

[The Art of Learning by Josh Waitzkin](#)



Overview: Josh Waitzkin (on whom the movie [Searching for Bobby Fischer](#) is based) was one of the top chess and Thai Chi performers in the world. Here he teaches us his lessons from mastering two seemingly separate skills.

PART I: THE FOUNDATION

Chapter 1. Innocent Moves: Josh spent his younger years as a child playing chess in the NYC parks. He was noticed by Bruce Pandolfini who took him in as a young apprentice. Bruce started with getting Josh comfortable with him first, after which he taught him about chess. Bruce guided Josh by asking him “why” Josh made certain incorrect moves, to delve deeply into his underlying mentality. Josh preferred to make the game complex against his opponents, which was where Josh thrived in seeing creative solutions.

Chapter 2. Losing to Win: Eight-year-old Josh lost an important chess game against David Arnett. Josh’s parents took him fishing to clear his head and Josh learns the value of relaxing. After a while, Josh’s father took Josh to play against the local chess players, and reinvigorated Josh. Josh learns that our sense of well-being is linked to our performance. Josh re-enters the chess tournament world, and notices that he sometimes feels and intuits his good moves before his conscious brain thinks of them.

Chapter 3. Two Approaches to Learning: There are two approaches to learning taught to young kids:

1. **Entity-Based:** Belief in innate abilities. Fixed entity of skill. Either you’re born with it or you’re not.
2. **Incremental-Based:** This is exemplified by changing “I’m not smart enough” to “I’m going to have to try harder at this” when giving kids feedback.

Studies have shown that entity-based ends up stifling the ability for children to improve. Examples are children who think of themselves as “smart” or “bad”. This results in learned helplessness, since you end up growing up believing subconsciously that your skill level isn’t adaptable. Takeaways are that smart kids who are entity-based, end up being more fragile and brittle with their success. Kids do better when they are complimented on their process (“You worked hard at this!”) rather than their innate abilities (“You are really smart!”). Josh learned to “shatter the façade of perfection”, being okay with “failing” if it allowed him to incrementally learn. Rather than thinking of himself “as a loser”, he learned to enjoy the struggle.

Chapter 4. Loving the Game: Josh purposefully guides chess games to states of chaos because that allows him to thrive. He cautions against using the previous chapter’s process/incremental-based learning as an excuse to avoid trying because “I don’t care about the results!”. Rather, set short-term results goals, and focus on the process of

getting there. He discusses not holding on to anything emotionally, and that the beauty of smelling the roses comes from their transience, and always “moving on to the next adventure.” You must use every loss to learn and grow, so as to make them worthwhile.

Chapter 5. The Soft Zone: The soft zone is visualized as a blade of grass, instead of a twig. A blade of grass can be thought of as both sturdy and flexible, compared to a brittle twig which is “strong” but snaps easily. “The Hard Zone” is being strong and trying to make the world submit to you via “overpowering force”, whereas “The Soft Zone” does not require a submissive world. Instead of expecting the literal noise of the competition to be quieter for him to succeed, Josh realized that he had to train himself to deal with the noise by practicing chess in noisy NYC streets. In addition, he realized that instead of fighting and denying his natural emotions (that would be The Hard Zone), we must channel them to our advantage (The Soft Zone) by using them to heighten our focus. Become at peace with discomfort instead of avoiding it.

Chapter 6. The Downward Spiral: Eighteen-year-old Josh realizes that when he was previously in a good chess position and loses it, he is much more upset than what he is struggling and then gains position. He became emotionally attached to being in the lead, and equalizing the position was a blow to his emotions, and made him feel like he was losing when rationally the positions were equal. Desire for absolute perfection is fragile and brittle. We can't become emotionally frozen with the way things were in the past, because it creates a disconnect to how things are in the present and makes us upset.

Chapter 7. Changing Voice: The concept of “leaving numbers to numbers” is introduced. He describes fully understanding the mathematical concepts of chess until they become so subconscious that he starts to intuit and feel the chess board. After a game, he'd identify a bad move he made, and spend hours poring over it in computer simulations until he fully understood why it was a bad move, and learned from it. Then he would be able to intuit the better move the next time a similar situation appeared. He describes “leaving numbers to numbers” as integrating technical information into intuitive, natural “flow”-like information in our neurons. He also describes how emotional issues in his personal life (e.g. his girlfriend) would seep into his chess life, causing poor performance. He makes a connection between real life and chess, realizing that he must embrace the changing nature of the universe and adapt with it. He used this against his opponents. For example, if his opponent was an over-calculating person who needed to be in control of everything in life, Josh would purposefully guide the board to chaotic states, and vice-versa.

Chapter 8. Breaking Stallions: He discusses different coaches he had, and how their styles of teaching (reviewing old grandmaster's games, or rigorous disciplined training, or allowing Josh to have his natural style) worked and didn't work for him. When breaking stallions, we can either freak it out until it's submissive, or we can approach indirectly and gain its trust so “rider and animal feel like one”, which is how he preferred to be taught chess. Yet he cautions that embracing a natural creative style must be “tempered by a practical, technical awareness.”

PART II: MY SECOND ART

Chapter 9. Beginner's Mind: He moves on to discussing his venture into Thai Chi. He started learning breathing techniques, which he touts as inordinately useful in all areas of life; we don't realize how tense we usually are! He discusses increasing his physical awareness by practicing martial arts. How Thai Chi masters “read the body like a great chess player reads the board.” He says our (modern man's) breathing has changed from a natural breathing to a hectic breathing style based on our frantic society.

Chapter 10. Investment in Loss: Josh starts using his Thai Chi training to compete in Push Hands competitions. His first encounter was with a 64-year-old man who Josh thought he'd have no trouble defeating, but who demolished Josh clearly through magical abilities, exerting powerful force with seemingly minimal effort. One impediment to growing is a fear of giving up old, comfortable habits. He claims that if a person enters a new endeavor without every making the same mistake twice, he'd be a force to be reckoned with. People who have a desperate need to win will rarely learn from mistakes, and ironically stagnate in their skill level. Their emotional desire to always be right and to always be in control stunts their growth. After Josh started getting used to repeated defeats and he stopped fearing losses, he was mentally open to start noticing flaws in his opponents' games, and exploiting them. His opponents would typically allow their ego to prevent them from learning, after being defeated by Josh. Young athletes need to first internalize basic skills before being expected to win, and the humility and openness to learn is necessary to become their best. While Michael Jordan made more last-minute shots than any other player, few realize that he also missed more last-minute-shots than any other player.

Chapter 11. Making Smaller Circles: He discusses how modern man always is trying to learn more new things, but never deeply learns anything. He discusses how once you deeply learn something, it becomes intuitive and you can build on that knowledge, discussing how he prefers depth over breadth. Step-by-step we should slowly keep internalizing what we're learning, after which we can move on to more complicated skills. We must be able to perfectly perform a skill slowly until it's internalized, after which we can then gradually increase the speed. He discusses "making smaller circles" as turning technical skills into "feelings" after many repeated hours of practice, deeply learning it until it's internalized. He links this understanding from Thai Chi back to chess, in which he realizes that certain grandmasters (e.g. Michael Adams) are able to control the center of the board while seemingly being nowhere near the center. What is difficult for a Master to grasp, a Grandmaster does intuitively. He discusses how depth is better than breadth, because depth allows for subtle internalization which frees our conscious mind to be more creative, once we can intuit and "feel" our skills, akin to a grandmaster.

Chapter 12. Using Adversity: We must be able to create little spurts of inspiration in ourselves, not dependent on the external world to inspire us. Josh purposefully returns to studying the basics if his technique isn't improving, which can jolt little creative insights. He discusses how NFL players will typically study their past season's performance on their off-season, which offers a valuable opportunity to jolt their internal inspiration and creativity.

Josh injured his hand at one point in his Thai Chi training. Instead of complaining about being at a disadvantage, he used that situation to practice competing with only one hand. Once he started to improve his skills with one hand, he realized that his opponents were actually handicapped by being dependent on two hands. Josh would typically use this to his advantage; if at any point in a competition he was able to control two of his opponent's limbs with only one of his, he had a free limb himself to work with. He relates this to war, politics, legality, business, and careers. For example, instead of complaining if we get fired and hoping for another opportunity, we should use that extra time to learn a new skill. He discusses using setbacks to "deepen your resolve." Perhaps even purposefully creating adversity for yourself by switching your dominant hand as an athlete, for example, to deepen your understanding of the game.

Chapter 13. Slowing Down Time: Peak performance state is described as "calm with a razor's edge." He discusses how intuition bridges the gap between the conscious and unconscious mind. By ignoring our subconscious as some illusory machinery, we are missing out on opportunities to use it to our advantage. He discusses "chunking" and "carved neural pathways" as our brain's natural ability to group relevant information for easy access in memory. Chess masters were able to better memorize unseen chess positions if they were from real games, compared to random scattering of chess pieces across the board.

To use this principle to his advantage, he first trained in chess with isolated pieces (e.g. just a bishop and a king versus a king), after which he internalized that (making smaller circles). Then he trained with a bishop and knight versus a king. Essentially gradually letting his brain “chunk” the bishop with the knight, and slowly adding pieces. This end-game isolation practice is different from how most chess players start with memorizing openings. This technique allows him to intuit and feel the pieces on the board relative to one another, realizing the value that different combinations of pieces have.

He discusses how it’s interesting to notice that nearly all the top-level performers at an endeavor such as chess have mastered the technique and technical skills. At which point it comes down to psychological games and style. Grandmasters can see much more when glancing at a board, due to having internalized the dynamics. Essentially physically looking at less but mentally seeing more.

In Thai Chi, whenever Josh was defeated in training by a sparring partner, he requested that his opponent break down the move which defeated Josh. Josh forced himself to internalize all his training opponents’ skills, using the logic that if such a move defeated Josh in practice, then Josh could use it to defeat another opponent in a real competition. By internalizing the moves, Josh is using much more information in a given 1-second time interval than someone who has to consciously think more, essentially “slowing down time.” We must not ignore the data, but rather internalize it so that it is used, albeit subconsciously.

Chapter 14. The Illusion of the Mystical: Once you’ve internalized techniques, you realize that subtle changes in breathing patterns during a competition, for example, can give away your mind’s intentions. But instead of trying to don a poker face, which would be against Josh’s natural inclinations, Josh lets his opponents read every expression of his, while using “smaller circles” to subtly guide the interaction. For example, if he was feeling confident, he might appear outwardly slightly over-confident, realizing that his opponent would wonder if Josh was trying to cover something up.

To make even smaller circles, once his opponents caught on that Josh was genuinely feeling as he was acting outwardly, Josh would purposefully act confident when he was feeling cautious, using his opponent’s pattern recognition to Josh’s advantage. He developed even more subtle techniques for “systematically controlling [his] opponents’ intentions.” For example, he’d purposefully push against his opponent in Thai Chi several times to on-the-fly condition his opponent to respond in a certain way (push back against Josh), after which Josh would move out of the way letting his opponent fall. The opponent would not even be aware he had been conditioned during a match, and Josh would appear to mystically make his opponent fall forward, which was actually just psychological manipulation. Josh would purposefully make his opponent feel confident and powerful by “feigning unhappiness and backing up”, so that Josh could use the conditioned overconfidence in his opponent, to Josh’s advantage.

Josh discusses other opponents (such as Daniel Caulfield) who would use similar techniques with Josh, and how they would enter into a deeply psychological battle of “smaller circles”, trying to manipulate each other through their blinking and breathing patterns. They trained with each other to improve each other’s techniques. He discusses how football quarterbacks can use similar tricks, darting their eyes to certain receivers to try to manipulate the opposing team into moving in the wrong direction.

PART III: BRINGING IT ALL TOGETHER

Chapter 15. The Power of Presence: There is a powerful story at the beginning of this chapter about an encounter a man has with a jaguar in a jungle. Josh discusses how he related to both the predator and the prey in the story, having been each at different points in his life. He discusses how we must be at peace with pressure, being able to

withstand discomfort, instead of getting torn apart by the pressure. Always stay present in the competition, and try to constantly “maximize each moment’s creative potential.”

Chapter 16. Searching for the Zone: Josh repeats how he used to train for chess in loud environments, forcing himself to develop an inner focus and peace regardless of the external world. He discusses how giving it your all too early in a competition puts you at the risk of burnout; we must learn to pace ourselves. Instead of our performance being fragile and dependent on hoping we’re inspired on a given day, we must practice sustained peak performance. This leads him to learning about the principle of intervals. Two-minute to ten-minute periods of peak performance, followed by relaxing, was better than trying to sustain his peak performance for longer time periods. He learns the value of letting go of everything mentally in between performances, in order to recharge for the next bout of peak performance. He uses interval training with running, in order to train his mind. Cardiovascular interval training (running your hardest for 30 seconds then resting then repeating) is a method for training yourself to better handle mental exhaustion.

Chapter 17. Building Your Trigger: During training sessions at certain performance centers typically used for world-class athletes, Josh learned a technique for triggering a peak-performance mental state. He uses an example of a man Dennis who would get stressed out before important business meetings. Dennis was most relaxed when playing catch with his son. So Josh had Dennis do a very specific half-hour routine before every catch with his son (a light snack, stretching, listening to a certain song). After several months of this, Josh had Dennis work on gradually compressing that routine into a 2-minute routine (a smaller snack, faster stretch, shorter song). Then, whenever Dennis was preparing for a business meeting he’d act out his 2-minute routine. His mind had been conditioned into expecting a catch, and would enter a relaxed state, and put Dennis into peak performance mode for his meeting.

Chapter 18. Making Sandals: *“To walk a thorny road, we may cover its every inch with leather or we can make sandals.”* (an old proverb). When faced with dirty opponents, for example, our natural instinct is to get angry, which is exactly what such opponents wish us to do. Rather, Josh focused on seeking out dirty opponents to practice against, in order to train himself to defeat such opponents, rather than getting upset. Preparing for imperfection and taking personal accountability is better than denying reality and hoping for a cooperative world. Even channel natural anger into increased intensity. When an opponent tries to get us angry and fails, this actually causes the opponent to get angry himself and become flustered.

Chapter 19. Bringing It All Together: We must always use our own personalities and dispositions to our advantage. We must avoid complacency, as “mediocrity can be self-nurturing.” Recognizing how much Josh had to learn and staying humble helped him become better. Josh purposefully studied tapes of his opponents prior to any competition to pick up subtle weaknesses he could exploit. He discusses how great competitors work on “penetrating the macro through the micro”, essentially extrapolating general principles that apply (macro) from deep subtle study of individual’s actions (micro). Josh learned how to embrace the chaos, and seek out more difficult opponents to practice against. This all came to a head as he was preparing for the Push Hands World Championship in Taiwan in 2004.

Chapter 20. Taiwan: This chapter goes into the details of him competing for the title of World Champion in Taiwan, and how he had to deal with dirty judges, competitors who were just as skilled at making smaller circles as him, and who pushed him mentally and physically.

Here is the Youtube video of it: <https://youtu.be/leuf-5pZaaw>. He ended up tying for first place: *“Buffalo and I swayed on the first place podium together, hugging, and holding each other up.”*