The Skills Needed in an AI World

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Abstract

Artificial intelligence is advancing rapidly, and it is becoming capable of performing tasks that once required significant human effort. As AI becomes more powerful and accessible, an important question is, what skills humans need to remain capable, independent, and adaptable. This paper argues that two skills are especially important: **discipline** and a **love of learning**. Discipline helps people stay focused, persistent, and consistent when completing long-term goals, while a love of learning encourages curiosity, creativity, and continuous growth. Both skills can be developed through practice. This paper explores why these skills matter in an AI-driven world and how they can be strengthened through long-term projects, scientific experiments, and BIY-style hands-on learning. Rather than replacing human learning, AI should be used as a tool that supports builders and leaders while they continue to think, explore, create, and learn independently.

Key words: artificial intelligence (AI), Build-it-yourself (BIY), discipline, long term projects, love of learning, hands-on learning, independent learning, adaptability.

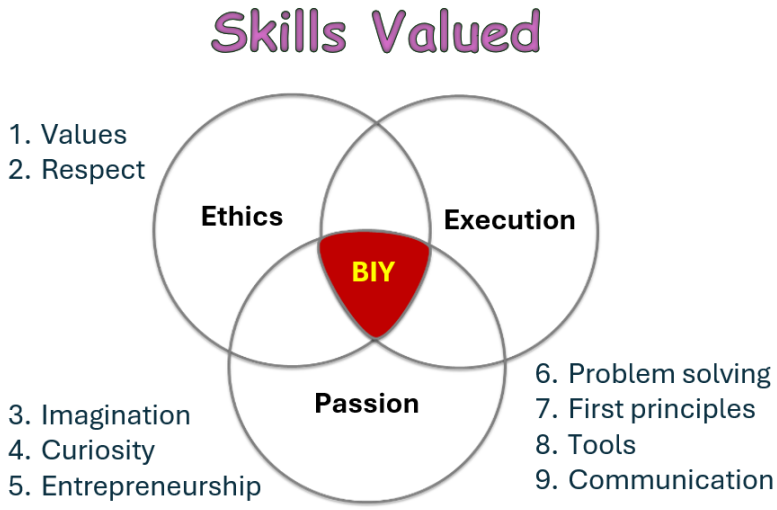
1. Introduction: The Problem

Artificial intelligence is advancing rapidly and becoming part of everyday life. AI can now explain concepts, generate ideas, create content, and help people complete tasks in seconds. These capabilities offer many benefits, but they also create a new challenge: **if AI can do more of the work for us, how do we make sure we continue developing our own skills?**

This question is especially important for students. AI can make learning easier by providing instant explanations and answers but using it too much may reduce the effort students put into understanding and practicing something themselves. Part of the learning process is failing which builds resilience when we persevere. Most people associate this with the acronym FAIL (First Attempt In Learning). The concern is not that AI will replace all human abilities, but that people may become too dependent on it and miss opportunities to develop key skills.

At the same time, AI is not something we can simply avoid. It will continue to be a useful part of education, work, and everyday life. The more practical question is: **how can we use AI as a tool while continuing to develop the skills that AI cannot develop for us.**

This paper explores what skills will be required for people to stay capable and thrive as AI becomes increasingly powerful. Through our research, we identified **nine skills** that may be important in an AI-driven world. This paper focuses on two of them: **discipline** and a **love of learning**. Discipline helps us stay focused and follow through on difficult or long-term tasks, while a love of learning encourages curiosity, exploration, and continuous improvement. We will examine why these skills matter and how hands-on activities, long-term projects, and BIY-style learning can help us develop them.



2. What Skills Do We Need?

2.1 Discipline

Discipline is the ability to stay consistent, focused, and persistent while maintaining self-control and avoiding overreliance on AI.

Discipline is especially important in the world of AI. AI can provide information and tools instantly, but it cannot make us use them productively. For example:

- AI can explain calculus, but it cannot make a student practice every day.
- AI can create a business plan, but it cannot replace the persistence needed to test and improve the idea.
- AI can create a learning plan, but the learner still has to follow it.

AI can make starting a task easier, but it cannot take away the need to complete it.

Meaningful skills require repeated practice, whether it is writing, playing an instrument, developing professional expertise, or learning a difficult subject. Discipline is not about working constantly, but about maintaining the consistency needed for long-term improvement.

2.2 A love of learning

A love for learning is especially important in an AI world, because it encourages us to stay curious, adaptable, and independent instead of relying on AI for every answer.

AI can give us information in milliseconds, but we still need to use our judgement to determine when to use AI. For example, it is ok to ask AI to teach you algebra; however, if you use it to get answers for an algebra assignment, it robs you of your opportunity to learn and the satisfaction of success. As AI continues to change, we will need to keep learning new skills and adapting to new challenges.

Having a love for learning encourages us to ask questions, explore new ideas, meet new friends with shared interests (where you level each other up), and learn from our mistakes. What we learn in one area, we can transfer into another. For example, art is frequently used in sublime engineering designs. Most crucially, having a love for learning reminds us that learning is not just about getting the right answer—it is about understanding, failing, exploring, and growing.

If we can keep that mindset, we can use AI to help us learn without letting it replace the learning process naturally.

3. How Can We Build These Skills?

3.1 how can we build and exercise discipline

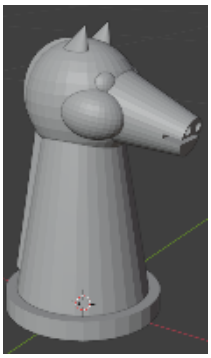
In an entrepreneurial setting, discipline means being able to:

- **Stay committed despite challenges** — continue working when things do not go as planned.
- **Stay focused and push through difficulties** — avoid distractions and keep working toward the goal.
- **Actually execute** — turn ideas and plans into action instead of stopping at the planning stage.

Long-term projects are a practical way to develop these skills because they require sustained effort, consistency, and self-management. Unlike short tasks, they often take weeks or months to complete, requiring us to keep working even when motivation fades or problems arise.

My BIY chess set project was a good example of this. I encountered many frustrating problems, including unconnected hinges in my Blender model and issues with the 3D printer. Creating the pieces was also challenging because I had to edit the models, get the dimensions right, and make sure the pieces were balanced and would not topple over. The piece of the Knight figure was a particular example. These problems taught me to stay focused and persistent even when I wanted to quit.





The project also taught me the importance of consistency and time management. I had to use consistent file-naming conventions and plan my limited time around extracurricular activities. Sometimes I had to finish a task even when the result was not perfect, knowing that I could improve it later. Through this process, I learned that discipline is not about doing everything perfectly; it is about continuing to work, solving problems, and making progress.

(Blender file of the knight)

3.2 How can we build a love for learning

To exercise a love for learning, educators need to teach students how to ask meaningful questions, learn from their mistakes, and reflect on what they have learned and the results they have achieved. When these skills are brought together, you have a scientific experiment.

Scientific experiments are a wonderful example of what a love for learning looks like in real life, because they encourage students to remain curious about the world around them and figure out answers by themselves. They must make observations, collect information, test ideas, and analyze their results without the use of AI. Many experiments do not always go as planned, and this gives students the opportunity to learn from their mistakes and try new methods to succeed.

Although AI can help students understand concepts or analyze information, it cannot replace the firsthand experience of conducting an experiment and the thrill of being successful. When students do experiments, they develop curiosity, critical thinking, problem-solving, and independence.

Chess is one of the things that I love to learn. I watch videos on different chess openings and tactics that I can use. My chess coaches are International Masters, and they inspired

my love of chess. After every chess game that I lost, I would review the game and see what I could have done better. I was the president of Chess Club at my elementary school, and I taught fellow students different chess tactics. Most importantly, I inspired a love of chess for my fellow chess enthusiasts. I love chess so much I play chess with friends at lunch, and whenever I have free time.

3.3 How can BIY-style projects and educators help us practice and strengthen a love for learning?

BIY-style projects make learning interactive, creative, and rewarding. Instead of passively watching a video, students build, experiment, and discover the world.

The Build-It-Yourself Lab provides:

A place for glow (where others celebrate what you did well), and grow (a safe place to make mistakes).

A fun environment where you do “Way Cool” projects: a Rube Goldberg Machine, building 3D chess pieces in Blender, building a website using Claude, to name a few favorites.

BIY educators make the projects engaging, help encourage and troubleshoot problems. These champions are at the forefront of technology, accomplished leaders in industry, and hail from prestigious schools. No fancy kits, just a Premium Quality Junk Box!

4. Conclusion

AI will continue to become more powerful, but that does not mean humans should depend on it. Instead, we need to develop the skills that allow us to use AI effectively while continuing to think and learn for ourselves.

Discipline helps us stay focused, overcome difficulties, and turn ideas into completed projects. A love for learning keeps us curious, encourages us to ask insightful questions, and motivates us to keep iterating. These skills cannot simply be provided by AI; they must be developed through lived experience and deliberate practice.

Long-term projects, scientific experiments, and BIY-style activities provide opportunities to hone these skills. They allow us to make mistakes, solve problems, receive feedback, and experience the satisfaction of creating something ourselves.

The goal is not to compete with AI or avoid using it. The goal is to become capable of using AI without losing our curiosity, independence, and willingness to do the work ourselves. In an AI-driven world, these qualities may become more important, not less.