

钢刀

Chapter 19 – Adopting Phrases, Adopting Culture

By Ben Kelly

“The true science of martial arts means practicing them in such a way that they will be useful at any time, and to teach them in such a way that they will be useful in all things.”

– Miyamoto Musashi

I've been a software tester for about a decade and a half. I have been a practitioner of kendo (Japanese sword fighting) for over two decades now. I have represented Australia several times in international competition and hold the rank of 5th dan. I spent the better part of five years living in Japan and I have been fortunate enough to learn from some of the most skilled kendo professionals in the world – people who have spent their life learning and teaching kendo. My thoughts and opinions on martial philosophy and indeed on software testing are influenced by these experiences.

In recent years, the adoption of Japanese words to describe various aspects of software development has become *de rigueur*. Kanban. Kaizen and of course, the perennial Shu Ha Ri. To some extent, they're just words. Maybe they sound cool. Maybe there's the sense that they carry some sense of profound meaning since they come from an ancient culture with a reputation for attention to detail and for quality. There's also a cultural attachment to them that is often lost in translation when they're taken and applied elsewhere.

Let's take Shu Ha Ri for example. The concept is simple enough. It is a model that describes a student's progression of learning from neophyte to apprentice to journeyman and eventually master. This is the model used in teaching for every martial art that I am aware of.

“Shu” is where a student learns from a teacher through repetition and introspection. The student executes an action over and over again, very deliberately, in order to make that action as perfect as it can be in the context of performing that action.

“Ha” begins when you start to apply that action in a wider context. In martial arts this is usually some form of sparring. The action becomes a technique in the martial artist's repertoire. The student looks for the right opportunity to apply the technique and as they become comfortable they try variations on what they have learned. Because it's one of very few actions they know at this point, they effectively have only a hammer at their disposal. They likely encounter the 'every problem looks like a nail' phenomenon and try it out whether it is appropriate or not. In time, with diligent practice and reflection the student gains the experience necessary to understand when to use it. The practice of variations will inform their understanding of the fundamentals. Which brings us to Ri.

“Ri” is where the student explores divergence from the guidelines and heuristics of what they have learned, keeping what is useful and divesting themselves of what is not. Master and beginner both spend time practising their fundamentals. They are the basis for everything that comes after. Poor form in fundamentals inevitably results in poor form for everything built on top.

It seems like a simple enough concept to grasp. It's not a particularly complex model and yet whenever I encounter the phrase 'Shu Ha Ri', it is almost inevitably with a roll of the eyes or criticisms like:

"Shuhari assumes that the student is an empty vessel, who brings no knowledge of their own."

I can't help but wonder how the model has been so misunderstood to the point where this is an accepted idea. It's not that the model is broken. For several centuries it has been working perfectly well for martial arts and many other hereditary trades; tea ceremony, woodworking, wagashi, ceramics, textiles, really anything with an apprentice-like learning structure – so we know that it is useful in many different contexts. Could it be that it is fundamentally incompatible with software development? I don't think so.

There's the Bruce Lee story about **overfilling a cup**³⁴ to demonstrate a student's inability to accept new knowledge, but that story is not about invalidating the student's existing knowledge. It is about the student's ego and the attachment of their ego to their existing knowledge. A similar problem exists if a teacher has an egotistical attachment to their own knowledge and skill that is more important to them than the needs of their student, but again that's a problem with the individual, not the model. So what is it that makes Shu Ha Ri so difficult to grasp?

³⁴ Emptying Your Cup – <http://www.clearintentions.net/emptying-your-cup/>

I think there are several important cultural aspects that are missing from the 'Agile' appreciation of Shu Ha Ri. For starters, there are the characters themselves. Kanji are fascinating. There is much more to them than simply tying sound to visual representation. Most have at least two ways of being read, and some many, many more. They can have multiple meanings on their own that might seem initially disconnected to the western mind, but upon contemplation do have a relationship. Let's take a look at Shu, Ha, and Ri and see why the potted example I gave above might miss some of the nuances these characters can convey.

守 – Shu might be taken to mean 'obey', but potentially also protect, defend, or keep.

破 – Ha can mean 'diverge', but also rip, tear, break, frustrate, and even destroy.

離 – Ri can mean 'let go', but also leave or separate.

We could go into the compound characters that make up the kanji, but that would be labouring the point. There are other cultural differences that are worth understanding.

Another is the basis of taking action. The 'why' if you like. Based upon my own observations, I feel that in Western culture and in particular in the United States, there is extreme importance on the payoff being known in advance. One takes action with the expectation of reward. If I spend my time doing something for you, there had better be

something in it for me. Let us take the job of waiting tables for example. In the United States, tipping is customary. The idea is that as a customer, the better service you receive, the more you should tip in return. I have observed an interesting phenomenon when dining at restaurants in the United States. In many cases the wait staff are friendly and attentive, but it's friendliness with a motive and it feels that way. There is an undercurrent of desperation in service like this. It's overly friendly because it is laden with the expectation of reward. If you care to test the theory, watch your server's demeanour change if you leave without tipping.

Juxtapose this with the service you receive in Japan, which is hands down better than anywhere else I have experienced in the world. Waiting staff on the whole are attentive to the customer's needs without being obtrusive. There is attention to detail, a real desire to make the customer feel like they have had a good experience and a complete absence of that feeling of desperation. What is the difference between service in Japan and the United States?

You don't tip in Japan. This sort of service is baked into the country's culture. There is a pride in one's work that has nothing to do with the expectation of remuneration. This starts early in life where school students are responsible for cleaning their school. Each class has a responsibility for their room and surrounding area. They clean daily and it's hard work. There are consequences when it's not done right, but they build a work ethic that is part of who they are and deep sense of responsibility to their group. There is a deep sense of integrity to the group that supersedes the wants of the individual.

Is this to say that Japanese wait staff are inherently better than American ones? No. The point is that the focus is entirely different. For the typical American waiter, the focus is on what he/she can do to maximise the tip they will receive from the customer. For the typical Japanese waiter, the focus is on performing one's duties to the best of one's ability. It's not a specifically Japanese thing. You might observe the same behaviour in a small family-run restaurant in the States. They take pride in their work because anything less than their best effort would reflect badly on their establishment and on them.

What does this have to do with Shu Ha Ri? The focus on performing an action to the best of one's ability is important. Deliberate practice of an action with the aim of improving the action is a key part of this learning. This is not so much a Western versus Eastern cultural phenomenon. It's the difference between someone who is passably good and someone who is exceptional. Not just time spent, but time spent in diligent practice with the intent to improve as much as possible.

A crucial point to understand is *when* I consider myself proficient in a skill and what happens after that point. From a Western education perspective, if I'm convinced or if my pre-defined curriculum states I'm as good as I need to be at a given thing, then I stop studying it. I remain good at that thing provided I continue to use it. I continue to use it because it is of use to me at the time. I develop a degree of competence, but not mastery. On the other hand, if I want to become exceptionally good, then I need to constantly practice my fundamentals with the intent to improve and to put them into

practice in situations where the result matters. In the Shu Ha Ri model practice of fundamentals is a constant, even after so-called mastery of an art.

Commonly, people with Western sensibilities reject 'Shu', or rapidly want to progress 'beyond' it. "I don't want a master", "You're not the boss of me", "I don't want to be subservient to anyone", "Make me understand why I'm doing this and then maybe I'll do it" – these are tropes I have seen when talking to people about beginning a martial art. This is understandable. It is difficult to go from a position of a certain status, where you feel knowledgeable and certain to a place where you are completely uncertain. It can feel like you're giving up a lot – maybe even giving up part of your identity.

Attachment of ego to existing knowledge is not the only hurdle in taking on the study of something new. In the software development industry there can be a social stigma as well as a professional one attached to the phrase 'I don't know'. In certain situations I still find myself reluctant to admit ignorance and I have observed the same behaviour in others. Maybe it's because we conflate ignorance with stupidity. I wonder how often we don't try something at all for fear of looking stupid.

Perhaps as importantly, you want to know that the teacher you're about to spend time with is worthy of your time. This is not as easy as it seems. The Dunning Kruger effect describes the tendency for people of lower skill level to overestimate their own abilities and for those of higher skill to underrate their own ability. This phenomenon can be seen across pretty much any skill you care to name, including selecting a teacher. How else do

you explain the abundance of McDojos teaching bullshido in martial arts and shoddy certification schemes in software development? The good news is that you can also use the Dunning Kruger effect as a heuristic for looking at teachers. The ones I steer clear of have a high degree of confidence in their own competence and are often the first to tell you how good they are. The ones I rate highly have also a high degree of confidence in their own competence, but it's far less likely you'll hear it from them. In my experience if they do tell you anything about their own skills, they'll downplay their abilities and tell you that they too have much more to learn. When you have mastered something – truly mastered it – there is little ego attached to your knowledge and skills.

Western education tends to start with theory and progresses to practice. If you understand the theory, then the practice should make sense. On the other hand, if the theory doesn't make sense or if it sounds dodgy, you don't waste further time and effort. With Shu Ha Ri you begin with practice and through repetition you come to understand the theory. They are not as opposite as they seem. Shu, Ha, and Ri are not entirely discrete phases, but happen to varying degrees in parallel. It's not so much that you don't learn theory up-front, but that practice is necessary to properly understand.

Initially for the beginner there is some acceptance that they are performing an action in order to perform that action. They may not initially understand why. If you've seen the original 'Karate Kid' movie, the main protagonist, Daniel learned a very specific action to use when waxing his teacher mister Miyagi's car (wax on, wax off Daniel-san) expressing all the while that he wasn't learning karate as promised. Later he learns this 'wax on, wax

off' action was the technique for blocking a strike. Students in the Shu Ha Ri model trust to an extent that their teacher has their best interest at heart. This is not a subjugation or disregard for the student's existing knowledge. On the contrary – a good teacher knows that the student brings other knowledge. Sometimes it is of immediate benefit; sometimes there are learned patterns that hinder. Both must be taken into account.

There are fundamentals to learn and the student's role is to learn them. This takes time and diligence – there is no substitute for this. A conceptual understanding is not enough because it is something their entire body learns. At first, the movements feel clumsy and uncertain. There is frustration at the lack of finesse, but through constant correction and repetition the action becomes familiar, then natural. Even at that point, constant practice is required to maintain and hone the skill, like a virtuoso musician practising their scales and arpeggios every single day.

When I think about excellent teachers, I am put in mind of a kendo sensei whom I respect as much as I have ever respected another human being. Shizawa Kunio sensei taught at the Nippon Sports Science University in Tokyo up until his retirement. He regularly brought his students to Australia so they could see the passion with which these Australian kendo practitioners practiced. Many of the students were at university because their parents (and grandparents and so on) had practiced kendo and it was expected they would carry the tradition on. Not all were there because they loved it. Nonetheless, more than one of them had an epiphany upon seeing people from another country practicing kendo with a deep and abiding love for it. It rekindled in them a

renewed sense of enthusiasm too. This was no doubt one of Shizawa sensei's numerous gifts to his students.

I had the privilege of observing him teaching. His students hung on his every word and it wasn't simply because of the respect that the role of teacher commanded. They loved this man for who he was and what he did and it was obvious. It was infectious. Shizawa sensei was quick to smile. Quick to laugh, but one stern word from him could have me contemplating the worth of my life. This man's approval was – is – vitally important to me. When I pause to think about why, I can only conclude that it is because he is one of the best human beings I know. He inspires me to be a better human being.

Kendo is 'the way of the sword' and the All Japan Kendo Federation – the major governing body for the martial art provides this description for the concept of kendo:

The concept of kendo is to discipline the human character through the application of the principles of the katana.

And the purpose of practicing kendo:

*To mold the mind and body,
To cultivate a vigorous spirit,
And through correct and rigid training,
To strive for improvement in the art of kendo.*

To hold in esteem human courtesy and honour,

To associate with others with sincerity,

And to forever pursue the cultivation of oneself.

This will make one be able:

To love his/her country and society

To contribute to the development of culture

And to promote peace and prosperity among all peoples.

When I reflect on why I respect Shizawa sensei as much as I do, it is in many ways because he embodies these words and he does so with no pomp and ceremony. He is a man who is comfortable in his own skin. He is as he feels the need to be – kind, generous, stern, and on very rare occasion, angry. There is always a purpose to his moods. I get the sense from him that because he understands himself so very well, his moods are things he has cultivated to select, rather than tempests that buffet him as the events of life occur. He seems to value his own rank in the martial art only so far as it enables him to benefit others. I have seen other teachers who are as experienced, perhaps better at using a sword, but also arrogant and expecting of deference due to their rank. To my mind, Shizawa sensei has mastered kendo and they have not.

In Kendo, you learn four basic strikes and then spend the rest of your life trying to perfect them through diligent and constant practice both of the fundamentals and of their application. There are hundreds of variations and every person has their unique strengths and weaknesses and unique fighting style, but the fundamentals are identical

for everyone. This is not unique to martial arts. The same could be said of music. Whether you're talking about learning the shamisen or the violin, there are rules – heuristics really – within which you practice fundamentals. The possibilities of what you can play are endless, but whether you're playing a composed piece or improvising, the underlying fundamentals are there. There is a correlation between your abilities and the strength of your fundamentals.

We treat software development as being different because no two projects are ever the same. There have been attempts to codify our approach to developing software and even attempts to codify skill, but to my knowledge, there is nothing that does so in a way that makes imperative the continuous practice of skills and their application in context.

Coding kata have sprung up recently and it's possible that this might be the germ of something worthwhile, but my observation is that they are currently used to become familiar with a pattern or problem and once familiarity is achieved, practice stops. What if instead, practitioners were to continue to practice these kata? This would allow them to hone their application, be it technique or speed to the point where their application in the field was unconscious and automatic. What if we had kata for entire teams? What if we decided that it was important to practice building software as a team and provided a safe environment in which to practice and try and fail? Imagine if you had the space for you and your team to implement the same project not just once, but many times. You could literally compare one project and another, draw on the similarities and differences in your experiences and reflect on them. What if we had teachers – real teachers – whose job it

was to observe and pair and question and sometimes throw a curveball into the mix? Would this be easy to do? No – not at first, but I think this would be a wonderful thing to take on. Here – here is a potential place for Shu Ha Ri to be applied, but in order for this to be really effective, it would take a shift in thinking about learning and maintaining skills as well as deliberate and consistent practice over years.

When I think about teachers like Shizawa sensei and the sort of kendo he teaches, and then I think of the software development industry, I can't help but feel that we as an industry haven't advanced far enough that we're able to have teachers like that. Perhaps we don't know enough about what we're doing yet to be able to bring together organising principles in a meaningful way that contain such lofty goals as 'forever pursuing the cultivation of oneself', but I believe we should try. We may have a lot to learn and some deep cultural issues to change, but dammit, we should try.

We have people who have been in the industry most of their lives and they are rightfully luminaries of our field. Some people know who they are. The more enlightened folk even listen to what they have to say and try to learn from them. Kent Beck is one such luminary and answered a forum question on what it is like to be an older engineer or technical person in Silicon Valley. He said:

“As with everything, it's a tradeoff. My memory and ability to hold complexity in my head is much reduced compared to 15 years ago. My self-awareness, empathy, and self-confidence are much improved. That means I'm not suitable

for, for example, production coding next to the hot shots at Facebook, but it also means that I'm much more likely than they are to spot the train coming down the tunnel.

As I've lost the ability to execute a big prototype, it's become harder to convince other people of the value of my ideas. That's frustrating for me, because it seems I'm getting some of the best ideas of my career now, but I need to work on influence and persuasion."

I think this is incredibly telling. Here is a person who has decades of experience to share, but because his value is still seen as his ability to contribute code, his vast experience beyond the coding sphere falls by the wayside. Kent himself alludes to his own need to be more skilled at influencing and while there is validity to that, I also think it is indicative of where the software development industry is at right now. He is by no means alone in his experience.

Our industry by and large is one that has cultivated itself as a refuge for the socially awkward, the uncool, the outcast, those that were unpopular at high school. Until the Internet became a common household item, 'nerd' was a term used to socially vilify those that eschewed the sports field in favour of the library or the computer lab. Is it any wonder then that such people might select a vocation where their social awkwardness was accepted if not celebrated by the meritocracy of their peers? It's time for us to move beyond the learned behaviours of our high school experiences. It is at our peril that we

continue to encourage social ineptitude (masquerading as technical specialisation) and the celebration of technomancy above all else.

Rather than venerate the elders of our industry who have proven themselves time and again, we dismiss them in favour of the new hotness, be it tools or libraries or methodology. It is folly. Miyamoto Musashi said in the 'Earth' chapter of his Book of Five Rings

“You should not have a favorite weapon, or any other exaggerated preference for that matter. To become overly attached to one weapon is as bad as not knowing it sufficiently well. You should not imitate others, but use those weapons which suit you, and which you can handle properly. It is bad for both commanders and troopers to entertain likes and dislikes. Pragmatic thinking is essential. These are things you must learn thoroughly.”

A determined person can, inside of five years, go from minimal knowledge of computing to being a better skilled, better able software tester than the vast majority of testers in the world. At this point many would consider them a testing expert. That is a sad indictment of our industry. A programmer with between five and ten years would likely consider themselves an experienced programmer. So many people with so much experience and yet, if you look at the quality of software that rolls out daily, it is difficult to conclude that we're getting better at this. There are so many bad examples of software with more coming every day. Much of it is not just 'oh that's mildly annoying' bad, but

'who the hell in their right mind decided this would be a good thing to inflict upon the world' bad. Anything really good seems to get lost in the detritus.

Coders learn to code and testers learn to test and the enlightened ones learn about each other's job (and bring in UX and PO and other functions here too), but even when we try to work together in cross-functional teams, everyone is still only interested in doing the bit that's fun for them. There's no kind-but-stern sensei type to say 'no - learn the fundamentals first - not just programming, but why a project matters to a business, why requirements change or are wrong sometimes, how to question, to test...' That's not happening now and it's not getting better. If anything it's getting worse. Knowledge work is being commoditised with the rise and general acceptance of certifications across many different development vocations. An easily obtainable piece of paper has become a stand-in for demonstrable ability. What incentive is there then, to spend years honing your skills?

Swordsmanship in Japan went through a similar evolution³⁵. At one time, the focus of teaching swordsmanship was on the practicalities of killing someone as rapidly as possible in a battlefield setting. After the battle of Sekigahara in 1600, the need for standing armies was greatly reduced and over the next several hundred years, the number of schools of swordsmanship dwindled. The focus of swordsmanship evolved

³⁵ Brief History of Kendo - <https://www.kendo-fik.org/english-page/english-page2/brief-history-of-kendo.htm>

from the extreme pragmatism of killing or disabling an opponent to the betterment of oneself through the understanding of swordsmanship.

This is not to say that swordsmanship became completely philosophical or theoretical. On the contrary, if anything the emphasis of improving the self was and still is through deliberate practice. Musashi was arguably the most pragmatically minded swordsman in Japanese history and he heavily emphasised the importance of practice in his writing. An example:

Those who sincerely desire to learn my way of strategy will follow these rules for learning the art:

- 1. Do not harbor sinister designs. Think honestly and truthfully.*
- 2. The Way is in training. One must continue to train.*
- 3. Cultivate a wide range of interests in the ten skills and ten arts. Then one can definitely find the benefits of hyoho (strategy) and develop oneself.*
- 4. Be knowledgeable in a variety of occupations, and learn the thinking of people who work in them.*
- 5. Know the difference between loss and gain in worldly matters.*
- 6. Nurture the ability to perceive the truth in all matters. It is important to build up an intuitive judgment and understand true values.*
- 7. Be aware of those things which cannot be easily seen with the eye. Develop intuitive judgment and a mind that freely controls one's body.*

8. *Do not be negligent, but pay attention even to the smallest details. Keep them in mind all the time, so as to avoid unexpected failure.*
9. *Do not engage in useless activity. Do not argue about useless things. Concentrate on your duties.*

If we are to insist on borrowing concepts from the Japanese, I think we could do worse than to shoot for the betterment of ourselves through the diligent, deliberate, and constant practice of the fundamentals of software testing and indeed software development as a whole.

I have come to believe software development should be an apprenticeship. Not just programming, but a grounding of deliberate and repeated practice of the fundamentals of the craft of producing software. Let people specialise, sure – after they’ve earned their stripes getting the basics right. After they know enough of the different disciplines to be able to make an informed decision. I would love for software development to be a craft – something that we could practice in the vein of Shu Ha Ri knowing that perfection is unlikely, but striving for it nonetheless. I would like to see us care less about borrowing Japanese phrases and more about adopting the work ethic that sits behind them. To work hard to build an understanding of how our individual actions (and inactions) impact the people we work with. I would love for us as an industry to be able to say that if we choose to, we can strive to make our industry better by making ourselves better human beings. We can do that by making that ethic a core part of our job and then working at it. It’s not an easy task, but one I think well worth the effort.