

Double Loop Learning: A Powerful Force for Organizational Excellence

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Abstract

Double loop learning is built into many Agile processes and is the objective of the lessons learned process prescribed by the Project Management Institute Project Management Body of Knowledge. In Agile, the purpose of retrospection at the end of an iteration or sprint is for the team to inspect its work processes in the last cycle and learn where they can do things differently in the next sprint. This helps them position themselves to deliver more, faster and/or with higher quality.

In traditional project management, the lessons learned process is designed to provide a basis for organizational learning specifically with regard to completing similar projects in the future. Within the human condition, double loop learning occurs whenever an individual changes her mental model, or understanding of how things work or how the world is, based on past experience or education (which includes self-education, such as reading or experimenting) and goes on to apply the new model in the future.

In life—its how we grow and become better, happier, more genuinely successful people.

This paper:

- Describes double loop learning and the theory it is based on.
- Helps the audience become alert to mental models in their environments.
- Introduces Positive Psychology concepts.
- Shows how Positive Psychology and double loop learning can be paired to deliver organizational learning.

Biography

Jean Richardson is experienced in Agile methods, adaptive and predictive project management, writing, training, public speaking, and requirements and business analysis. Her background includes thirteen years' experience as a court-based mediator. She brings strongly committed to her practice as healing work. She has a no-nonsense approach to the exigencies of business, and her orientation to work as path and the workplace as a context for character formation combined with her skills in encountering difficult situations result in a wide array of creative consulting approaches to solve frequently encountered problems.

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1 Introduction

All organizations have to wrestle with the challenges of decision latency and decision quality. Decision latency is the amount of time between the moment a need for a decision is identified and the moment the decision is made. Decision quality is the suitability of the decision to the problem to be solved. Double loop learning helps organizations diminish or limit decision latency and improve decision quality through deep iterative learning from everyday work situations.

Double loop learning is built into many Agile processes, and it is the objective of the lessons learned process prescribed by the Project Management Institute Project Management Body of Knowledge. In Agile, the purpose of retrospection at the end of an iteration or sprint is for the team to inspect its work processes in the last cycle and learn where they can do things differently in the next sprint. This helps them position themselves to deliver more, faster and/or with higher quality.

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In life—double loop learning is how we grow and become better, happier, more genuinely successful people.

Fostering this kind of learning results in continuous improvement at the individual *and* organizational level. And, it's not easy. The organizational learning theory that double loop learning theory is based on is clear and uncompromising. It sets a high, almost superhuman standard of reflexive thinking, candor, and commitment to personal and organizational change. Most organizations, and, arguably, most individuals, fail to learn from their mistakes. Yet, double loop learning remains a remarkably rich means of improving our circumstances—and our profitability.

What's missing? Why can't we learn our lessons?

Recently, a new field of Positive Psychology has emerged and promises not only to help already reasonably happy people thrive but also to provide a way of setting an organizational context that facilitates the exigencies of double loop learning in organizations.

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2 Organizational Learning Theory

Christopher Argyris and Donald Schon first proposed a model for organizational learning in 1978 in their book *Organizational Learning: A Theory of Action Perspective*. Argyris extended this work over the course of his lifetime as a business theorist and professor at Harvard Business School. He brought several useful and related concepts to business leaders over the years including:

- Skilled Incompetence, whereby sophisticated skills are inculcated in professionals such that those skills serve to perpetuate incompetence in communication and group decision making.
- Organizational defensive routines which are organizational cultural patterns that prevent professionals from confronting failure, experiencing embarrassment about falling short of the mark, and learning from that failure.
- Double loop learning which is a specific sort of learning that goes beyond error correction and works to identify and correct mental models which underlie the thinking patterns and actions that result in errors.

2.1 Double Loop Learning

Argyris coined the term “double loop learning” to distinguish it from single loop learning, which is mere correction of error when it is encountered. The advantage of double loop learning is that it can prevent errors in the future—before they occur.



Figure 1 Illustration of Double Loop Learning

As shown in Figure 1, double loop learning consists of two loops, the example above being one of the simplest illustrations readily available. Single loop learning is shown in the top loop—take action, notice feedback, notice the gap between where you are and where you want to be (which constitutes the error), make a decision (which constitutes the fixing of the error), and start the loop again. Single loop learning tends to result in generating strategies and checklists to identify and fix the error more quickly the next time it occurs. Double loop learning adds the lower loop which is initiated at the “notice feedback” phase of single loop learning. At that point, the learner drops down into a reflective or reflexive mode that helps support the identification of mental models that may have motivated the actions that resulted in the error. This loop does not bypass the gap analysis but incorporates it into the reflexive evaluation of mental models.

For example, Team A has external dependencies on Team B. Team B is required by the organization to use a ticketing system to prioritize and track their work. Team A on their planning day dutifully plans their

work for a sprint and logs all the tickets they need Team B to complete by the end of the sprint. The next to last day of the sprint arrives and Team A is in a panic because almost none of their requests have been fulfilled. They are very angry with Team B and escalate to management that Team B is blocking their work and that Team A will therefore fail in this sprint. Management immediately investigates and finds that all tickets of a certain uncommon category, which is where Team A's work exists, are being lost by the ticketing system.

Upon reflection, Team A realizes that their mental model said "The ticketing system is the system of record. All work logged there can be expected to be done as requested by the requested date." It did not occur to them that the ticketing system could fail, and that they had the option of walking over and talking to or calling Team B on the phone early in the sprint when they noticed the work was not being started. The lesson for Team A is that next time it appears that an external dependency is not being satisfied as expected, they need to be sure someone follows up in person to verify the target team is aware of the work and is able to get it done as requested. A second mental model that may be motivating how Team A handled their external dependency is that management is more likely to be able to sort out a situation outside of their team than any one on their team is.

2.2 Mental Models

Mental models are all around us. They are layered beliefs, assumptions, and structures that we carry around in our heads which help us make sense of the world and navigate it. They can become outdated, be wrong or unhelpful from their inception, or simply be less useful or desirable than other alternative models.

For instance, there was a time when a book was contained in a scroll comprised of animal skin and stored in a stone jar. Over the centuries, our mental model of a book has progressed from something hand written on compressed sheets of wood pulp and sewn together in pages by hand, to stacks of such pages sewn together between wooden boards. Eventually mass produced printed and glued "paperbacks" came into existence. They have been superseded by ephemeral digital representations of type displayed on screens and audio recordings contained on silicon discs. Sometimes now when we refer to a "book" we are actually referring to a digital file uploaded to a device that may be smaller than our forefinger and fit in our ear. All are books, but the mental model of a book has changed drastically over time.

Imagine Thomas Jefferson, who was a great lover of books, being introduced to the electronic images and audio files that comprise books today. He would likely experience tremendous cognitive dissonance and feel a great sense of loss for a period of time as he tried to grapple with the new mental model—no matter how much more efficient it may be to search, annotate, replicate, and share electronic books. Maybe you know someone who went through something similar if they made the leap from music recorded on vinyl to music downloaded as MP3 files and playable through many kinds of devices.

Our mental models can be quite intractable and affect our perception of how things *are*. It can be quite challenging to envision how things *ought to be* and even more difficult to envision how *we* ought to be and then to make that beneficial change to prevent an error in the future. As, for instance, Team A, above, is faced with doing. Their best course of action may be to resort to basic, real time, person to person communication about needs, desires, and technical implementation alternatives rather than feeding a request into a computer system and having that request delivered without interacting with the person doing the work at the other end of the request.

Several years ago I received a real shock while working in an organization where almost the entire population wore headsets all day long and only sat in their cubes and talked to each other in teleconferences, whether the person they were talking to was two cubes down or on the other side of the planet. After receiving a hostile response from someone I had walked down the hall to talk to, I was advised by a colleague that walking down the hall to talk to someone face to face generally indicated a desire to complain or escalate a conflict. The culture had evolved such that face-to-face communication

was only used for escalations. Its important to be aware of the mental models both you and the organization are operating from!

2.3 Challenges of Double Loop Learning

Argyris's work is virtually unassailable. His thinking is clear and uncompromising. His analysis and description of organizational defensive routines and the desire to avoid embarrassment that motivates them, the cultural structures that make it difficult if not impossible to talk about certain kinds of problems, and the necessity of confronting mental models in order to be a truly proactive and productive knowledge worker is both helpful and accurate. However, it is also daunting and exhausting. On any given day, we could notice several—even dozens—of mental models that could be helpfully changed in order to create a more productive and humane workplace. However, our very human psychology can only confront and make so many changes at a time—usually only two or three. And the emotional work of noticing the gap, searching for the mental model, potentially the “fault” in ourselves, and correcting it takes a great deal of energy and courage.

Because of this, most people quickly give up. They don't have enough energy—or courage. It takes a great deal of energy and courage just to enter the workplace and face the day for some people.

However, we must begin somewhere if we want happier work lives and better functioning, organizations that are more productive. Fortunately, Martin Seligman had a similar idea.

3 Positive Psychology

In a YouTube video recorded in July of 2013, Seligman talks about being “media trained” while he was president of the American Psychological Association. Part of their strategy was to help him speak in sound bites. They asked him to respond in one word to the question “What is the state of psychology today?” His response was “Good.” They felt this was an insufficient response, so they asked him to respond in two words. His response was “Not good.” Wanting a little more information they allowed him three words, and then his response was “Not good enough.”

Until the emergence of positive psychology in 1998 when Martin Seligman chose it as the theme for his term as president of the American Psychological Association, psychology focused on fixing broken people, and, as Seligman puts it in his Ted talk, “the disease model.” Positive psychology focuses on helping people who are already reasonably happy and functioning well to be happier and thrive. First the field developed authentic happiness theory and then, finding shortcomings in that theory, developed well-being theory.

3.1 Authentic Happiness Theory

Authentic Happiness theory looks at what makes us happy in a long term and stable fashion—not the temporary good feeling we get from a new car, a fat raise, or a new puppy. In fact, that kind of happiness tends to be quite transitory, and then we re-stabilize around a new level of dissatisfaction if this is the only kind of happiness we pursue. This kind of happiness is not durable. Authentic Happiness is composed of:

- Positive emotion
- Engagement
- Meaning

Of these three, positive emotion supplies the least durable happiness. So, for instance, if writing really good code is deeply engaging for you (helps you move to a flow state) and the products you create or even the code itself imbue your life with meaning—and you get to write code for a living, you are more likely to be authentically happy than someone who gets a series of frequent small raises or a new car on an annual basis but who doesn't experience engagement and meaning in his or her work.

While authentic happiness theory did move psychologists out of the disease model since it encouraged them to help more or less happy people be more durably happy, it did not help them move their clients to a state of flourishing. Further, researchers began to notice that some people were durably happy without conforming to the three tenets of authentic happiness theory; in fact, these people were sometimes choosing to do things that would not necessarily generate positive emotion in themselves—in the pursuit of happiness. As Seligman says in his book *Flourish: A Visionary New Understand of Happiness and Well Being*, “I now think that the topic of positive psychology is well-being, that the gold standard for measuring well-being is flourishing, and that the goal of positive psychology is to increase flourishing” (Seligman, 2013, 13).

3.2 Well Being Theory

Well-being theory developed because of three inadequacies in authentic happiness theory. Those inadequacies were a cultural alignment of happiness with cheerful mood; a cultural notion of happiness as a feeling state or mood; and social research that shows that people seek out experiences and a range of life and lifestyle choices for their own sake. In fact, as Seligman helped nurture a community of positive psychology researchers, they learned that people sometimes *sought out experiences that would not generate positive emotion but which they believed contributed to their overall well-being*.

Well-being theorists developed a notion of PERMA, the elements of well-being:

- Positive emotion
- Engagement
- positive Relationships
- Meaning
- Accomplishment

While all these elements can be satisfied in the workplace, many people work in environments where it is difficult to find these elements. This presents a challenge to double loop learning.

In order to move to the vulnerable state that allows us to confront mental models requiring change in ourselves and our sense of how our world—or workplace—works, we must confront the embarrassment, however strong or mild, that recognizing this failure to measure up often entails. To do this, we need a general sense of continued well-being in the work context. We need to be fairly sure, for instance, that noticing and acknowledging this gap—even asking for help in fixing it—will not result in ostracism from the group or loss of our status, income, or employment. We need to know that we can survive the experience of finding a lack—however minor or serious in ourselves—and that we will live through it, even thrive, as result of fixing the problem, changing the mental model.

3.3 Positive Psychology as a Support for Double Loop Learning

Since its inception in the late 90's, positive psychology has been rapidly contributing research and methods for optimizing PERMA and helping people flourish. Videos and books are increasingly available in the main stream, and many of these techniques are flowing into the software development field through Agile and its coaching mechanism, among other channels. The promise apparent in using positive psychology understandings and methods to set an organization context that will foster double loop learning is exciting and is being tested, however informally, in a range of organizations. This paper now provides a few insights into how to test it in yours.

3.4 Losada Ratio

The Losada ratio is an example of a method the positive psychology movement has developed to help reasonably happy people move toward flourishing. Barbara Fredrickson is known for her laboratory research into positive psychology. She developed a “broaden and build” theory of positive emotion. She

identifies negative emotions as “firefighting emotions, which identify, isolate, and combat external irritants” while “the positive emotions broaden and build abiding psychological resources that we can call on later in life.” Further, “(p)ositive emotion does much more than just feel pleasant; it is a neon sign that growth is under way, that psychological capital is accumulating” (Seligman, 2013, 65-66). Research Fredrickson did in organizations showed that the ratio of positive to negative language in meetings correlates with the extent to which the company is flourishing economically. The ratio at and above which organizations flourish is 2.9:1 positive expressions to negative expressions. This ratio came to be known as the Losada ratio. It has been more famously applied in marital research done by John Gottman. Gottman’s research shows the ratio of positive to negative experiences that is the hallmark of a happy marriage is 5:1. It’s interesting to note that you can overdo positivity in organizations: A ratio of 13:1 results in a lack of credibility (Seligman, 2013, 65-66).

So, Argyris alerts us the critical need for feedback about failure and the many social and intellectual mechanisms we have for avoiding giving, receiving, and internalizing feedback about failure. And his work also helps us understand the critical need to identify and grapple effectively with failure while highlighting a learning model that challenges us quite deeply to change the underlying thinking that generates failure, double loop learning. And, we know that knowledge workers and their productivity are even more broadly and deeply affected by the psychological demands of double loop learning.

A comment on “Teaching Smart People How to Learn” published as an addendum to that article provides additional insight into the special situation of knowledge workers. Haridimos Tsoukas notes that “As organizational ethnographers, such as Julian Orr (1996) and Etienne Wenger (1998), have shown, daily work in information-rich companies is more decision intensive—more loci for decision making by employees are created.” He then draws the conclusion that the more “informed” a workplace is the more reflexive or self-reflection-oriented the workplace is capable of being.

Tsoukas points out that Argyris, in his body of work, repeatedly points to the difficulty practitioners have in doing reflexive thinking—“double loop learning.” Tsoukas states that this is particularly true for knowledge workers who, by definition, work in highly informed environments “because, to the extent that they are more psychologically present at work, they expose more of themselves to others; hence, they are more vulnerable.” Therefore, the reason it is important to short-circuit defensive reasoning so that a knowledge worker can engage in reflexive reasoning and in double loop learning is that knowledge workers bear a greater burden of “constantly challenging yourself, of expanding your horizons, of ‘knowing thyself.’” And, therefore, Tsoukas reasons that “Argyris invites knowledge workers to undertake a primarily moral, not just technical task: to be open to criticism, to be willing to test their claims publicly against evidence, to accept that they too are partly responsible for the problems they are confronted with” (as cited in Argyris, 1991, p. 15).

Clearly, organizational members occupying leadership positions have a role to play in setting a context where double loop learning can reasonably happen.

3.5 Leader’s Role in Setting Context for Double Loop Learning

As C. Otto Scharmer shows repeatedly in *Theory U: Learning from the Future as It Emerges, a Social Technology of Presencing*, “(t)he primary job of leadership, I have come to believe through my work with Schein, is to enhance the individual and systemic capacity to see, to deeply attend to the reality that people face and enact. Thus the leader’s real work is to help people discover the power of seeing and seeing together” (2009, Scharmer, 136). You can’t change what you can’t see, and as Argyris has pointed out, our organizational defensive routines are very good at preventing us from seeing such that we cannot work on real problems, identify the mental models that drive them, and change those models or adopt new ones.

In addition to helping the organization to see itself, the leader can provide the service of showing others how to engage with failure productively, and to use it as a legitimate and authentic springboard to greater success, rather than letting it tip you over into a grief spiral or defensive routines so that you cannot see

the failure. To do this, leaders have to admit error in themselves and publicly go through the process of rectifying that error in their words and actions to the benefit of the organization.

3.6 Argyris' Advice to Leaders

Additionally, Argyris provides key points of advice to leaders to help others engage in real learning. Moreover, these three pieces of advice actively support the decrease of decision latency and increase of decision quality through a highly engaged coaching mechanism. Argyris urges:

- Don't just "fix" concerns.
Help employees focus on self-awareness and initiative rather than acting on blaming. Listen for your part in problems and demonstrate the kind of response you'd like to see from them.
- Don't make promises you shouldn't keep.
Mentor and coach employees on reasonable and unreasonable requests. Educate them on the market and support creative responses to market demands.
- Respect employees.
They need to take their punches and focus on solutions—just like the leadership is expected to.

(1994, Argyris, 85)

Being the "fixer" can leave the learner stuck in the single loop learning cycle. Making promises you shouldn't keep rather than educating workers about why some promises they seek are not reasonable (such as an assurance of lifelong employment in their current organization without progressive improvement) prevents them from adopting mental models that support their successful functioning. And, protecting employees from the consequences of their actions prevents them from testing their mental models in the real world.

3.7 Teach By Example

In order to encourage double loop learning in the workplace where you would propose to lead, you need to enact it yourself—and be seen to be doing so:

- Read widely, as well as in your field, to increase your knowledge and judgment.
- Take classes in and outside of your field to both increase knowledge and judgment but also to pursue your own well-being.
- Express interest in the learning of others as well as sharing your own learning naturally and in the course of doing business. Show that learning, changing, and growing are all part of the expected human experience, which may sometimes be bumpy and have moments of embarrassment and self-correction, but which is also desirable in your organization and leads to personal and organizational success. Act out the assumption that learning is part of the work.
- Recognize failure and, especially, effective responses to it. While failure can identify an opportunity for learning, it is not only learning but also the change in the self and the organization to prevent the same failure again in similar circumstances that is desirable. And, the skill of learning and changing based on evidence is as valuable to the organization as any technical skill.

- Share where you have fallen short, how you have recovered, and what you learned. Show that it is possible to grapple with failure effectively, and that it does not have to result in exclusion from the group or unrecoverable loss of status or income.
- Pursue, and share your pursuit of, PERMA both inside and outside of work.

4 Conclusion

Double loop learning is different from single loop learning in that it can prevent the same kind of error from occurring again, rather than just help us spot and correct it more quickly in the future. It is an extremely valuable skill for knowledge workers. However, few individuals or organizations are skilled at it. Knowledge workers are especially in need of double loop learning skills though they are also especially vulnerable to its hazards because they bring more of themselves to work than the assembly line worker and are more psychologically vulnerable as a result.

Double loop learning, while extremely valuable in addressing the organizational imperatives of decreasing decision latency and increasing decision quality, is also exhausting to the human psyche. All participants, and especially individuals assigned to organizationally identified leadership roles, will benefit from learning about positive psychology and using it to set a context in which double loop learning can happen more easily. The Losada ratio is one example of a technique contributed by positive psychology which can be used on a daily basis to ensure that an environment most likely to foster general well-being among organizational participants is brought into being.

Those who would lead healthy, vital organizations populated by knowledge workers have a role in ensuring that a context is set that makes double loop learning easier to engage in. And, they also have a role in modeling this skill. Positive psychology provides us with tools and techniques to set this context, and the work of Christopher Argyris clearly marks the path to the skills required in and challenges of double loop learning.

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