Encouraging scientific identity through exploration of 'possible selves'

Kristen Short, Ph.D. – Associate Professor, Manchester University Niswander Department of Biology

Kathy Davis, Ph.D. – Associate Professor, Manchester University Department of Chemistry

Scan this QR code (also on tables) for supplemental packet containing:

- Starter reading list on Possible Selves
- Additional information on intervention strategies referenced in this presentation

(limited paper packets available up front)

First, imagine yourself in their shoes…

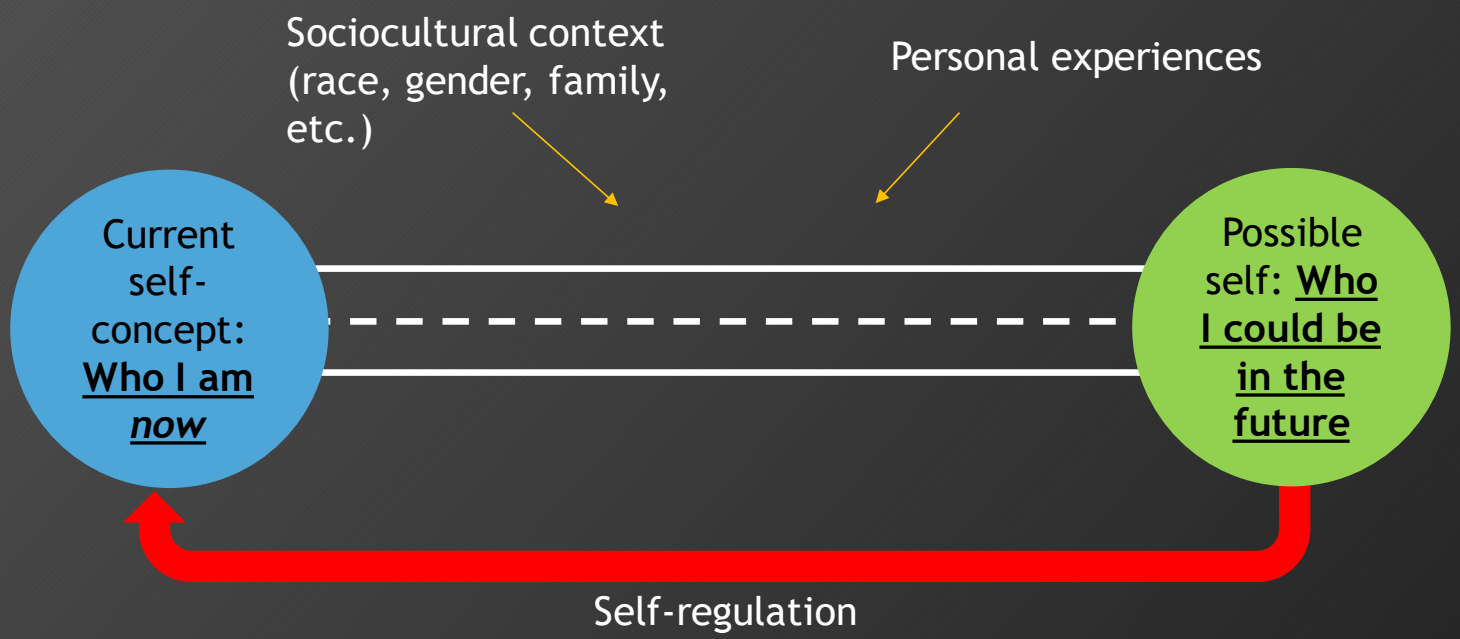
Imagine yourself as one of your first-year students.

(write down)

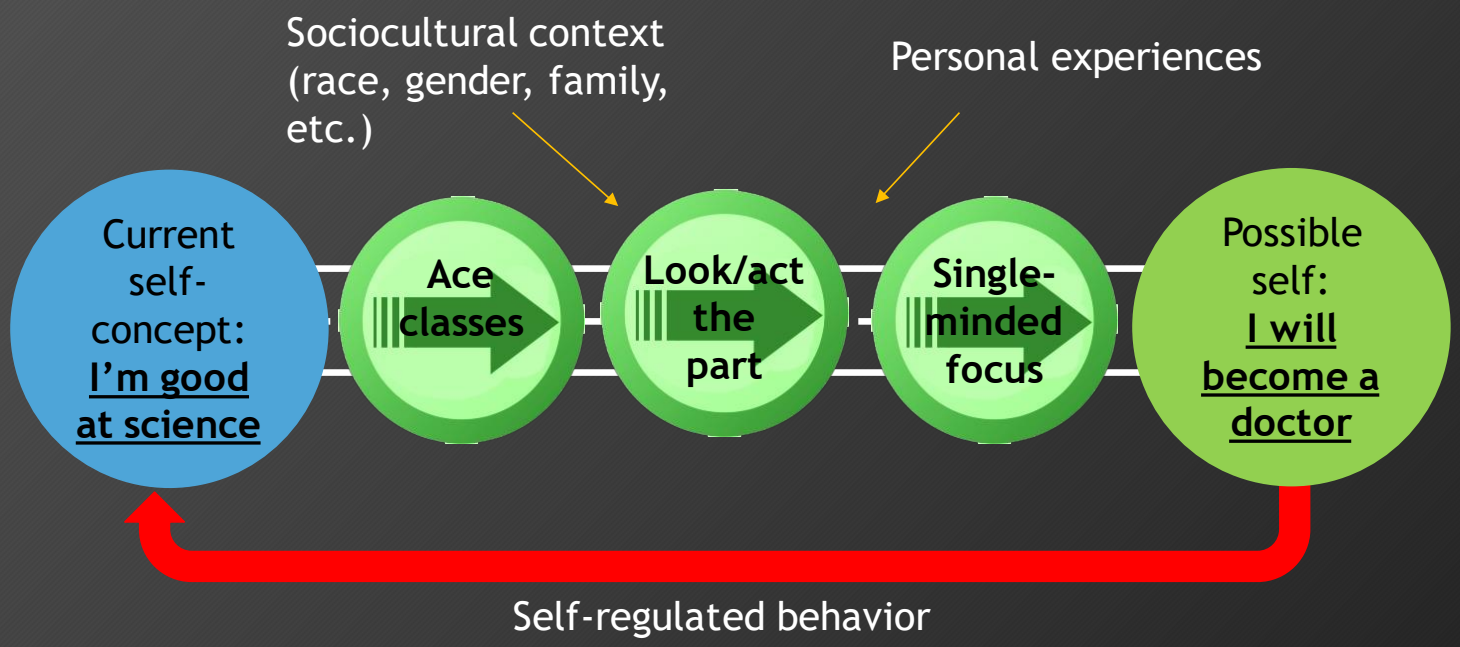
1. What career do you envision for yourself?
2. What is it about yourself right now makes that career attainable or desirable to you?
3. What kinds of evidence do you need during college to feel confident that you are pursuing the right path and can succeed?

Theoretical Framework: Possible Selves

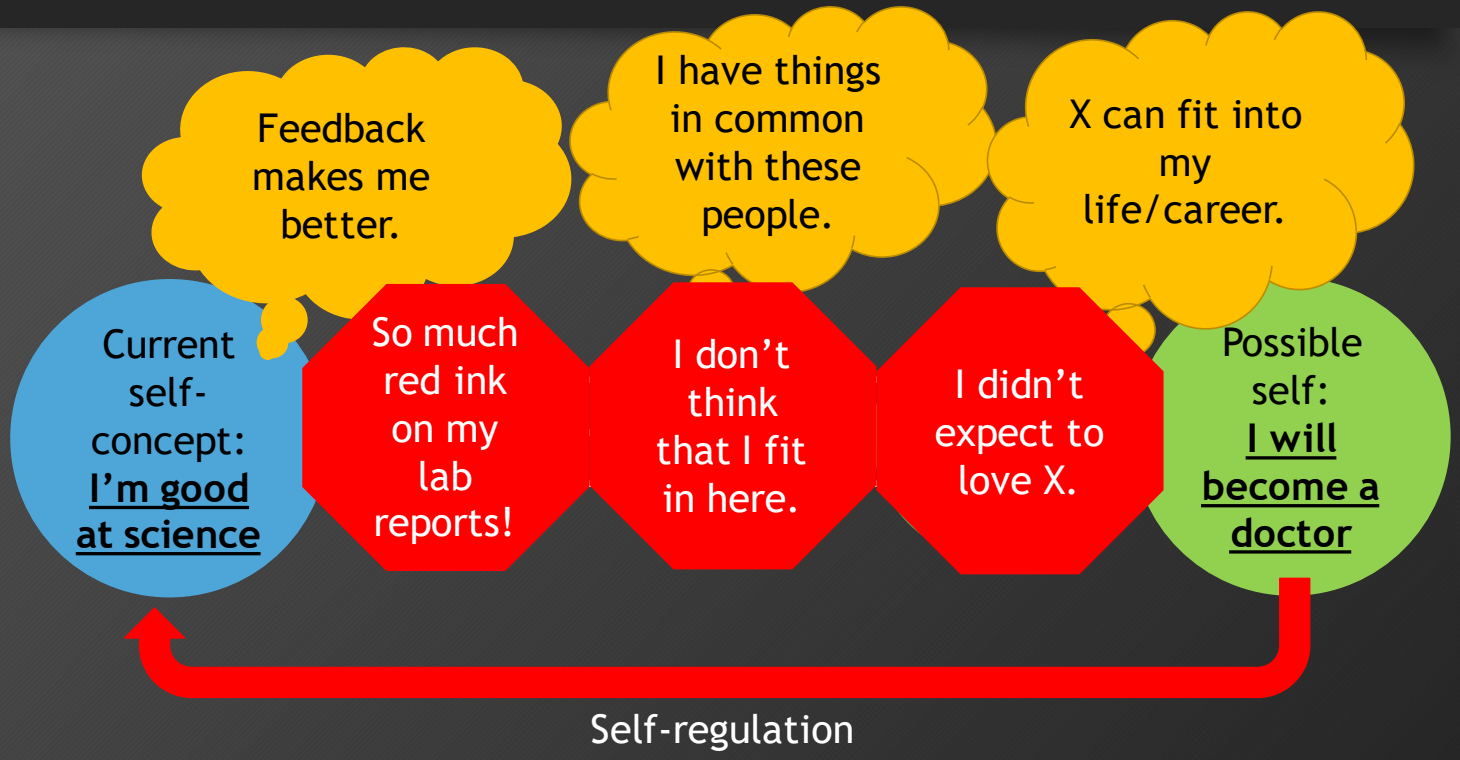
What is a ‘possible self?’



For (a very simplistic) example…



Wait a minute…is that *really* how it goes?



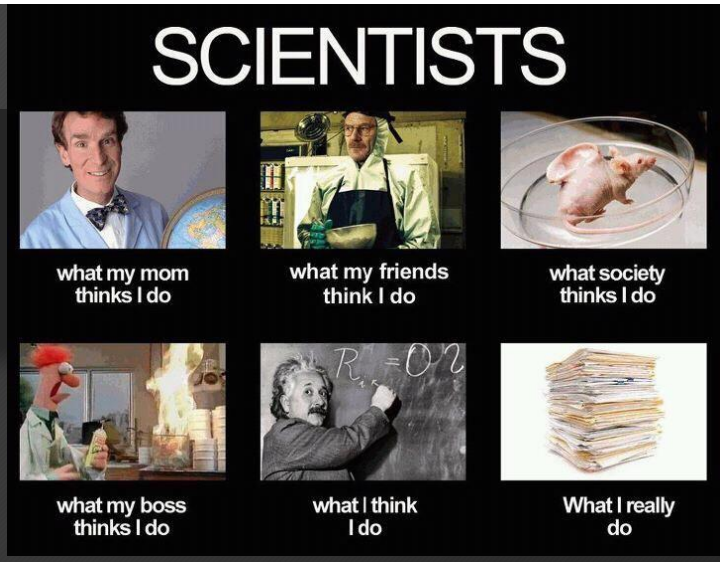
STEM Pathways Program Goals

Self-concept: **I belong in science.**

Possible self: **I will be a STEM professional.**

- Science teacher
- Researcher
- Lab technologist
- Healthcare professional

Group Brainstorming



Misconception:
I have to get A's in all of my classes to get a good (STEM) job.

Wish They Knew:
No matter how successful you are, you will struggle at some point, and you will learn from it.

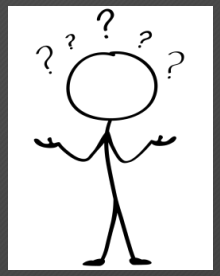
Feedback makes me better.

Intervention #1: Scientist Storytellers

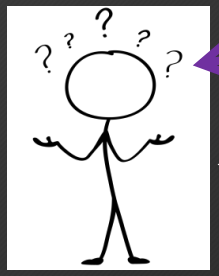
Transforming role models into possible selves

Role models versus possible selves

Role model:
The person my [family, friends, teachers] think I should be.



Possible self:
A person I identify with now, and could be more like in the future.



"Storytellers" in First-Year Seminar

Hear from some real-life STEM professionals:

https://www.youtube.com/watch?v=z1bHK88CAFg

As you listen from the perspective of one of your first-year students, consider:

- In what ways do you personally relate to the scientists?
- What might you find reassuring?
- What do you find intriguing or interesting?

Intervention Effectiveness

"It was more the experiences that they gave off and we were able to make a connection with them. It was a big thing, making that connection, knowing that they failed; so even if you fail you're okay, you're still good." (2018)

"…hearing from the speakers, super encouraging." (2018)

17/20 responding FYs: storytellers changed their perception of scientists and helped them see the field of STEM careers as broader than they had thought

"It was helpful just knowing their stories; it was entertaining and a good learning experience." (2017)

"[most valuable part was]…having scientists from different backgrounds come and speak with us about their struggles and successes in life." (2018)

What students learn about the path:

Failure is part of the journey. Learn something and carry on.

It can be hard for women. Find good mentors.

Grit is important for overcoming obstacles.

Seek work-life balance that works for you.

Take opportunities that present themselves.

Changing your plans is ok. Many people change majors.

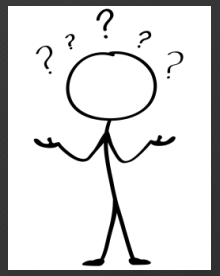
Scientists tend to have specific traits; these can be cultivated.

Intervention #2: Mentoring Program

Transforming isolation into community

Method

- One-to-one pairing of students in first two years with students in 3rd or 4th year of college
- Structured discussion topics centered around revealing true college/career paths, reinforcing healthy self-regulatory behaviors
- Journal prompts encourage reflection



Important themes from student reflections

- Time management
- Dealing with frustration
- Common experiences
- New opportunities
- Personal growth
- Staying with goals
- Being open to other goals

"Since starting college, I have become more open-minded to different career paths because I would just like to find something that I am truly passionate about and follow that path, this open-mindedness came about because I saw how many opportunities there were at Manchester and in general" (Journal entry 2019)

"I had a fantastic mentor… we clicked very well, and our personalities were very similar. I could see a lot of myself in her, like an older version of me, which was really helpful with seeing that she was able to be successful in this way, and then she was able to give me some tips and stuff." (Interview 2019)

Intervention #3: Career Seminar

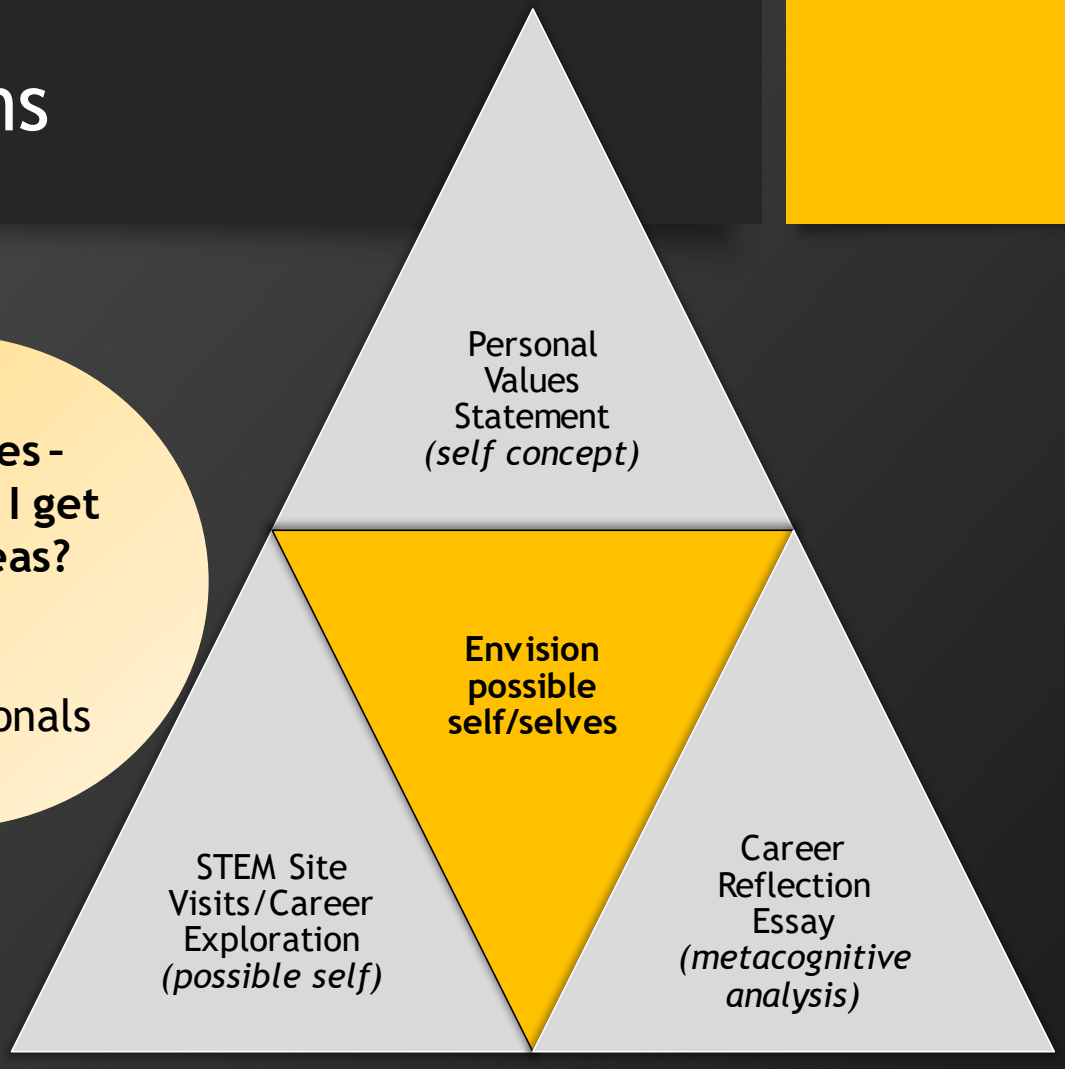
Transforming personal goals through self-knowledge

Career Seminar Reflections

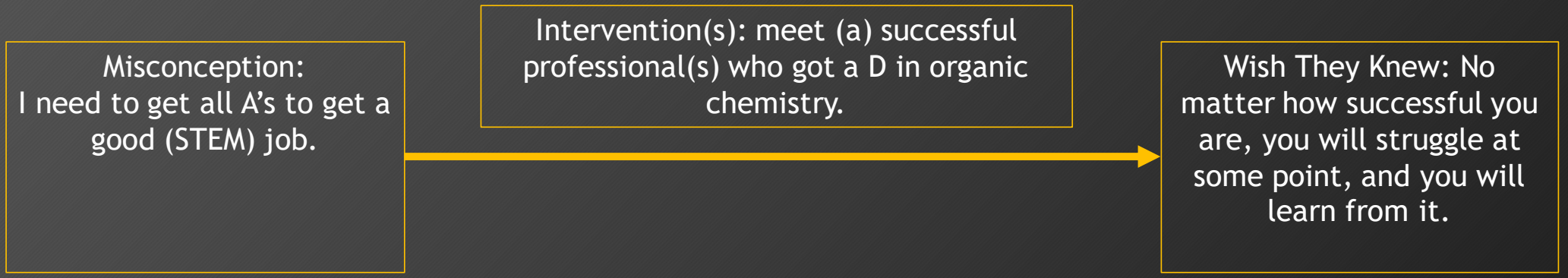
Imagination:
If I was X, my life would be…

Influences – where did I get these ideas?
- Family
- Faculty
- Professionals

Criteria – what possible selves are okay?
- Help others
- Work conditions
- Belonging in field
- Money/prestige/ respect



Group Brainstorming



References and Acknowledgements

For a possible selves reading list (theoretical background and STEM applications) and more about possible selves interventions, scan the QR code at your table or pick up a paper handout packet.

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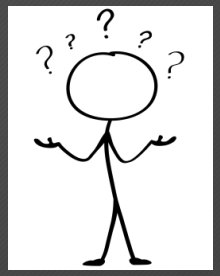
Research conducted by Daphna Oyserman, Deborah Bybee, Kathy Terry, and Tamera Hart-Johnson (2004) describes the importance of linking possible selves to specific behavioral strategies as necessary for maintaining self-regulation while striving for a desired possible self. For example, a person will presumably be more likely to maintain a fitness regimen with strategies that include walking daily and eating right when these strategies are linked to a hoped-for self who is healthy, and an expected self who can reasonably anticipate achieving some improvement in current health in the short term, and a feared self who is unhealthy. Strategies are one means of breaking down larger, long-term goals into more specific goals that can be accomplished.

Possible selves are thoughts about what we hope to become, what we expect to become, and what we fear becoming that develop through personal experiences and environments (e.g., through cultural norms, friends, teachers, parents, and the media; Markus and Nurius 1986)

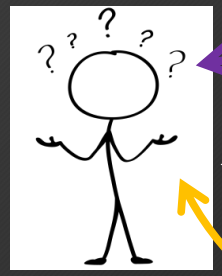
Self-concept is defined as a person's self-perceptions of their abilities in a domain (e.g., "I am good at math;" Marsh 1990a) and is an important influence on motivational processes such a goal setting and self-regulation (i.e., maintaining focus on goal achievement; Carver and Scheier 1982).

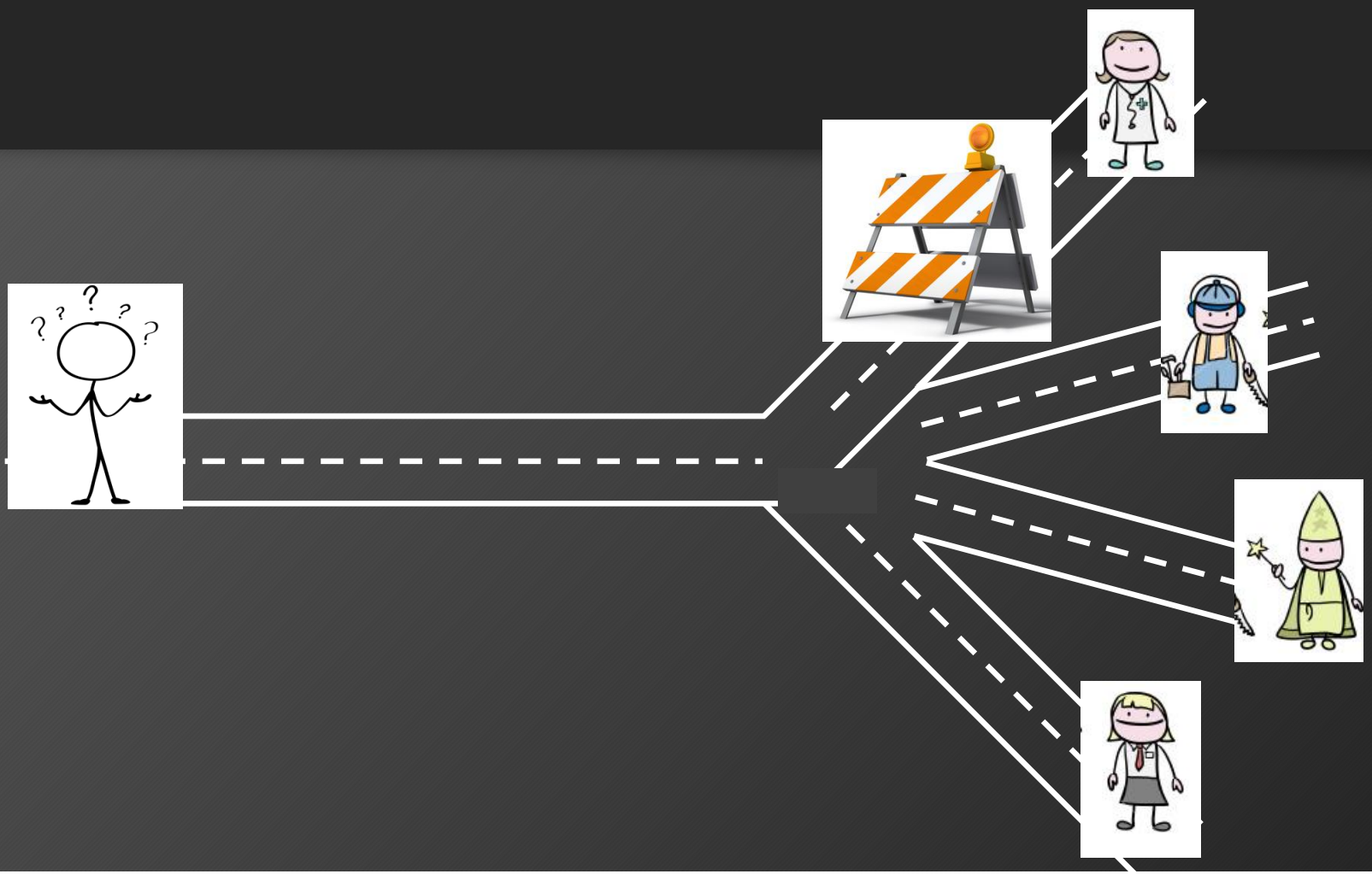
Unlike self-concept, however, which is related to the assessment of a person's current abilities in a domain, possible selves are manifested in a person's thoughts about who he or she ideally hopes to become, who he or she realistically expects to become in the short-term, and who he or she fears becoming (Markus and Nurius 1986). Possible selves encompass a person's enduring goals, aspirations, motives, fears, and threats and are thought to direct future-oriented behavior. It is perhaps important to note that fear in this theory is related to concern about failure to achieve one's goals.

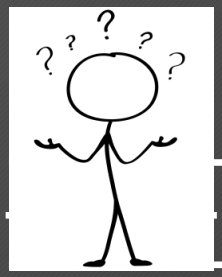
Role model:
This person is someone *I want to be someday.*



Possible self:
This person is like me now, so I could be more like them in the future.







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