The four helpers that make creative activity possible

And what Agile has to do with them

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The System of Profound Knowledge

By Edwards Deming

It rests on four pillars:

- System Thinking
- Variation
- Deep Knowledge
- Psychology

What is it about?

Edwards Deming's System of Profound Knowledge is the foundation on which successful management is built.

The four pillars — system thinking, variation, deep knowledge and psychology — are essential to obtain results when tasks are complex, require creativity and are interdependent.

When tasks are complex and interdependent, system thinking, variation, deep knowledge and psychology are essential ingredients to success.

Deep Knowledge

The pillar I'm going to talk about in this presentation is Deep Knowledge.

When tasks are complex and uncertain, you need a deep knowledge of the system to be able to correct its defects or improve its performance and results.

Without a deep knowledge, you are likely to damage the system instead of improving it.

You need a deep knowledge of the system you want to improve or correct.

What does this have to do with Agile?

Agile is only possible if you have a deep knowledge of how software is built.

Or else, any action on the system that produces software is likely to make things worse or have little influence.

Agile needs a deep knowledge of software development or it will fail.

What is a creative activity

And how software development is one

What are creative activities? Why is software development one?

What is a creative activity?

A human activity is creative when:

- There is no fixed procedure to be followed to perform it
- There is such a procedure, but it's complex
- It's not possible to make sense of the activity's purpose or usefulness in advance, before actually starting to perform it
- It requires the performer to make decisions based on incomplete data

Activities are creative when they are complex and/or uncertain.

Software development is definitely a creative activity

Imagine a procedure you can follow that tells you if your code is correct no matter how complex the code.

Software development would be as easy as to push a button and go for lunch.

What if there is a procedure you can follow to produce code guaranteed to be correct?

Software development is definitely a creative activity

Kurt Gödel demonstrated a theorem according to which arithmetic is incomplete.

It means that a procedure that tells you if your code is correct or not will never exist.

No procedure will ever exist that guarantees your code does what it's supposed to do.

Software development is definitely a creative activity

The absence of a procedure you can follow to produce correct code makes of software development a creative activity.

Software development is a creative activity because it can't be automated.

The Four Helpers

They make creative activity possible

Constance

Concentration

Interest

Time

What are the Four Helpers?

They make creative activity possible.

Without them, creative activity becomes hard to do and unproductive.

Problem solving is impaired when the Helpers are absent.

The Four Helpers make creative activity easy and productive.

Let's introduce them

They are:

- Constance
- Concentration
- Interest
- Time

The Four Helpers are constance, concentration, interest, time.

Constance

You need to practice a creative activity often to be able to do it easily and productively.

You need to practice often

You learn to perform a creative activity if you do it often.

If you do it just occasionally, you won't learn it.

If you solve problems every day, it will get easier and you will be able to solve more problems faster.

Practice a creative activity frequently and you will get better at it.

Software developers get more productive in time

Software developers get more and more productive as their experience grows.

The constance with which they tackle problems pays.

Software developers become more productive as they write code constantly.

No shortcuts to productivity

Software developers, or any other performers of creative activities, become more productive as they constantly exercise their problem solving muscles.

By and large, a developer with 10 years of experience will be more productive than one with only 5 years of it.

No shortcut to productivity is possible.

There are no shortcuts to productivity.

No shortcuts to productivity

It's not possible to suddenly make software developers more productive because the project is late.

You can dangle carrots in front of them or wield sticks but you won't make them more productive.

Deadlines and pressure won't work.

No shortcut to productivity will ever work because it's not possible to grow a developer's experience overnight.

Concentration

To practice a creative activity you need to be able to concentrate. You need an environment that is free from distractions.

You have to be able to concentrate

To perform a creative activity you have to be able to concentrate.

You need long stretches of time during which distractions are at a minimum.

If you work in an office, there should be library rules. Like in a library, people shouldn't talk and noise should be kept low.

Email or social networks notifications should be off.

You need a distraction-free environment to concentrate.

You have to be able to concentrate

A distraction-free environment is not enough.

You have to be free from inner distractions.

If you are scared that you may not be able to meet a deadline, your fear will distract you.

It will be as effective a disruptor as someone shouting at you.

There are external and internal distractions.

Interest

You are not going to get good at doing something you are not interested in.

You have to be interested

When I was a student, I wasn't interested in literature and I wasn't good at it.

I was interested in mathematics and I was better at it than my professor.

Self-initiated interest is essential to learn to do anything creative.

Hire only interested developers

When hiring a software developer, you should first figure out if they are interested or not.

Let them talk about their best projects and see them light up like a Christmas tree.

Realise that you won't be able to produce interest if it's not there in the first place.

Are they interested? If they are not, you won't make them.

What about generating interest? Does it work?

What about using money to generate interest?

It's the ages-old trick of the carrot.

It doesn't work with creative activity.

Creative workers who are promised rewards if they perform become interested in money.

As their interest in money grows, their interest in writing code wanes.

Interest is one of the things money can't buy.

And sticks?

If carrots don't work, do sticks?

Punishments and fear produce interest in learning the art of dodging them.

This happens at the expenses of the interest in improving your ability to accomplish a task.

Interest is one of the things sticks smother.

Is there anything you can do not to damage interest?

You can prevent distractions — sticks, carrots, noise, interruptions — from diverting interest.

You can create a collaborative environment instead of a competitive one.

This means that interest won't be diverted from the creative activity to learning how to defend yourself from competitive team-mates.

A distraction-free environment helps not to damage interest.

Is there anything you can do not to damage interest?

You can also give people a degree of freedom so that they don't get busy trying to skirt the damaging effect not to be trusted with their choices has.

A degree of freedom is useful not to damage interest.

Time

Part one: it takes time

It takes time to learn to carry out creative tasks.

It takes time to learn a creative activity

It may seem that the need for constance in learning a creative activity implies that it will take time.

Certainly, when I said that constance is one of the four helpers that make creative activity possible, I wasn't thinking that you could be constant for just a few days and become a coding virtuoso.

Certainly you don't learn overnight.

Patience

Patience is the ingredient that makes the 'Time' helper meaningful.

When I say that it takes time to learn a creative activity, I want to say that, if you are after fast results, you are in for disappointment.

Expectations are your enemy and 'Time' — with the patience it implies — is your friend.

Patience is needed when learning to perform a creative activity.

Patience

Everyone is different and learns at their own pace.

It's counterproductive to compare the speed at which we learn.

Just trust your way and pace of learning.

Don't compare the way and pace of your learning with others'.

Patience

Refuse to let people teach you about patience if they do it in an impatient way.

Don't have impatient people teach you about patience.

Time

Part two: to lose the sense of time

To lose the sense of time is a useful thing to do to make creative activity easier and more productive.

Imagine you ignore the clock

Imagine you lose the sense of time.

You ignore the clock. You have no deadlines. Nobody puts any pressure on you. You yourself feel no pressure.

Time doesn't exist. You can't measure your productivity in any way. You can't divide the "quantity" of stuff you produce by the amount of time it takes because the denominator doesn't exist.

Imagine time ceases to exist.

It's like a heavy weight on top of you being removed

To lose the sense of time is like having a heavy weight removed from on top of you.

There is no pressure any more, you feel better.

Enjoy feeling better when the pressure of time is lifted.

To lose the sense of time is good

When you have to solve a problem, to lose the sense of time is a good idea.

This is especially true when strong emotions are involved.

Do it when you are making momentous decisions, the ones that are really life-changing. Get in a quiet place, preferably where your basic needs are taken care of without any effort on your part.

To lose the sense of time helps when you are working on tough problems.

To lose the sense of time is good

Get rid of clocks, smartphones, and anything that tells you the time.

Let your biological clock wake you up.

Remove calendars.

Don't count days.

Don't try to know which day of the week it is.

Get rid of everything that reminds you of time.

To lose the sense of time is good

Nights will still follow days and summers springs.

But they won't really disturb.

Natural events won't be a problem.

You will make a better decision

Losing the sense of time in such a radical way, you will see that your decision will be a better one.

Lose the sense of time and you will make better decisions.

What about everyday decisions?

What about the decisions we have to make every day because we perform a creative activity?

What if we can't really get rid of the clock because at least we have to show up for meetings?

What if we are under pressure and there is no way we can skirt it?

How do we lose the sense of time in our everyday activities?

Realise how much pressure damages you

The farthest you are from losing the sense of time, the more damage will occur to your productivity and ability to solve problems.

The pressure may be so high that it paralyzes you.

Or it may be low and cause not much damage.

If you are not losing the sense of time, pressure will hurt your productivity and ability to solve problems. How much pressure are you under?

What can you do?

Abolish deadlines in every case you can do it.

If it takes a week for you to complete a task, tell people that you need three weeks.

Try to abolish deadlines.

What can you do?

If you have a tight deadline you can't avoid, never work overtime or on weekends.

Go home! After 8 hours drop the keyboard and go home! Get a life!

Never work overtime or on weekends.

What can you do?

To decide when to take a pause, trust your feelings, don't check a clock and don't set alarms. Bin every Pomodoro device or application you are using.

To decide when to go for lunch, trust your hunger.

Remove any clock that is visible from your desk.

Trust your feelings, don't check a clock.

What can you do?

If you have a deadline you can't eliminate, try to do the task as soon as possible. Don't wait for the due date to approach critically.

Try not to commit to a target date. If you have to, estimate a much longer time than what is actually needed.

Try to avoid talking with people who will only pressure you.

Check your feelings and have a pause every time you feel under pressure.

Manage deadlines you can't eliminate, avoid people who pressure you.

What can you do?

Do a fear setting exercise. How strong is your fear that you may not be in time?

The stronger the fear, the less productive you are.

Write down the possible consequences of not being in time so that you can put them in perspective. Will the planet stop turning?

Fear setting exercises are useful.

What can you do?

Practise slowing down. Walk slowly. When doing home chores, slow down your movements.

Take 10 deep breaths while smiling.

Do any meditation that has you bring your attention to a neutral object. This will starve your fear of power.

Tell yourself "Take your time." ten times.

Slow your movements, take deep breaths, meditate, encourage yourself to take your time.

What can you do?

Try not to use time tracking software.

If you are under surveillance because your employer uses monitoring software to make sure you are productive, do your best to cheat the software.

Refuse to work if your manager sits beside you watching your every keystroke.

Practise yoga performing each movement slowly.

No tracking software, fight surveillance software, refuse to work if your manager sits beside you, do slow yoga.

Consider the habit effect

Take into account that the more you work in a place where there is a lot of pressure, the more you learn a wrong way to work.

This unproductive way to work may become a habit you may have a hard time shedding.

Consider that managers who pressure you are teaching you a bad way to work you may have a hard time unlearning.

Thanks for reading

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