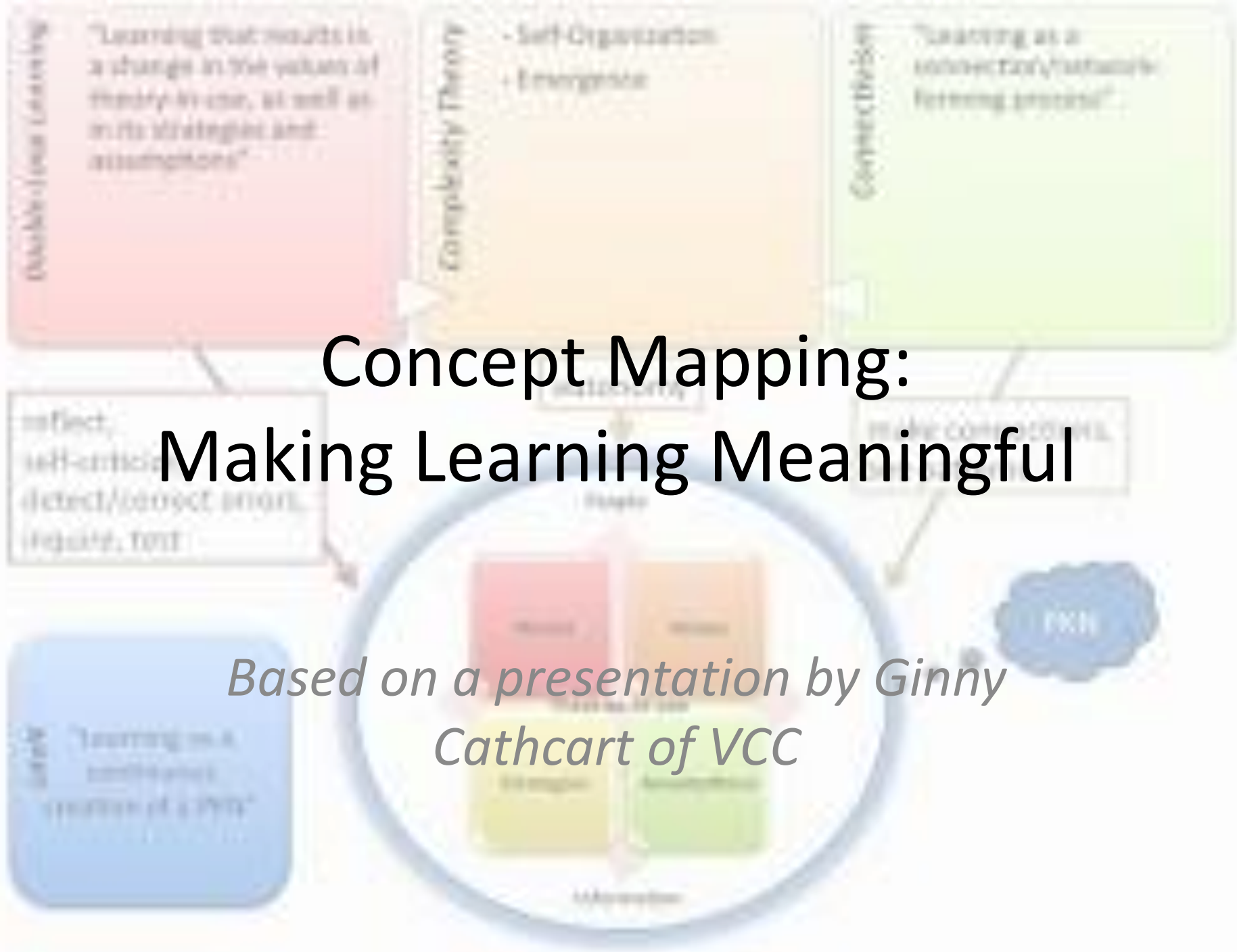


Concept Mapping: Making Learning Meaningful

*Based on a presentation by Ginny
Cathcart of VCC*

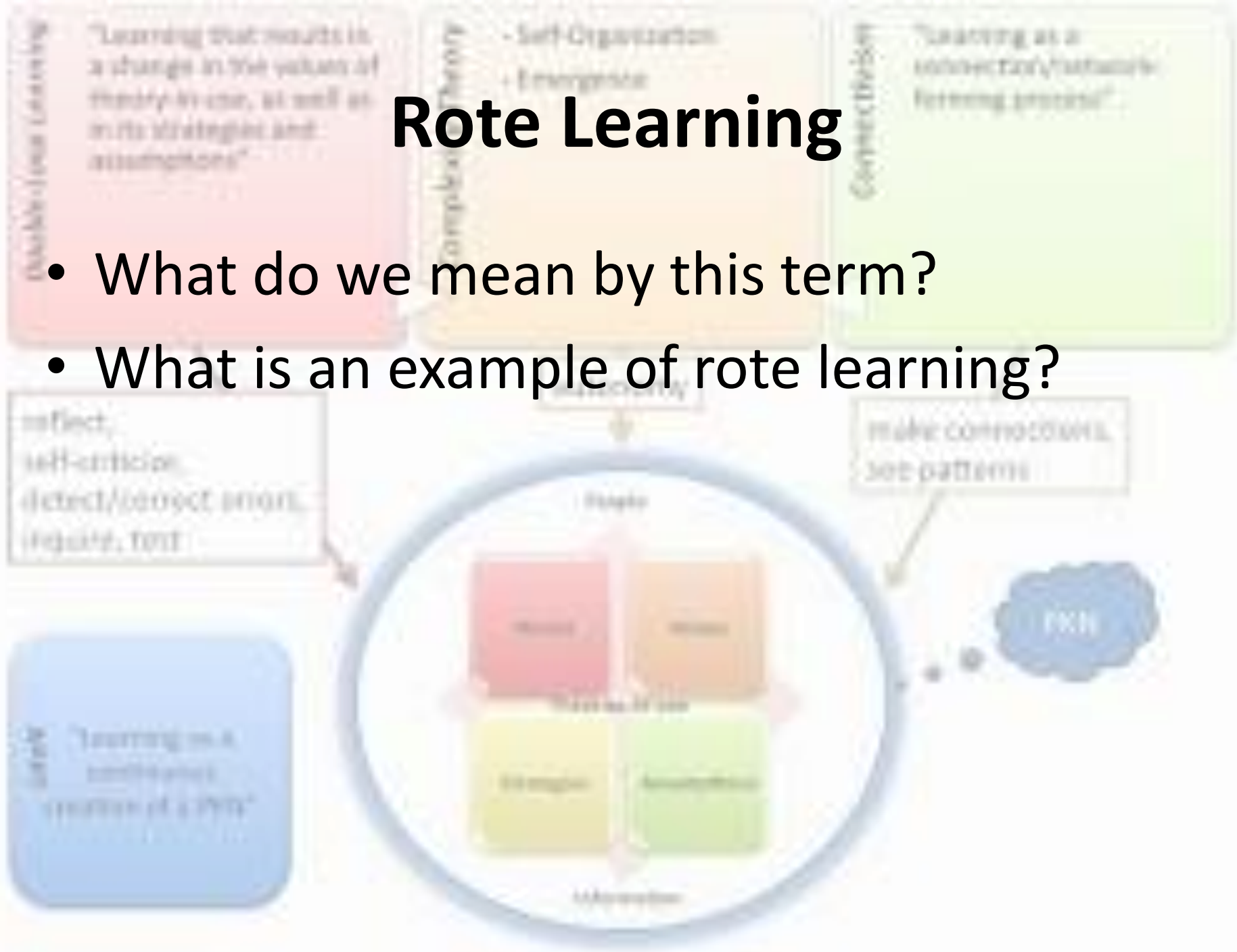


Meaningful learning

- What was something you learned in a course that was *personally meaningful* to you?
- **How** did you learn it? Through lecture, a project or research paper, class discussion, class activities?
- **Why** was it meaningful?

Rote Learning

- What do we mean by this term?
- What is an example of rote learning?



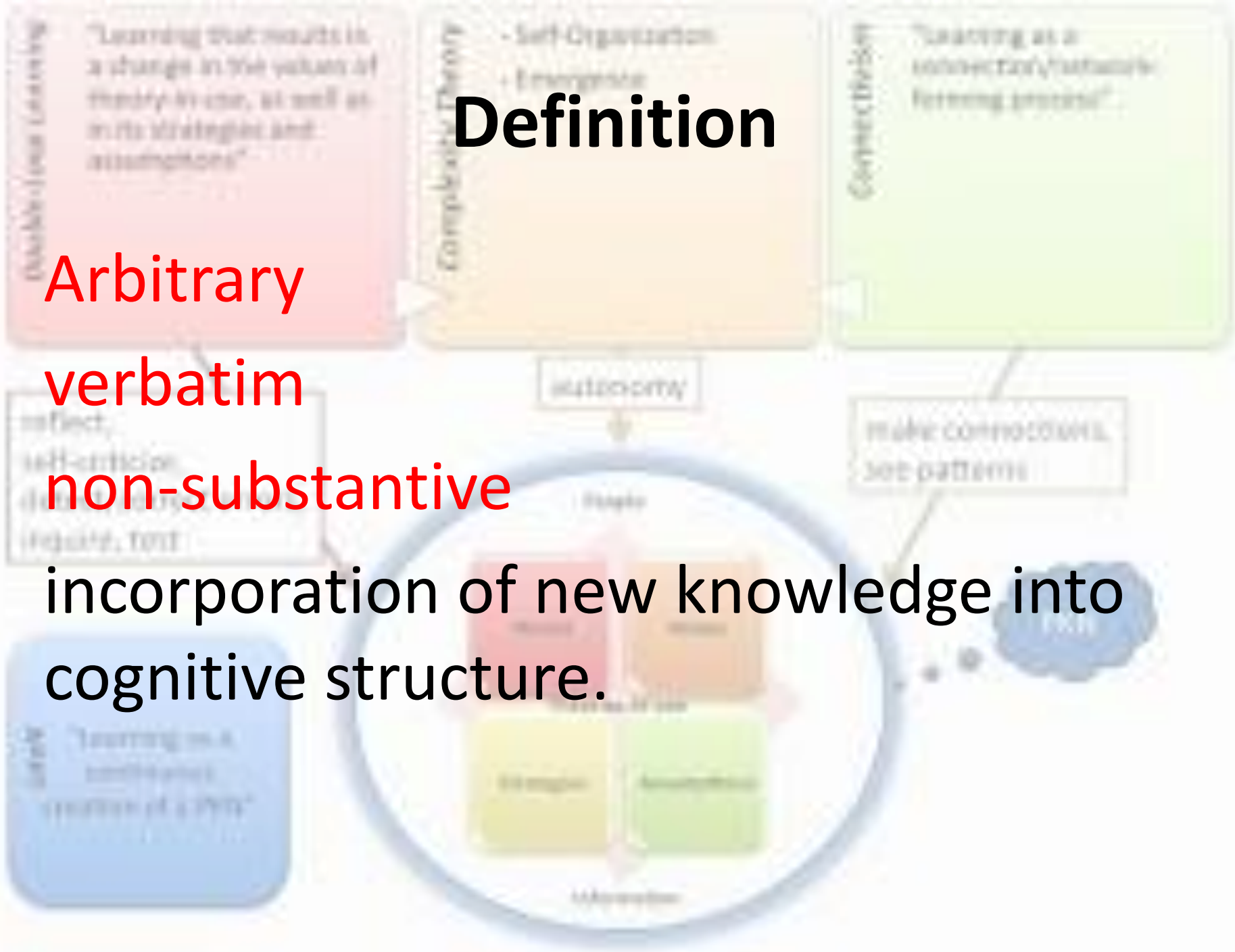
Definition

Arbitrary

verbatim

non-substantive

incorporation of new knowledge into cognitive structure.



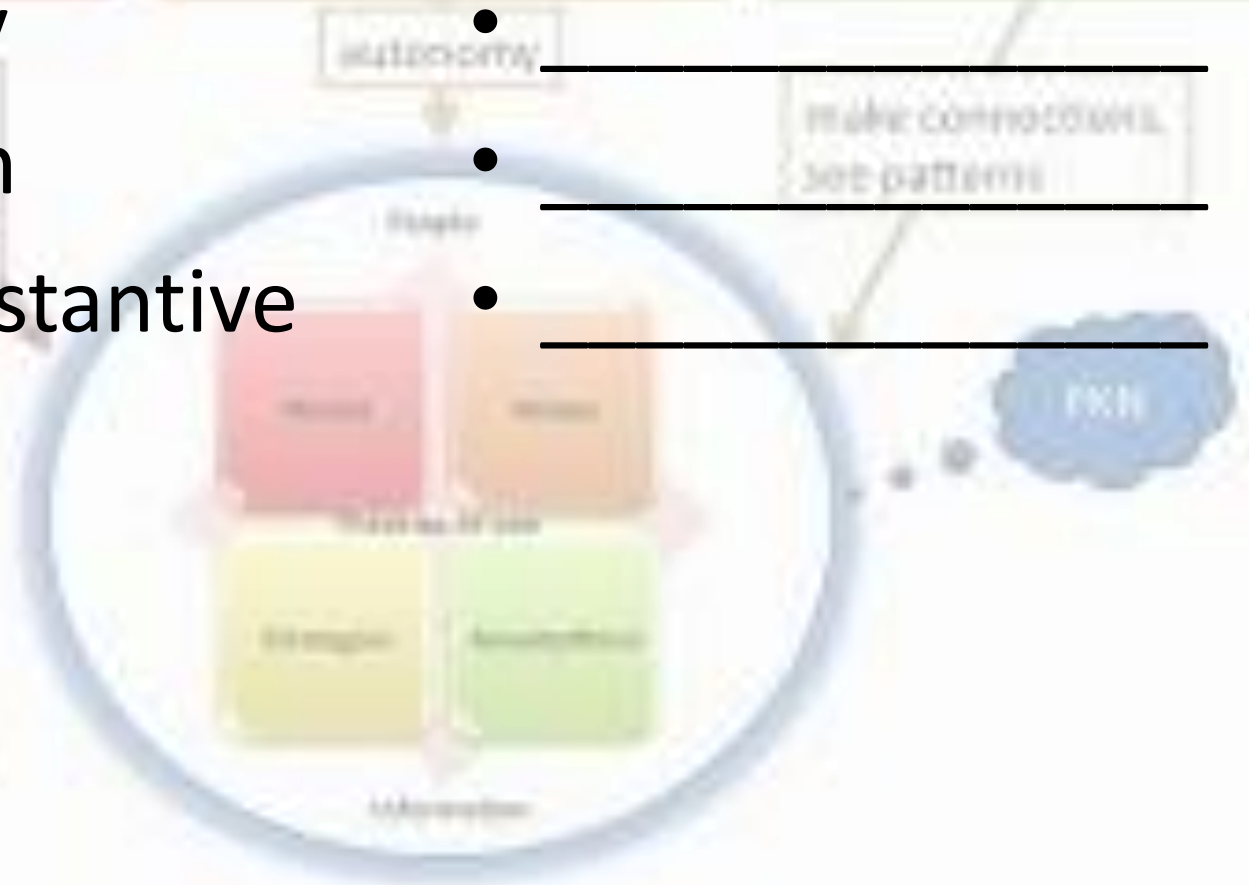
Definition of meaningful learning

Rote learning

- Arbitrary
- Verbatim
- Non-substantive

Meaningful learning

- _____
- _____
- _____



Social constructivist view of learning

- learning is an **interactive** and **collaborative** experience
- **individual** cognition occurs within a **social context**
- **collaboration** between individuals in a social learning environment facilitates learning

Vygotsky

- Through **interaction and collaboration** with capable peers or under adult guidance, children “grow into the intellectual life of those around them” and their **potential** developmental level becomes their **actual** developmental level

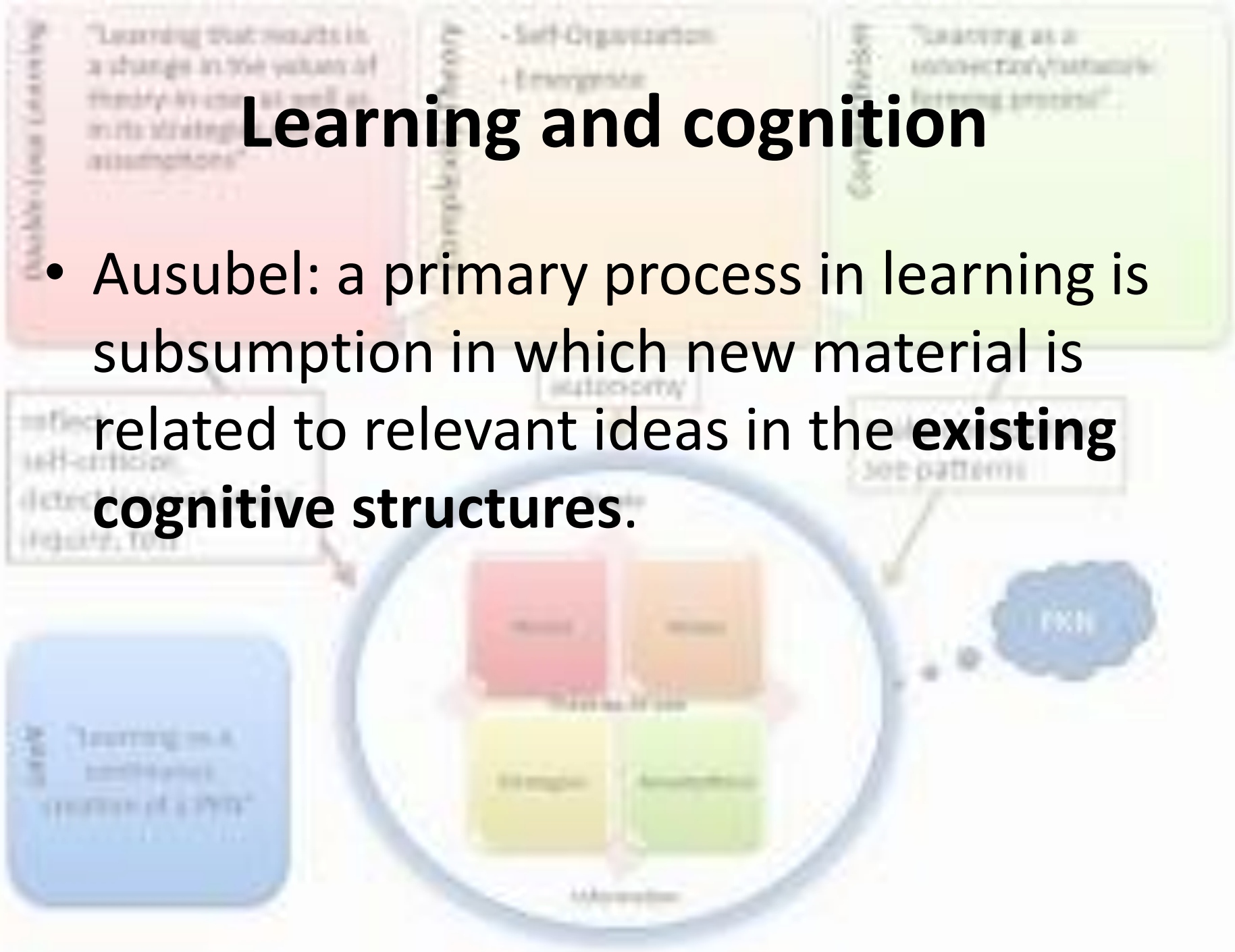
Negotiation of meaning

From collaboration to individual reflection

- **Sharing and comparing information**
- **negotiating meaning by applying newly constructed knowledge and reflecting on what you have learned**

Learning and cognition

- Ausubel: a primary process in learning is subsumption in which new material is related to relevant ideas in the **existing cognitive structures**.



Schema Theory

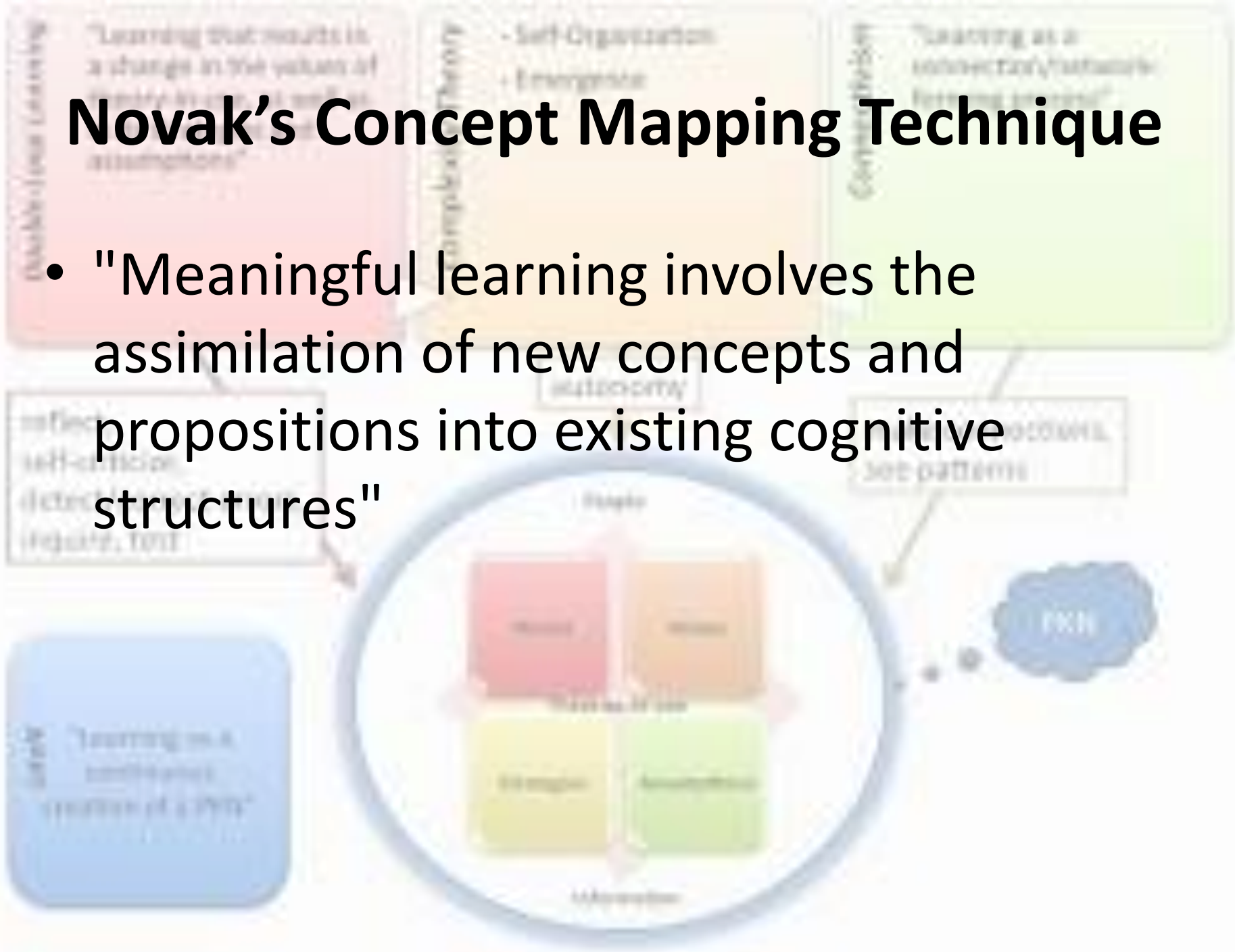
- “Existing cognitive structures” = **schemata**
- Schemata = organized framework of knowledge or **schema**
- A **blueprint** constructed through life experience, prior learning (both formal and informal)

Schema theory

- Schemata is our **prior knowledge...**
- 1) a framework that allows us to **infer, anticipate, and predict**
- 2) a way to organize text to **retain and remember** information, and
- 3) a way to **elaborate** information.

Novak's Concept Mapping Technique

- "Meaningful learning involves the assimilation of new concepts and propositions into existing cognitive structures"

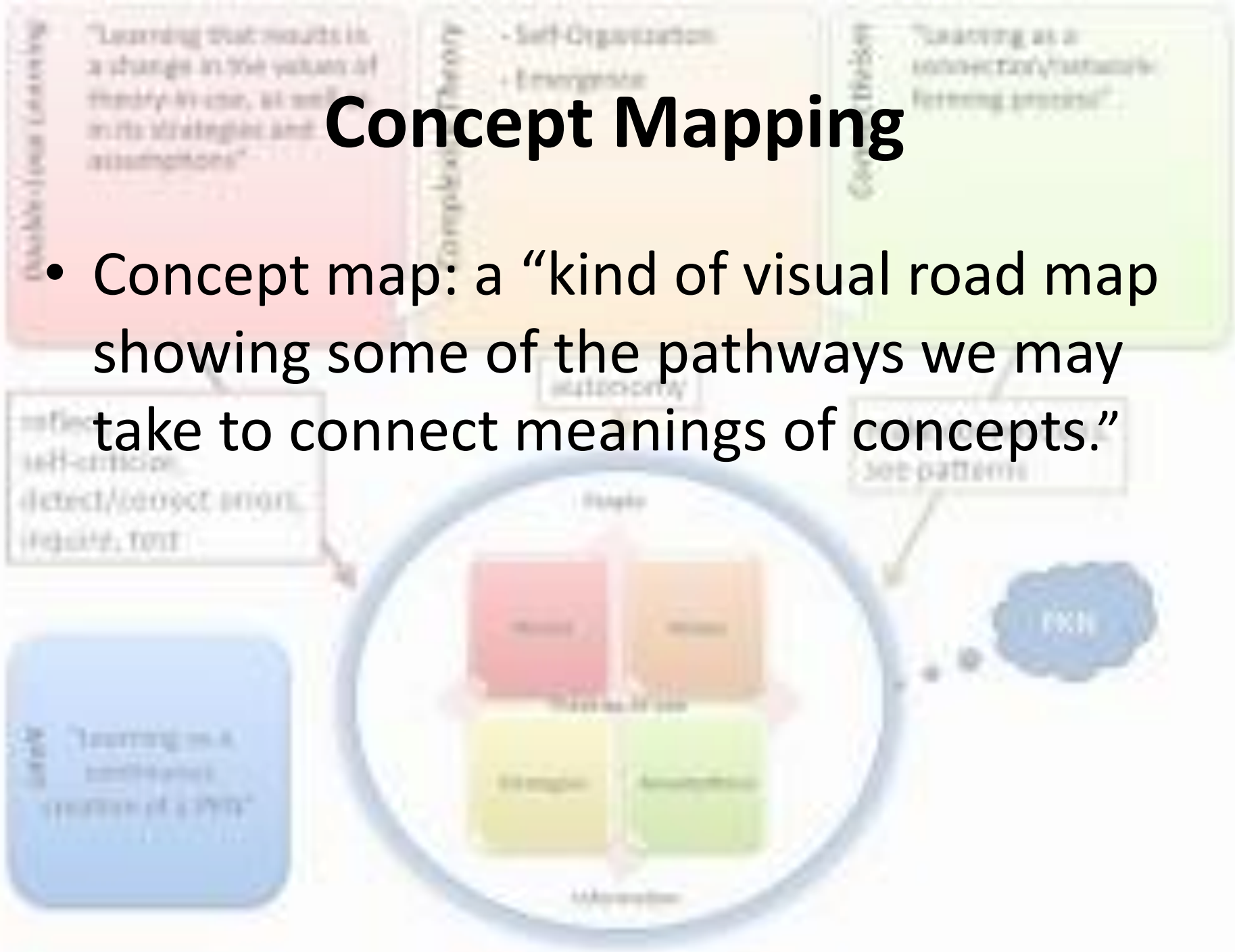


Concept Mapping

- Novak and Gowen's (1984) theory of instruction
- based on Ausubel's meaningful learning principles
- "concept maps" are used to represent meaningful relationships between concepts and propositions.

Concept Mapping

- Concept map: a “kind of visual road map showing some of the pathways we may take to connect meanings of concepts.”



Concept Mapping

- Concept mapping is a technique for **representing knowledge in graphic form.**
- Networks consist of **nodes** and **links**.
- **Nodes** represent **concepts** and **links** represent the **relations** between concepts.

Concept maps are used to...

- to generate ideas (brain storming, etc.)
- to design a complex structure (long texts, hypermedia, large web sites, etc.)
- to communicate complex ideas
- to aid learning by explicitly integrating new and old knowledge
- to assess understanding or diagnose misunderstanding

Students can use concept maps to..

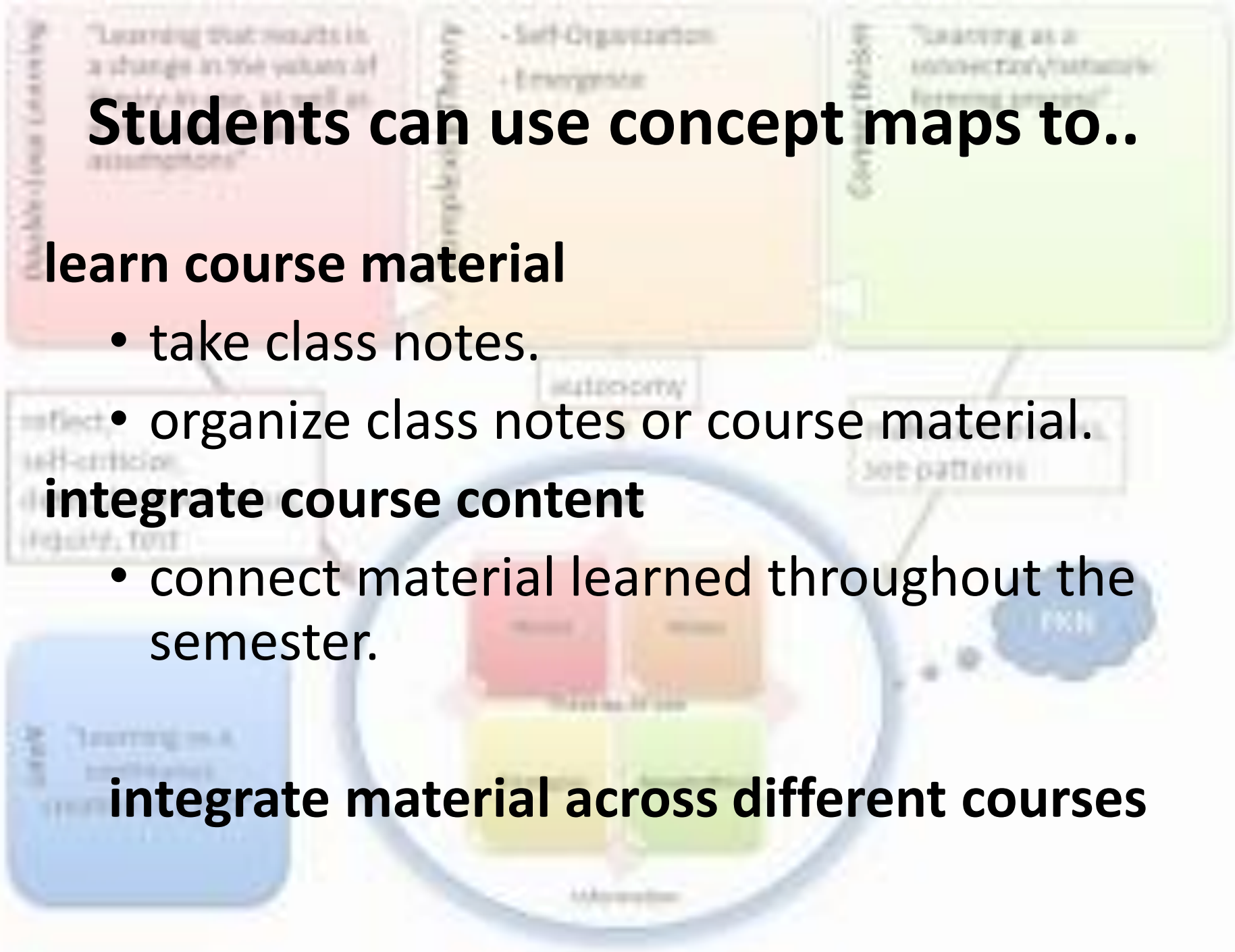
learn course material

- take class notes.
- organize class notes or course material.

integrate course content

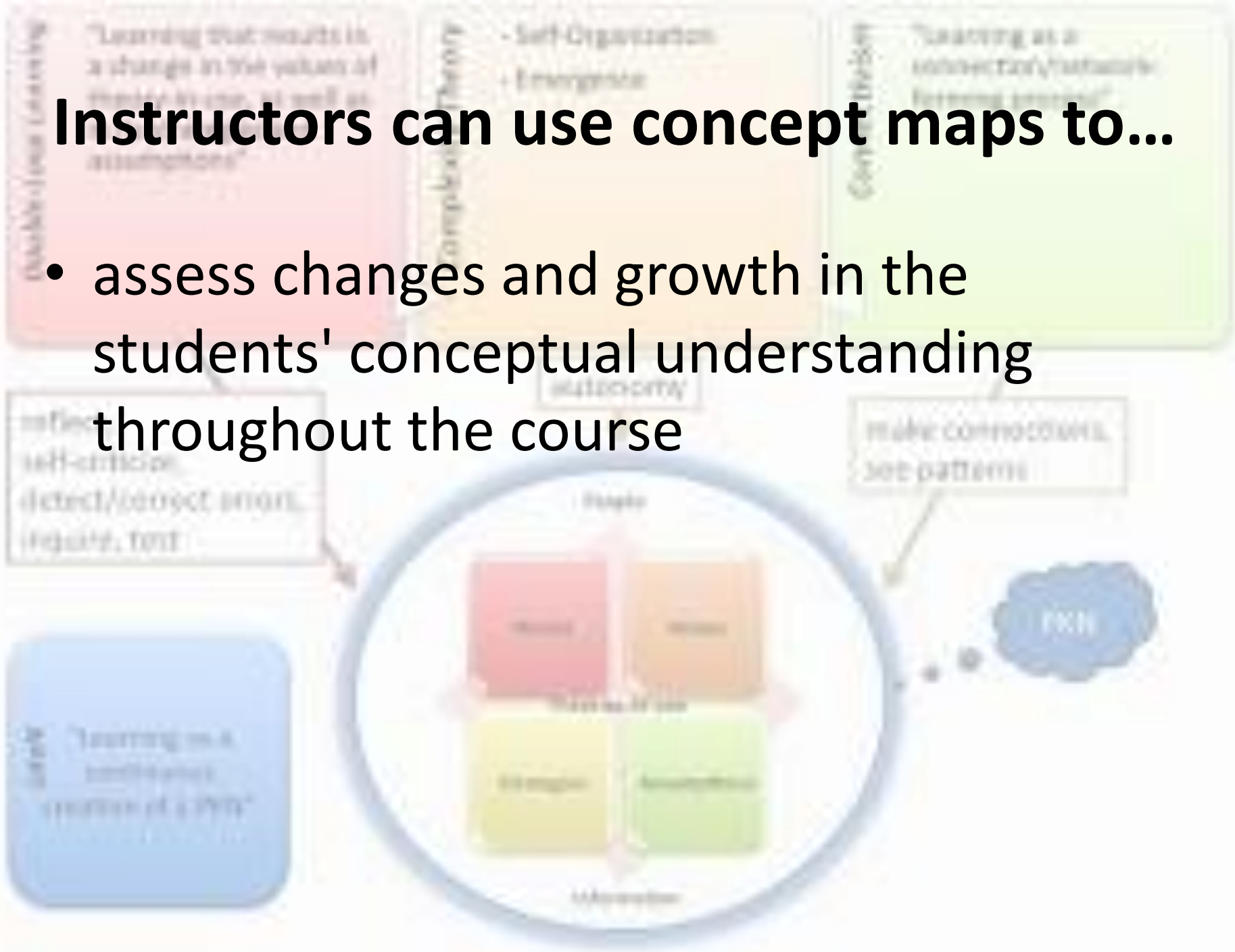
- connect material learned throughout the semester.

integrate material across different courses



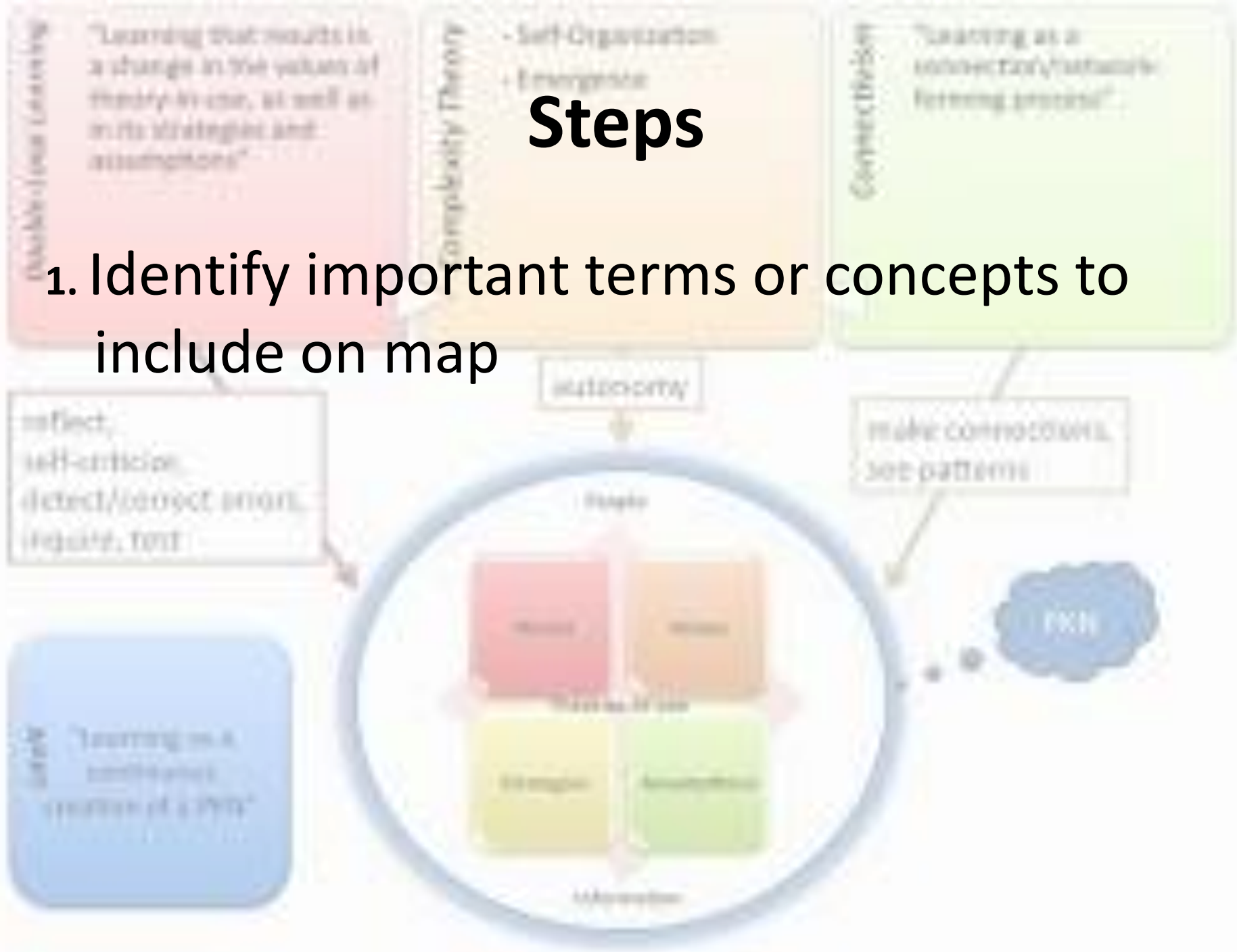
Instructors can use concept maps to...

- assess changes and growth in the students' conceptual understanding throughout the course



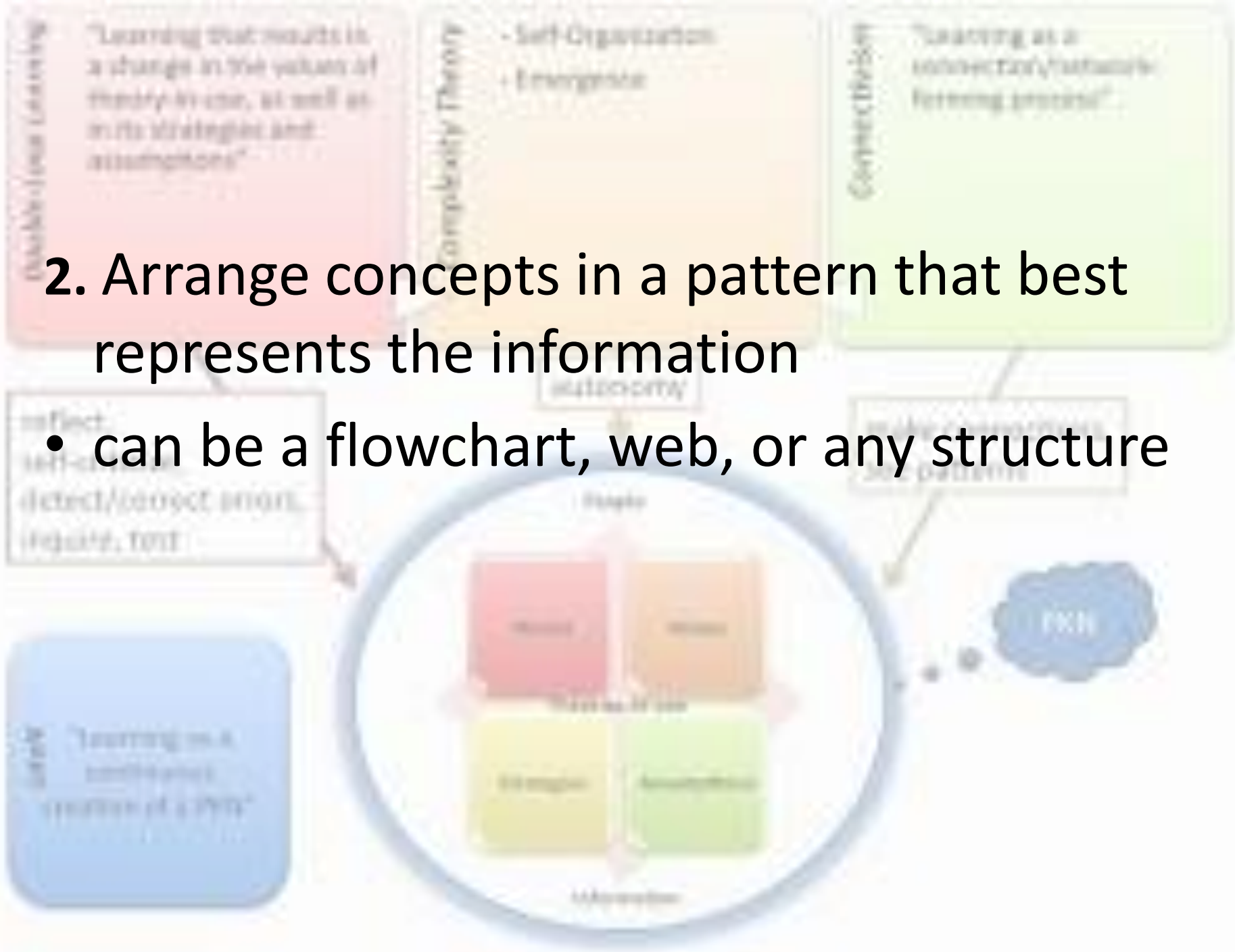
Steps

1. Identify important terms or concepts to include on map



2. Arrange concepts in a pattern that best represents the information

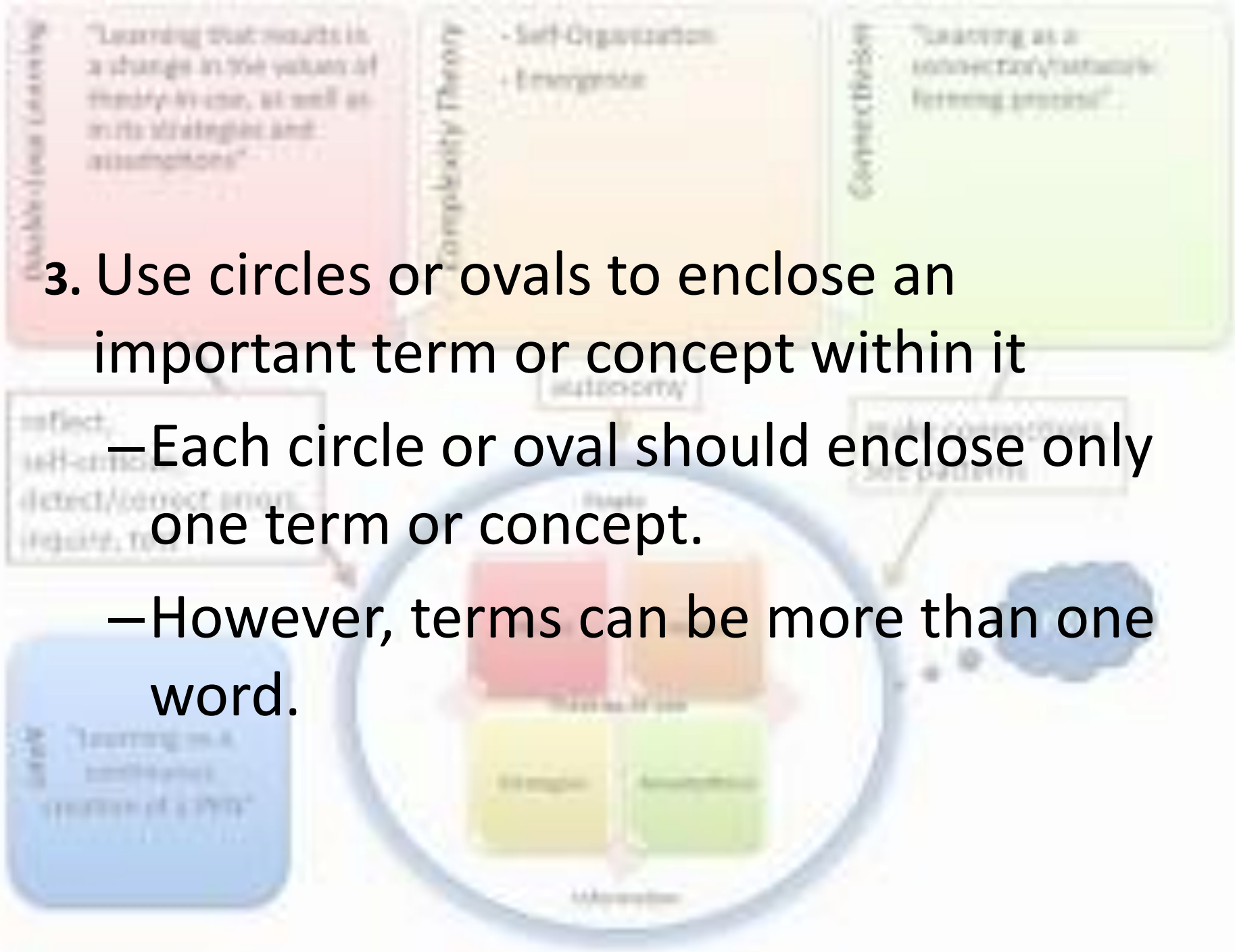
- can be a flowchart, web, or any structure



3. Use circles or ovals to enclose an important term or concept within it

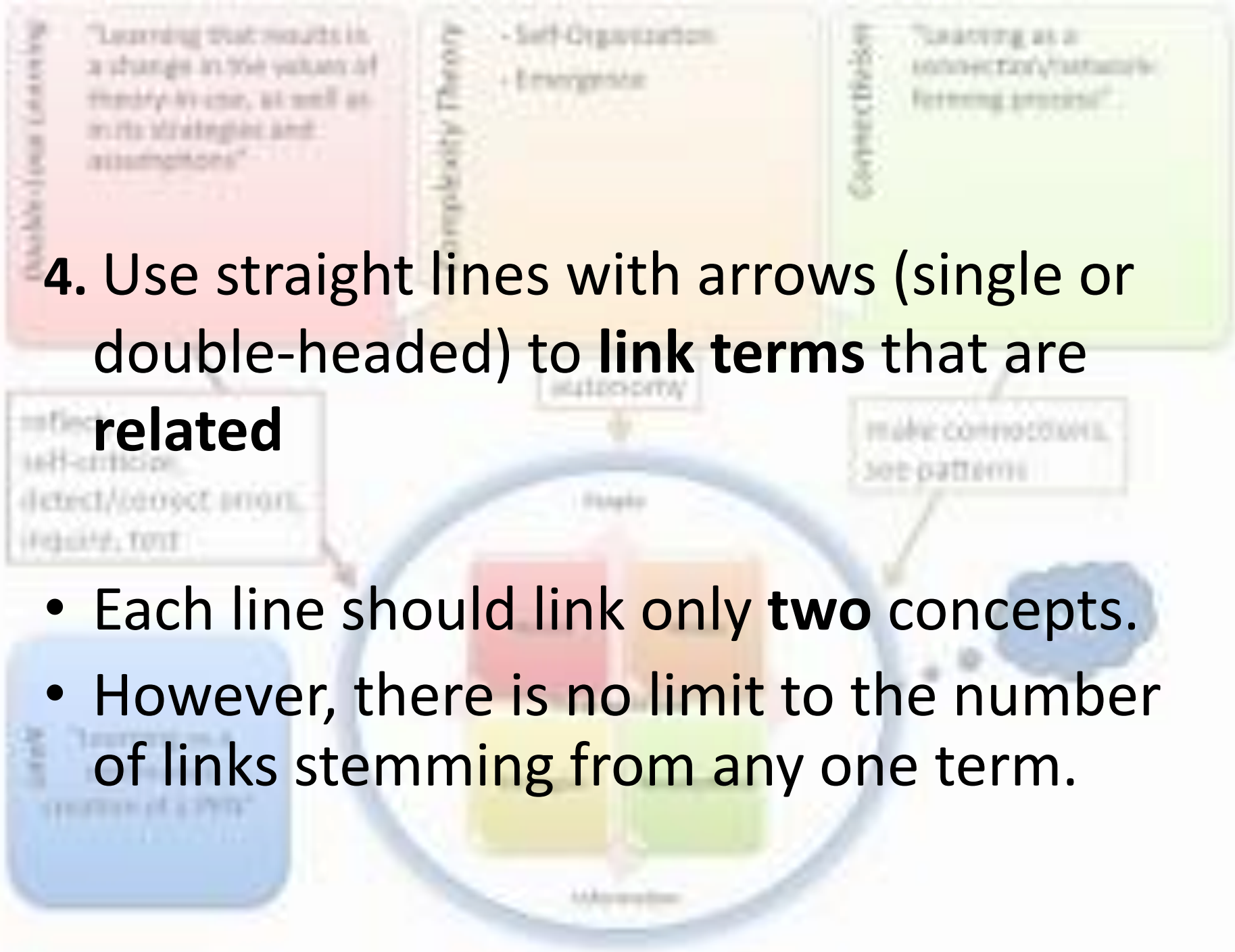
– Each circle or oval should enclose only one term or concept.

– However, terms can be more than one word.

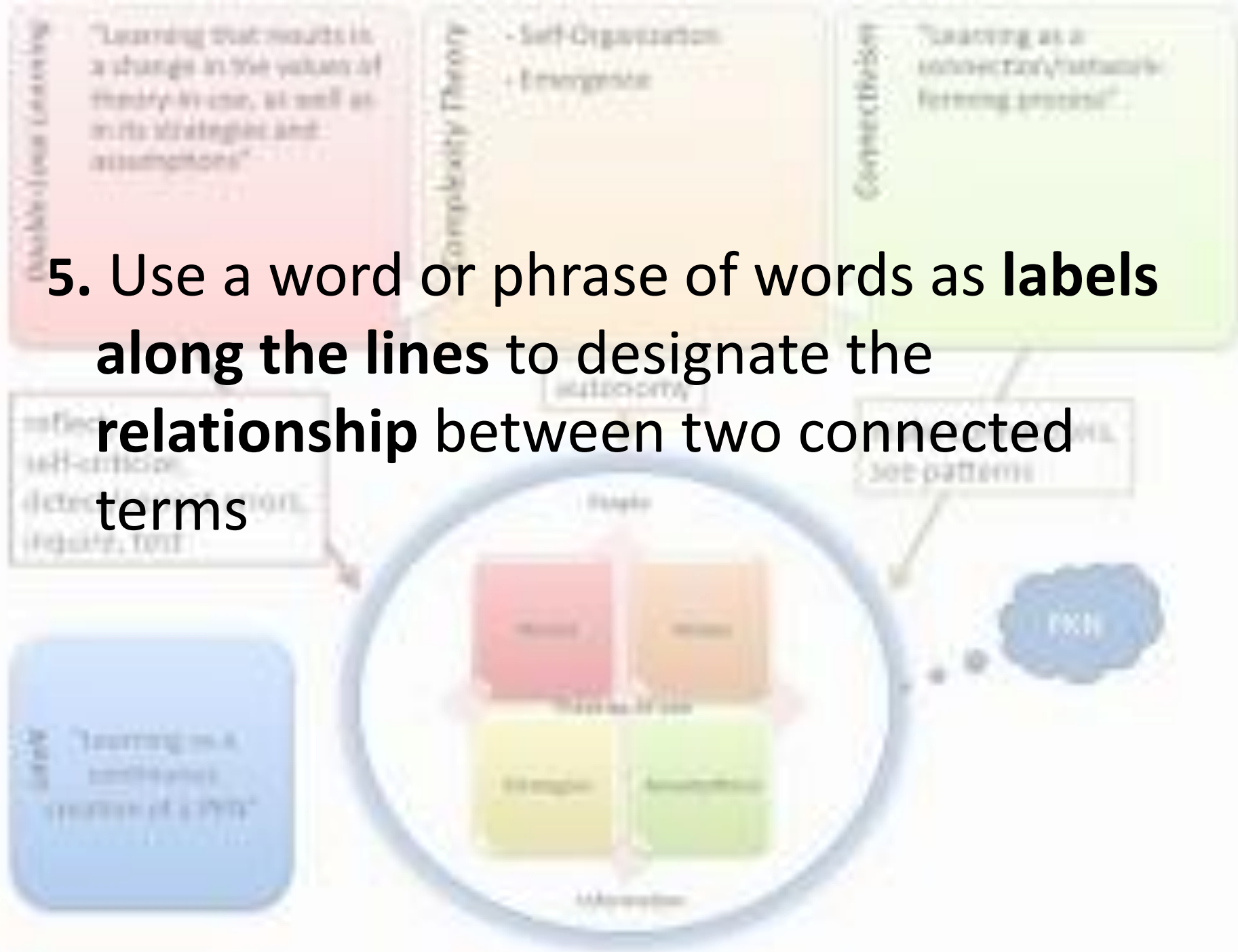


4. Use straight lines with arrows (single or double-headed) to **link terms** that are **related**

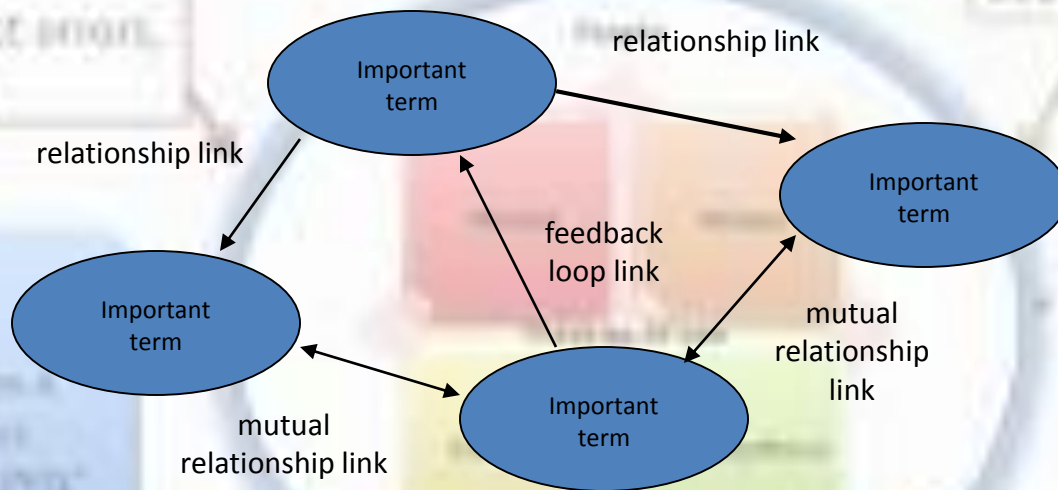
- Each line should link only **two** concepts.
- However, there is no limit to the number of links stemming from any one term.



5. Use a word or phrase of words as **labels** along the lines to designate the **relationship** between two connected terms



Each line should have a label that describes the relationship between the two terms it connects. Example:



Example of Concept Map

