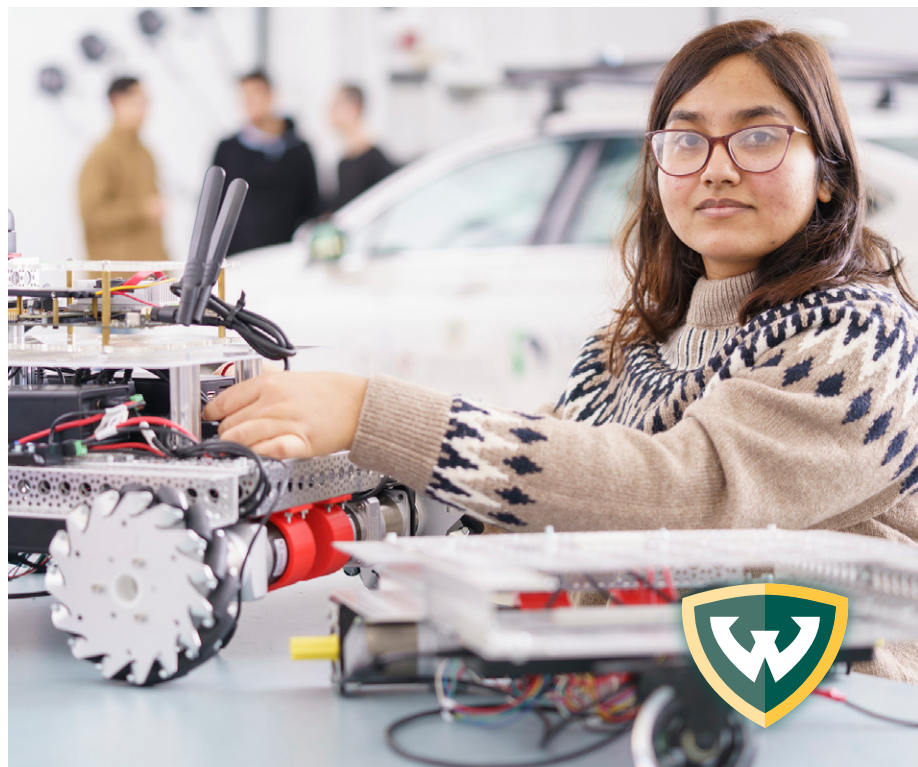# WAYNE STATE UNIVERSITY
STEM PROGRAMS
RECRUITMENT INITIATIVE

Increasing enrollment of marginalized groups in STEM programs

STEM Programs Recruitment
Enrollment Initiative

Executive Summary

The Problem

Wayne State is presently faced with enrollment discrepancies in STEM area programs. Enrollment in STEM programs for marginalized populations in comparison to the proportional representations of the overall student body highlights a notable gap. With a mission to "**create and advance knowledge, prepare a diverse student body to thrive, and positively impact local and global communities**", addressing this under-representation can be viewed as mission critical.

Steve Pierce,
Primary Author

The Plan

To address this, we sought:

- Knowledge about best channels of access to reach prospective students, their families, and their schools
- Prospective students' perceptions of Wayne State
- Prospective students' goals, interests, and ambitions
- To utilize the unique opportunity presented by Wayne State's STEAM Challenge and gather feedback on these individuals' perspectives of Wayne's STEM programs; also, we sought to measure awareness of the STEAM Challenge among local school districts

Data Gathered

This evaluation utilized a combination of surveys/questionnaires from open house events, data from enrollment management and admissions, participant feedback responses from individuals that had participated in the STEAM Challenge, and looked at data collected from alumni sources about whether their WSU STEM experience has benefited them or not. These efforts showed that prospective students from marginalized populations often lacked awareness of what Wayne State offers in terms of STEM programs as compared to other area universities and schools. A notable number (37%) of open-ended responses indicated that there is a dearth of communication about Wayne State's capacity for state-of-the-art engineering and science.

On the opposite end of responses (Fig. 5) 68% of participants in the STEAM Challenge were planning on enrolling in STEM Programs at Wayne, 29% were still considering options, and only 3% planned to continue their education elsewhere.

Other important data collected were preference for media sources. Respondents were asked to select the media outlets they spent most time engaging with. This knowledge highlighted a very strong preference for social media over traditional media (Fig.1) (TikTok [36%], Instagram [27%], and SnapChat [11%]). This data will allow for an informed approach to developing marketing material to deploy in the most effective channels.

Outcomes

Based on the data collected and adjustments made, we are equipped with knowledge of how best to communicate information to prospective students. While adjustments can and should be made after this primary evaluation and implementation, they should always be informed by data and communication.

Actions to follow should be:

- STEAM Challenge is marketed more expansively, and refined to better highlight Wayne State's unique setting and state-of-the-art facilities

- Local high school outreach is engaged to highlight STEM Programs through open houses and tours

- Continue to survey individuals who attend open houses and tours

- Consult with various STEM Subject Matter Experts to aid in the development of new, informed messaging. Subsequently, we are developing a new STEM-specific marketing strategy with marketing specialists. This will result in campaigns that capitalize on the knowledge garnered in data collection (student interests and goals as well as the most effective channels to reach them).

The Future

The data collected has provided the information necessary to make well-informed, directed decisions that are designed to remain in place as a sustainable model for continual adaptation and growth. This continual feedback and adaptation will enable STEM programs at Wayne State to thrive and remain in support of the university's strategic mission.

Additional recommendations:

- Engage with faculty to refine outreach efforts

- Continue to evolve outreach to area school districts, adding open houses and events that highlight WSU as a leader in STEM fields

- Further highlight alumni successes

- Evolve STEAM Challenge by marketing it more publicly to emphasize the innovations at WSU and top Challenge projects
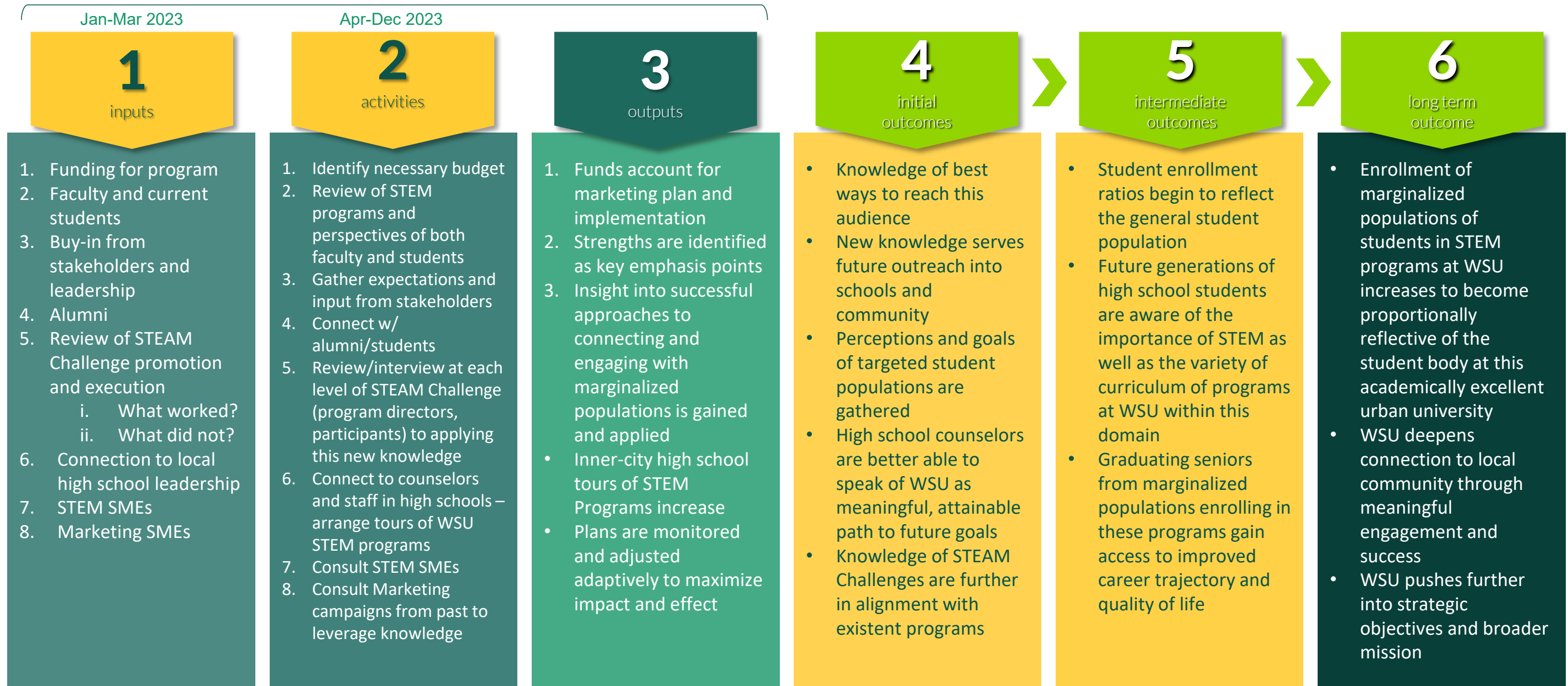
STEM Programs Recruitment
Enrollment Initiative

Logic Model

GOAL - **STEM enrollment proportional to overall college enrollment:**
Increase enrollment of marginalized populations in STEM fields by 15% by 2024

Jan-Mar 2023	Apr-Dec 2023				
1 inputs	**2** activities	**3** outputs	**4** initial outcomes	**5** intermediate outcomes	**6** long term outcome

1 — inputs
1. Funding for program
2. Faculty and current students
3. Buy-in from stakeholders and leadership
4. Alumni
5. Review of STEAM Challenge promotion and execution
    i. What worked?
    ii. What did not?
6. Connection to local high school leadership
7. STEM SMEs
8. Marketing SMEs

2 — activities
1. Identify necessary budget
2. Review of STEM programs and perspectives of both faculty and students
3. Gather expectations and input from stakeholders
4. Connect w/ alumni/students
5. Review/interview at each level of STEAM Challenge (program directors, participants) to applying this new knowledge
6. Connect to counselors and staff in high schools – arrange tours of WSU STEM programs
7. Consult STEM SMEs
8. Consult Marketing campaigns from past to leverage knowledge

3 — outputs
1. Funds account for marketing plan and implementation
2. Strengths are identified as key emphasis points
3. Insight into successful approaches to connecting and engaging with marginalized populations is gained and applied
- Inner-city high school tours of STEM Programs increase
- Plans are monitored and adjusted adaptively to maximize impact and effect

4 — initial outcomes
- Knowledge of best ways to reach this audience
- New knowledge serves future outreach into schools and community
- Perceptions and goals of targeted student populations are gathered
- High school counselors are better able to speak of WSU as meaningful, attainable path to future goals
- Knowledge of STEAM Challenges are further in alignment with existent programs

5 — intermediate outcomes
- Student enrollment ratios begin to reflect the general student population
- Future generations of high school students are aware of the importance of STEM as well as the variety of curriculum of programs at WSU within this domain
- Graduating seniors from marginalized populations enrolling in these programs gain access to improved career trajectory and quality of life

6 — long term outcome
- Enrollment of marginalized populations of students in STEM programs at WSU increases to become proportionally reflective of the student body at this academically excellent urban university
- WSU deepens connection to local community through meaningful engagement and success
- WSU pushes further into strategic objectives and broader mission

STEM Programs Recruitment
Enrollment Initiative

Data Collection Plan

	Outcome Statement	Data Indicator	Source of Data	Method of Data Collection
Short-Term	Knowledge of best channels and practices for reaching high school students and families in identified districts aids in goal of reaching target student demographic	*Number of new channels and practices identified*	*Admissions and Enrollment*	*Admissions Feedback Survey*
	Perceptions and goals of targeted student populations are identified	*Student perceptions*	*1) Outreach/Open House Events 2) Local school staff/counselors*	*1) Likert Style Survey 2) Open ended discussion*
	Awareness of STEAM Challenge	*Student awareness*	*Past/current STEAM Challenge participants*	*Participant Feedback Survey*
Mid-Term	Enrollment of marginalized student populations in WSU STEM-related programs increases by 15%	*Enrollment Data*	*Banner college data system*	*Existent data review*
	Future generations of students are aware of the importance of STEM and the role WSU is playing in providing a quality STEM education to students	*1) Attendance at WSU open house events 2) Applications to STEM programs increase*	*1) Marketing and Communications 2) Special Events*	*Attendee Survey*
	Graduating seniors from marginalized populations enrolling in STEM programs gain access to improved career trajectory	*Alumni success post graduation*	*Alumni tracking data*	*Existent data review*
Long-Term	Enrollment of marginalized populations of students in STEM programs continues to increase to become proportionally reflective of the student body (sustained performance at +15% from outset of initiative)	*Enrollment Data*	*Banner college data system*	*Existent data review*
	WSU connection to community is deepened through continued engagement and success	*Graduation rates among marginalized populations is proportional to the larger student body*	*Banner college data systems*	*Existent data review*

Data Analysis: Admissions Feedback, & Open House Survey Response Data

The data reflected in figures 1-3 highlight responses to questionnaires / surveys collected in admissions feedback surveys (fig. 1) as well as administered with open house events (fig. 2 and 3. These data points allow for data-driven decision making based off key logic model points (insight into effective means of communication with this population, which leads to greater capacity to connect with these students and families).

- **Figure 1** indicates channels through which students and their families might be reached
- **Figure 2** reflects intent and interests from individuals in attendance at WSU Open House and similar events
- **Figure 3** is collected from local target-region high schools, seeking feedback on what this population

Figure 2

You Attended This Event Because Interested In

Other 2%
Exploring options 18%
18%
Enrolling (child) 26%
26%
Enrolling (myself) 54%
54%

Figure 1

Which Media Do You Connect With Most Frequently?

Other 1%
Television 8%
Radio 2%
TikTok 36%
36%
Instagram 27%
27%
Snapchat 11%
11%
Facebook 6%
6%
Twitter 9%
9%
8%
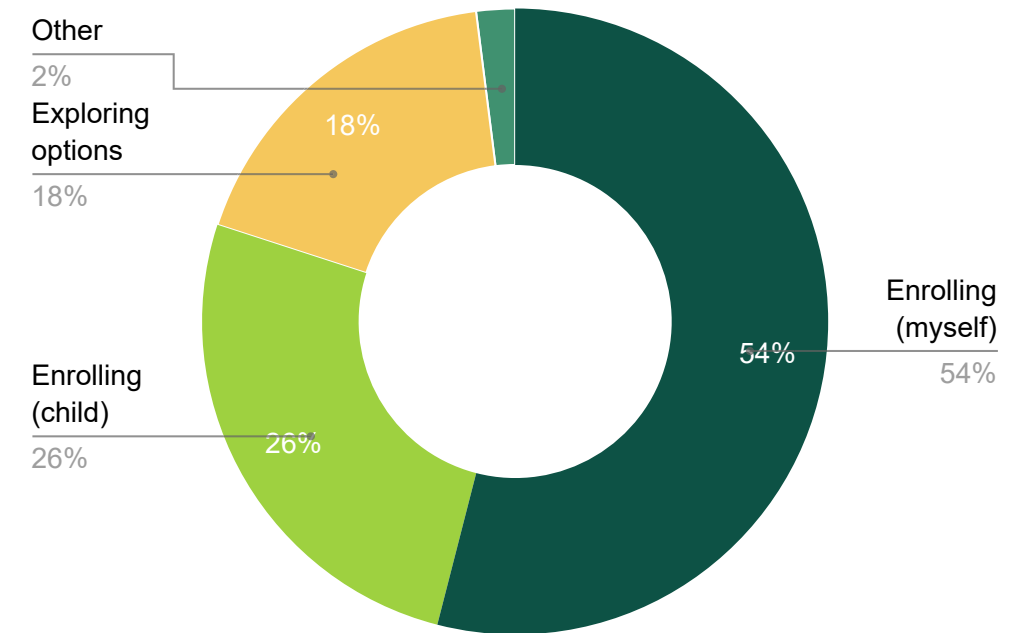
Figure 3

Awareness of WSU STEM Programs

Yes 22
22%
None 19
19%
Some 59
59%
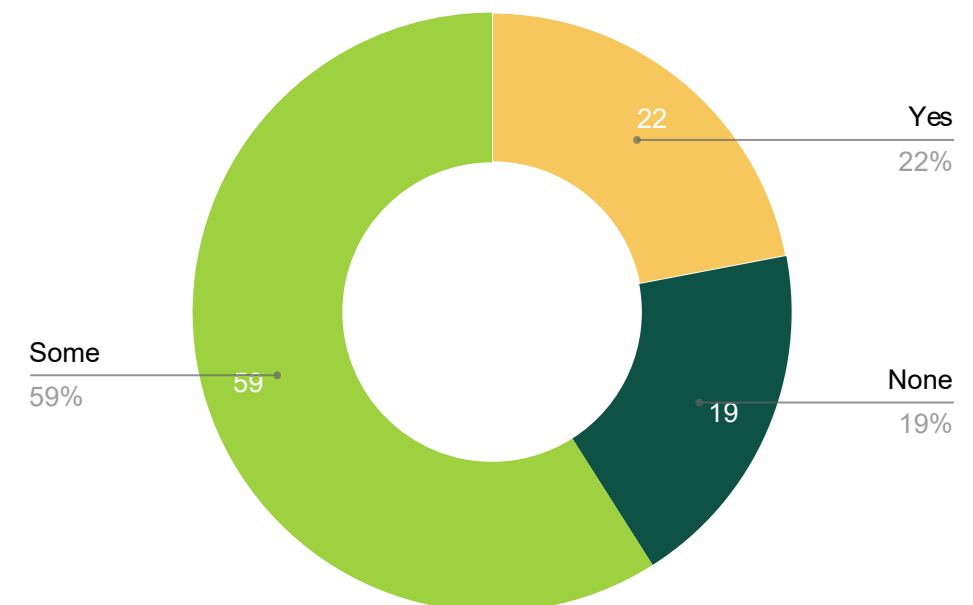
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Analysis: STEAM Challenge Participants

The data reflected in the figures 4 and 5 highlight responses to questionnaires / surveys given to STEAM Challenge Participants. These data points are crucial to understanding what areas of STEM are sought after by prospective students (fig. 4) as well as

- **Figure 4** reflects data on interests of participants in the STEAM Challenge and where these individuals are targeting in their educational pursuits

- **Figure 5** collects a more basic level look at plans to enroll at Wayne to pursue STEM interests, which drives directly at the effectiveness of the Challenge as a catalyst to enrollment and growth. Further development and evaluation will be necessary to make refinements to the Challenge to better serve the strategic aims of the university.

Figure 4
Future Academic Interests of STEAM Challenge Participants
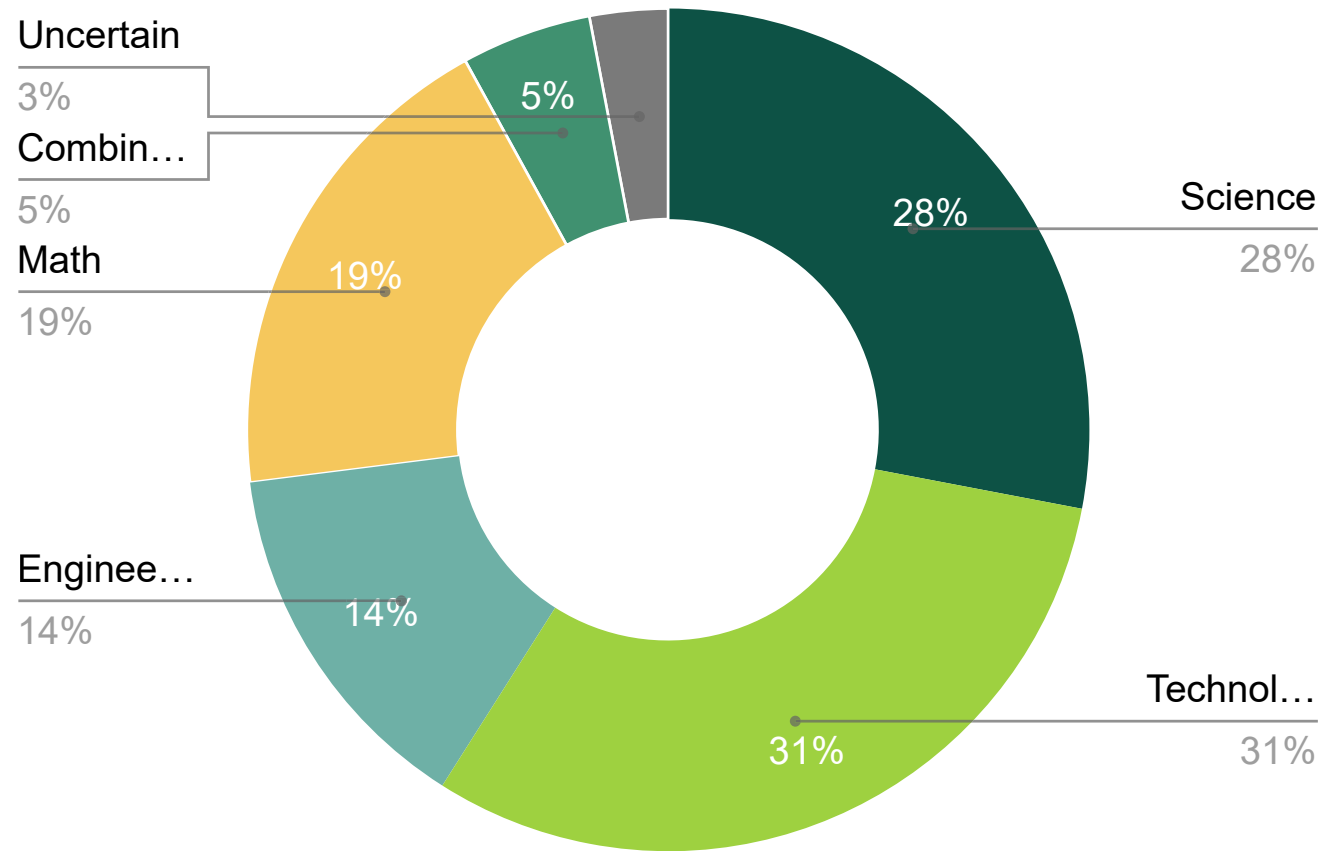
Figure 5
Do You Plan to Enroll In Further WSU STEM Program Activity?
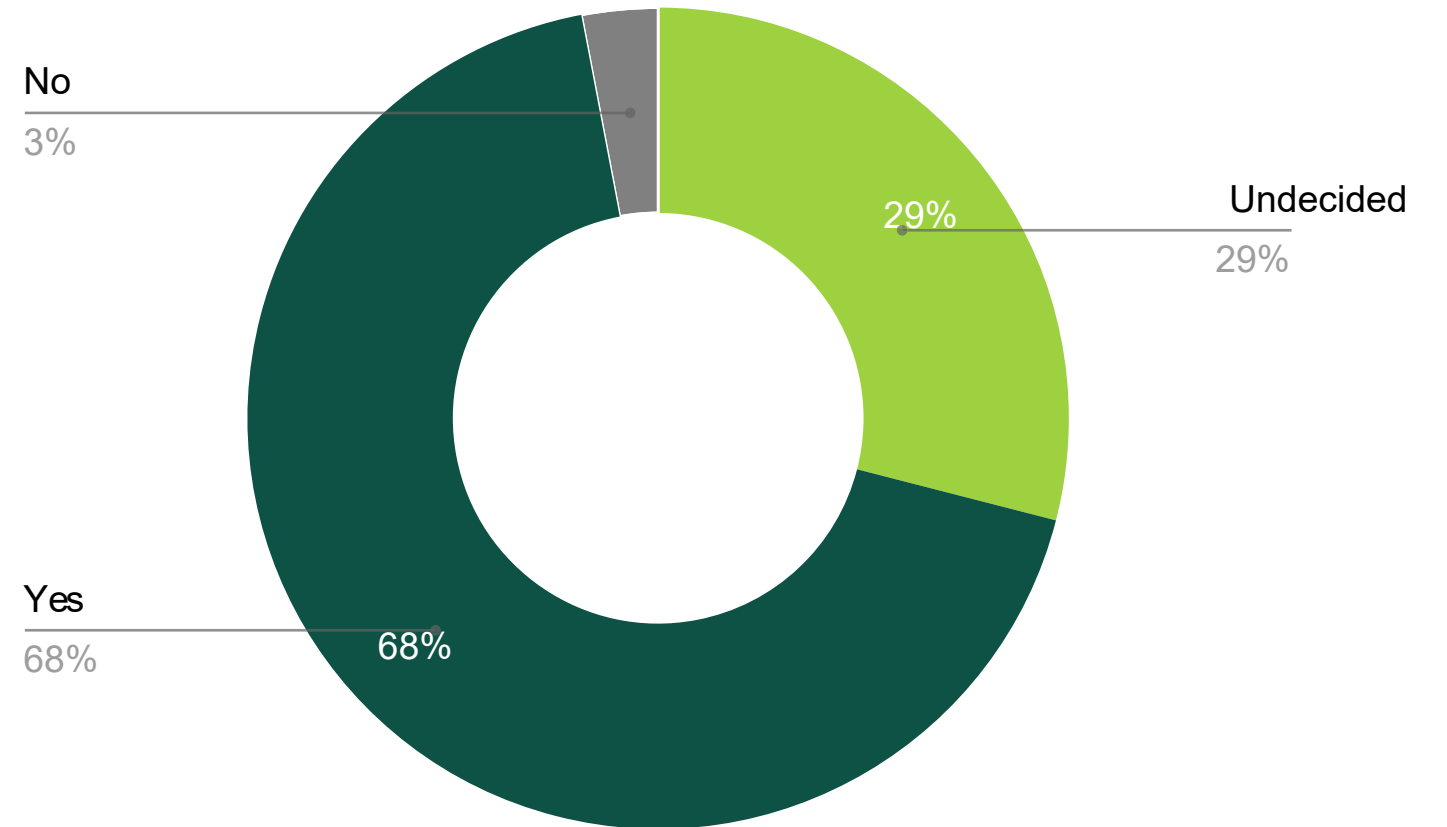
Quantitative Analysis

Face-to-Face vs. Online

As shown in Figure 6 there is a difference of 0.8 in mean scores of face-to-face versus online undergrad students. The average score for both types of undergrad students is 80.6 (shown in Green/Yellow gradient on the left in Figure 6):
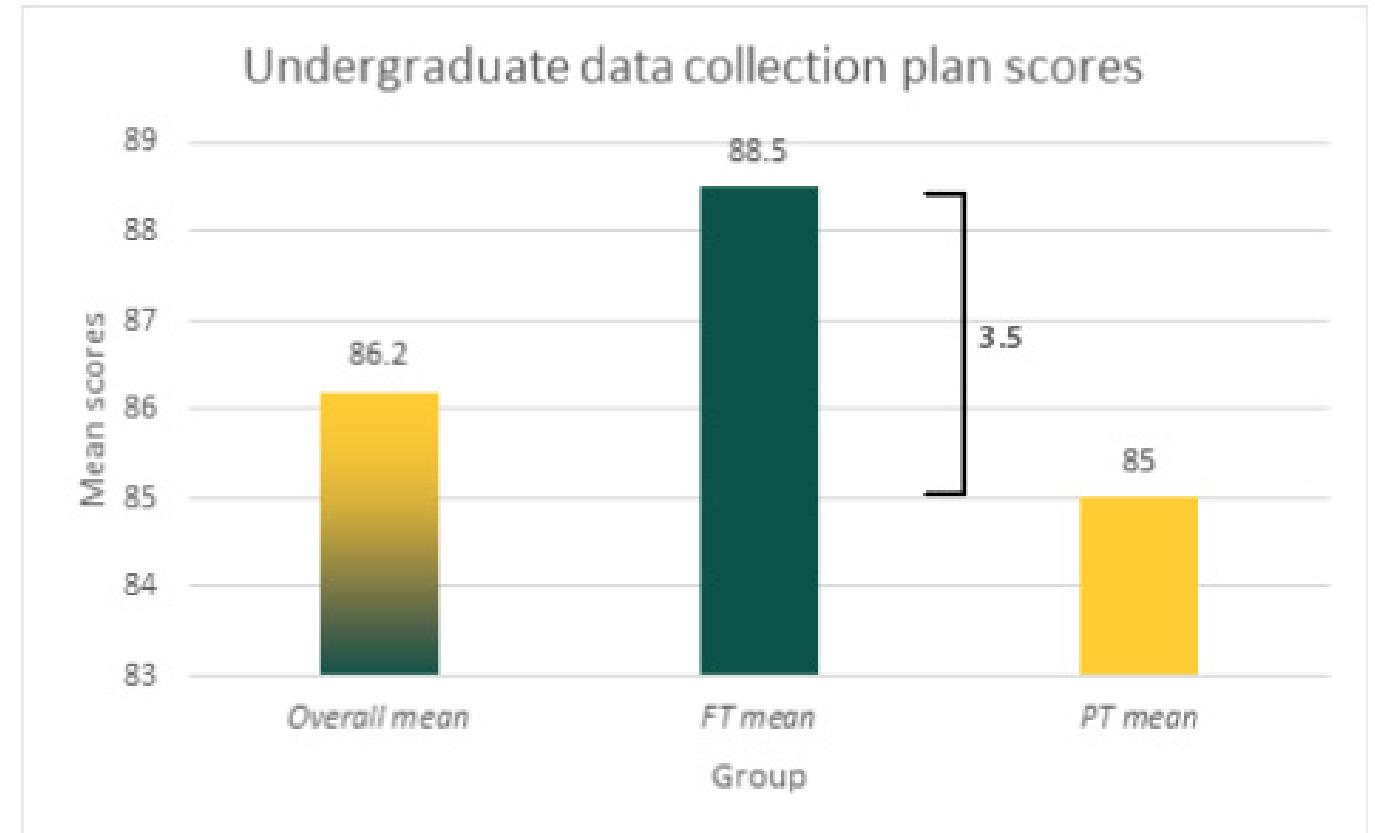
Figure 6
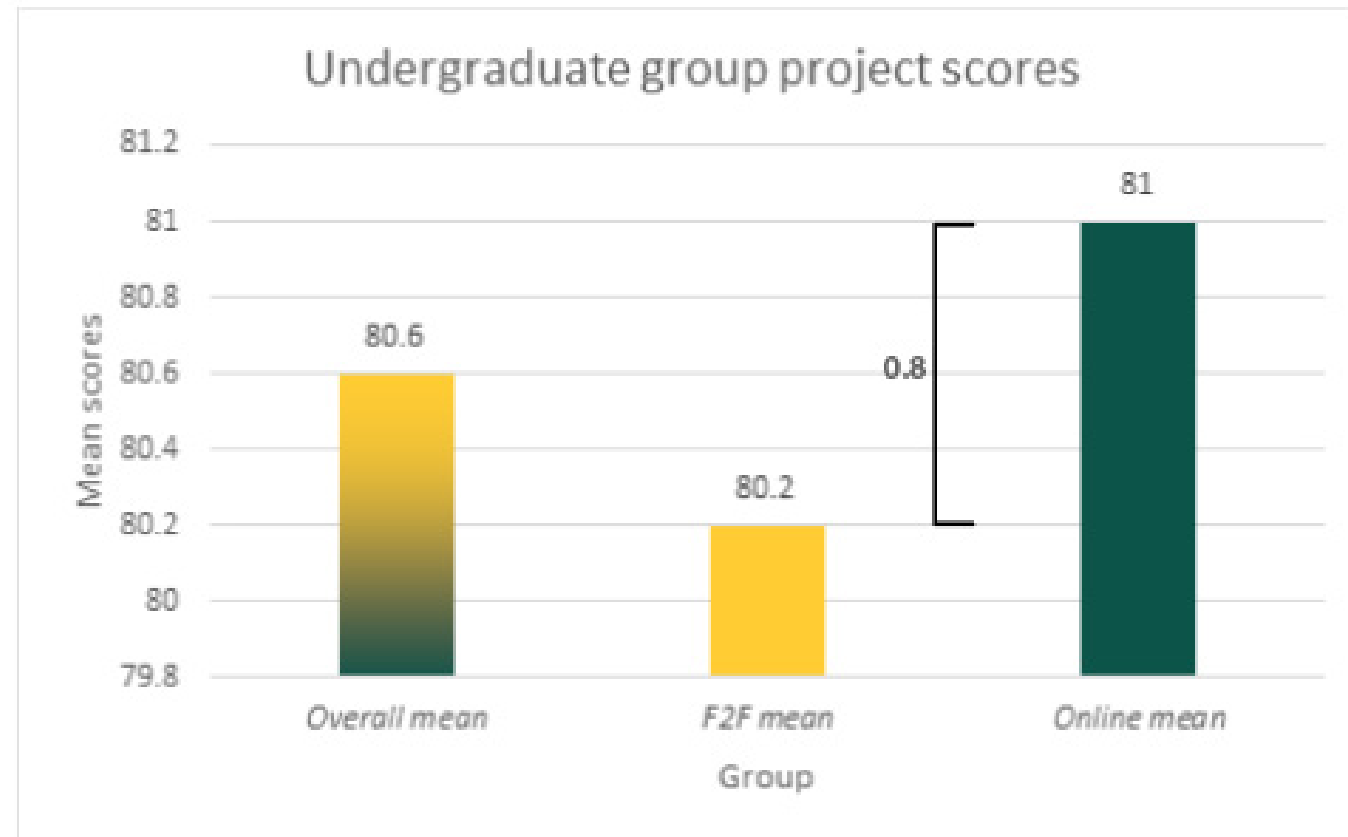
Full-Time vs Part-Time Enrollment

As shown in Figure 7 Full Time students on average scored greater than Part Time Students by 3.5 in mean scores.

Figure 7

Quantitative Analysis

Average Data Collection Plan Scores

The average data collection plan score for all undergrad students selecting "Data Collection Plan" as their first or second most important outcome: 92

The average data collection plan score for all undergrad students that DID NOT select "Data Collection Plan" as their first or second most important outcome: 86.7
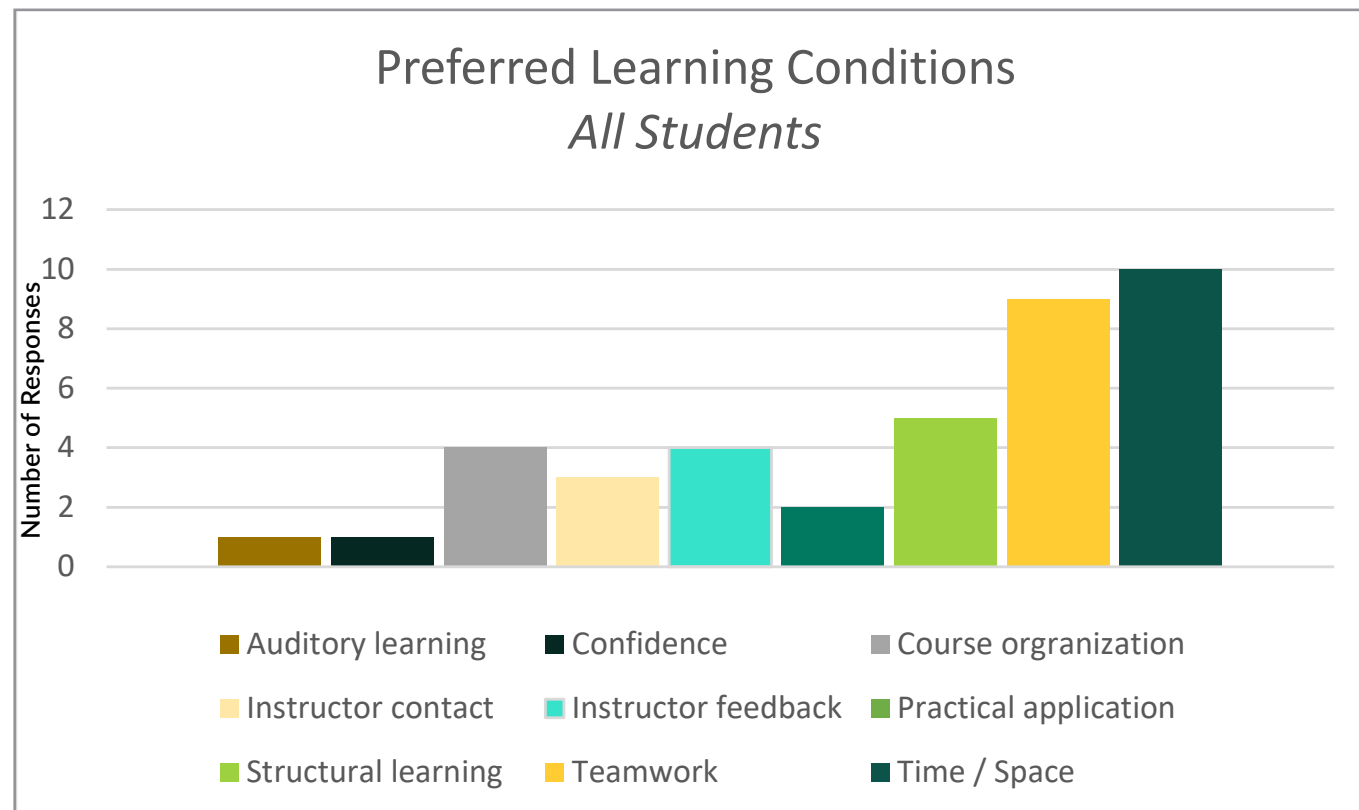
Figure 8
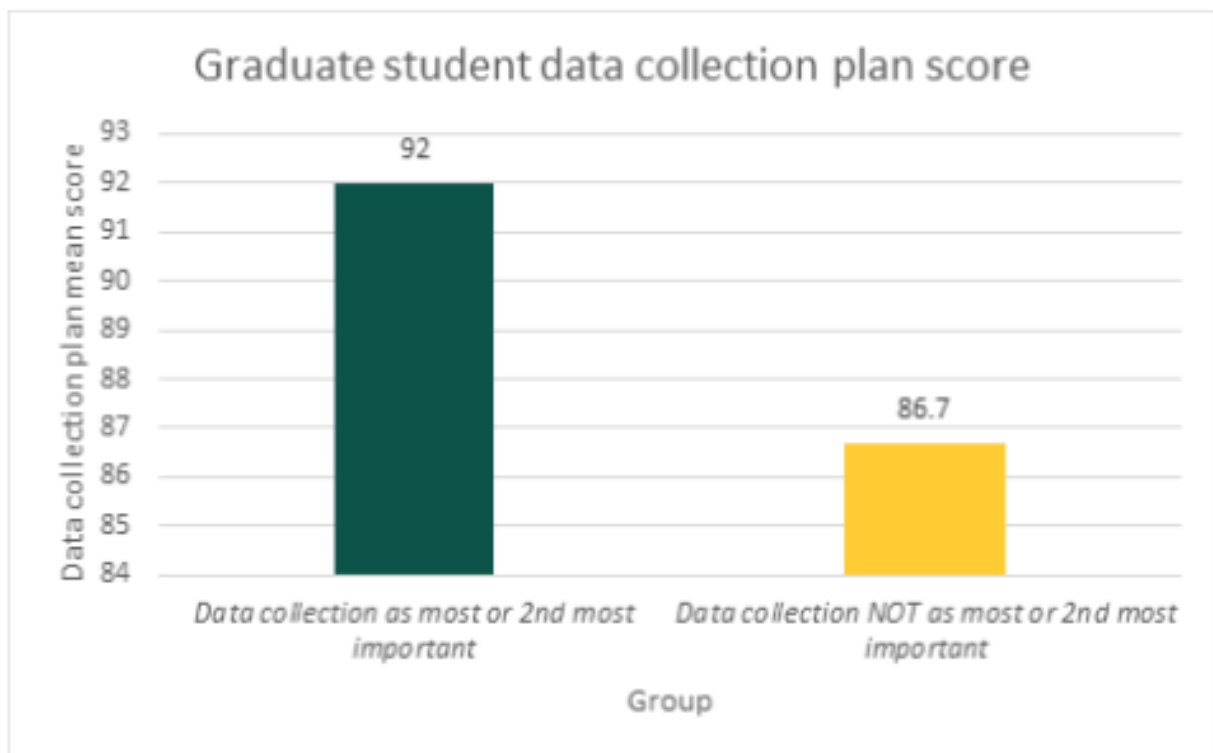
Qualitative Analysis: Learning Conditions

All Preferences coded: Auditory learning, Confidence, Course organization, Instructor contact, Instructor feedback, Practical application, Structural learning, Teamwork, Time / Space
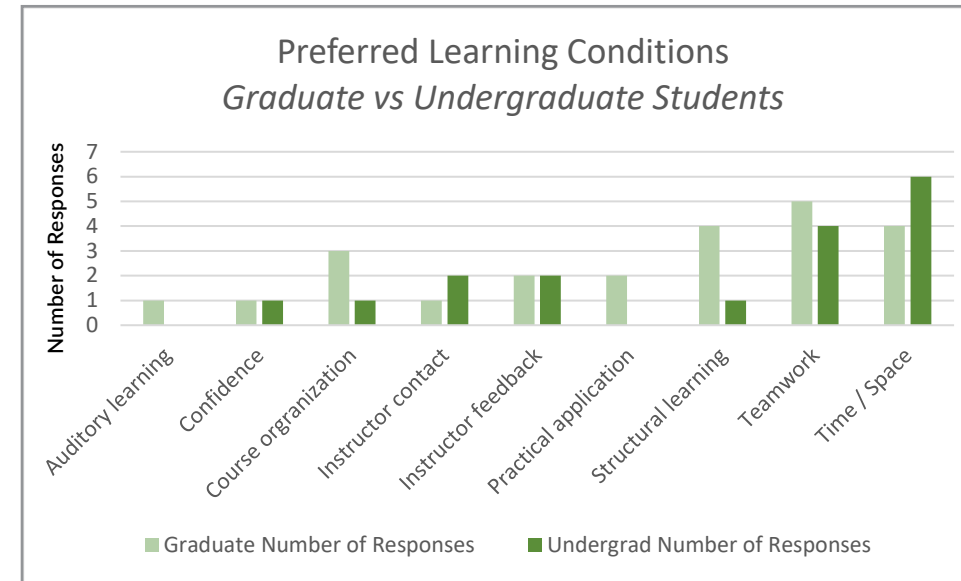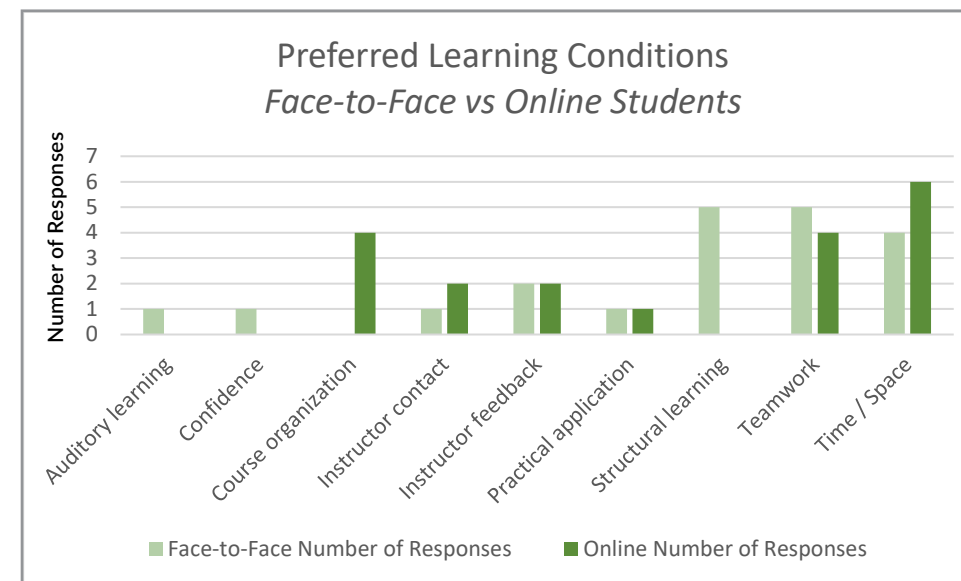
Preferred Learning Conditions: All Students

Figure 9

Preferred Learning Conditions
All Students

Preferred Learning Conditions: Graduate vs Undergrad Students

Figure 10

Preferred Learning Conditions
Graduate vs Undergraduate Students

Preferred Learning Conditions: Graduate vs Undergrad Students

Figure 10

Preferred Learning Conditions
Face-to-Face vs Online Students

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