves with influences where we focus or what we most readily can call to mind when making decisions. What is most readily available mentally influences our actions. To do lists are a very direct example of this – a quick and visible reminder to help keep focused on a key activity to complete. But the effects of priming, as you see above, can be subtle to the point of not being noticed yet still influence our actions.

Application 7

Visualize project success at more than just a data-driven level. During project initiation, discuss with the team what project success would look like. While this is a good time to think about metrics for project success to track throughout its progress, also consider asking participants to discuss the benefits of project success. What will their personal work look like if successful? How will the company benefit or be improved? Capture these words, images, metrics or

feelings and incorporate them into project meetings and conversations. Surround yourselves with reminders of success and behavior will bend in that direction.

Brain Pattern 4 – Anchoring

The anchoring effect is when a starting number or position effects subsequent decisions or responses. We tend to give some level of priority to a first estimate, offer, or price. This can have a positive or negative impact on your decision, depending upon how that starting point is derived. Clothing stores are particularly good at using this to influence our decision through the use of “sales.” By putting a high price on clothing, they create a perception of high value. When they then put that clothing on sale the updated price seems low in comparison – even though the actual price might be higher than you would normally spend.

There are innumerable studies on this effect. For example, in one study participants were asked to guess the percentage of African nations which were members of the United Nations. Participants who were first asked “Was it more or less than 10%” guessed lower values than those who were asked if it was more or less than 65%. Other studies have shown that by simply writing down the last two digits of a social security number, participants’ estimates on the cost of an item varied. Those participants with higher numbers written down provided higher estimates than those with lower numbers written down. Simply by writing down a completely non-relevant number, our behaviors were skewed in one direction or another.

So where we start on a decision can influence where we end. Therefore it becomes important to ensure a range of data are considered when making a decision, or that estimates are based on a rationale relevant to your current situation. Don’t let the first answer or estimate stand on its own. Challenge it or look for validation.

Application 8

Base time or cost estimates on previously successful projects and adjust from there. Use your experience or the experience of your project team to ensure time and cost are not unduly influenced by a single participant or data point.

Human behavior and project management

Our projects (and our lives) are the results of the accumulation of thousands of small decisions we make every day that influence our behaviors. How did the project fail? Very gradually and then very suddenly! But if we adhere to a principle of project management as people management, we are more likely to address those factors, sometimes small and hidden, that can accumulate over time to derail a project from its end location of success. Conversely,

harnessing an understanding of how we think, and therefore behave, can increase the probability of project success.

Human behavior is a tricky area to study. Fields centered here will look for trends or patterns, but should try to be wary of speaking in absolutes. Findings can be contradictory and are typically laden with caveats on the limitations of the research or its ability to be generalized beyond the specific group involved in the study. This is a foundation of good science, particularly in fields dealing with human behavior like psychology and economics.

That said, we do observe patterns in our activities, and our ever-expanding understanding of human behavior continues to enhance what we know and which patterns we can see. There remains great utility in examining our activities and the outcomes of research or practical experience. Research marches ever forward, continually refining (and sometimes completely revising) what we hold to be true or probable.

The examples in this paper are far from exhaustive, and are offered as a rough sampling of what we know about how we behave. This sampling is intended to provide insight useful to project management, but applicable across a range of activities. For those principles, properties and patterns that ring true to your experience with project management, test their applicability with your specific situation. Keep those that find purchase or add value, and refine (or eliminate) those that do not.

About the Author



Tobe Phillips, PMP, PhD, MS, SPHR

Director, Office of the CIO
Baylor Scott & White Health Care System Information Services
Texas, USA



Tobe Phillips serves as Director of the Office of the CIO, where he oversees the standardized approach to IS human factor initiatives and management approaches, including organizational change management, performance monitoring, communications, and administration. Previous roles at BSWH include Director of the Program Management Office and Strategic Initiatives for Baylor's Information Services Department and Manager of Project Management for Baylor's Electronic Health Record initiative, Manager of Training and Communications in the Office of Clinical Transformation, and HR consulting. Prior to this position he was employed in both private and public-sector initiatives where he used his extensive change management and project management experience to develop and implement process improvement initiatives.

Tobe received his Master's degree in Clinical Psychology from Abilene Christian University and his PhD in Industrial-Organizational Psychology from the University of North Texas. He holds also maintains his Senior Professional in Human Resources and Project Management Professional certifications.

Tobe can be contacted at Tobe.Phillips@baylorhealth.edu