Building Student Networks: Towards a Connectivist Analysis of Classroom Learning Environments

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Contents

Research Questions

- Do K-12 students form connectivist learning networks?
- Under what conditions do these types of student learning networks form and thrive?

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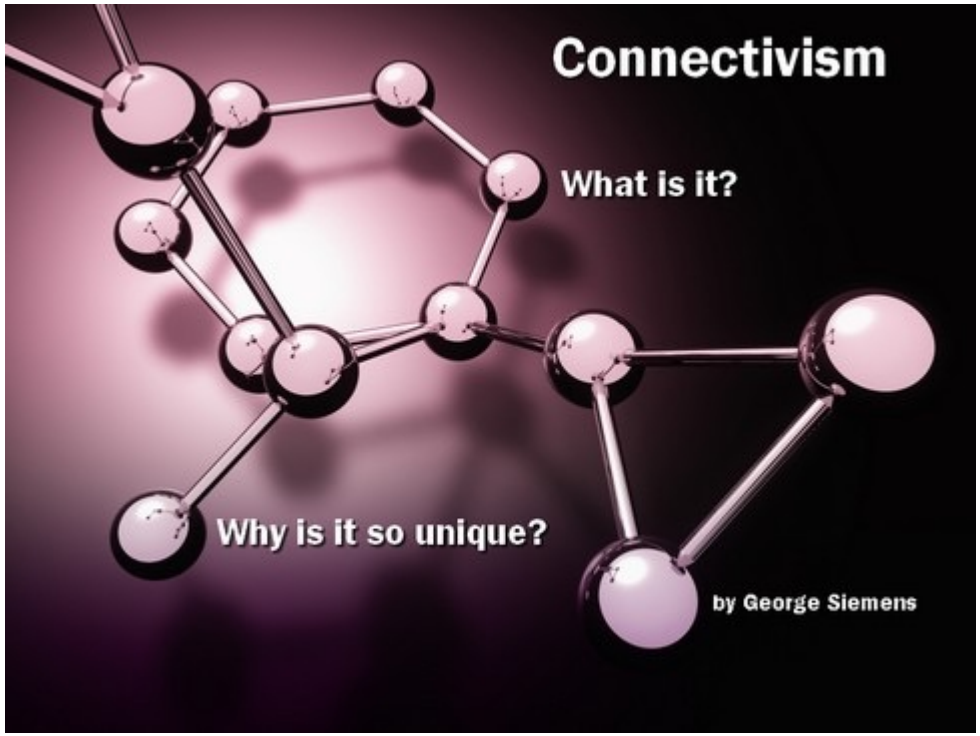
Conceptual Framework

- Connectivism
- Paulsen’s Cooperative Freedoms

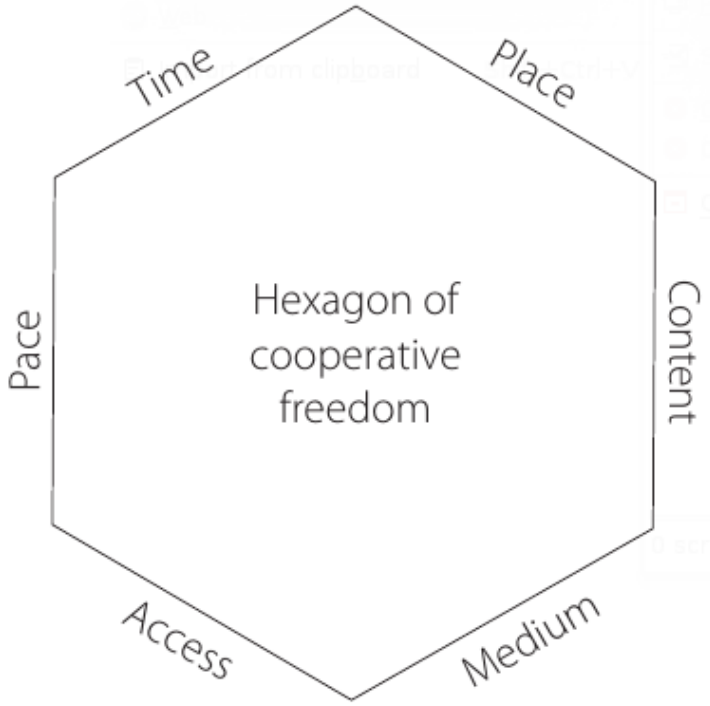
Connectivism



- "Connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks."
  - Khatabi & Fouladchang, 2015

Image from Education 2020

Cooperative Freedoms



- Paulsen's Model of Cooperative Freedoms (from Dron & Anderson, 2014 – used with permission)

Method

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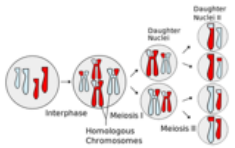
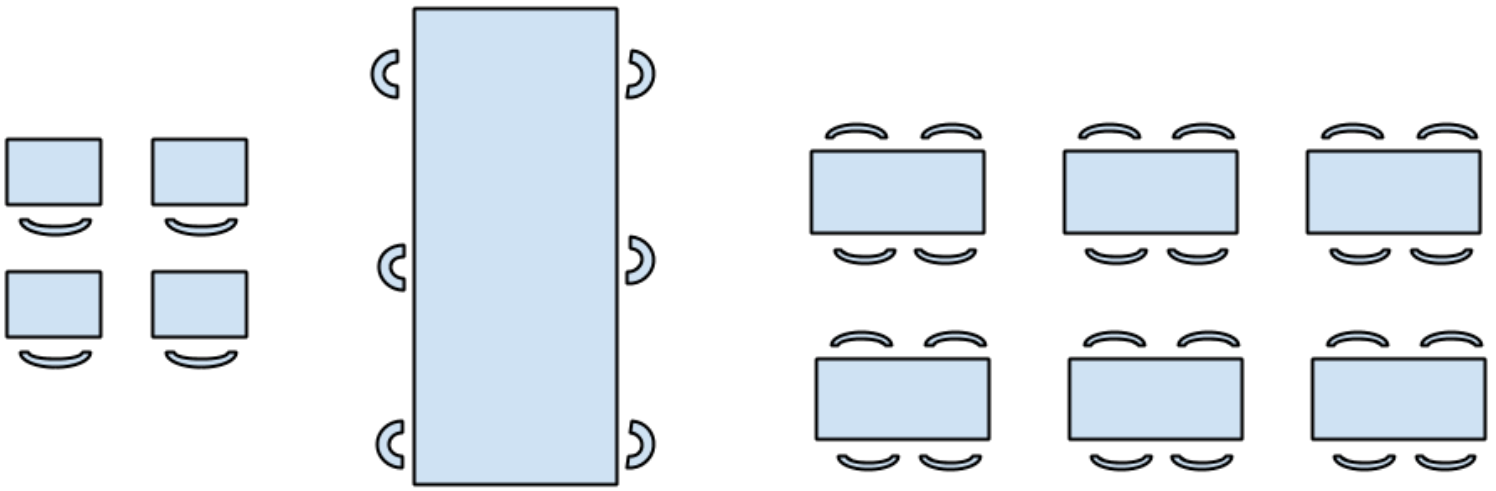
Context

- Participants
  - 50 8th grade Life Science Students
  - Two sections (based on math placement) 20, 30
  - None had experience with self-directed learning
- Learning Environment
  - Redesigned as set of 5 self-directed units
  - Students were free to choose their own path through the five units
  - Students were free to choose with whom to work (or not)
  - Moodle used as LMS; Edmodo used as discussion tool
- Duration – an entire school year
-
  -

Instructional (Re)Design

Item	Purpose	Examples
Overview	Contains the essential questions and big ideas for the unit, along with a preview study guide and some overview materials.	**Overview of Genetics**  Ever since people have been around they have speculated about traits. In this unit, we will explore how traits are passed to parent to offspring, what DNA has to do with this, and how our cells translate this genetic code into proteins. In this unit, we will be investigating several questions: **1. What are traits and how are they passed from parent to offpsring?** **2. What is the structure of DNA?** **3. How is the genetic code used to make you you?** **4. What happens when we play with the genetic code?** News forum Genetics Study Guide Tour of the Basics
Content Chunks	Contain the flow of activities, projects, labs, readings, and assessments in the unit. These are organized into logical chunks and the activities are not always sequential	**Meiosis**  In this topic, we will investigate the process of Meiosis. It is through Meiosis that sex cells (like sperm or pollen or eggs) are made. Meiosis Animation Reading - UPCO Chapter 9: Maintaining the Continuity of Life REVIEW LEGO Meiosis Activity Act Out Meiosis
Self-Assessment	Contains a list of higher level questions addressing all the content for the unit as a way for students to self-assess their own proficiency as well as determine their readiness for the unit test.	**Do you know Evolution**  This is the place to check in and see if you are on track with what you need to know for Evolution. Follow the link below and look at the Key Questions. Key Questions for Evolution

Physical Layout

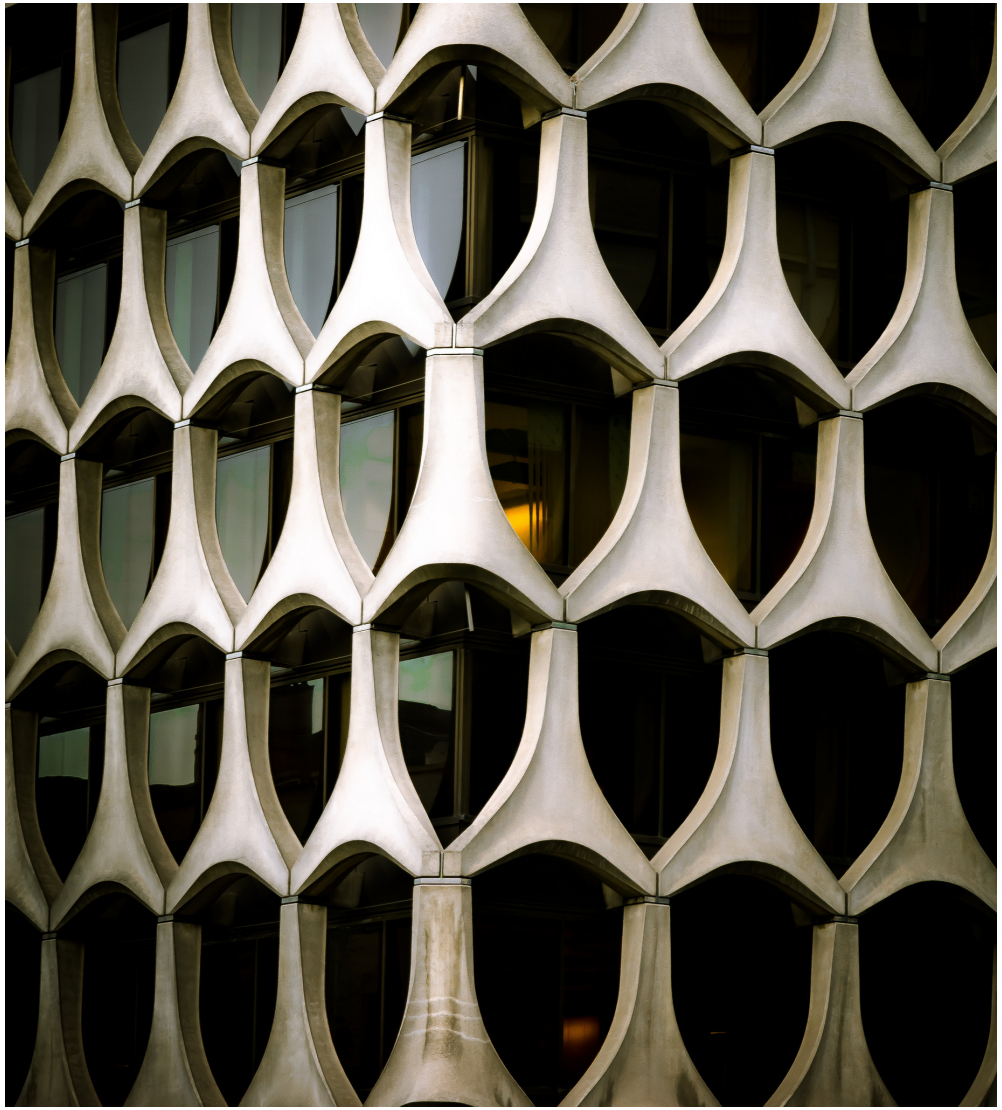


Individual desks

Conference Area

Group work area

Findings



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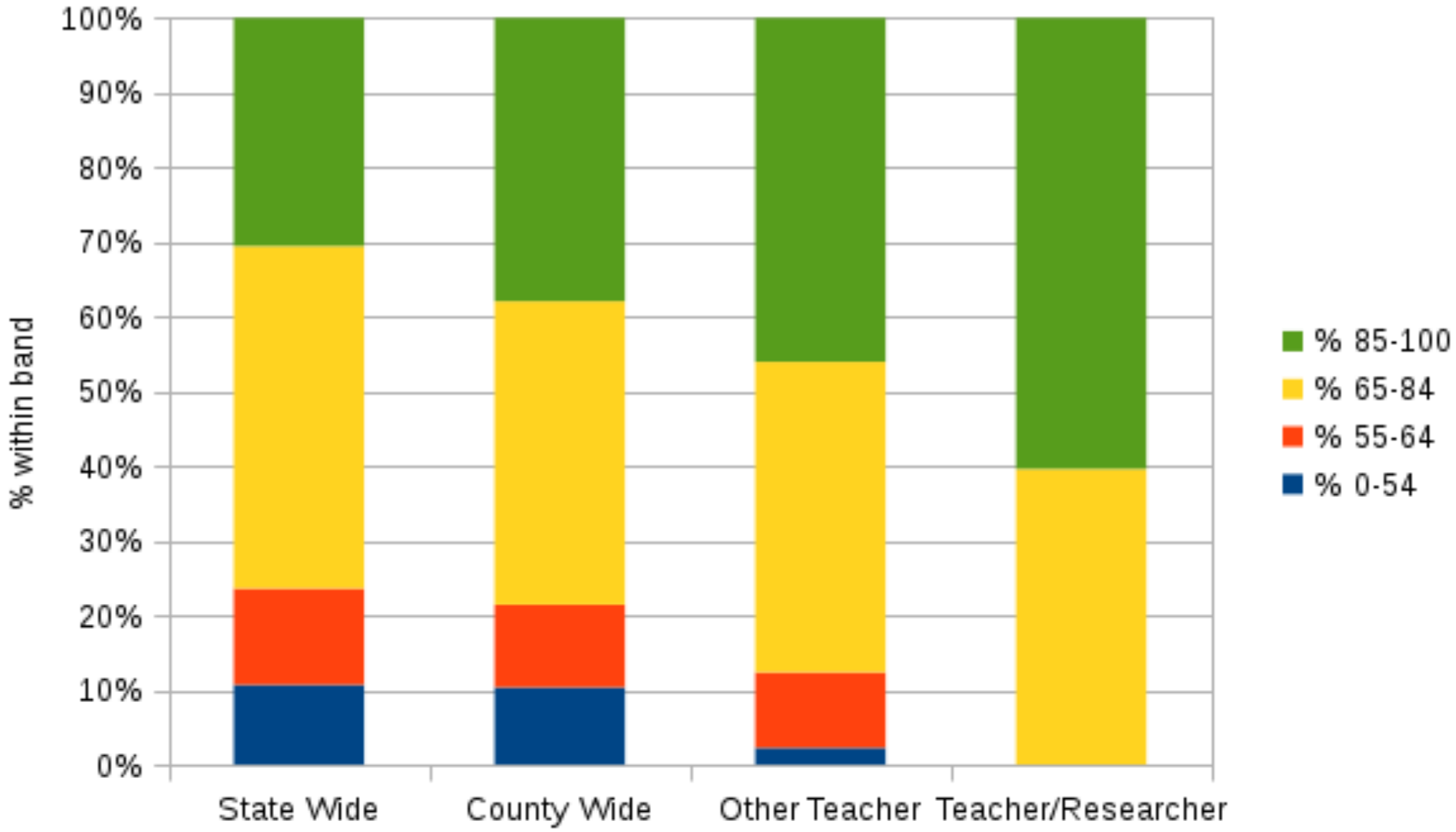
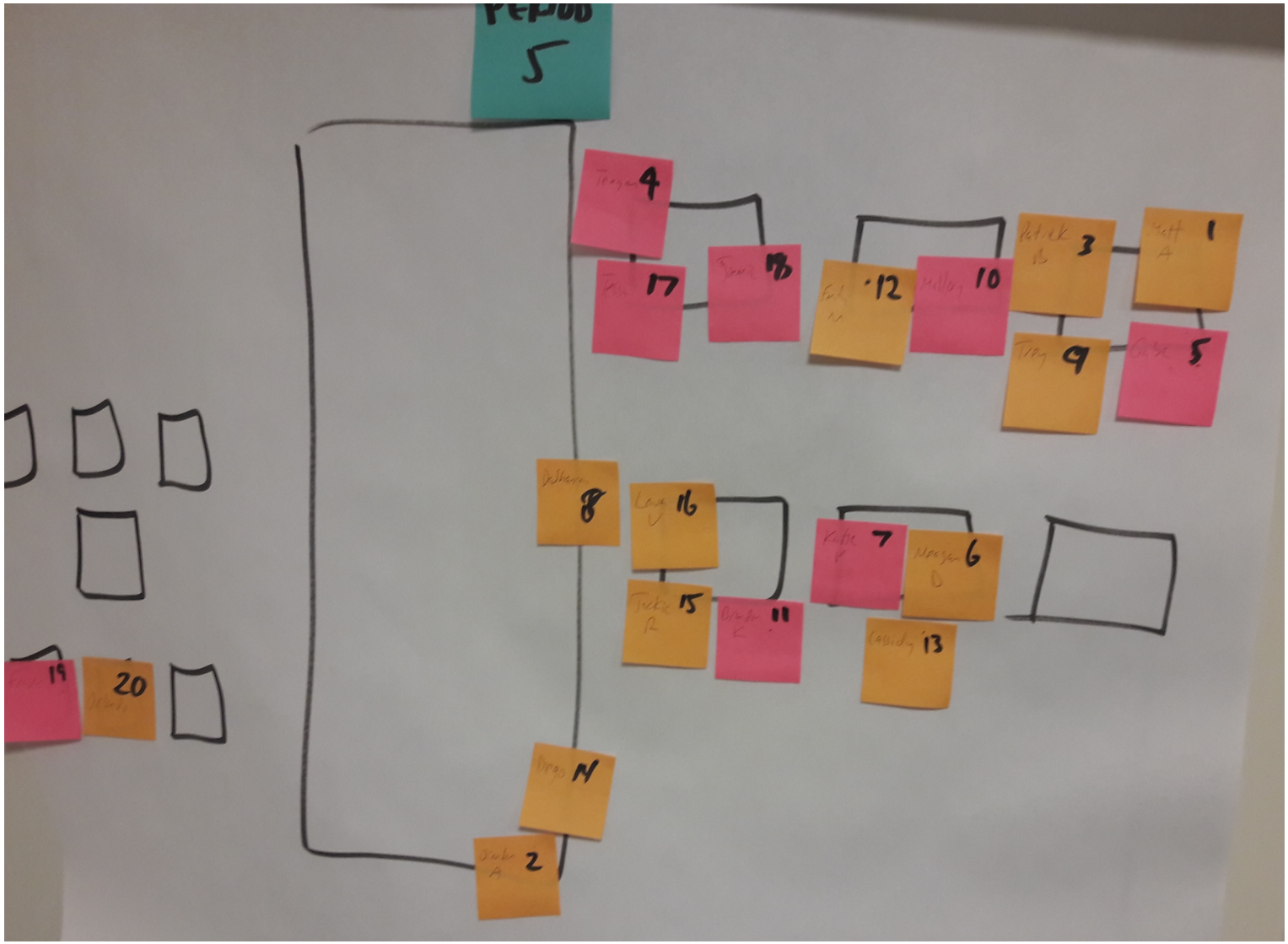
Final Exam Results



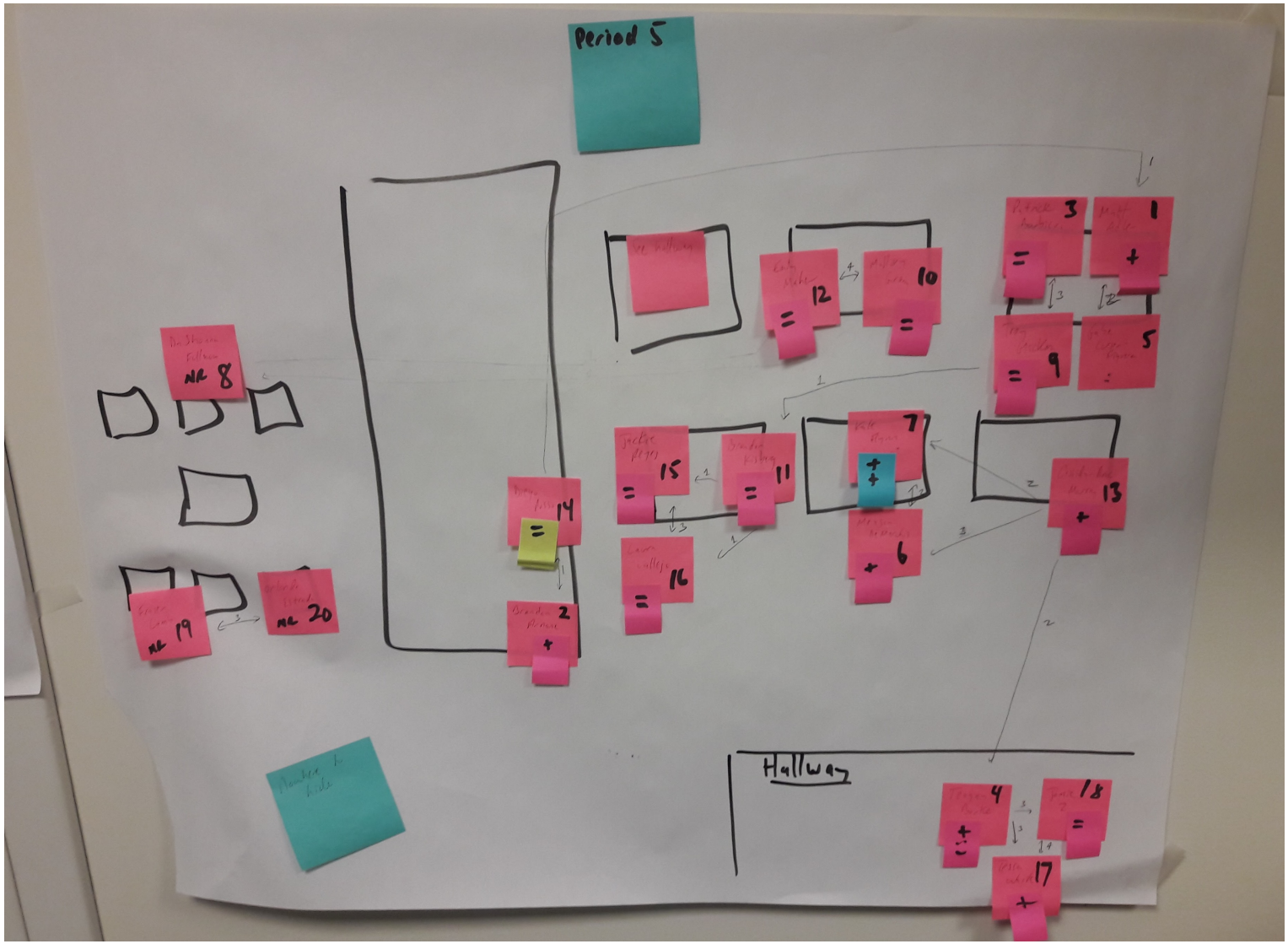
Predicted vs Actual Performance

Final Exam Grade Band	Section 1 Expected %	Section 1 Actual %	Section 2 Expected %	Section 2 Actual %	Cumulative Expected %	Cumulative Actual %
1 - 95-100	0%	0%	7%	17%	4%	11%
2 - 85-94	0%	18%	50%	67%	32%	49%
3 - 75-84	47%	76%	43%	17%	45%	38%
4 - 65-74	53%	6%	0%	0%	19%	2%

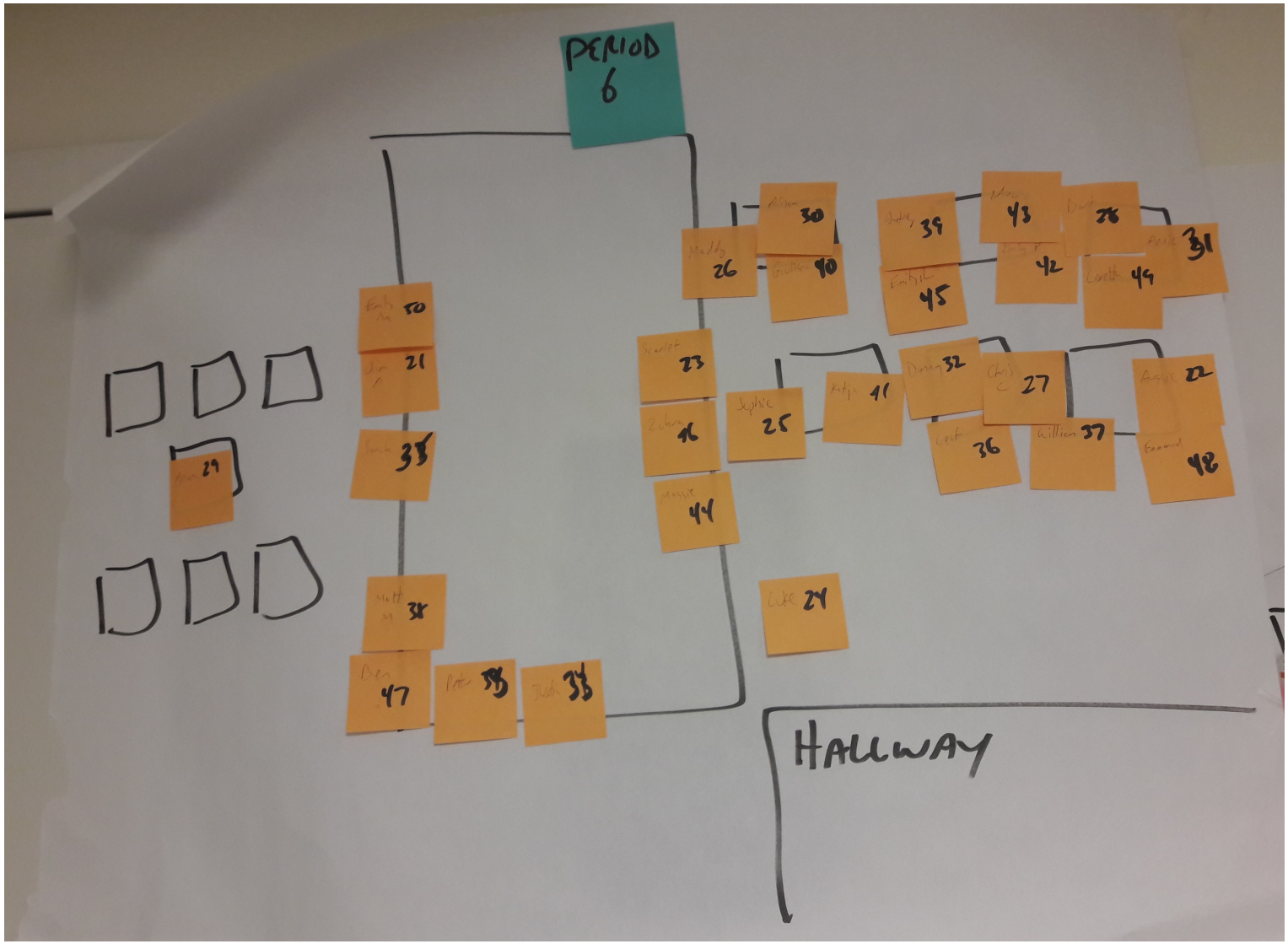
Student Groupings #1



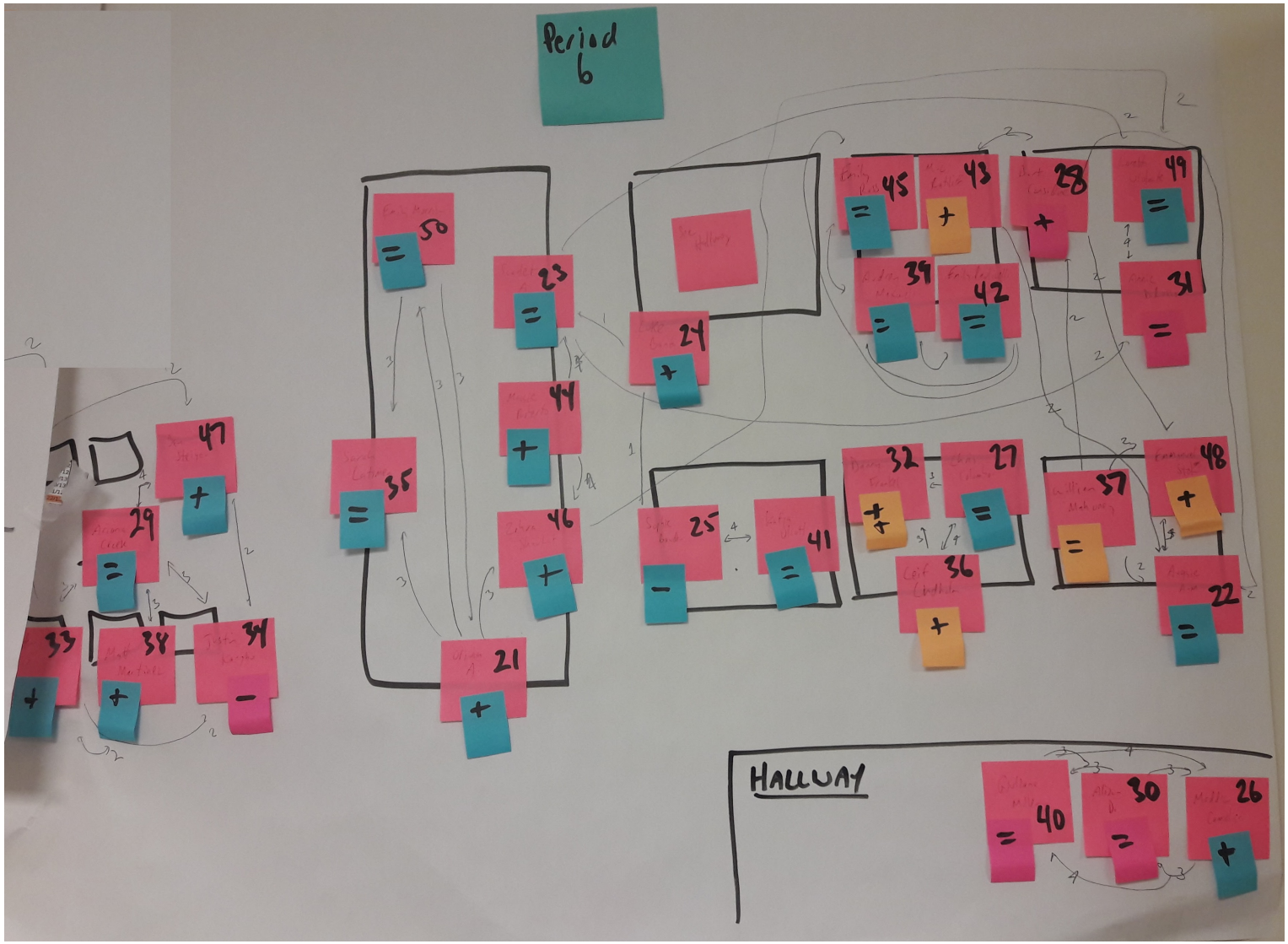
Student Groupings #2



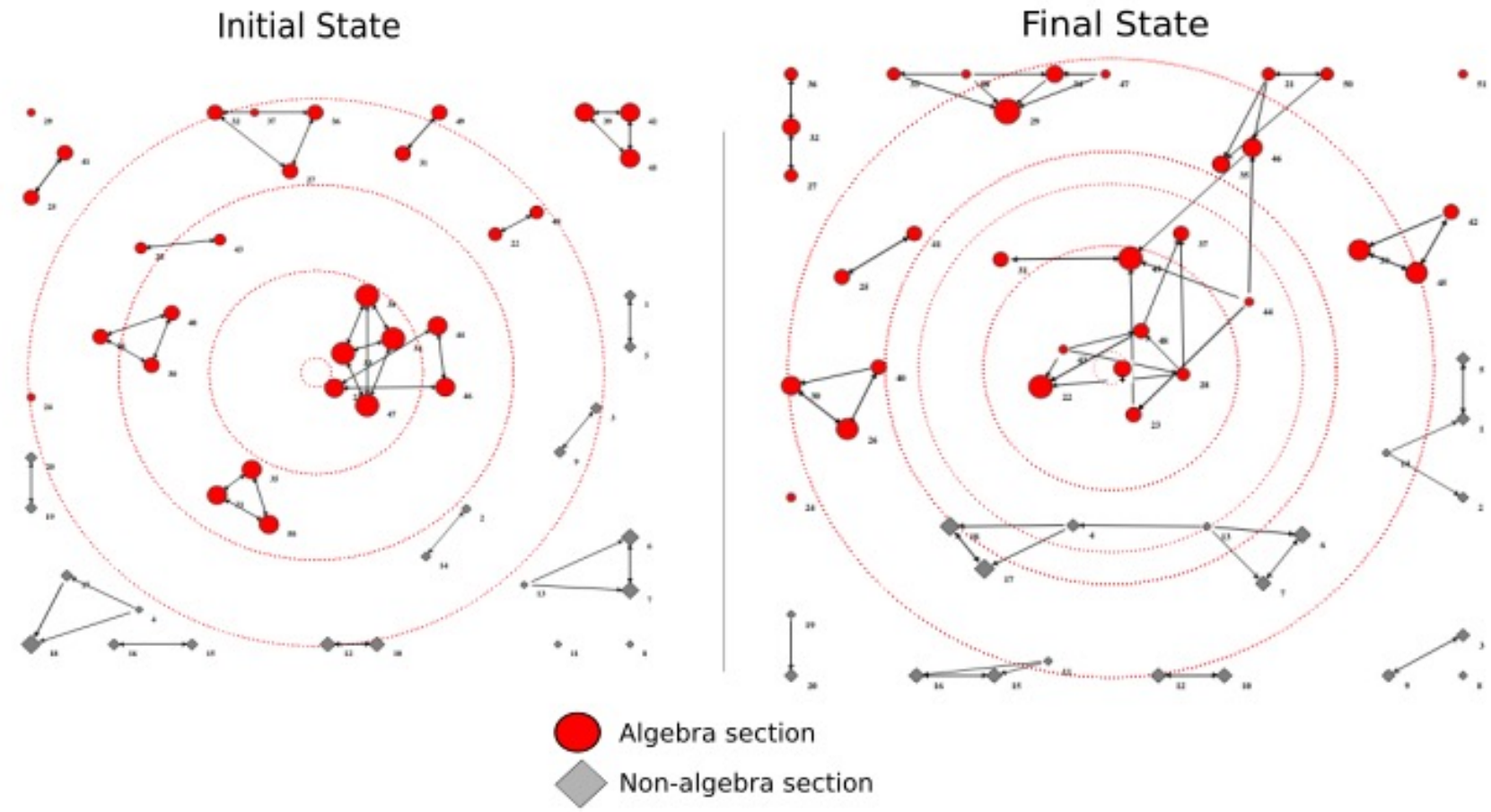
Student Groupings #3



Student Groupings #4



Social Network Analysis



Discussion

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Implications

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Questions?

Thanks

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