TRIO STUDIO: How to engage student champions in research?
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TRIO STUDIO: How to engage student champions in research?

By David Sedillo and Amelia Williams, Rush University Medical Center

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Research Assistants: Wanshan Wu and Renjie Li, IIT Institute of Design

Attendees:
Timothy Hiang, Rush Medical College; Claire Bosworth, Rush Medical College; Lily Peterson, Rush Medical College; Maggie Turner, Rush Medical College; Eric Robinson, UChicago; Alyssa Reitz, UChicago; Claire Brady, Rush Medical College; Bryana Donjahn, Rush Medical College; Cris Chan, Rush Medical College; Sarah Sun, Rush Medical College; Charlene Gamboa, Rush University Medical Center; Gerald Moose Stacy, ITM; Stephanie Moss, Rush Medical College; Adam Korle, Rush Medical College; Siqi Zhang, Rush University Medical Center; Jillian Boroniec, Rush University Medical Center; Jessica Shore, Loyola; Anna Murray, Rush University Medical Center; Raj Shah, Rush University Medical Center; Tharani Jeyaram, UChicago; Ashley Lopez, ITM, and Raj Shah, Rush University Medical Center.

Summary
David Sedillo and Amelia Williams, Rush University Medical Center, introduced their TRIO Studio on how to engage student champions in research. David and Amelia explained their goal is to develop a system that will allow student champions to engage in research opportunities and advance recruitment efforts.

Design Thinking approach and Quality Thinking were both used to solve the problems faced by David and Amelia. Many suggestions, based on experiences at different institutions, were made.

Top 3 Actions Proposed by the Design Science Participants to David and Amelia:

1. The New Normal website could add an interface for student users to browse and search for opportunities - Students need ability to easily view which research studies are looking for help, by institutions, area of research and project types.

2. Rush Research Week for student focused research activities - Having a week dedicated to research awareness opportunities for students such as, coordinator panels, “speed dating” for students and PI/Coordinators, or a student-PI connector program. Make sure this week is in January when students are searching for summer opportunities.

3. Targeting Pre-med students - Pre-med students are always looking for research assistantships. So reaching out to the undergraduate populations or reaching out to high school students (Crane) who are associated with Rush will be productive.
Top 3 Actions Proposed by the Quality Science Participants to David and Amelia

1. **ITM Assistance** - Look at the career pipeline, regulatory support groups, update the course catalog to give credit for participation, and/or issue a “mini” certificate of participation in research for students.

2. **Incentives** – If you work x amount of hours you get a letter of recommendation and x amount of house you get added to a publication. You can use the PI as a mentor along with the Research Manager or Clinical Research Coordinator.

3. **Co-Design with Student Volunteers** – Use previous research volunteers to help design the program. See what they liked, what they didn’t like, what worked and what they would like to see changed. Do an exit interview for participants to help with creating the student champions.
TRIO Studio Problem Description:

The goals are to develop a system that will allow student champions to engage in research opportunities and advance recruitment efforts.

David Sedillo and Amelia Williams from Rush University Medical Center introduced the problem. Training students in research adds a burden to their work and school loads. Students are unaware of research opportunities. There is also a lack of perceived relevant return of value for the students and they have limited flexibility with school schedules.

There are several benefits to students engaging in research. Some include improving their analytic and critical thinking skills. They get connected with communities and gain service hours. They keep up to date with relevant advances in research and they are able to network within the research community.

Current efforts in engaging students in research include presented research programs to students and student groups to garner interest. Presented opportunities to engage in recruitment activities. They have also asked work study students and volunteers for referrals of interested classmates.

David and Amelia’s call to action: “How do we develop and sustain a system of student champions who we can engage in research opportunities and recruitment?”
Figure 1 David and Amelia Presenting
TRIO STUDIO: How to engage student champions in research?

Main problem for the studio participants to solve:
Does the TRIO studio audience have suggestions on how to develop and sustain a system of student champions who we can engage in research opportunities and recruitment?

Studio Methodology
Design Thinking approach as well as Quality Science approach was used as part of the studio to solve this problem. Final solutions were documented from both teams and provided to David and Amelia.

Design Thinking Method
We used the Design thinking approach with five steps:

1. Created a free form mind map of the problem and identification of issues – Mind Mapping technique
2. Actionable insights were identified
3. Generated ideas to address issues
4. Synthesized solutions from the smaller ideas – Creative integration of smaller ideas led by Design Thinking Expert facilitator was done using white boards.
5. Solutions were proposed and were rated by the team on implement-ability (0-4 scale)

Quality Science Method
The Six Sigma Quality Science approach was used which consisted of five steps:

1. Problem definition and mapping of actual structure of the process
2. Identify issues and analyze causality using Fishbone analysis
3. Generated ideas to address to issues – Brainstormed using SCAMPER method
4. Merged smaller ideas and scale ideas to create bigger solutions
5. Actionable insights and solutions were proposed and solutions were rated by the team on implement-ability (0-4 scale)
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Design Thinking Based Solutions:

Figure 2 Design Science Group working on the problem
Problem visualized with Insights
The group first discussed the problem and its context yielding the following context diagram:

![Mind Map of Context](image-url)

Figure 3 Mind Map of Context
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Stakeholder Map

Figure 4 Stakeholder Map
High level insights:
Following the context discussions, insights were generated as follows:

- **01 What is in it for students?**
  - predefined
  - co-design
  - Perceived VS real

- **02 Awareness of research studies/opportunities**

- **03 Lack of central repository**
  - University only
  - Across universities

- **04 Lack of research interest group**

- **05 One faculty member, students may hesitate**

- **06 Students don’t know how to reach out**

- **07 First-year students have burdens**

- **08 Changing the perception of research being optional**

- **09 Turn over problem in undergraduate**

*Figure 5 Insights Generated during Discussion*
Solutions Generated by Design Thinking Approach Team:

Seven relatively implementable solutions were created to solve the issues of getting a study started. They are as follows:

1. **The New Normal website could add an interface for student users to browse and search for opportunities** - Students need ability to easily view which research studies are looking for help, by institutions, area of research and project types.

2. **Rush Research Week student focused research activities** - Having a week dedicated to research awareness opportunities such as, coordinator panels for student, “speed dating” for students and PI/Coordinators, or a student-PI connector program. Make sure this week is in January when students are searching for summer research opportunities.

3. **Targeting Pre-med students** - Pre-med students are always looking for research assistantships. So reaching out to the undergraduate populations or reaching out to high school students (Crane) who are associated with Rush will be productive.

4. **Facebook Group and student/faculty research liaison** - Each medical year class (M1, M2, M3, M4) has a Facebook group that research studies can advertise research opportunities on.

5. **Set up research opportunity as a course credit/requirement** - Allowing student to use this research opportunity as a course credit internship, if their school permits.

6. **Interest research groups** – Make a group dedicated to knowing about the research opportunities at Rush. Word of mouth is still an effective way to spread awareness.

7. **Precision Medicine led university** - Ultimately, create a university that is focused on precision medicine and the advancement of research in individualized care.
Design Science Solutions

01  “The New Normal” - element for student users

02  Student-PI connector program
    Speed dating in spring/winter (Jan)
    Coordinator panel for students
    Rush research week (Jan)

03  Targeting per-medical undergrads
    - Malcolm X Community College
    - High school - Crane

04  Each class has Facebook group
    Student counterpart of faculty led research connections

05  Setting up courses and allow for cross institution credit
    Freshman requirement

06  Interest research group based on word of mouth

07  Precision medicine led university

Figure 6 Ideas and Solutions after discussion of ideas
Quality Science Based Solutions:

Problems Analysed to Identify and Define Issues.
The group discussed all the problems in engaging student champions in research.

Figure 7 Quality Science Group working on the problem
Analysis of Issues and Causes

**Define the Problem**

**Current State**
- What is the current problem?
  1. Training adds an additional burden to work and local school
  2. Unawareness of opportunities
  3. Lack of perceived relevant return of value
  4. Limited flexibilities with school schedules.

**Goal State**
- The state or condition that would result if the problem was solved?
  To develop a system that will allow student champions to engage in research opportunities and advance recruitment efforts.

**Who is experiencing the problem?**
- 1. Study Teams
- 2. Schools/Registers
- 3. Student Organizations
- 4. PI’s
- 5. Participants
- 6. Medical Community/District
- 7. Funding Agencies
- 8. Regulation Groups
- 9. Professor/Dean (organize the program)
- 10. Future Graduate Medical Programs
- 11. Volunteer Office
- 12. Residency Programs

**What is the scale of the problem?**
- 1. Recruitment
- 2. Studies not completed
- 3. Lose funding
- 4. Need more manpower
- 5. Time
- 6. Budgets
- 7. Difference of research (from student perspective)
- 8. Connections

**Why does the problem exist?**
- 1. Disconnection between educational and translational
- 2. Want publications
- 3. Commitment
- 4. View and perception of publications

*Figure 8 Quality Science Group definition of problem*
Understanding the Process

Figure 9 Current Process Flow with issues highlighted

Fish Bone Analysis

Figure 10 Fish Bone Analysis for discussing causality
Solutions Generated by Quality Science Approach Team:

Six relatively simple solutions were created to solve the issues of the student champions in research problem. They are as follows:

1. **ITM Assistance** - Look at the career pipeline, regulatory support groups, update the course catalog to give credit for participation, and issue a “mini” certificate for participating.

2. **Incentives** – If you work x amount of hours you get a letter of recommendation and x amount of hours you get added to a publication. You can use the PI as a mentor along with the Research Manager or Clinical Research Coordinator.

3. **Co-Design with Student Volunteers** – Use previous research volunteers to help design the program. See what they liked, what they didn’t like, what worked and what they would like to see changed. Do an exit interview for participants to help with creating the student champions.

4. **Q & A with PI** – Have the student champion researchers participate in lunch and learns with the PI and research team so then can learn more about research, the programs, and any results of the studies they are working on.

5. **Early Student Outreach** – Attend student orientations looking for the student champions. Present to different student organizations. Create videos as to what is involved and include testimonials. Create a flyer to pass out in classes, with financial aid advisors and advisors to get the word out about the student research program.

6. **Incorporate into Capstone** – This will help students understand research and give them information about research. Do a plug and play as to what study needs and what help is needed. Relay this to student bodies to get a “right” fit for the research needs.
Quality Science Solutions

**01 ITM Assistance**
- Career pipeline / Regulatory support group / Regulation manual / Course catalyst / Credits for participation / "Mini" certificate / Honor stamp

**02 Incentives**
- X Amount of hours
- X Publications
- PIs as mentors
- Research manager / CRC manager connections

**03 Co-design with student volunteers**
- What worked
- What did you like
- What didn’t you like
- Exit interview

**04 Q and A with PIs about Research Projects**
- Lunch and Learns

**05 Early Student Outreach**
- Orientation
- Students organizations (Video taping)

**06 Incorporate into Capstone**
- Do a plug and play as to what study needs and what help is needed

Figure 11 Quality Science Group solutions

<End of Document. Thank you.>
Appendix 1.
Slides used by Amelia and David from Rush

Appendix 2.
Whiteboard Pictures

Design Science
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**Stakeholder Map**

- STUDY TEAM
  - CITATION SCIENTIST
  - STUDENTS (all)
  - FACULTY
- STUDY TEAM
  - LIS
  - PATIENTS
  - PATIENTS
  - DIFFERENT UNIVERSITY/CITY/HIGH SCHOOL
- CLASSROOM
- VOLUNTEERS

**Insights/Problem ReFrames**

- What is in it for me (student)?
  - PREDEFINED
  - DEFINED vs untamed
  - UNIV ONLY
  - ACROSS UNIV (CLOUD/IN-CLASS)

- Awareness of research studies/ opportunities
- Lack of central repository
- Lack of research interest group
- One faculty member, students may hesitate
- Don’t know how to reach out (students)
- First-year students have burdens
- Changing the perception of research being optional
- Turn over problem in undergraduate
Solutions

1. "TNN" - element for student user
   - Each class has FB group
   - In-house publication for value
   - Student counterpart for faculty led research

2. "TNN" - element for student user

3. Targeting pre-med undergrads
   - HS - Grano
   - CCC - Malcolm X

4. Speed dating for PI/Coordinators
   - Spring Winter (Jan)
   - R/C SY/P RUSH Research Week (Jan)
   - Coordinator Panel for Students

5. Setting up courses and allow for cross-institution credit
   - Freshman requirement
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Quality Science

DEFINE THE PROBLEM

CURRENT STATE
- Teaching adds an additional burden to workload.
- Unawareness of opportunities.
- Lack of perceived relevant room of scale.
- Limited time/availability with school schedule.

GOAL STATE
- To develop a system that will allow student champions to engage in research opportunities and enhance recruitment efforts.

WHO IS EXPERIENCING THE PROBLEM?
- Students
- Study teams
- Schools/Registrar
- Student organizations
- PI's
- Participants
- Medical Community/District
- Funding Agencies

WHAT IS THE SCALE OF THE PROBLEM?
- 300 Students/400 Old Rock (specific location)

WHY DOES THIS PROBLEM EXIST?
- Disconnect educational vs. translational
- Want publications
- Commitment
- View/perception of publications

Regents
- Professors/Dean (specific program)
- Future Geoscientists
- Volunteer office
- Residency programs
Scale of the problem

- Recruitment
- Studies not completed
- Lose funding
- Need more manpower
- Time!!
- Budgets
- Def. of Research
  - Student perspective
- Connections
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Why - Why Analysis

- Students have no band to do (all the options)
- Lack of perceived value
- Training adds additional burden
- Communication
- Location limitation

Solution

1. Incentives
   - X Amount of hours for rec.
   - X " " " Publications
   - PI's as mentor (time)
   - Research mentor page

2. QA with PI (Lunch & Learn)

3. Research training within Cit.
   - Early student outreach
     - Orientation
     - Student organization (waste group)
   - Testimonials - Flyers
   - Financial aid
- Incorporate into capstone
  - Play 3 Play
    - What story needs what help
      - Ask to students for 'Pop' for.
  - Co-design with student volunteers
    - What looked
      - What did you like
      - What didn't you like
      - Exit interview

- ITM assistance
  - Career pipeline
  - Regulatory support group
  - Reg. manual
  - Course (粑)
    - Credit for pay
    - "Mini" Cert.
    - Honor role
Addendum 1 – 30 Day Follow Up

Top 3 Solutions Generated by Design Science Team:

1. **The New Normal website could add an interface for student users to browse and search for opportunities** - Students need ability to easily view which research studies are looking for help, by institutions, area of research and project types.

   **Implementation and Results:**

   New Normal has not launched yet. Once it does, the research team will look into adding an element for student users.

2. **Rush Research Week student focused research activities** - Having a week dedicated to research awareness opportunities such as, coordinator panels for student, “speed dating” for students and PI/Coordinators, or a student-PI connector program. Make sure this week is in January when students are searching for summer research opportunities.

   **Implementation and Results:**

   Rush Research week is in February. David and Amelia are looking to tie something into research week. They are looking at having an event in the atrium with giveaways and honoring student research volunteers.

3. **Targeting Pre-med students** - Pre-med students are always looking for research assistantships. So reaching out to the undergraduate populations or reaching out to high school students (Crane) who are associated with Rush will be productive

   **Implementation and Results:**

   David and Amelia previously presented to undergraduate and high school students. They have students come in yearly to present. This will also be done this year. They have summer interns that work on their research projects.

   David and Amelia recently hired three new work study students, and are currently pushing for more volunteers with flyers and outreach.
Top 3 Solutions Generated by Quality Science:

1. **ITM Assistance** - Look at the career pipeline, regulatory support groups, update the course catalog to give credit for participation, and issue a “mini” certificate for participating.

**Implementation and Results:**

David and Amelia will be put in contact with regulatory and community leads to see if they have suggestions.

2. **Incentives** – If you work x amount of hours you get a letter of recommendation and x amount of hours you get added to a publication. You can use the PI as a mentor along with the Research Manager or Clinical Research Coordinator.

**Implementation and Results:**

David and Amelia will begin with work study students in clinic and will then open this up to volunteers.

3. **Co-Design with Student Volunteers** – Use previous research volunteers to help design the program. See what they liked, what they didn’t like, what worked and what they would like to see changed. Do an exit interview for participants to help with creating the student champions.

**Implementation and Results:**

David and Amelia will use two community volunteers and three work study students to help set up this volunteer program. The team is currently creating a survey for the volunteers.
About the Institute for Translational Medicine (ITM)

The ITM is a partnership between the University of Chicago and Rush in collaboration with Advocate Health Care, the Illinois Institute of Technology (Illinois Tech), Loyola University Chicago, and NorthShore University HealthSystem that’s fueled by about $35 million in grants from the National Center for Advancing Translational Sciences at the National Institutes of Health through its Clinical and Translational Science Awards (CTSA) Program.

We’re part of a network of more than 55 CTSA Program-supported hubs across the country working to slash the time it takes to develop and share new treatments and health approaches. We work with you and for you to make participating in health research easy, so that together we improve health care for all.

Join the movement and learn more about how we help researchers, physicians, community members, industry, government organizations, and others. Visit us at chicagoitm.org and connect with us on Facebook, Twitter, Instagram, YouTube, and LinkedIn @ChicagoITM.

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