2020 Thoughts on Skiing: Learning, Technical and Teaching

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PART I SKIING/RIDING BASIS

- Cookie Hale, Horst Abraham, PJ Jones

Snow, mountains and gravity provide us with a most formidable environment in which we can search for and find ourselves and our limits as we push beyond them. This pursuit is deeply motivating and inspiring, requiring coaches to make the learner's experience the center of attention. Learning happens best at the confluence of adventure and curiosity. While the triad 'Safety – Fun – Learning' is still at the core of what we do, what follows will powerfully influence how we do our work. The basic principles are that good instruction is **student centered** with the instructor facilitating learning by creating a **learning partnership** using an **outcome based** model, developed through **experiential learning** (i.e. skiing/riding) and delivered **from the heart**.

The good guide/coach does not 'teach' skiing, but we connect with **people** who ski and ride. The coach needs to continually balance reliable and proven information with the humanity and social aspect of the learner's experience.

Collaborative experience:

There is an important philosophical premise for the professional coach; even though you are the professional and 'expert', **the learning belongs to the client**. It's their world and you need to start by entering into their world, not them entering into your world. As you enter into the reality of the learner, behave like a curious visitor, full of questions and admiration for what you find there. For that reason, have the skill and humility to turn the tactical lead over to the learner (they must own the experience). You, the coach, take responsibility for safety and managing the learning and performance environment. The concepts and experiences that you share also need to be reliable proven, making sense to the learner. No BS.

Inspire the learner to be in touch with their experience, mobilizing their senses to come alive in ways they have not experienced in a while. Step away from the misguided thought of you being the task expert and let the student take the lead when it comes to making their aspirations take form. You, as the coach, are the process expert, orchestrating the thoughts, feelings and actions that generate the fascinating magic of learning and performing at one's best and even beyond!

Deep caring for your student (who may at any time be a learner, performer, collaborator, patient, leader, follower) and curiosity for what the learner experiences is the mantra of the effective coach.

As the coach, you are also a learner. Every person you ski with is a person who knows things that you don't and you can also learn from them. **Connecting and listening, with an open, loving, truth filled heart is the foundation for skiing and riding.**

Whole Person → Spirit - Soul - Body

In their quest to fully understand human nature, traditionally snow sports instructors leaned on the CAP Model (Cognitive-Affective-Physical Domains) for understanding. The CAP Model was formalized by the cognitive / affective theorists Walter Mischel and Uichi Shoda. The model also grew from knowledge drawn from the work of developmental psychologists such as Jean Piaget and Ulric Neisser and others. Though the CAP model brings us closer to understanding the complexity of human nature, it misses by failing to include 'Will' and 'Spirit', dimensions that are thought to be

the Soul of Man, being composed of Mind, Affect/Emotions and Will, with Will serving as the 'decider' in us that helps determine determines what we will do, think and feel, or how we choose to react to a situation. In that sense, human beings are wired to make their own decisions, a capacity we as teachers and coaches need to both respect and be able to call upon when assisting guests in the learning process.

Spiritual Domain

While there are many diverse spiritual beliefs, these beliefs play a more important role in the life styles and decisions that we make. Many believe that we are spiritual beings who have souls and live in bodies. Whatever you believe, suffice it to say, that being sensitive and accommodating of the spiritual domain is very very important.

In summary, view students as human systems that are composed of more than muscles and bones, cognition and knowledge. For a coach or teacher to touch a student's spirit, the relationship must transcend interacting on the level of name, rank and serial number knowing each other. Without touching the spiritual self in each other, interaction will mostly remain on a transactional level.

Touching and respecting the spiritual self in each other is worth the time and effort, as is taking time to reflect on the beauty and uniqueness of snow-covered mountains that can lift us to new and higher levels of consciousness and spirituality.

Both God and praying are acceptable!

PART II LEARNING MODEL

- Cookie Hale

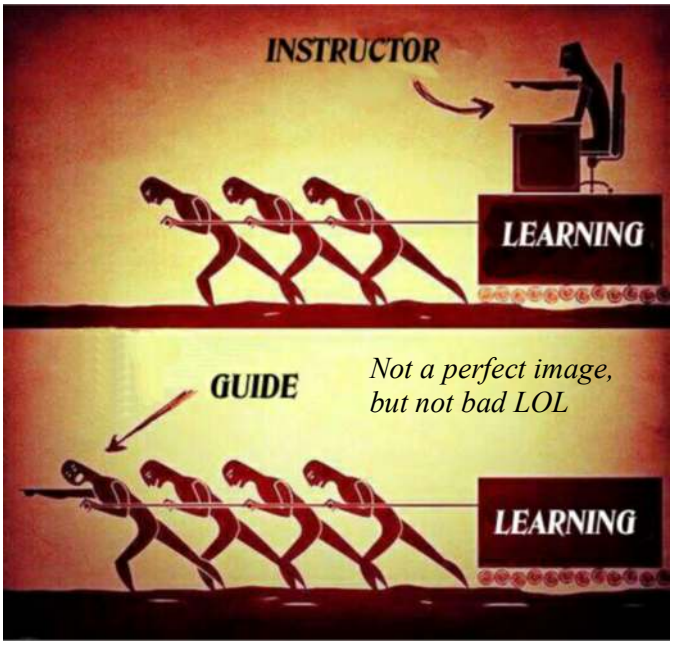
Whenever we go out on the snow, learning will always occur.

As humans, we have that innate primal instinct to learn and explore. Learning always happens. Regardless of our age, all human beings are learners. It's in our DNA. It's our nature. For those who believe in God, it's the way God made us. **We are learners.**

As coaches, we also desire to learn and to help others learn. It certainly helps if we understand better how we all learn, especially how we acquire motor skills! What enhances learning? How do we learn?

Certainly, a sense of positive community promotes learning. Listening to each other, with sincerity, promotes community and is foundational for helping others learn.

What we call ourselves, how we label ourselves, effects how we perceive our role and what we do.



Not a perfect image, but not bad LOL

Who are you? A teacher? An instructor? Or a coach or a guide? What is your role?

Do we 'tell' others what to do based on what we see and think? Or do we learn what others think by engaging them and listening and doing things with them? **Can anyone really understand and talk about something without first doing it, or at least trying to do it?** These are all good questions!

Science has shown us that in acquiring skills such as skiing or riding, detailed cognitive instructions about what to do with our bodies can interfere with and delay learning. Cognitive processing keeps us from entering a state of conscious where we actually acquire motor skills. So, what is our role? What do we do if we want to facilitate learning?

To successfully play the role of the 'guide', an experienced 'instructor' needs to consciously lay aside some of their previous expertise of 'teaching' from the basis of 'Movement Analysis', 'Diagnosis', with the following 'Prescription' of drills, exercises, and 'advice of what to do - in excruciating detail**…** Becoming a guide may require some re-tooling what you have *always* done.

We need to become humble, approaching others with the sincere attitude that they know something we don't, something that could help all of us. We need to be curious and want to learn what that is. What do they think? What are they doing? **What is their 'model', their 'sense making'?** Then we need to join where they are and ask, "Have you tried/thought about/wanted to?", "Do you think, would you like to….?" Questions are not 'checking for understanding' or searching for the 'right/correct' answer… Our questions should result from our curiosity to learn what others think. **We LISTEN!** We learn from our guests! Our guests should talk as much as or more than we do!

The ratio of 'coach talk' to 'learner talk' is critical. The learners should be talking at least as much time as the coach, if not more. 50:50, or more time for the learner. We all process and learn while we talk!

While making sense and understanding are great, they still should be considered background information primarily for allowing or motivating movement. When we start to ski or ride, the learner should focus on what the skis or board are doing on the snow, where they are going and how fast → not some internal body focus. The learner can check in with their body, but the main focus should be external - their skis and the environment..

The foundational concept for working with anyone is the idea of "together", **REALLY TOGETHER**. To develop ownership of this mindset, it helps to understand more of the science that has come from neuroscientists and psychologists in the recent years of how people learn and acquire motor skills.

However, if we are being asked to change the way we approach our role of 'instructor', **we should require that valid reasons for any such re-definition and re-direction be presented and understood.** You can never expect anyone to simply believe and do what they are told just because you told them! Same goes for us as experienced instructors. Many people have excellent and very exercised BS detectors. When given new information or told to try or do something, we may smile and nod, but ignore the advice - and proceed to do what we "know", from "our experience", works. With this intent to refine, or even re-define, the role of the guide, there are some newer foundational concepts that will help us want to change our approach.

Following is a list of the fundamental concepts. Understanding of these concepts will change the way you coach. Many are newer and only beginning to circulate in the snowsports industry around the world. If any are not familiar to you, please study them in more detail in the addendum to this handbook. There is also more discussion in the Addendum on "Learning". (Note: If you are curious about how to deal with fear, understanding our Two Approach Systems to New/Chaos is critical.)

Background Concepts for Understanding Learning

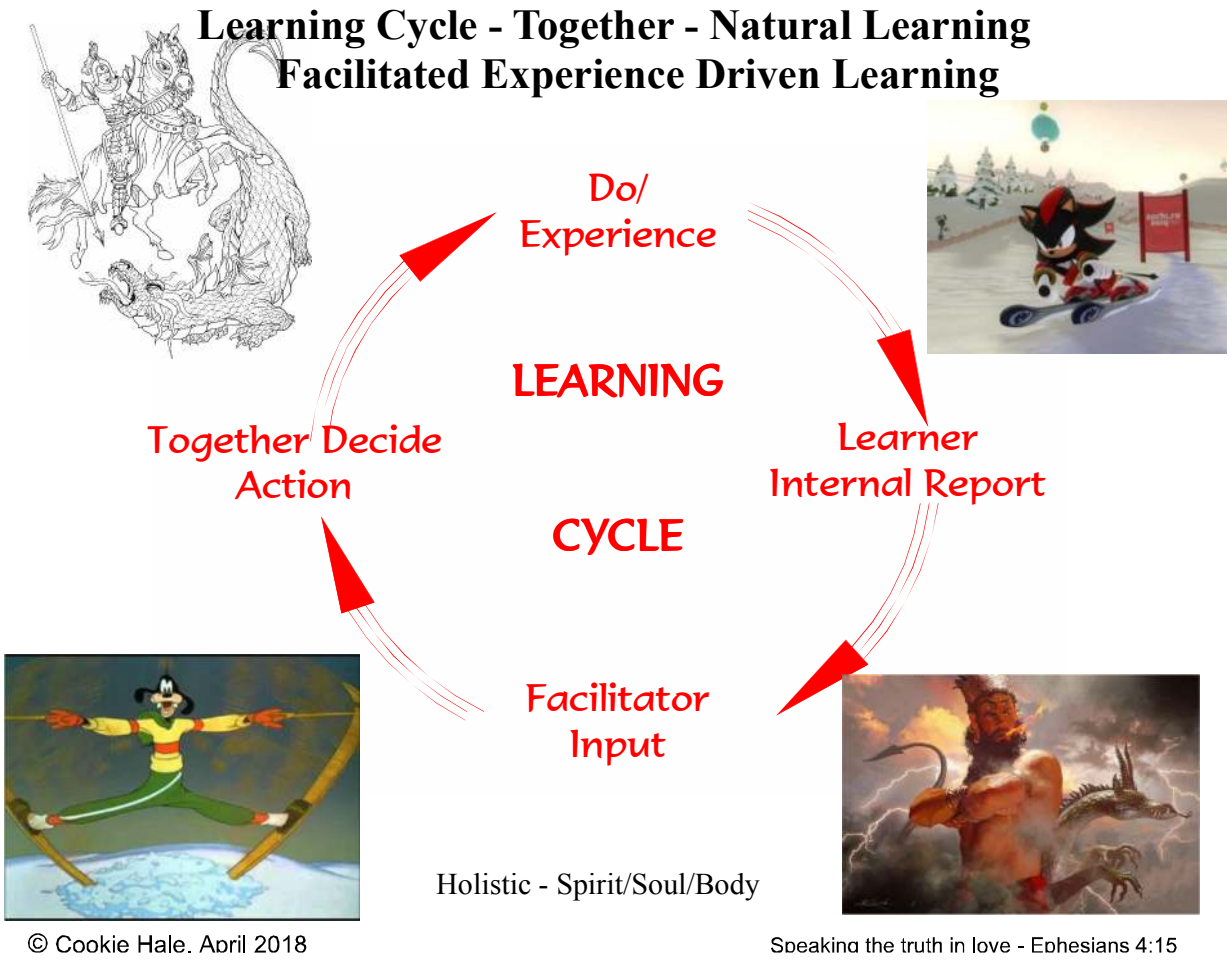
Big Five - Together
Frame Problem
Anoetic Consciousness
External Focus
Mirror Neurons
Neuroplasticity/Neurogenesis/Epigenetics
Dopamine
Chaos/Order
Two Approach Systems (to New/Chaos)

Learning

Do/Experience
Learner Internal Report
Facilitator Input
Together Decide Action
Do/Experience

THE LEARNING CYCLE

Here is a simple learning cycle. In the simplest of terms, the basic concept of the learning model starts with **doing and then listening** to each other. After social introductions, we listen to each other as we talk about our skiing and riding experiences. We honor and respect and value each other and each individual's 'sense making'. We 'do' → we go skiing, riding and we talk. As we talk, we develop awareness of what we are experiencing, how we are **'making sense'** - continuing to share our "internal reports". The guide listens and further wants to understand, asking for clarification, then perhaps making suggestions. It's similar to kids playing together. Together we decide what to do next and go do it! We focus on the people, on each other, as we ski and ride. We learn, we grow, and we have fun, as we **"do"**! **We play!** We do it together!



PART III S.A.G. → THE ANTITHESIS TO TMI

- Horst Abraham 12/2019

Since its inception, our profession has evolved through many stages of methodological development. From instructors serving as role models (do as I do), to the military adding strict progressions to every development stage (can you imagine kick turns at beginner levels?!), to using institutionalized and objectified performance measures to define success (Remember: Final Forms), it has been a wild, exciting and often confusing ride to this point.

Most recent development focused on information about learning theory, sport psychology and teaching methodology, a laudable extension of our profession's knowledge base. What has shown to be largely missing is helping instructors understand the new material to where it is usable knowledge.

In review of the historical journey it could be said that what we may consider the most simplistic methodology (do as I do) may actually have been the most effective teaching method ever used. After all, what is more effective in learning something new than to have a good role model and the time to experiment and assimilate, with no needless cognitive clutter or terminology, free to learn from successes and mistakes. Our profession's growing handicap is that in its desire to add information to our playbook, it fails to cut and edit old material, and help translate theory into practice. With every meaningful change some things begin and some things end. When not satisfying both ends of the change chain, TMI results.

On the mechanical side of the equation a small group of 'revolutionaries' reduced the complexity of ski mechanics in the 1970s to three basic Skills: TEP

- **TURNING one or both skis in the intended direction of travel. (I find 'rotary' an awkward term = adjective)**
- **EDGING one or both skis on corresponding or opposing edges to effect direction change and/or speed control.**
- **PRESSURE CONTROL on one or both skis along the ski's length as needed.**

This simple trilogy of mechanical understanding of the ski's interaction with the snow defines the result of all bio-mechanical activities a skier performs. 'Basic Skills' became the mechanical framework the American Ski Teaching System, a framework that allowed for actionable language and simple to apply methodology.

What is the equivalent methodological simplicity that allows instructors to develop a working understanding of the newest training material when even old simplicity has been made more complex? Another group of 'radical' members of our organization devised SAG to be the methodological equivalent to the Basic Skills. Here is the SAG model.

ENTER: **SAG: 'Simplify', 'Amplify', 'Gamify'.**

These three concepts, mindfully used, help instructors bring language, principles, and practices to impactful actionable levels. Let us review SAG's meaning and magic:

SIMPLIFY = Simplify thought, language, action, sense making.

We learn from our experiences, language we associate with our experiences serving as a memory anchor. It is noteworthy that most effective language is that which is generated by the student, drawing directly from her/his inferences about the experience. Using pre-ordained language, in contrast, tends to be abstract to the learner and distances the learner from 'experiencing the experience'. The EDL mantra therefore is = EXPERIENCE FIRST - **THEN** LANGUAGE and CUEING.

To avoid conceptual constipation, language needs to be simple and actionable. Cues fulfill that purpose. Here is what we mean by 'CUEING': 'Cues' are sounds with which a learner captures the nature and intensity of a movement associated with a certain outcome. Best CUES are one syllable words/sound which, when emitted at the right time and intensity, trigger movement the learner identified to be causal to the movements delivering the desired results. CUES are used intentionally when wishing to replicate previously observed or practiced maneuvers.

Effective cues are developed over time after experimenting with different sounds at different intensity levels before selecting one that is deemed to be most effective to a certain application. Cues, once meaningfully developed, can be stored, transferred and built upon, thus making even a small inventory of CUES serve a skier throughout her/his skiing development. CUES are best developed while mentally and physically rehearsing the movements.

My first encounter of cueing I experienced at the Bundessportheim St,. Christof/Arlberg in Austria where I was taking my Full Cert. Exam at the time. Professor Kruckenhauser (then the leader of the ski instructor institute) was working with a group of school children on the infamous Schulhang (Demo-Hill) watching them evolve from wedge turns to open track Christies. Rather than giving technical instructions to the kids, Kruckenhauser was intently watching the kids actions, then asking one of the kids that spontaneously had developed a wide track Christie how he had accomplished that. The student, without hesitating replied: "You know, SCHWUPPS!" While fellow students had labored to link turns more swiftly, soon all were chanting SCHWUPPS and doing open track christies. What they observed in their fellow student along with the sound, intensity and playful manner in which the word was used, they all SCHWUPPSED.

CUEING can be developed statically in mental rehearsal or dynamically, physically emulating body movements while standing in place or moving. Actively involving the learner in search for actionable learning is advised, yet it should ideally fall short of prescribing movements.

Another simplification can be applied in form of starting with desired outcome rather than building capacity through incremental steps. Try the WHOLE / part method first, using detailed assistance only as needed. For those of us being MA smitten, this suggestion will not sit well, as we are junkies of fragmentation and over-analysis.

One of the simplest simplifications is offered to us by Arizona University Professor Dr. Gaby Wulf who is the co-author of 'Optimal Learning'. Her summary of teaching power comes with three pieces of advice:

1. **Raise Expectations** incrementally and at the rate that supports optimal learning. Start low at achievable levels, then escalate.
2. **Externalize Focus** as much as possible – away from the center of the students' CM or fully to the outside the learner rather than focusing on biomechanical detail that is more internal. (From feet to skis, tracks, obstacle, bump, etc.)
3. **Autonomy** = offer the student as much freedom as possible as it relates to:
4. what to do! (B) How to do it! (C) When to do it! (D) Where to do it! (E) With whom to do it! – Select options as useful and permissible. Adjust degree of autonomy according to the student's capacity to handle autonomy.

AMPLIFY:

Learning theory suggests that to make a point we may have to **amplify or exaggerate** what we wish to show or tell to make a point. This applies both to what we say and what we do. Ski movements and

instructional advice is often given in ways too subtle or it come packaged ith too much attention causing the student to lose the core message. Large and exaggerated movements and clear, focused messages reduced to their essence will best bridge possible understanding gaps. We seem to have forgotten the importance of demonstrating everything we ask students to emulate at least 3-4 times, both facing and away from the students. Think Marcel Marceau – the French Mime and aim to demonstrate in ways that do not require language to make a message clear.

Add to the above also the concept **of thinking and feeling out-loud**, student and instructor revealing their thoughts, feelings, and sentiments to each other in audible ways. 'Loud' not only serves the student as a motivational and directional aid, but it also informs each other about what is happening, and how intent and results either conform or differ. Most of what is important in the learning process is invisible to outsiders. Helping each other by empathizing, diagnosing, planning, and implementing makes for the learning process becoming collaborative and transparent.

Talking about amplifying: Have you used nicknames to entice students to do things that stretch them? Nicknames can become temporary labels that identify the next desirable performance level, packaging it a desired outcome into the form of a nickname. Using names like BOUNCY, SMOOTH, RHYTHM, SNAKE have been very helpful to encourage certain performance characteristics in students. Doing so playfully (not in a derogatory way) energizes and directs without directing.

- What in your teaching makes the teaching/learning process audible?
- What onomatopoeic methodology do you use in your teaching? (Specify)
- Are you thinking and feeling out-loud?
- What nickname are you given often by your students?

Beyond the above, being explicit, loud, and energetic (as appropriate in the moment), also helps an instructor generate and manage group energy. Managing energy at appropriately oscillating levels is one of the most important functions of an instructor as energy mobilizes or controls behavior in powerful ways.

GAMIFY:

Neuro- and behavioral science suggests that while we do learn from the classic cognitive process involving reflection (as suggested in the Kolb learning model), playful learning reduces performance anxiety, mobilizes inherent anoetic skills (capabilities the student brings with herself), allows the learner to externalize focus (focus on points as peripheral and external to the learner as possible – the more a learner externalizes her focus (what she pays attention to), the less complicated the learner perceives the task at hand. Combining external focus with CUEING leads to a learning process that is most effective and most fun, the learner fully owning the process, learning and the language – HER language!

Our past overemphasis of 'full cognitive understanding' and 'conscious competence' in the learning process deflected us from natural learning practices using music, rhythm, metaphor, mimmickery and sound cueing as accelerating means to bring about

learning. Using music and rhythm works with adults as well as with children, making learning simpler and more enjoyable.

Thin for a moment how changing the mindset from ‘drill’ to ‘play’, or from ‘perform’ to ‘experiment’ will impact thoughts and feelings about what is to come. Framing activities as ‘play’ changes not only the action we will take towards learning, but it also changes the very brain and body chemistry, resulting in dilating pupils (relaxation), changing blood pressure and pulse beat from one expressing performance anxiety to one seeing an opportunity to experiment and explore. Such a frame change also floods our body with the feel-good substance serotonin, creating a much higher and more beneficial readiness and engagement level than operating with a ‘drill’ mindset.

Children instructors have been great role models for gamifying learning. We just need to convince ourselves that playful learning also works for adults, and engaging ourselves to devise playful ways to assist learning without prescribing it = inviting anoetic learning capabilities.

- Generate 5 ways to ‘gamify’ moving from wedge turning to wedge christies!
- Invent several gamifying ways to enhance stability in students working in first descents.
- Describe a process by which you bring CUEING into yo0ur teaching process.
- Describe practices you used in the past with which you were pushing ‘drills’ over ‘play’. Describe the playful alternatives.

SUMMARY: While the above is only a short summary of SAG, I hope it will inspire you to investigate ways to expand and embellish practices and make learning more fun, make it simpler and more effective in turn.

Have fun skiing and riding!

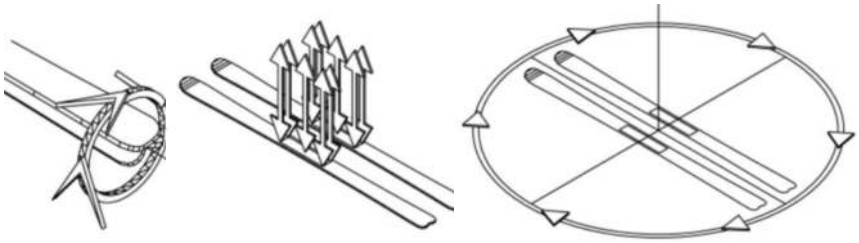
Horst (a fellow addict to skiing)

PART IV FURTHER UNDERSTANDING OF SOME TECHNICAL BASICS

- PJ Jones, Cookie Hale

As with all 'advice' or suggestions, we should never expect anyone to take our advice or to act on it, simply out of "trust". We are all reasoning, thinking humans, responsible and accountable for our decisions and actions. We need to make sense and own our own sense making! We always respect that autonomy! Here are some fundamentals.

Skills Concept - There are not many things you can do with skis or a board. You can **point** them in a direction, you can **tip** them on edge, to various degrees, and you can **stand on** them, balancing and varying the pressure on them. With a board, you have the added pleasure of being able to **torque** the board. This obviously is the well known and long time accepted Skills Concept. It is valid for seniors to understand how simple skis or a board really are. So, it's a really good thing to share the basic Skills Concept with seniors. It makes things simple and do-able, not daunting and complicated.



On the subject of skills, skiing/riding is considered an "**open skilled**" sport. This means that the environment, not only the person, is a major factor effecting execution of the skills. In snowsports, the terrain, the snow conditions, the weather, the other people, are all external factors that are always changing and effecting performance. We learn by doing, through experience and in an open skilled sport, repetitive action of some movement is not what builds the skill. Rather it's exposure to a variety of environments and developing awareness and the ability to adapt - maintaining the freedom to try, to play, to explore what works best.

Body Basics - The main objective of all skiing and riding is to be **always balancing** on, moving with the skis/board. Balancing is something our body has known and understood since we were babies learning to walk and play. When we are in balance, life is good and things feel great. We can do things. When we are out of balance, a little warning signal goes off in our brain, "Warning! Warning! Danger! Danger!" We make every effort to regain balance.

A few bits of information on how the body works is useful for the senior who wants to not break their body! Here are the few tidbits that have been found to be most useful:

1. **Foot-Ankle:** The foot is a tripod - heel, ball of foot and little toe side. The arch is the support system. In skiing, it's important to stand on the whole foot, with the center focus near the back of the arch in order to be able to flex the ankle and stay in balance. Many seniors have been taught to stand on the balls of their feet. This makes it almost impossible to flex the ankle and maintain balance. *Try flexing by standing on your toes, then standing on the whole foot.*
2. **Articulating the foot:** In skiing, it is important to be able to articulate the foot, to roll onto the arch and then onto the opposite side of the foot. A footbed should allow this to occur.
3. **Knee:** The knee is a hinge joint. To use it as a hinge joint means keeping your hips lined up over the feet when you bend the knees. Imaging drawing a line through your feet and another line

through your hips. These lines should stay parallel. If the hips are rotated in respect to the feet (as is often in the old fashion 'countered' position), you will hurt the knees if you flex much. Try it, look down at your legs, counter or rotate your hips, then flex and look at your knees and where your femurs point.

4. **Small of the back:** The small of the back should be slightly rounded or flat and ready to round. It should not be arched. This will protect the vertebrae. Think of jumping off of something. Would you ever consider landing with your back arched? No, you would land and flex forward to absorb the impact. This protects the spine. Skiing or boarding is like making slow motion jumps down the hill. You want to 'land' softly, bending slightly as needed to protect your back. *(Skiing is not weight lifting.)*
5. **Spine/Shoulders:** Your spine can twist. You have a turntable at your waist, near your belly button. Your shoulders can point in one direction while your hips in another. Sit in a chair. Turn your shoulders. Your hips don't turn. This is how you can aim your upper body (waist up) when you start moving into a turn, while still keeping your hips aligned with your feet so you will be protecting your knees (as we described above).
6. **Hands:** As Alf Engen used to say, "By golly, you go where your hands go!" General rule is elbows in front of hips and hands outside of elbows. Not like a statue or Frankenstein…
7. **Head:** Normally, we try to keep our heads vertical or close to it.
8. **Total Motion:** We want to **stack our bones** to the physical forces of gravity and momentum. This will use as little muscular energy as possible. We want to only used enough muscle to move those bones to where we want them to go. This means that we stay as loose as we can and feel the force. We should not try to hold some perceived position. Since we are moving with the skis or board, we will always be moving! Total motion, always moving to stay with the skis or board, balancing always to control our direction and speed. Stay loose and go with the force!

Physics: All you have is gravity and friction! You can use both to slow down or to speed up. It's not rocket science. So, you need to say loose so you can feel the forces and go with them, working with them and using them to go where you desire - where and how fast or slow!

1. Gravity - Where you point your skis or board will help determine how fast you go.
2. Friction - Putting your skis or board on edge means little friction and fast. Skidding or slipping the board or skis will produce more friction and slow you down.

SKIING - Putting the technical all together: The senior, aka 'world cup' skiing model, is stacking bones and moving in and with the forces, always balancing. World Cup skiers push the limits of the human body and their concepts of aligning the bones in the forces and efficient patterns, keeps them from breaking. Similar concepts, dialed back a bit, also work for seniors - it's all about the body and the forces. It's not complicated, but just takes some playing to learn and get more comfortable over time. To make a turn, you:

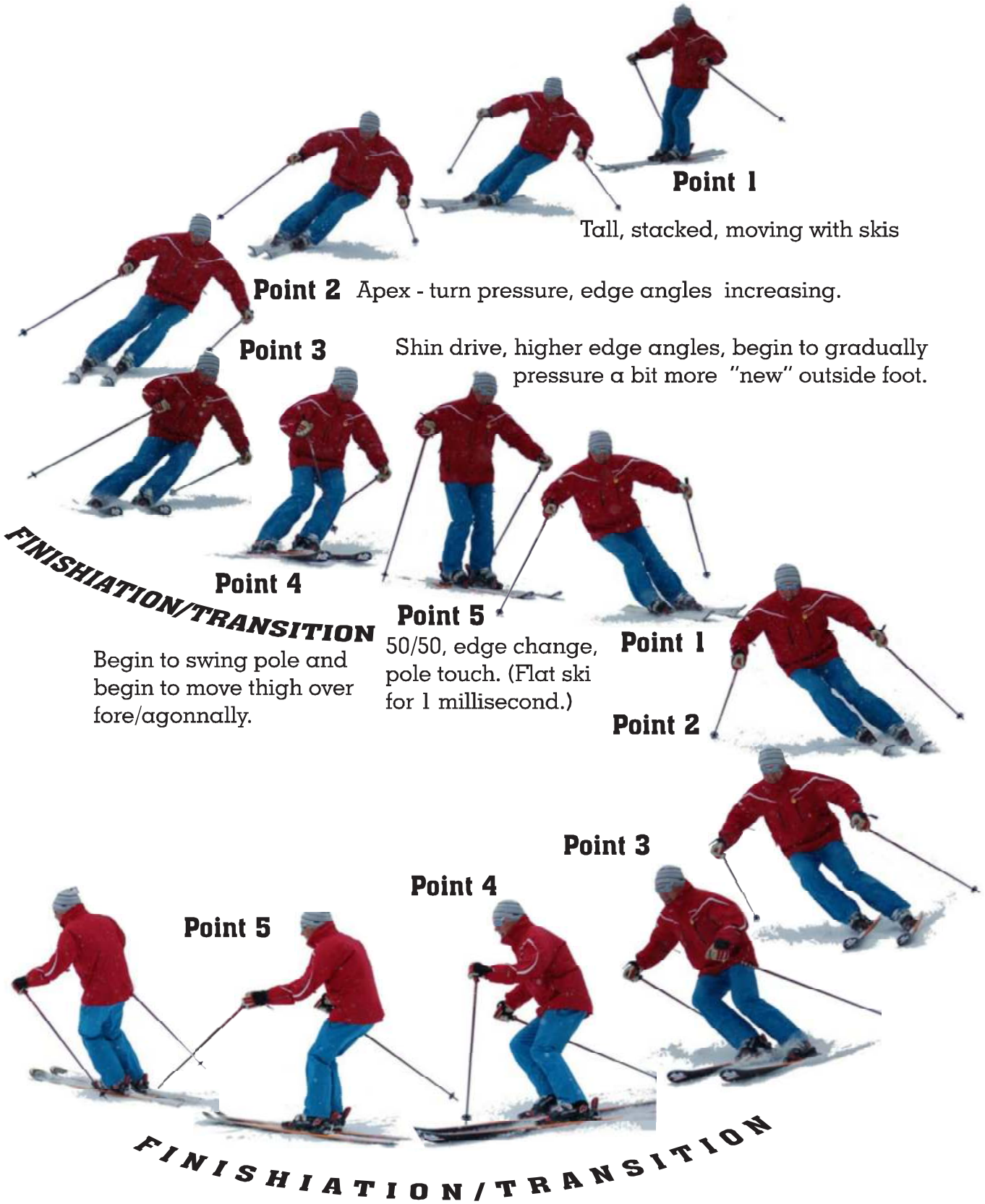
1. First, before you start to steer the skis into a turn, move a bit more weight to your new outside foot. Think of standing sideways on a slope and wanting to jump sideways down the hill. Which foot would you take off of to help move you down the hill? It would be your uphill foot. In making a turn, this is what we call your 'new outside foot'. Draw it out and think about it. In making a turn, you want to move down the hill. Before you start to steer your skis into a turn, put a bit more weight on that 'new'

foot. How do you put more weight onto that foot? Try just taking it off of the other foot by slightly acting as though you were going to lift it. Don't lift it up, just make your new outside foot dominant. We are very two-footed when we ski, always using both feet, but always varying the distribution of weight between the two feet.

2. Before your steer your skis down the hill, you need to also start moving your body in that direction. We call it foreagonal - forward and diagonal. Why? Think of gravity. When you point your skis down the hill, they are going to pick up speed. If you are not already also moving with them, they will get ahead of you and you will become in the back seat, and out of balance. So, you want to start moving to where you want to go a bit before, or at least as soon as you start steering your skis down the hill.

Technical
Tip, Point, Stand on Them
Torque for Snowboard
Where are you going?
How fast?
Gravity and Friction

3. As you start to steer your skis down the hill, you will also be using the ski design and start edging them and allow them to help you turn. How much edge will be determined by your speed and athleticism! Do you want to carve or scarve?
4. As you continue to steer your skis through the apex and and across into the new direction, both gravity and centrifugal force will put yet more pressure on that outside ski. So to manage that pressure, to decrease it, you move with gravity, also down the hill, by bending, aka flexing, staying in balance and also moving with your feet as they move forward. If you feel your feet get ahead of you, pull them back.
5. As you flex, also start to move more weight to what will be you new outside foot, getting ready to do it all again. You should note, that as you start to flex, your upper body is already moving diagonally and actually starting into the new turn while your skis (feet through the hips) are still in the old turn. This is what we call 'finishiation" - you are always moving (total motion) finishing one turn and at the same time initiating an new one. Because you are always staying balanced, you are stacking your bones. We call that stackitude. Then since you are moving forward and diagonally into the new turn, we put it all together and call it foragonal finishiation with stackitude. This has become a senior thing…. LOL
6. Total motion - you are always moving, always bending, unbending, edging, steering, balancing. You are staying loose, feeling and moving in and with the forces. Kind of fun and addicting isn't it! **Surf gravity! Go with the Force!**



Addendum

1 - Learning Concepts - Psychology and Neuroscience

2 - Learning - More Thoughts from The Master (Horst Abraham)

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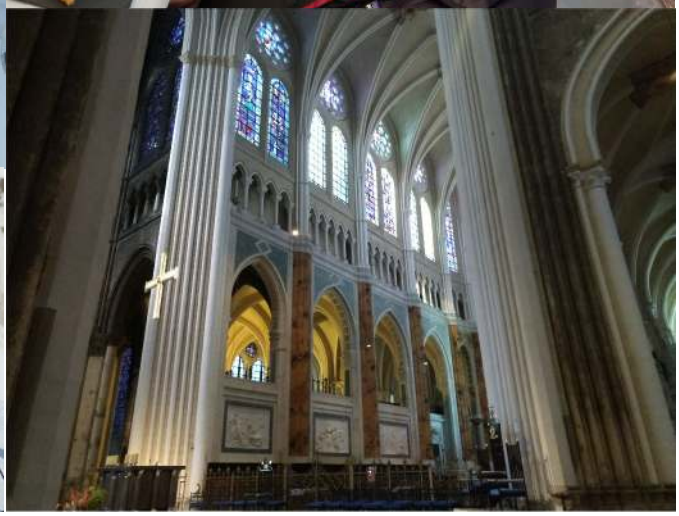


1 - Learning Concepts - Psychology and Neuroscience - Cookie Hale

Big Five: In the early 1990's (and even before), several sets of independent researchers discovered and defined the five broad personality traits based on empirical, data-driven research. The five dimensions are considered to be underlying traits that make up a person's personality. These are not some theory only, or a nice model, they were derived from much empirical research.

What does understanding the Big Five do for helping people learn to ski? The Big Five model shows us that we are all different. We are all different mixes of Agreeableness, Conscientiousness, Extraversion, and Neuroticism and Openness to Experience. People even tend to vote their personalities! Understanding how we differ, in what dimensions we differ, helps us to be more considerate and accepting of others. We need each other to completely live in this world.

We are not going to go into details of the Big Five here. You can go online and take various personality inventories. The best one is Dr. Jordan B. Peterson's at https://www.understandmyself.com/ . However, here is a brief introduction. Each of the traits is made up of two aspects:

- Agreeableness: Compassion and Politeness
- Conscientiousness: Industriousness and Orderliness
- Extraversion: Enthusiasm and Assertiveness
- Neuroticism: Withdrawal and Volatility
- Openness to Experience: Openness and Intellect
  (Note: Neuroticism means sensitivity to negative emotion. It's not 'bad'...)

Frame Problem/Theory: From the search to develop artificial intelligence (AI) we learned that the Newtonian view of the world is not how humans operate. We had thought that we 'see' objects, then decide what to do with them. When AI tried to first take this route, they quickly discovered that 'seeing' was impossible. There is simply too much, with multiple levels of resolution, to 'see'. They discovered that there had to be some filter, to filter out all irrelevant information. The filter became the key. This filter still is the key when working with others!

Where does that filter come from? Researchers then discovered that in order to have a filter, there needed to be an aim, a target, a desired direction or outcome. Humans have a similar operating system built into us. We have some motivations that arise from a very primitive structure in our brain, the hypothalamus. We are hungry, thirsty, cold, tired, desire sex, and also are curious and want to explore and learn*.We also dream… Go where? Learn what? Yes, we are naturally built with an internal desire to explore and learn. We naturally will have some aim. We also imagine. We dream. As we seek to fulfill that aim, we will filter out most of the world as irrelevant and then categorize the rest with valence, with value - as either being a hindrance or obstacle, or as being a tool or helpful to gaining our aim. In the very late 1990's, Christsopher Chabris and Daniel Simons performed a series of experiments which showed how blind we really are to the world around us.

The Frame Theory moves us from the Newtonian view of the world as a world of objects with no valence, to a narrative (ancient/mythical/Christian) and somewhat Darwinian view of the world, where the world is made up of objects that have value, that have valence. We act out a belief that we live in a story, a

subjective story with values, not just in an objective world of objects with no valence.

How does this help with guiding and coaching others? In order to work together, we need to really understand and share a frame of relevance, a target, an aim, a goal. Such a frame will help develop awareness of the environment and our bodies in order to learn and grow.

How do you develop that shared vision or frame? You ask, and you **listen**, with humility and sincere curiosity that springs from a desire to really know what other people are thinking and why they are thinking that - to understand their sense making. This is what has been called the 'internal report'. The guide **listens to the internal report of others**, who are "heroes"…

The Frame Theory should help change the experienced instructor from the path of MA observations with "prescriptive directions" to the path of fellow explorer walking with others in a joint venture, joining in their frame. A great example is this story: I had a client, a younger lady in her mid-thirties, very physically fit. She had skied only a couple of times before. I asked her to show me, to ski. I noted that whenever her speed picked up, she would go in the backseat. Now, this is a common reaction that we often see. MA would say that it's a fear or balance issue and then MA would start to prescribe some exercises or 'talk' to 'correct' that backseat response.

I said to the lady, "I see that you don't want to go too fast. That's great! So what are you doing to control your speed?" *[Side note, most people are primarily interested in two things when they ski or ride, 1)where they are going and 2) how fast are they going.]*

She responded, "I am new at this and I know that these things don't have any brakes. I think I have figured it out. If I lean back and dig in the tails of my skis, I will slow down."

I asked, "How is that working for you?"

Her response, "Well, I am new at this, and I am not doing it so well yet. I am sure that with more practice, I will get better at it."

That lady did not have a balance or a fear issue. I would not have known that without asking her. In addition, no matter what I did with her, she would have also wanted to continue to try to act out her belief based on her 'discovery' on how to slow down.

I simply then said to her, "Would you like to learn some other better ways to slow down?" Of course, she responded, "Oh YES!" She wanted to control her speed, just like you and I do!

Moral of story: Learn from the client. **Listen**. **They should be talking more than 50% of the time.** It's their learning and they need to be engaged and in control, taking responsibility for their time on the snow. Our role is one of **humility, listening and helping** them fulfill **their vision**.

Anoetic Consiousness: Jaak Panksepp discovered the play circuit in mammals and developed an understanding of the affective domain in mammals. He and his colleagues also discovered a state of consciousness that we share with animals, it's called anoetic consciousness. The very interesting aspect of this tidbit of information is that **motor skills are developed and acquired only in this state of consciousness**. Cognitive processing prevents us from being in this state of consciousness. I will say that again, **cognitive processing prevents us from being in anoetic consciousness.** In order to develop motor skills, we will naturally flip into this anoetic state… and not 'think'! So, why not understand this and help the people we are working with also understand this! This means that when it comes time to ski, it's also time to stop with the detailed cognitive explanations and thoughts and switch to some simple external focus and action thoughts: e.g.

where to go, or what to do with the ski or board, or how fast or slow do we want to go…. *This concept of anoetic consciousness is perhaps the most significant newer discovery that proves to us that we need to change the way we coach!*

External Focus: Gabriele Wulf, and others, in her work on kinesiology and learning, have found that an external focus leads to more rapid skill acquisition. For skiing, an external focus is something that you are trying to do with the ski/board or where or how fast you are going - tip it, point it in some direction, balance on it, etc. This is the original skills concept - what you do with the skis or board. Focusing on some bodily movement, some muscle group with a detailed sequence of how the body works to produce some movement is not as good for skill acquisition. Certainly such body movement based background information is interesting and helps with understanding and 'convincing' someone to try something, however, that is not what should be in our thoughts when actually trying to 'do'.

Thus, our normal discussion might include talk about details, however before we start to ski or ride, it's always, "Now, let's just go and 'play' with making the ski/board do….or go 'there'…" The final advice is to simplify to some desired external focus and play with it, not to try to 'do it right'. There needs to be freedom to respect the intelligence of the body and allow the body to function as it was designed to function → External focus!

Mirror Neurons: VS Ramachandran** is a neuroscientist who discovered mirror neurons. Your brain, your nervous system, is distributed throughout your body. Movements and reactions often occur without any prior cognitive processing in the brain. Even when we see someone picking up a glass of water, we process and understand that first with our body, then our affect, then finally with our cognitive, conscious brain. **Body and emotional perception precede cognitive understanding.** *(Pessoa, Bishop and others)* Not only do we have our body mapped throughout our nervous system in our whole body, but parts of our body are also directly mapped onto our brain. (What is a sensory or motor homunculous?***)

Our body can understand and process movements without us understanding or thinking of those movements. This is what we do when we ski or ride and respond to the environment. This is also what we do when we learn by watching and then doing. **We learn motor skills by doing, not by being told what to do and thinking.** The impetus is often curiosity or need…

Neuroplasticity, neurogenesis and epigenetics: What the heck do these words have to do with seniors and snowsports? They are part of the main message of seniors and the concept of hope. For many years, scientists thought that when the brain was injured, the best prognosis was for the person to learn to adapt and to deal with the 'new' state of the brain. However, we are now learning how plastic the brain really is - how it can regenerate and recover remarkably. This is certainly a message of hope!

Neuroplasticity - Reaction is the key word. You cannot control the events or circumstances of your life, but you can control your reactions. We are wired for love, wired for the positive and we have a natural optimism bias wired into us. Our brain is neuroplastic - it can change and adapt or even regrow. There is hope! Old dogs can learn new tricks!

Neurogenesis - New nerve cells are birthed daily, every morning, for our mental benefit, for our learning, for laying down memories. Seniors have the same number of brain cells as teenagers. There is hope!

Epigenetics - Eric R. Kandel's discovery of the **'switch' gene**. We can indeed learn, grow and develop to meet new challenges that arise both from the environment and from our own thoughts! **New genes can be 'turned on' when we are confronted with new circumstances in our lives and our choices.** The initiating signals for unraveling DNA and turning on new genes, creating new proteins, come from outside the gene. They come from both the external world as well as our internal world, e.g. our thoughts, our desires, our choices. Our choices are real and create real 'substance', protein. There is certainly hope. We can do it and we can still learn, grow and change. It's about choice.

Modern neuroscience shows that our thinking, our choices are real. They generate electromagnetic, electrochemical and quantum action in our neurons. Thinking can be measured. It can create substance in our brains. New genes can be turned on.

In addition, we have control and oversight. The frontal lobes of our brains also enable us to, so to speak, stand outside ourselves and observe our own thinking. We can be masters of our brains. That is good news and hopeful!

The Dopaminergic System: Our body has two main chemicals that elicit positive emotional response. One is serotonin which comes when a desire is satiated, satisfied, when a goal is achieved. This is great. However, what is even better is dopamine. This chemical is produced when we see progress towards a valued goal. This is what keeps us going. Dopamine is also what so many of the drugs such as cocaine mimic…

What this means in skiing or riding is that when we set a 'do-able' goal, just even a small next step that we think we can actually try, when we see progress towards it, we get a kick of dopamine. Hooray! We don't have to achieve it, just see progress. This keeps us going and keeps things fun. It is important to remember, that the goal is not the instructor or guide's goal, it is the individual's goal. This is part of the "together" with the individual taking the responsibility for their own 'day on the snow'. This is how our emotional system tracks progress towards our goals. This is how we feel "good".

Chaos and Order: While considering choices and goals, it is important to understand how we actually see the world. If you consider the "Frame Theory", you will remember that we see the world based on relevance to the goal or target that is before us at the moment. (Of course, there are many targets nested within other targets!) As we venture into the world, there is the older known and previously mapped territory that we understand and which we can call 'order'. That is the familiar.
However, there is also the 'new', the unknown that we encounter. We can call that 'chaos'. Often that unknown is 'scary'…. because we do not 'know' it.

It is interesting to note that our brain is developed to respond to both order and chaos. Iain McGilchrist, Norman Doidge, Jordan B. Peterson and others have been exploring how our left hemisphere is more adapted to dealing with order, what we know. It sees generalizations, categories, makes rigid maps and consider them 'reality', it sees isolated parts. The neurological connections are short and 'talk' to each other.

The right hemisphere is more adapted for dealing with chaos. It is holistic, sees things in context, reads emotions, empathy, sees relationships, sees people as individuals, tends to new information, change, seeks novelty, is concerned with the unknown. The neurological connections are long and go deep into the emotional parts of the brain and physical body.

This understanding, that **we are made to deal with chaos, means that no matter how old we get**, we still have the capacity to deal with the new, the unknown. Our senior brains are even more experienced and exercised. We have what it takes to explore the unknown. There is hope!

Two Approach Systems: As we talk about approaching something new, it is important to recognize that there are two approach systems for approaching the unknown, chaos, for confronting a dragon, **a voluntary approach system or an involuntary approach system**.

The **involuntary** approach system will elicit a fear response with a cortisol reaction - all systems are set to "on" and ready to fire. The **voluntary** approach system flows from the hypothalamus with curiosity and exploration. This will lead us to seek a desired goal which will then kick in the dopaminergic system as we see progress towards that goal. Obviously this voluntary approach system is the way to go when skiing and riding. This is what is also known as a "stretch".

Sticking with the voluntary, curiosity approach is also a tool used by psychologists when dealing with people with various phobias. The object, or action that brings on fear, is broken down into little, do-able chunks that are not nearly so daunting. For example, let's take a senior who has decided that they might need to be able to 'survive' the bumps, because, one day, by accident, they might end up there, led by some friends or family. However, this person is scared to death of the bumps. How to begin? Would they agree to a simple trek into the bottom of a bump run, going across it, or even side slipping the last few bumps? Or possibly, just side slipping along side the bumps while looking at them? Anything that they may think is do-able. Then do a little bit more!

If you want to hinder learning, and promote fear with a cortisol response, all you have to do is to tell your client that you have faith in them and that they 'can' do it… and push them into the activity involuntarily - based on your 'direction or command'. They will have a fear/cortisol response!

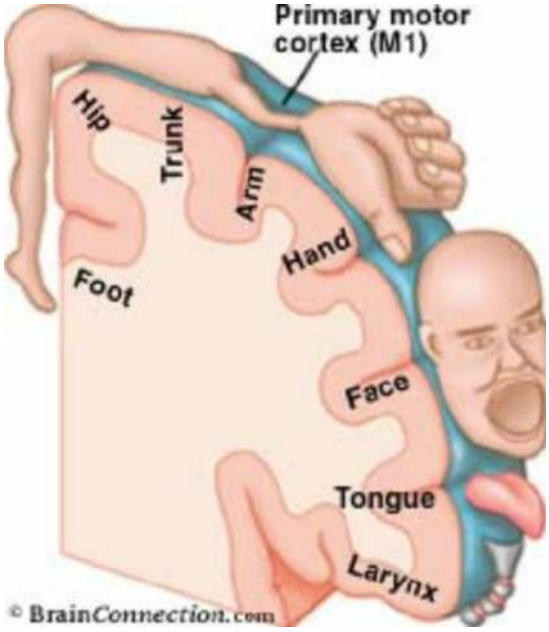
The whole idea is to approach the unknown voluntarily, with a simple, clearly defined desired goal. Dopamine will kick in, positive emotions will track progress towards the goal. It will be fun! There is indeed hope! Celebrate all successes!

Referenced Notes of Interest

*The hypothalamus and cat story - This is a bit gross, but you can remove almost all of a cat's "thinking brain", the cortex, and if you leave the hypothalamus and motor strip (and keep the cat in a closed environment), the cat will almost act normal. However, it will be hyper exploratory. That is because it cannot learn and remember what it already explored. The motivation to be curios, to explore comes from the hypothalamus. Without most of the rest of the brain, it can't remember what it explored…

**VS Ramachandran took his mirror neuron idea and created a box that had a mirror on one side, a spot on the top that you could look into it and a place in the front for you to stick in your hand. A patient, who had had his hand amputated, was experiencing phantom pain in his hand saying that it was clenched all the time. When he put his existing hand into the box, the mirror made it look like two hands, right and left. He then clenched and unclenched his hand. He exclaimed that his phantom pain hand also unclenched and didn't hurt!

*** Homunculus - The diagram on the right, is one of the versions of how your body is mapped onto your brain. There are both the motor and the sensory homunculus's. This diagram is the motor homunculus.



More materials:

http://www.seniorsnowsports.org

2 - LEARNING → MORE THOUGHTS FROM THE MASTER - Horst Abraham

Whatever we do, on or off snow, we always learn from our experiences. As human beings we are wired to explore and learn. Regardless of our age, learning is in our DNA.

While we as coaches rightfully expect our students to be willing learners, it is us who need to be the most formidable learner of all, as we process our own learning as well as that of the student and our interaction with the student. Teaching on this level demands all our caring, empathy, attention, and collaborative spirit, demands that leave most effective teachers empathetically and emotionally exhausted after a lesson.

While we suggested that human beings are wired to learn, by the time we reach adulthood, many people have unlearned learning skills requiring us to awaken learning skills by directing the student's attention to what matters most, gradually handing off learning skills to the student once learning is kicked back to life. To do so it helps to understand the fundamental ingredients of learning and making learning-to-learn a conscious lesson target. Focusing on the desired outcome, focusing on external elements of the task, gradually raising the bar on behavioral elements that produce the desired results, exaggerating our learning efforts, making learning efforts (intent, feelings, experiences) audible, and promoting autonomy in practice represent the core practices of learning-to-learn.

Add to the above Carol Dweck's research findings about the importance of how we think of ourselves (Fixed or Learning Mindset) further shapes behavioral outcomes more than we think. A positive, playful approach to learning rather than a critical and drill-oriented approach will do much to mobilize our Best-Selves to the task at hand. What do you wish to be for your students? Teacher? Instructor? Coach or Guide? What is your role at any given time, and do we have the capacity to slip in and out of the role most effective at any given time? Is our relationship trusting and trust worthy? Do we communicate in a simple and actionable way? Do we talk more than the student? If yes, limit yourself and increase the Inquiry/Advocacy ration in favor of asking questions and listening!

Are we teaching in a manner than expresses our understanding that 'tell methodologies' steal the student's learning experience? Are we aware that TMI and abstract guidance paralyzes and overwhelms the student's capacity to process information? What is our skill level in facilitating with open questions? Do we understand where experiential learning meets MA, and how technique is translated into doable methodology?

As facilitators of learning our lesson planning skills require frequent practice and polish. If you have not written practice methodologies lately, create sample lesson plan for each of the main development stages = Beginner level (i.e.: beginning to turn), Intermediate (i.e.: linking turns rhythmically), Advanced skier/rider (developing bump skiing). If you find yourself writing methodology that is predominantly 'technical' in nature, challenge yourself to develop experience driven methodology instead. By doing so your comprehension of causal loops in the learning process will exponentially increase.

As you ponder your facilitative skills and thinking models, remind yourself that what is most important to the learning process is not teachable. Building on this important and humbling insight, think about how we can generate learning experiences through which the student can develop and polish spatial and temporal skills? List your ideas and check them for technical or experiential content. What type of exercises and practices help such development?

Also, develop and hone our ability to teach with questions mostly (only!), a practice that goes hand in hand with making sure the student speaks more than we do. Questions are our principle way to guide the student's awareness and attention. Develop a series of open questions towards a specific outcome/result! Rinse and repeat until you have a large inventory of questions that fulfill the purpose of guiding the student's attention and awareness.

How good are we in listening not only to the content of what your student says, but do we also read the emotional content of what the student verbally and non-verbally communicates?! LISTENING INTENTLY is fundamental to learning from and with our students. How good are we in paraphrasing periodically what we saw and heard our student communicate to us and check the verity of our observations and assumptions? How many ways do we know how to define and capture a learned skill and build on it to the next level?

To hone our self-awareness as teachers: Do we speak more than our student does? What are we thinking as we watch our student? Is our advocacy/inquiry ratio near or at 1:1? What biases may creep into our facilitating that may/will detract from the student's own experience? How actionable is our vocabulary? What jargon can we convert into simple action-language? How does the student express her ownership of the learning process? How skillfully do we guide the student to own her own learning? How skillfully do we frame a challenge / outcome that resonates with the student? How thoroughly do we statically visually rehearse a new movement that leads to a new outcome? How can we ensure that what we say and do makes sense to the student and ties into her learning process? How focused are we in keeping the student's focus on the ski's interaction with the snow and the result that generates? The learner should visually and she can attach a sound cue to her action that captures the causal movements producing the desired result. Once in action, sound out the cue that will trigger the movements that in turn produce the desired result. The main focus should be external on what wishes to be achieved.