Explanation of 16 Habits of Mind

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There is a growing recognition that mastering subject-area knowledge alone will not be sufficient to prepare learners for their futures. Learners will need deliberate practice and focused attention to grow their capacity as efficacious thinkers to navigate and thrive in the face of unprecedented change.

Habits of Mind is a universal framework for thinking and is as essential now as when we first introduced the idea 30 years ago. “Habits of Mind” are dispositions people use when confronted with problems and situations to which the answer is not immediately apparent. When we draw upon these intellectual resources, the results that are produced are more powerful, of higher quality and of greater significance than if we fail to employ those intellectual behaviors.

1

Persisting

Do you ever give up in despair when the answer to a problem is not immediately found? Do you or your peers ever say, "I can't do this," or "it's too hard?" Do you sometimes write down any answer just to get a task over with as quickly as possible or find yourself easily distracted from a task rather than sticking with it? These are typical problems that we all experience from time to time. What we often don't realize is that we can be in control of those behaviors—if we want to!

Persisting is persevering in a task through to completion and looking for ways to reach your goal when stuck. People who persist apply strategies to help them stick with it, such as:

- **Breaking the problem apart** into steps and accomplishing each step that leads to the final outcome.
- **Reviewing the ground rules, directions, or criteria for success.** Finding something missed along the way or assuming understanding and discovering the misunderstanding.
- **Seeking assistance and input from others.** Sometimes others may have had experience with similar problems or can see a different array of solutions.
- **Using self-talk to hang in and stick with the task.** Remember the Little Engine that Could: "I think I can, I think I can, I think I can." Envision what it will look like and feel like to be successful.

2

Managing Impulsivity

Do you ever find yourself just blurting out what comes to mind? After you say it, do you regret it? Do you find yourself thinking, "I really shouldn't have said that. It isn't what I really meant." Perhaps you find yourself jumping in to do some work before you read the directions. Then you realize that, had you read the directions, you would have known that you did not have to do one thing but you did have to do another.

Managing impulsivity means thinking before acting: you work to remain calm, thoughtful, and deliberate when working through a problem or developing an idea. Helpful strategies that can help as you become more intentional:

- **Focusing on your breathing** to settle down. Find other strategies to help keep your emotions under control.
- **Rewinding the situation** to examine it with a more deliberate eye. Reflect on what, where and why this is happening that is causing the feelings that you are having.
- **Considering your options** Think about what actions you could take and what possible advantages or disadvantages might happen as a result.
- **Reframing possibilities.** Believe that you can change the way you react when others push your buttons, seeing it as an opportunity to learn about yourself, finding new ways to stay in control of your emotions.

3

Listening with Understanding & Empathy

Do you struggle to devote mental energy to another person's thoughts and ideas, putting your own values and judgments aside? Do you rehearse what you are going to say next when someone is talking? Instead, when you are listening fully, you are paying close attention to what is being said beneath the words: what others are saying as well as the subtext or essence of what is being said. You listen not only for what someone knows, but also for what they are trying to represent through their facial expressions, body language, voice intonation and eye movements.

This is a very complex skill requiring the ability to monitor one's own thoughts while, at the same time, attending to the words of others. As you are listening to another person, these strategies may slow your mind down so that you can hear beneath the words to their meaning:

- Use the listening sequence to better understand their thinking.

- **Pause:** Wait for a few moments. Has the other person really finished? Sometimes waiting is the most helpful thing to do. In that quiet space the other may clarify or reframe their point of view, solution, or idea.

- **Paraphrase:** Summarize what you heard them say. A brief explanation that represents what was told to you. This is not the time to add your thinking, inferences, or new ideas.

- **Probe:** Ask questions to promote clarity and precision of the other person's point of view, solution, or idea. A few probing questions are:
    - Why do you think that is the case?
    - What's another way you might…?
    - How might your assumptions about… Influenced your thinking about…?

4

Thinking Flexibly

Do you ever find yourself fixed in your way of looking at a problem? Perhaps you, or someone you are working with, stops thinking and just says, “my mind is made up, don’t confuse me with more facts.” Have you ever known someone who has difficulty in considering alternative points of view? Thinking flexibly is part attitude (openness to a new idea) and part action (knowing how and when to expand horizons and consider using new ideas and information).

Flexible thinker’s minds are open to additional information or reasoning, even if it challenges existing beliefs. They know what they know and see the need to open themselves to other options and alternatives to consider. They are able to work with people from different cultures who represent diverse perspectives because they recognize the distinctness of other people’s ways of experiencing and making meaning. They can draw upon a repertoire of problem solving strategies and practice style flexibility, knowing when it is appropriate to think broadly and globally and when a situation requires detailed precision.

Practice thinking flexibly by getting into the habit of asking yourself such questions as:

- In what other ways might I think about this? What is another perspective?
- What else might I try when I get stuck? How does stepping back and looking at the big picture (the whole) open my eyes to new ideas?
- When and why should I change my thinking and my actions? When others push your buttons, see it as an opportunity to learn about yourself, finding new ways to stay in control of your emotions.

5

Thinking about Your Thinking

Do you get distracted and drift off task? Do you ever realize that you have made a careless error? Do you ever lose your place and have to begin again? Metacognition is our ability to know what we know and what we don't know.

To become more metacognitive, we need to grow inner awareness by becoming more self-observing. It is our ability to plan a strategy for producing what information is needed, to be conscious of our own steps and strategies during the act of problem solving, and to reflect on and evaluate the productiveness of our own thinking. Planning a strategy before embarking on a course of action assists us as we keep track of the steps in the sequence of planned behavior at the conscious awareness level for the duration of the activity. It facilitates making temporal and comparative judgments, assessing the readiness for more or different activities, and monitoring our interpretations, perceptions, decisions, and behaviors.

Practice using reflective prompts to grow your thinking about strategy and course of action:

- How am I thinking about this?
- What kind of thinking will be called for in this situation? For example, Analyzing? Comparing? Creating?
- How effective is the strategy that I am using? What changes might be needed?
- Did my efforts succeed? What could I have done differently?

6

Striving for Accuracy

Are you striving for excellence? Where have you set the bar for yourself? Are you putting your best foot forward to push yourself to your goals? The work you produce is a reflection of your character. When you produce sloppy or insufficient work, it suggests that you are not the kind of person who takes the time to care.

Striving suggests that you are committed to producing the best that you can at this time in your learning. It means that you are open to feedback because you recognize that striving does not mean error-free or "A" work. People who are constantly striving for accuracy focus on growing their craft through each product: working to attain the highest possible standards and pursue ongoing learning in order to bring a laser-like focus of energies to task accomplishment. They take the time to check over and refine their products, reviewing the rules or constraints they have to follow, and applying criteria to guide their path to quality work.

As you examine your work, consider the following strategies:

- **Check your work with a colleague or peer.** Seeing or hearing your work from the lens of another helps to see what changes are needed for clarity of meaning.
- **Study criteria and related descriptors that explain what quality looks like.** If you are unclear on the explanation or need further clarification, seek additional guidance so that you can recalibrate or rework as needed.
- **Give yourself time to step back.** Fast-approaching deadlines or wanting to get a task off your plate may limit your striving for accuracy and precision. Consider how to plan out your time so that you can revisit the work with fresh eyes to look for exactness, correctness, precision, accuracy, and fidelity.

7

Questioning and Posing Problems

When you examine a topic or a problem, what questions come to mind? How do you know those questions are fruitful to pursue or safe to share with others? One of the distinguishing characteristics between humans and other forms of life is our inclination and ability to find questions to investigate and problems to solve. Yet often times when you encounter a problem or ask a question, you might be seen as getting in the way of an immediate solution.

Questioning and problem posing pushes you to think more deeply about the issue at hand. It requires having a questioning attitude, knowing what data are needed, and developing questioning strategies to produce those data. Continuing to push your thinking using questions (e.g., Why does this problem exist and need solving? What is the real problem here? Am I getting to the root cause? What questions do we need to ask?) often leads to deeper and better questions that become more worthy of attention.

The following sequence may help to generate deeper thinking:

1. **Select a problem focus.** Choose some discrepancy, observation, community or global problem or project that attracts you and that stimulates your curiosity.
2. **Generate questions.** Pose as many questions as you can; do not stop to discuss, judge, or answer any of the questions; write down every question exactly as it was stated; and change any statement into questions. Marilee Adams (2009) calls this "QStorming." By listening to other learners' questions you may generate even more and varied questions.
3. **Classify your questions.** Analyze the differences between your questions by stating the intent of each question: What do you want to learn by asking that question? Categorize the list of questions you have just produced.
4. **Prioritize your questions.** Choose the three questions that have the greatest possibility of yielding the information you desire or leading you into new territory.
5. **Decide on actions.** Decide how to use the questions. What data will they yield? How might these data provide insights into resolving the problem deepening your understanding?
6. **Reflect on what you have learned.** Review the steps of the process. What helped or hindered your understanding of question generating? What have you learned from this process? When else might you use this process?

8

Applying Past Knowledge to New Situations

Have you ever worked to make sense of something new by making an analogy or a connection to something in your past? When confronted with a new and perplexing challenge, making analogies (e.g., "when I see this, it is just like this" or "the way this operates is just like the way XX operates") or connecting (e.g., "This reminds me of …" or "this is just like the time when I …") helps people abstract meaning, carry that understanding forward, and apply it in new situations.

When people know how the brain works to find associations , they are more likely to seek connections to the subject at hand. These connections help you to understand and remember what you are learning so that you can draw upon it for future learning.

Some strategies are:

- **As you begin to learn something new,** reflect on prior learning by asking questions such as: What do I already know? How does what I know apply here? What are some experiences that I relate this to?
- **As you are learning,** actively make connections by asking questions such as: What will be important ideas that I will take away? What can I do to Remember the key ideas?
- **After the learning experience is over,** extend thinking by asking questions such as: How might I transfer what I have learned to another situation?

9

Thinking and Communicating with Clarity and Precision

Have you ever worried that what you were attempting to communicate would not be understood or appreciated? Or that your effort to add detail might distract the reader, viewer or listener from the main idea? Language and thinking are closely entwined: enriching the complexity and specificity of language simultaneously produces effective thinking. When people strive to communicate, they work to be accurate in both written and oral form by taking care to use precise language, defining terms, using correct names and universally understood labels, and analogies.

The following strategies may be helpful to keep in mind as you develop thinking and communicating with clarity and precision:

- **Do a mental rehearsal.** Inside your head, practice what you are going to say before you say it. Engage your own internal dialogue by asking questions and developing answers to help clarify and direct your skills as a speaker and listener.
- **Avoid overgeneralizations, deletions, and distortions.** (Ex. "Everybody has one." "Teachers don't understand me." "I like it more.") Instead, support statements with explanations, comparisons, quantifications, and evidence.
- **Slow down when you are emotional.** When you get angry or exasperated, your rational brain closes down and your emotional brain takes over. Take a deep breath and give yourself a chance to think before you say something.
- **Become a spectator of others' language as well as your own.** Listen to the words chosen, choices made to elicit feeling/mood, and details provided to support explanation or claim.
- **Seek feedback from others** to continue to improve the communication as well as craftsmanship. Checking for understanding and adjusting language, evidence, and tone demonstrates respect for the audience as well as keeping your purpose in mind.

10

Gathering Data through All Senses

Where does curiosity come from? Remember when you were little and fascinated by small things such as weeds growing out of cracks in the sidewalk, worms burrowing their way through the dirt, or smells of the ocean?

Information gets into the brain through sensory pathways — sight, sound, taste, touch, and smell — to provide information about the outside world. An apple, for instance, must be eaten to know its crispness and sweetness. To know a role in a play, it must be acted; to know the game of soccer, it must be played; to know a dance it must be moved; to know a goal it must be envisioned. We deepen our knowledge as we experience more in the world.

Those whose sensory pathways are more open, alert, and acute often absorb more information from the environment. When you recall information from that experience, the brain reactivates or reconstructs the circuit in which it was stored. The more sensory modalities that were activated, the more triggers the brain has for reactivating the circuit. This suggests that concrete experiences you encounter that activate several of the senses can enhance your recall of the information at a later time.

Experience the world through as many different avenues as possible. Consider the following strategies:

- **Pay attention to the world around you.** Ask yourself: What am I noticing in my environment? What details capture my attention?
- **Deliberately use your senses when you are trying to remember something.** For example, draw (or find) a picture that captures the idea. Act out a historical event to capture the feeling or mood.
- **When engaging in a new topic or problem,** ask yourself, What sources of data should I consider? How is what I am experiencing impacting my thinking?

11

Creating, Imagining, and Innovating

What if...? This question captures the thinking and imagination of young children where the world is full of endless possibilities. As we become older, we need to foster our creativity by taking risks and frequently pushing the boundaries of perceived limits.

Creating, imagining and innovating requires a commitment to idea-generation, craftsmanship, and feedback. Constantly striving for greater fluency, elaboration, novelty, simplicity, perfection, beauty, harmony and balance. We hold up products for others to judge and seek feedback in an ever-increasing effort to refine technique as well as effectiveness of the product/desired impact.

Strategies to help:

- **Go ahead, take a risk!** When you try something and it doesn't turn out the way you hoped, it isn't a failure. Rather, it provides a rich opportunity to analyze what went wrong, to learn, and to generate alternative strategies. When you are less afraid to make mistakes, you open up the environment for play and experiment.

- **Think by using analogies.** In what ways is a school like an airport? In what ways is soccer like highway? In what ways is gravity like a feather? As you answer these questions, you are developing your creative capacities. You are realizing that, by comparing a main idea or topic you are working on and using a strange analogy, you may discover new and important attributes. We often assume we know something and then, when we make it strange, we discover a deeper understanding.

- **Brainstorm absurd ideas.** Albert Einstein once said, "If at first an idea doesn't seem totally absurd there's no hope for it." Innovators move toward the absurd, the "seemingly" irrelevant, in order to create new insights rather than taking an "obvious" direction.

- **Use divergent and convergent thinking in harmony with each other.** When creating or innovating, there is a balance between when to converge on ideas by following rules or becoming precise and drawing on factual information and other times when divergent thinking suggests that you need to break away and generate new ideas. Become alert to situational cues — to know when to use which type of thinking.

- **Don't take yourself too seriously.** Humor has been found to liberate creativity and provoke such higher level thinking skills as anticipation, finding novel relationships, visual imagery, and making analogies. When you are having fun with ideas, you begin to see possibilities. You begin to take on new and interesting ways of seeing.

12

Responding with Wonderment & Awe

Have you ever witnessed a young child react to a magician's sleight of hand, or exclaim in delight over the appearance of a rainbow in the sky? Are you still thrilled at the sights and sounds of a fireworks display? When the world around us sparks our interest and ignites our sense of wonder, we are inspired to learn, to explore, to imagine possibilities.

Because every thought and action is accompanied by emotions, they have their origins in the brain. The center for emotions in the brain is the amygdala. Those feel-good neurotransmitters (serotonin, endorphin, dopamine) are released whenever we experience such good feelings as rapture, intrigue, amazement or fascination. But many of us never learn to tap into the source of our passions because we fail to discover what inspires us.

Strategies to help provide experiences that trigger that sense of amazement and wonder:

- **Use thinking routines** such as See, Think, Wonder; Options Expolosion; Peeling the Fruit to help students understand the power of shared thinking, collaboration and reflection and how it can spark interest and excitement in others.

- **Explore new places.** Take a walk outside, go to a museum, listen to music, watch a TED talk. Whether these are virtual or physical experiences, be open to observe, explore, and give yourself time to settle in to the surroundings.

- **Keep a Notebook or Journal** Make a list, draw, photograph, or describe experiences or ideas that you have found to be delightful, magical, or wonderous.

13

Taking Responsible Risks

Have you ever had an idea but didn't follow through because you were more worried about being wrong or feeling foolish? Do you sometimes hold back in situations because you are afraid of losing? Have you ever taken a risk and it was a total disaster? Risk-taking situations require a leap into the unknown. They are typically complex and nuanced, requiring tolerance for ambiguity.

People who are willing to take responsible risks accept confusion, uncertainty and higher risks of failure as part of the normal process and they learn to view setbacks as interesting, challenging, and growth producing. However they are not just behaving impulsively. Their risks draw on past knowledge, are thoughtful about consequences, and have a well-trained sense of what is appropriate. It is only through repeated experiences that risk taking becomes educated. They know that all risks are not worth taking.

Take a responsible risk and apply one or more of these strategies:

- **Develop the capacity to live with some uncertainty.** Be challenged by the process of finding an answer rather than by avoiding what you don't know.
- **Be patient with yourself.** Think about necessary resources you might need (e.g., time, feedback, conducive space) to sustain a process of problem solving, investigation, or creation.
- **Live on the edge of your competence.** If you want to grow your brain, work on problems and ideas that are hard. It may feel miserable, but when you struggle and make mistakes it may be the best time for your brain to grow. Ideally this work is done in an environment where mistakes are openly analyzed to promote flexible thinking and perseverance.

14

Finding Humour

What did the green grape say to the purple grape? … Breathe!

Finding humor has found to liberate creativity and provoke such higher level thinking skills such as anticipation, finding novel relationships, visual imagery, and making analogies. People who engage in humor can see situations from a new vantage point or come up with the unexpected. Having a whimsical frame of mind, they thrive on finding incongruity and discontinuities; perceiving absurdities, ironies and satire; and are able to laugh at situations and at themselves.

While they poke fun of themselves and others, they do so with a sensitivity to others' feelings. They develop a heightened sensitivity to when humor will serve a purpose and when it is a distraction.

Take a look at some of these strategies to develop your finding humor chops:

- **Retell or rewrite part of a story** in a humorous way that was upsetting initially, but with a little time and perspective it no longer has that effect on you.
- **Go hunting** in joke books or online sites and ask yourself, What do I find funny? Topics, joke genres (e.g., observational, one-liners, knock knock jokes)
- **Appreciate the element of surprise.** Whether you are finding humor or creating humor, every good joke disrupts expectations by changing the momentum of the story.

15

Thinking Interdependently

Human beings are social beings — we congregate in groups, find it therapeutic to be listened to, draw energy from one another, and seek reciprocity. Thinking interdependently means knowing that we will benefit from participating in and contributing to ideas, inventions, and problem solving.

As people collaborate and remain open to others' perspectives, their thinking can be enhanced by the interchanges with others. Listening, consensus-seeking, giving up an idea to work with someone else, empathy, compassion, group leadership, knowing how to support group efforts, altruism - all are behaviors indicative of those who profit from thinking interdependently. Interdependent people envision the expanding capacities of the group and its members, and they value and draw on the resources of others to enhance their own personal competencies.

Here are several questions to openly reflect on and clarify with a group as you are learning how to present and justify the ideas, and test the feasibility of possible solutions and strategies as you work toward a common goal.

- How can we work best together?
- How can I best contribute to this group?
- How am I affecting the group? How is the group affecting me?
- How can we avoid "group think"?

16

Remaining Open to Continuous Learning

Remaining open to continuous learning is an essential characteristic of self-directed, continual, lifelong learners, and should be nurtured both at home and in school. People who are inquisitive, thoughtful, and confident are open to searching for new or better ways to solve problems, understand ideas, and resolve tensions and uncertainties. That includes the humility of knowing what we don't know, which is the highest form of thinking you will ever learn. Paradoxically, unless you start off with humility, you will find it difficult to move forward.

Self-directed, continuous learners actively gather and interpret feedback through self-observation by consciously monitoring their own feelings, attitudes, and skills; inviting feedback from teachers, parents, and peers, and through interviews with others; and collecting evidence showing the effects of their own efforts. Data is then analyzed, interpreted, and internalized. Based on this analysis, self-directed learners modify their actions to more closely achieve their goals. Thus, they become continually self-managing, self-monitoring, and self-modifying.

- **Have humility and pride when admitting you don't know.** Reframe this as a launch for exploration, curiosity, and mystery rather than a limitation.
- **Ask questions and seek connections.** Deep learning is fueled by an inquisitive mind, developing capabilities for effective and thoughtful action.
- **Continue to discover who you are and how you see the world.** Ask questions, such as: What motivates me to keep learning? What do I still wonder about? How will I remain open to new ideas? Or new learning?

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