Impact of Satellite Campuses on Undergraduate Student Experience in Comparison to Big University Campuses

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Abstract

The primary purpose of a Satellite-University campus structure is to make higher education easily accessible to a diverse group of students in remote locations. The satellite campus aims to provide the same wholesome College / University experience as any other large University campus. The college experience is one of the most exciting and transformative times in a student's life. The students not only look forward to a quality education in a discipline of their choice, but also get to explore their true calling in terms of gaining, understanding, and honing their skillsets towards their dream career, while cultivating strong dependable relationships with their fellow collegemates. The Satellite-University campus may feel like a scaled down version of the regular big University campus, but in theory it is expected to provide the same resources for labs, same if not better-quality higher education, similar student opportunities for internships, projects, conferences, etc., in industry and academia. The students graduating from satellite campuses should feel the same confidence in securing their dream job, like any other big-University graduate, based on the knowledge and skills they have acquired during their years at the Satellite-University campus. The path to success of a diverse group of undergraduate students in a remote location, with the primary aim of effective provision of higher education, is a combination of a few hurdles, failures, and many successes in a satellite campus. This paper provides an insight on the impact of higher education on undergraduate students attending satellite campuses in comparison to students enrolled in a regular University with a large campus.

Introduction

A satellite campus is a small-scale division of a university that operates in a location separate from the institution's main campus. The satellite college campus exists at a considerable distance from the main University campus, possibly in a different city [Example: Higher Education Center at McAllen, Texas] or in a different country [Example: Texas A&M University campus in College Station, Texas] and is aimed to serve students in remote settings who find it difficult to avail higher education at the big traditional University campuses. As the big University campuses are trying to expand their reach, the satellite campuses are becoming popular in terms of increased access to higher education, enhanced community engagement and reduced costs. The students from underserved areas can now attain higher levels of education and improved job prospects with increased economic mobility, via satellite campuses. Hassani and Wilkins [1] suggested the perceived quality of teaching, organizational identification, and institution reputation were significant predictors of student's satisfaction leading to direct and mediating influences on their staying in the higher education program. The small-scale campuses allow the educational institutions to foster a strong relationship with their surrounding local community, leading to a range of experiential learning benefits for students in the form of internships, fieldwork, and mentorship collaboration with local industries and organizations. Jongbloed et. al. [2] showcased

the need of universities to reconsider and re-evaluate their role in society. They put forward a stakeholder analysis to assist universities in classifying stakeholders and determining stakeholder salience, leading to the utilization of incentive schemes and government programs to encourage the requirement of engaging in interactions with industrial and regional partners.

The satellite campus acknowledges the needs of the local community and establishes itself as an institution offering specialized degrees at reduced costs, tailored to serve the needs and interests of students in the local region. The report by DEEWR [3] explored the relative importance of socioeconomic status and access to university in influencing higher education participation across regions. This study claimed to have found easy physical access to the campus, low travelling times, and most significantly the lower associated costs to have positively influenced the student's decision to commence and continue higher education. The students categorically save on costs associated with maintaining large, centralized campuses, extensive housing facilities, athletic facilities, and transportation, hence leading to a happier learning journey with minimal financial burden of attending college. The small campuses, bearing the reputation of the big-University campus, tailored their curriculum to benefit students, resulting in higher student retention. The satellite campus can revamp the education system by providing more targeted and personalized education to students, with smaller class sizes and more individualized attention from faculty, resulting in improved academic performance, higher levels of student engagement, and greater retention rates. Dunn et.al. [4] considered the concept of personalized education, where the faculty are expected to identify and accommodate their student's individual learning styles, and the authors have found "personalized learning" the best way to capitalize on student strengths, leading to "true" learning. Bourke [5] provided an insight on the relationship between the class sizes and teaching practices in Australian math classes. The author profiled the faculty teaching small classes to adopt teaching methodologies, like those found in classes with higher ability students, ranging from more follow-up questions, homework assignments, oral tests, and direct interaction with students with limited nonacademic procedural arrangements.

This paper reflects the cumulative years of teaching experience, encompassing both satellite and major university campuses. The satellite campus provides equal opportunities to students from different backgrounds to come together, learn from one another and feel more sheltered and supported in their academic pursuits. The satellite campus can demonstrate their potential of eventually becoming a traditional big University campus, by ensuring that their students are receiving high-quality education and are performing at the same level as their peers at the big-University campus.

Popularity of Satellite Campus

The plan to establish a satellite campus and incur eventual growth is largely dependent on the economic strengths of the region in which they are located. The current popularity of higher education leads to having easily accessible locations that can attract a broad spectrum of highly qualified faculty, efficient staff members, and enthusiastic students. The appropriate curricular options, majors, etc. of the satellite campus is determined based on the specialized workforce requirement of the industrial corporations of the region and the institution's strategic partners. The curriculum of the satellite campus, although unique, must maintain the same academic standards

of student learning, as is followed strictly by the big-University campus. Grainger et. al. [6] considered the need to establish consistency of academic standards for student learning across satellite and main University campuses via "consensus planning- an ongoing curriculum development, maintenance and monitoring strategy." They attributed the success of consensus planning on the personalities of academics, attitudes towards reaching consensus and geographical proximity of the campuses. The regular, open, and respectful communication among academics was identified fundamental to effective consensus planning.

A satellite campus enables a well-established University to promote its already existing academic programs, to the emerging industries, - and eventually becoming the driver of the regional economy and employment. Bridgstock [7] emphasized the importance of graduate employability as a key influencing factor on economic growth in the worldwide knowledge economy, while making the significance of universities to this agenda self-evident. She further suggested that graduate employability programs emphasize individual skills and knowledge that are complemented by targeted geographical and industry development, and personalized education programs at satellite campuses. Shuman et.al. [8] further re-iterated the possibility of incorporating professional skills in modern engineering education offered via new curriculum, - that is cognizant of teaching engineering skills in the context of service learning, [e.g., incorporating real-world experiences into engineering curriculum while providing valuable service towards the surrounding community].

These small campuses are able to carve their own identity, despite being under the shadow of their main respective campus, by offering unique curriculum to train an efficient, specialized workforce needed by the local, current, and upcoming industries. Bektas et. al. [9] claims that the university-industry cooperation results in accelerated industrial productivity and educational efficiency in university, by combining theory with practice and facilitating the transfer of knowledge in the field of production. Ishengoma et.al.[10] also highlights the strong perception of university-industry linkage activities to raise the employability of students via student internships in companies followed by joint projects and the involvement of companies in modernizing university curricula. The immediate benefits for an established University to seek a satellite campus are as follows:

- Increased enrollment of students
- Proximity to desired industry sectors
- Combating the locational limitation of the main campus
- Launching a physical presence to heighten the visibility of the University brand
- Increased hiring and retention of qualified faculty and researchers
- Enhancing and promoting the brand of the main campus
- Aiding in the local economic development
- Maintaining the competitive edge with other universities in making higher education readily accessible
- Eventually attracting research funding

The satellite campuses are becoming an important tool to popularize higher education among students finding it difficult to access big-University campus. The small satellite campuses have the

potential of providing students with all the benefits of a traditional college experience, while also offering the convenience and accessibility of a smaller and an intimate campus.

Faculty Development at Satellite Campus

Faculty development is a critical aspect of ensuring that faculty members at satellite campuses have the necessary skills, knowledge, and resources to provide high-quality education to students. It can help improve the quality of education offered by the faculty, retain talented faculty members who feel valued by their institutions, foster innovation by developing new teaching methods and using new technologies, encourage collaboration with colleagues, and support research. The satellite campus must have defined short-term and long-term goals for effective professional development of faculty, by clearly emphasizing the following processes:

i. Teaching functions
    a. *Participate in workshops to develop teaching skills*: Many trainings at the main campus are offered on-line, making them more accessible to faculty from all campuses. In addition, many entities, such as the Association of College and University Educators [ACUE] offers a range of online workshops and professional development opportunities specifically designed to help faculty members enhance their teaching skills. Faculty at satellite campuses can use this avenue easily by creating an ACUE account and registering for the relevant workshop as per their needs. ACUE offers ongoing resources and support for faculty members looking to improve their teaching skills. These workshops should highlight intended learning outcomes, incorporation of engineering ethics in the curriculum and effective and innovative teaching methods.
    b. *Participate in workshops to develop research skills*: Workshops, webinars, and online courses offered by professional societies, institutions, and other training academies are available. The institution should support their faculty to utilize these opportunities. This training would be valuable for learning the appropriate use of digital library, scientific journal editing and publication procedures, use of available content for scientific research purposes, research report/ grant writing skills, and project management.

ii. Training
    a. *In relevant occupational fields to remain updated with current industry practices and professional standards:* This type of training would enable faculty at the satellite campus to design an educational environment rich in current technology and help train students to become future workforce for the relevant industry. This training would also help in identifying mechanisms for achieving learning outcomes to meet community needs.
    b. *In creating an understanding of administration:* It would provide an understanding of the key performance indicators developed for faculty, basics of quality assurance and accreditation process, preparation of degree programs, and budgets assigned for innovative teaching equipment.

c. *In learning about the available multimedia at the satellite campus:* It is imperative to create a training opportunity by the administration of a satellite campus for the faculty to get trained on the use of data display equipment, such as smart boards, virtual communications, CANVAS, etc. Developing skills in incorporating technology in education and the learning environment is also key.

iii. Networking with the academic community

a. *Mentoring programs:* These type of programs at the satellite campus can provide faculty members with opportunities to learn from experienced colleagues and receive feedback on their teaching and research.

b. *Collaboration opportunities:* Institutions can provide collaboration opportunities to faculty members at satellite campuses with colleagues at the main campus or other satellite campuses for developing new courses, sharing resources, and conducting research. It allows them to stay up-to-date with the latest developments in their fields and to benefit from the expertise of their colleagues.

c. *Access to resources:* Faculty members at satellite campuses should have access to the same resources as their counterparts at the main campus, including library resources, support for research funding, and technology resources.

Factors Affecting Student Performance

While the Satellite-University campus may feel like a scaled down version of the regular big University campus, in theory it is expected to provide the same resources for labs, funds for undergraduate research, same if not better-quality higher education, and similar student opportunities for internships, projects, conferences, etc., in industry and academia. Students graduating from satellite campuses should feel the same confidence in securing their dream job as a graduate from the big-University, based on the knowledge and skills they have acquired during their years at the Satellite-University campus. The primary factors in a satellite campus, that can be considered a testament to student performance are as follows:

- Quality of Instruction
  - The institution must ensure the requirements of the big-University related to level of experience and qualifications for hired faculty at the satellite campus. The faculty at the satellite campus must be provided with the same, if not better teaching / learning tools to conduct their job duties. The faculty at the satellite campus should be exposed to the same level of professional development opportunities, to help them enhance their teaching methodologies and emerging technology in the field of education.
- Resources Available to Students
  - The availability and quality of resources at the satellite campus must be evaluated periodically and compared to that of the big-University campus to strike an equivalence. The missing pieces in the satellite campus should be promptly addressed and replaced, to ensure a more streamlined process. The labs, hardware, software, support staff, maintenance of equipment, and training for the equipment and software at periodic intervals in a year are all the major aspects of the term

"resources." Feisel et.al. [11] rightfully claimed the function of the engineering profession is to manipulate materials, energy and information, thereby creating benefit for humankind, - in effective educational laboratories.

- Personalized Education
    - A satellite campus is typically unique in providing small-class sizes, a true collaborative learning environment, and an opportunity for personalized education for students. The class and campus environment creates an opportunity for faculty to engage in academic activities that can lead to developing professional relationships with students. The small class sizes allow the faculty to know their students on a more personal basis, which can lead to increasing the motivation of students. Meyer [12] conducted a literature review and survey and discovered that departments offering small class-sizes and a perceived openness to students of varying ability seemed to attract female undergraduate students. Biddle et. al. [13] highlights the advantage of the small class size format of satellite campuses that proves to be beneficial for students not yet socialized to the university learning environment.
- Student Feedback
    - It is important to devise a mechanism to periodically assess student learning outcomes in core courses, while measuring student engagement and satisfaction in the learning process. Regular feedback from students may help in identifying areas of strength and those needing improvement and allows faculty to tailor their teaching methodologies as well as resources to better suit the needs of the individual students. Watson [14] signifies the importance of a "close the loop" approach from student views, through identifying issues and delegating responsibility for action, to informing students of the action, resulting from their expressed views. Alderman et.al. [15] however conveys the need for institutions to develop an overarching framework for evaluation in which a valid, reliable, multidimensional, and useful student feedback survey constitutes a vital part.

Comparison Between Satellite Campus and Big-University Campus

The satellite campus is similar and dissimilar from its main University campus in several aspects. Those aspects can range from philosophy to curriculum to governance to accreditation. Following is a comparison chart highlighting some of the popular aspects of a big-University campus located in a college town in TEXAS, and its satellite campus located in a remote part of TEXAS.

FACTORS	SATELLITE CAMPUS [SC]	DETAILS
SCHOOL PRIDE [Culture]	*Similar* to big-University [BU] campus	i. SC follows all BU school traditions ii. SC administration ensures to provide the required mechanism to students for participating in BU campus for big events like competitions, games, commencement ceremonies, etc.

		iii.	SC handles the limited student enrollment, an opportunity to involve the student families in the college events, which is a challenge for BU given large numbers of students.
		iv.	SC has limited sporting events and student organizational activities.
FUNDING [$ per student]	*Not similar* to big-University campus	i.	SC has limited funding resources and may need to prioritize spending on specific areas of need.
		ii.	SC has limited grants, as it is primarily a teaching center for undergraduate students
		iii.	SC has the potential to attract grants, which would lead to the creation of funded student worker/ research positions and the eventual creation of graduate programs
		iv.	Students at SC work more hours per week than those at BU to help fund their education. Paid opportunities for SC students through research funding would allow students to spend more time on campus instead of going off campus for work.
CURRICULA [Fixed, comprehensive courses]	*Similar* to big-University campus	i.	The degree plan is the same at SC and BU.
		ii.	Courses at SC and BU maintain 80% consistency across all campuses. The learning outcomes, course structure, assignment and exam formats are like the BU.
		iii.	SC chooses to develop the labs with similar or newer equipment like the BU.
		iv.	SC hires technician, peer tutors, staff to provide similar academic support as in the BU.
INSTRUCTION [Lecture-based]	*Similar* to big-University campus	i.	Courses are primarily lecture-based at SC and BU.
		ii.	Small class-sizes at SC allows the opportunity for one-on-one interaction with professors and a more personalized experience.
		iii.	Lecture-based courses at SC are a great option for students who want the convenience of studying closer to home while receiving high-quality education.
FACULTY [Full-time faculty credentials and responsibilities]	*Not similar* to big-University campus	i.	At this SC, only instructional professors and lecturers are hired.
		ii.	The teaching load of the professors at SC is usually more than the tenure track professors at the BU but the same as teaching faculty at BU.
		iii.	The absence of graduate programs at SC leads to the absence of graduate Teaching Assistants [TAs].
		iv.	The faculty at SC take up several roles – instructors, graders, TAs, lab technicians, course developers.
STUDENTS [Selection criteria at admission]	*Similar* to big-University campus	i.	Applications for admittance into undergraduate engineering at both the SC and BU are exactly the same and are managed using the same holistic review process. The factors considered include: academic achievements, personal achievements, and responses to essays.
		ii.	The deadline for completing the admission applications does occur later for the SC than for the BU.
LIBRARY [Access to hard copies of books /papers]	*Not similar* to big-University campus	i.	At SC a state-of-the-art library building is missing.

		ii.	Students, faculty, and staff at SC can access all books, papers, databases, and other library resources via the BU campus library website.
		iii.	The presence of virtual libraries at the SC provides access to e-books, academic journals, research databases, and other learning resources that can be a wealth of information.
LEARNING TECHNOLOGY [Maximized access to learning resources via the use of technology]	*Similar* to big-University campus	i.	Both the SC and BU require their engineering students to purchase and bring a computer to complement the course instruction.
		ii.	BU campus has a mobile app that gives the SC students access to schedules, grades, course materials, and databases.
		iii.	Digital learning platforms like CANVAS provide students at the BU and SC with a centralized location for accessing course materials, submitting assignments, and communicating with professors and classmates.
		iv.	Video conferencing software such as ZOOM is used to facilitate real-time communication and collaboration between professors and students at both locations.
		v.	The possibility of offering online courses synchronously and asynchronously provides flexibility for students with busy schedules at the BU and SC.
CAMPUS FACILITIES [Dorms, recreation facilities, restaurants, public transport]	*Not similar* to big-University campus	i.	SC have fewer classrooms and lecture halls compared to BU campus, leading to a difficulty in scheduling classes and limiting the availability of study spaces.
		ii.	SC have fewer or more limited athletic facilities.
		iii.	This SC has no on-campus housing options, which can make it more difficult for students to find affordable housing close to campus.
		iv.	SC have fewer dining options or may rely on off-campus local restaurants and cafes to provide food options for students.
		v.	SC are located in more remote or suburban areas with less frequent public transportation options.
		vi.	SC have ample parking options, with lower costs for parking permits and easier access to parking spots.
		vii.	Students at SC need to rely on personal vehicles or ride-sharing services, which can be expensive.
LEARNING OUTCOMES [Assessments, credit hours, degrees awarded]	*Similar* to big-University campus	i.	SC uses similar formats for assessment methods, exams, papers, projects, and presentations.
		ii.	For a common course offered at SC and BU campuses, the credit hours are the same. Hence at SC the total credit hours required for completion of degree plan is same as BU campus.
		iii.	SC may offer limited selection of programs but offers the same degrees and credentials as the BU.
GOVERNANCE [Administration]	*Not similar* to big-University campus	i.	SC have a greater degree of autonomy compared to BU campus; as they may operate independently with their own administrative and academic policies.
		ii.	SC have more flexibility in decision-making and resource allocation, but it also means that they have less centralized support and guidance.

		iii.	SC have a smaller representation in university-wide decision-making bodies compared to BU campus, leading to a perception of unequal representation and influence in university-level decision-making.
ACCREDITATION [Accredited individual programs and disciplines]	*Similar* to big-University campus	i. ii. iii.	SC might have fewer degree programs than BU The ABET accreditation process and guidelines are exactly same for both SC and BU. Degrees from SC are valued and recognized the same as that from the BU.

Although the intent is for the SC to provide a similar experience for students as the BU, this does not seem to be the case in all instances. However, a satellite campus should always harbor the potential of becoming and operating as a big-University campus, over a period of time.

Student Feedback on the Comparison of Satellite Campus versus Big University Campus

We gathered some initial feedback to assess the satisfaction among students who transitioned from the satellite campus to the big university campus, as they have truly experienced the facilities at both campuses. The survey questions asked of students can be divided into three broad categories as listed in the following table.

CATEGORY 1	CATEGORY 2	CATEGORY 3
Comparing the big University campus vs satellite campus across different dimensions	Student satisfaction on the big University campus across different dimensions	Were students prepared/ satisfied with the transition from satellite campus to big University campus.

Category 1 has been showcased in the Figure 1 capturing the comparison between big University Campus and satellite campus on different dimensions namely:

i. Diversity and comprehensiveness of academic programs
ii. Quality of facilities and resources
iii. Vibrancy and diversity of the social environment
iv. Opportunity to participate in extracurricular activities
v. Addressing the needs and concerns of students transitioning to main campus

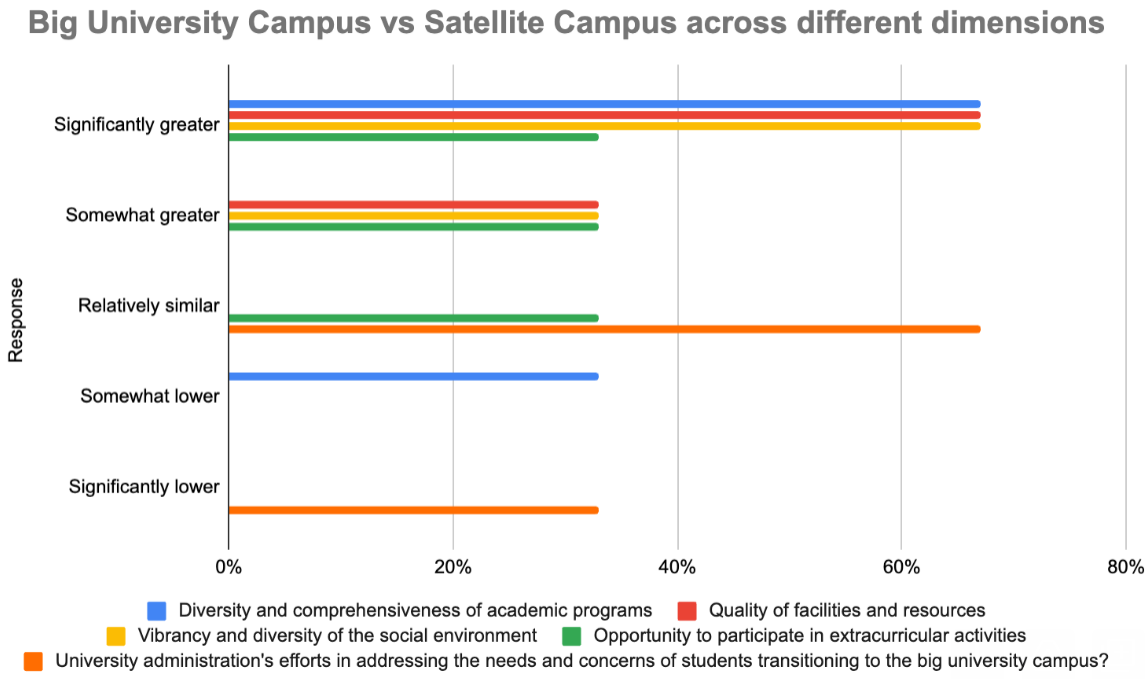

Figure 1. Comparison of campuses across dimensions.

Figure 1 indicates that students perceive the big University campus as superior to the satellite campus across the first four dimensions mentioned. However, it also highlights a need for improvement in addressing concerns of students transitioning to the main campus. Category 2 is highlighted via Figure 2 that captures student satisfaction on the main campus across the following dimensions:

i. Sense of community and belonging in the main campus
ii. Impact of transition to main campus on long term academic and career goals
iii. Accessibility and effectiveness of support services at main campus

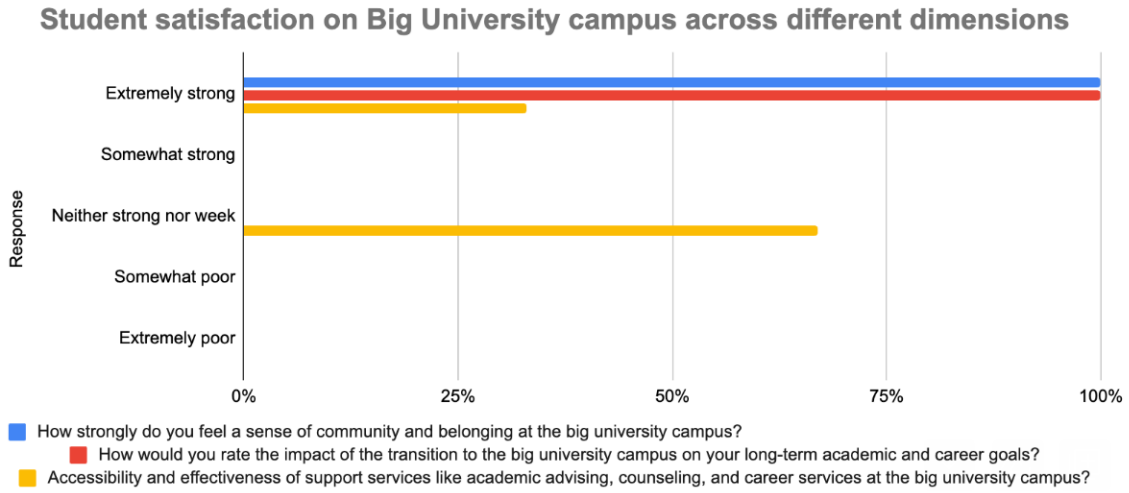

Figure 2. Student satisfaction of the big university across dimensions.

Figure 2 shows that students are highly satisfied with the sense of community and belonging at the main campus. Additionally, they believe that transitioning to the main campus positively impacts their long-term academic and career goals. While most students perceive support services at the main campus as extremely strong, a third express neutral views, indicating room for enhancement.

Category 3, as depicted in Figure 3, assesses students' perception of their preparedness for the transition to the big University campus and their satisfaction with their decision to transfer.

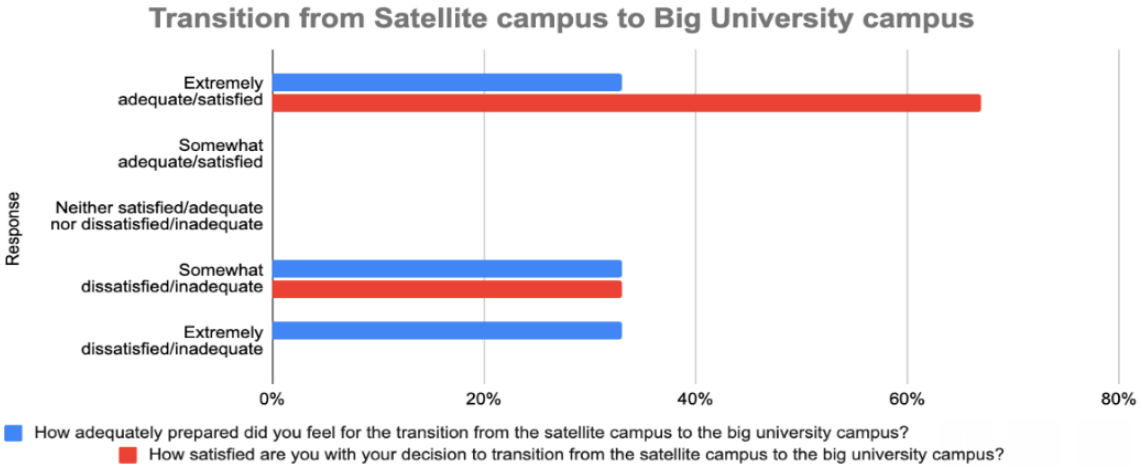

Figure 3. Preparation of students to transition to big university.

The results from Figure 3 indicate that students perceive a lack of adequate preparation for the transition to the big University campus. While the majority express high satisfaction, one third of students report some level of dissatisfaction with the transfer.

Conclusion

Higher education is playing a vital role in societal development, and it provides benefits that extends far beyond the individual achievement. The satellite campus is slowly becoming a popular and significant avenue for acquiring higher education among the undergraduate students, in comparison to the big-University campuses. It has been evident from this study that while big-University campuses offer a wide range of resources and opportunities, the satellite campuses provide a more personalized and intimate learning environment, which is more difficult to replicate at the big-University campus. The students at satellite campuses often benefit from smaller class sizes, more individual attention from faculty, and a greater sense of community. However, satellite campuses may have limited resources and extracurricular activities compared to larger campuses, but the benefits in terms of unique academic programs tailored according to the community needs and student interest, reduced tuition costs, and several internship/job opportunities with industries based in the local community, make them an impactful choice for undergraduate students.

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