Notivate!

Helping Educational Technology Understand Student Information Sharing Behavior

Marco Cozzi

Niranjan Krishnamurthi

Emily Wagner

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Advised by Jenna Burrell

The Potential of E-Textbooks

The New York Times

Education

In a Digital Future, Textbooks Are History

Textbooks have not gone the way of the scroll yet, but many educators say that it will not be long before they are replaced by digital versions — or supplanted altogether by lessons assembled from the wealth of free courseware, educational games, videos and projects on the Web.

Problem

"**Designers** design them according to their own constructivist interpretations of what collaborative learning is and what it should achieve. **Educators** employ them with different educational approaches and in diverse situations to achieve different ends. **Students** use them, sometimes very enthusiastically, but often in a perfunctory way."

- Paul Kirschner, Professor of Educational Psychology at Open University Netherlands

Motivation

"Learning, especially today, is much less about acquiring information or submitting to other people's ideas or values, than it is about putting **one's own words to the world**, or finding one's own voice, and **exchanging our ideas with others**"

- Edith Ackermann, MIT Media Lab

Our Project

Conduct Qualitative Data-Gathering & Analysis

- Better understand the information sharing behaviors of undergraduates

3 UCB Undergraduate Courses

Develop Feature-set Recommendation

- Use this knowledge to propose general design principles and a feature set for e-textbooks
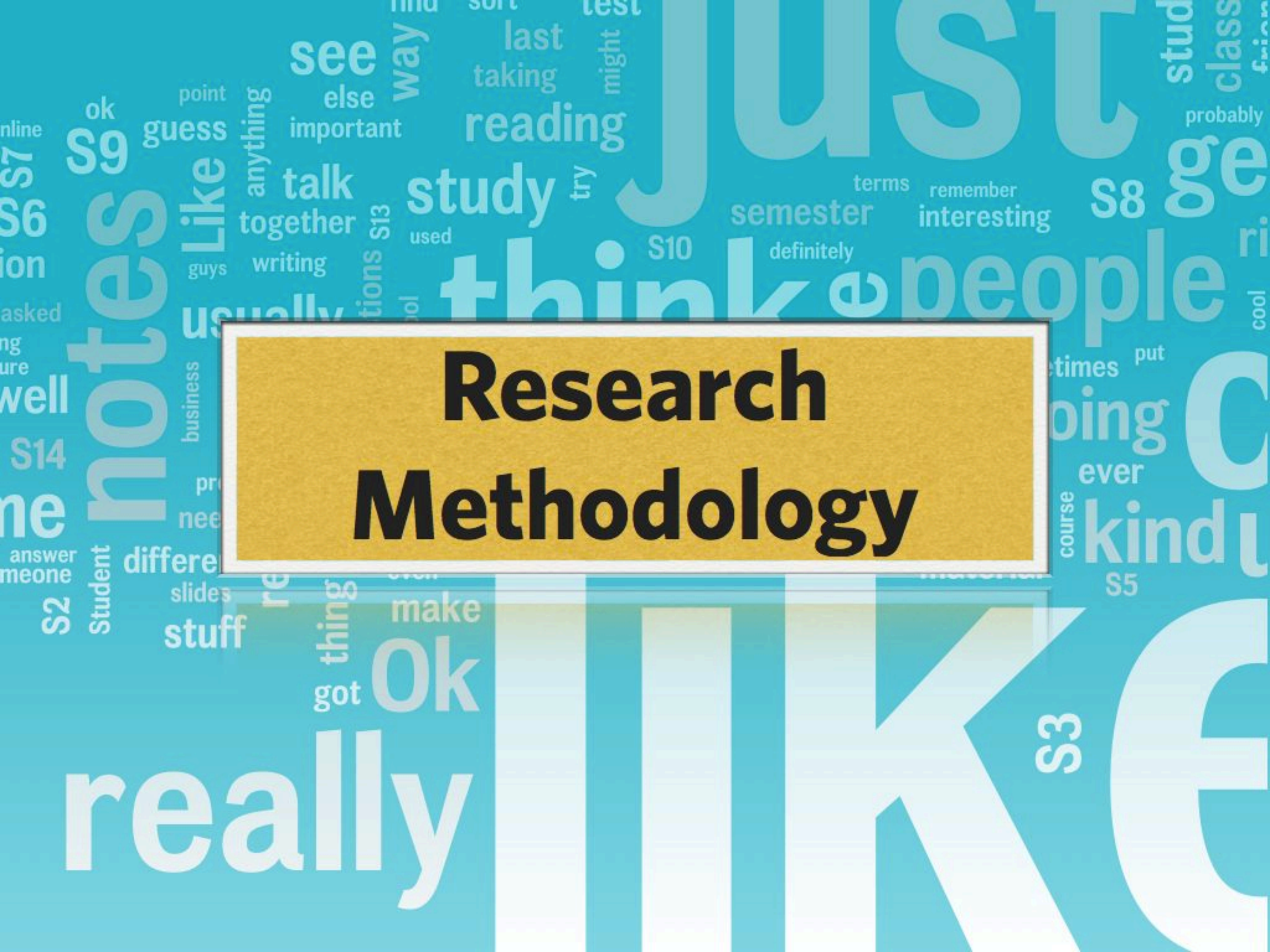
E-Textbook Publishing Platform

Research Questions

🔖 What kinds of information do undergraduates share?

🔖 What are undergraduates' attitudes towards sharing academic information, including their notes?

🔖 What affects undergraduates' decisions to study alone or in groups?

Data Collection

Grounded theory approach

- 60 hours of observation

- 17 interviews

- 300+ pages of transcriptions and notes

The Classes

Class A

- Humanities
- 70 students
- Uncurved grade

Class B
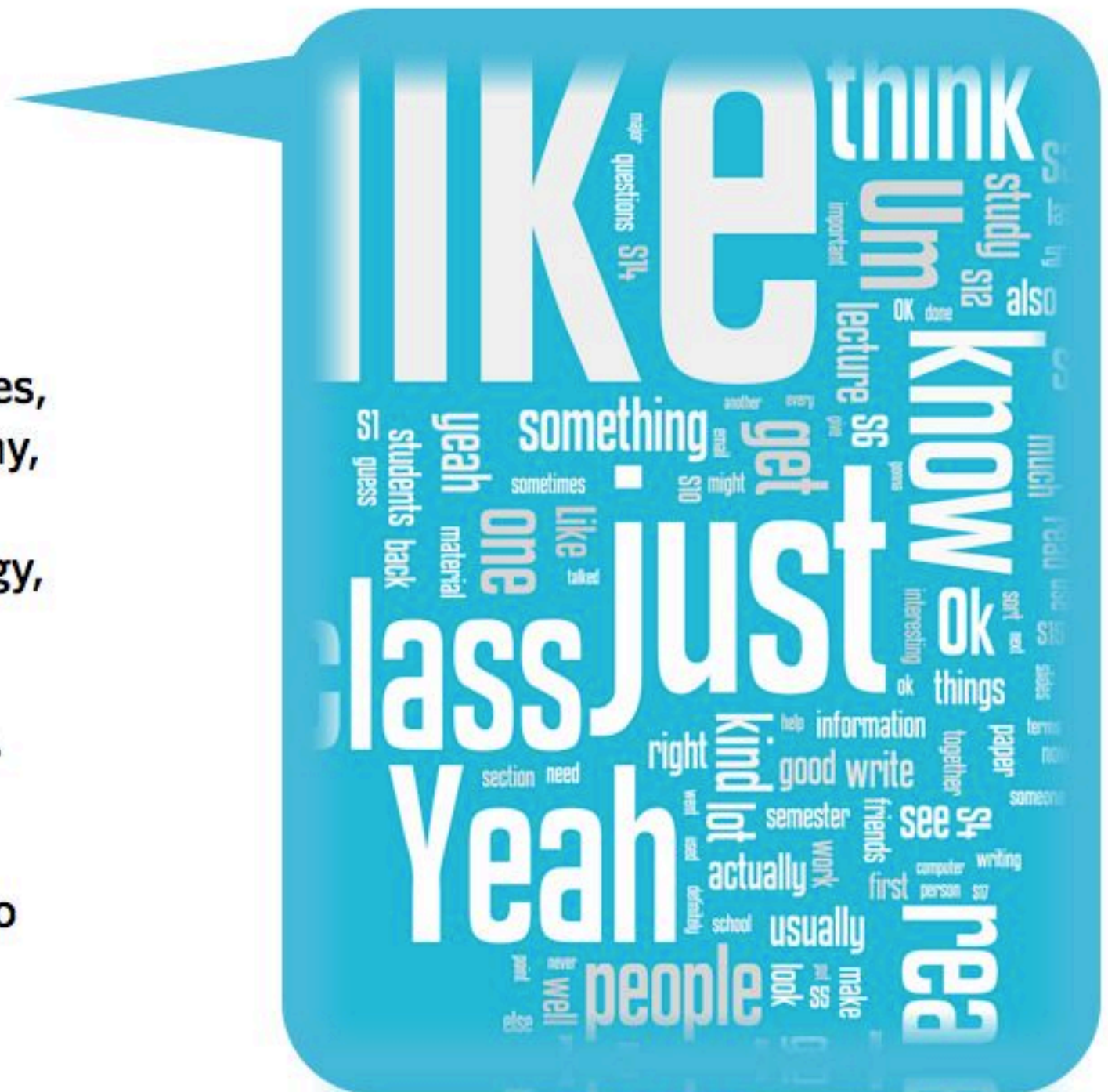
- Business
- 500 students
- Curved grade

Class C

- Environmental design
- 120 students
- Uncurved grade

The Students

17 undergrad students
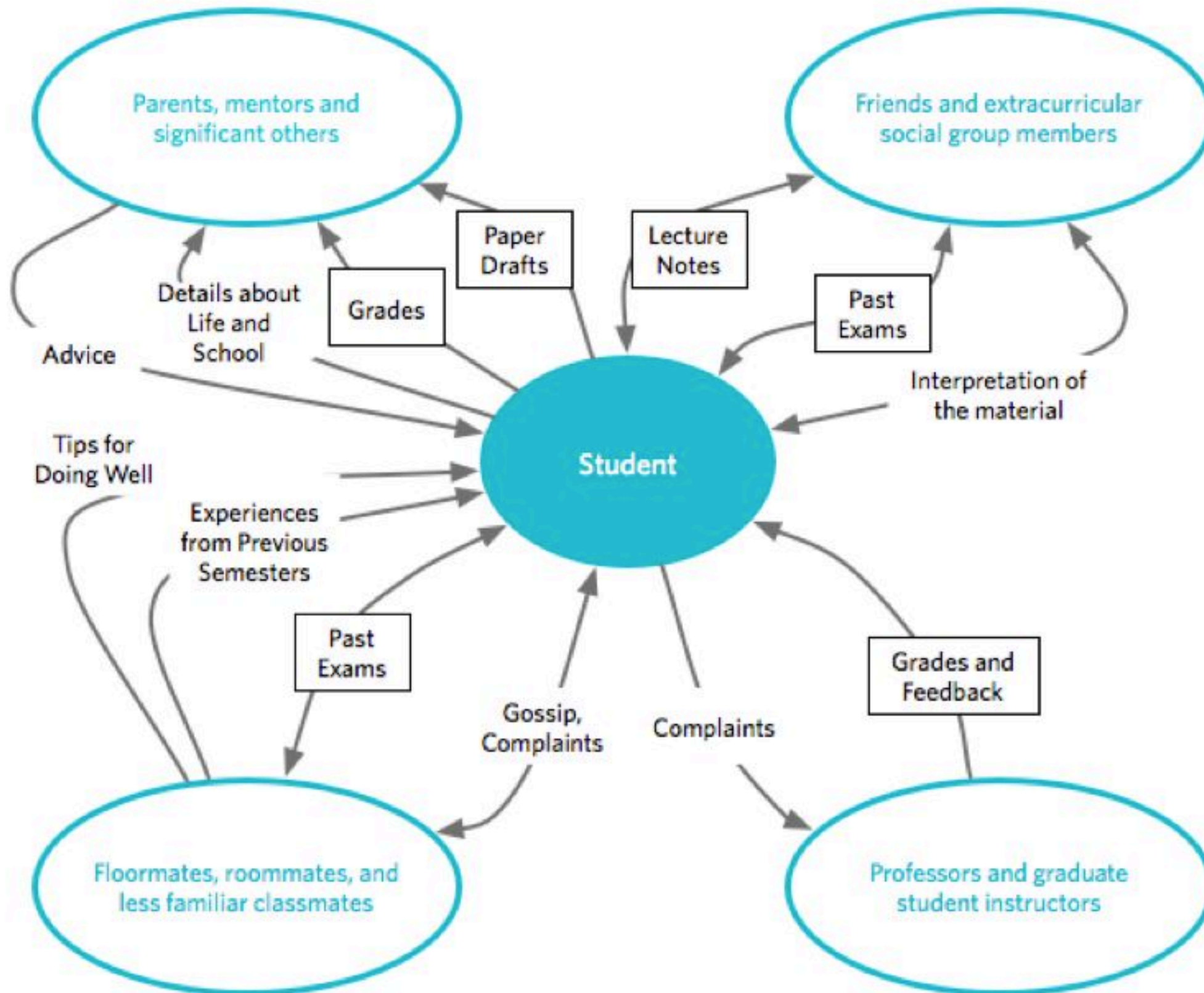
- 18-26 years old

- Range: freshmen - senior

- Majors: pre-business, media studies, cognitive science, political economy, theatre, english, political science, psychology, sociology, anthropology, statistics

- Note-taking preference: laptop vs. pen & paper

- Reasons for enrollment: required to 'just interested'

Tag-cloud of our student interview transcriptions

Our Findings

Information Sharing Ecosystem

Parents, mentors and significant others

Friends and extracurricular social group members

Paper Drafts

Lecture Notes

Grades

Details about Life and School

Past Exams

Advice

Interpretation of the material

Tips for Doing Well

Student

Experiences from Previous Semesters

Past Exams

Grades and Feedback

Gossip, Complaints

Complaints

Floormates, roommates, and less familiar classmates

Professors and graduate student instructors

Research Question 1: Kinds of information being shared

Note Sharing

Success Factors:

- Trust and reciprocity

- Trigger events:
  - Students are prompted by exams or assignments

Challenges:

- Ensuring good standing in competitive class

- Denying benefits to free riders

- Placing a high value on self-notes

Studying Together

Success Factors:

- Structure from study guides

- Dedicated study group leaders

Challenges:

- Dedicating time to study with others

- Finding study group partners

- Arranging a time and place to meet

- Deciding what material to study and

- Negotiating roles in study group

Design Implications

Design Principles

- **The tool should support interpersonal information sharing, but students should have control over their personally identifying information**

- Ability to choose when, how, and with whom they share their notes and other academic content

- Should facilitate in-person study sessions

- "Design out" distraction whenever possible

- Easy to use

"Well I think because we live in a very information world, I am always sensitive about sharing personal information."

Design Principles

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"Umm, yeah, I don't really like sharing information with strangers."

"Some people take really great notes... [others] just write down crap... I usually will only ask for notes from people who I know take good notes."

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"I mean sometimes I'll look at people's notes, but usually I'll be like 'hey man, let's talk about these triple integrals… what is that?' and it's almost like a tutoring session, you know?"

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- Should facilitate in-person study sessions

- **"Design out" distraction whenever possible**

- Easy to use

"A lot of people in lecture are just cruising through websites, and not even listening to one word."

Design Principles

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- Ability to choose when, how, and with whom they share their notes and other academic content

- Should facilitate in-person study sessions

- "Design out" distraction whenever possible

- **Easy to use**

"That's another reason I use the computer, because if I need to go back and find something easily, that's just an easy way to do it, rather than flipping through handwritten notes and trying to find something."

Proposed Feature Set

Course Information Landscape
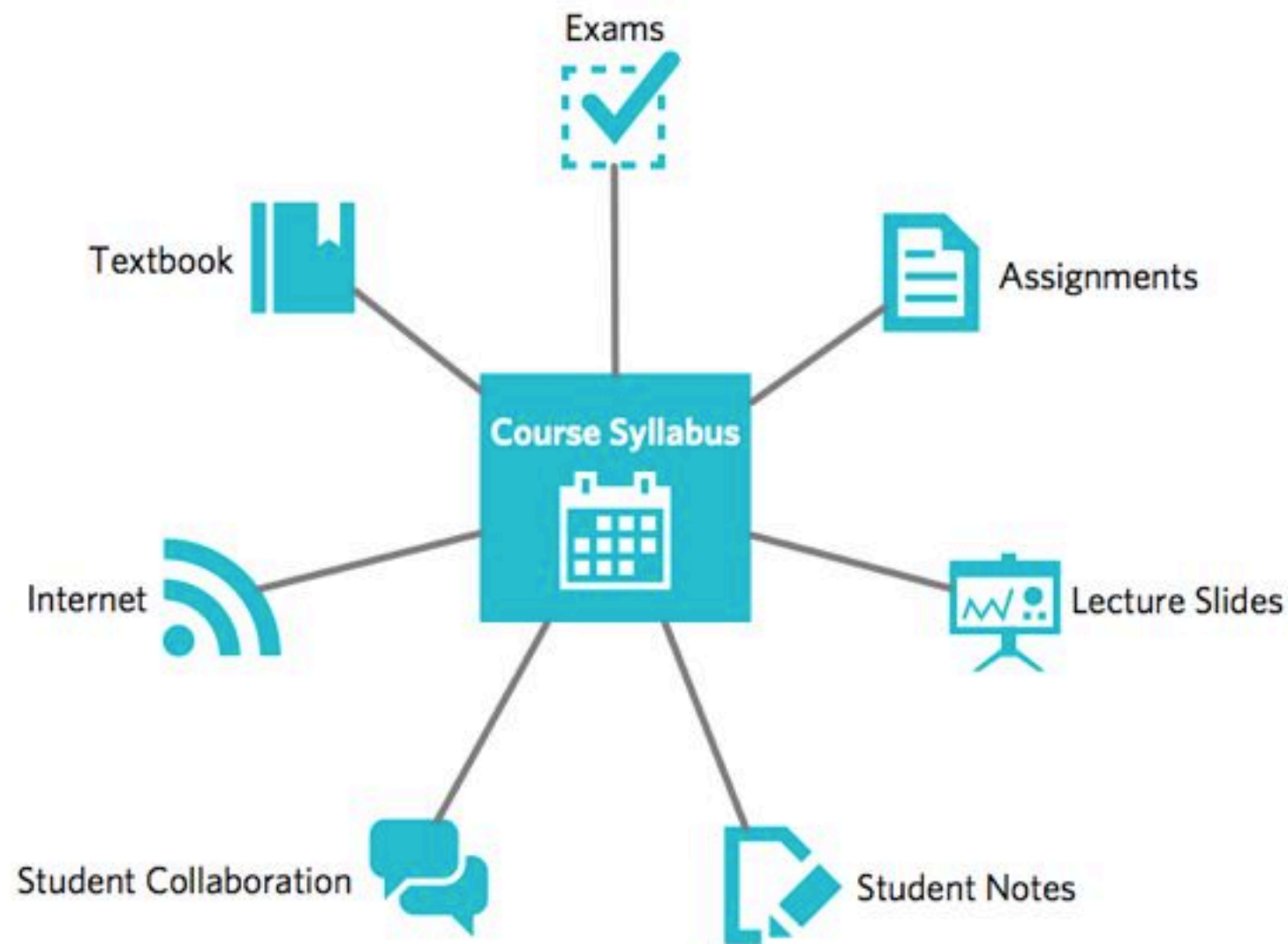
Features

Stand-alone

- Self-tests

- Revealing chapter meta-data

- Chapter ratings system

- Digitize hand-written notes

- Contact importing

- Post-class notes donation

Features

Other features are possible if e-textbooks have access:

- Syllabus-dependent features

    - Note-taking reminders

    - Exam reminders

- Roster-dependent features

    - Study partner recommendations

    - Electronic study-group sign-up sheets

- Study guide-dependent features

    - Smart study guides

Notivate!

Thank You!