

Original Article

Chernoff Faces for Student Satisfaction: Evaluating Student Affairs and Services Programs in a Local College

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Abstract. This study addressed the need for a clearer way to interpret multiple student satisfaction indicators across demographic groups. It aimed to use Chernoff face visualization to present college students' satisfaction with student affairs and services programs at a local college in Cagayan de Oro City, Philippines. Using a descriptive survey design, the study gathered data from 256 students through a 70-item questionnaire covering learning spaces, campus safety and security, guidance and counseling, registrar services, library services, canteen, health services, ICT, athletics, finance, and other student support services. Mean scores were computed and translated into Chernoff face features to show satisfaction patterns by age, program, and sex. Results showed generally high satisfaction across student groups. By age, students below 18 reported very high satisfaction with Health Services ($M = 4.38$) and Campus Safety and Security ($M = 4.33$), while students aged 18–19 gave the highest ratings to Guidance and Counseling ($M = 4.56$) and Library Services ($M = 4.58$), the highest mean in the study. Students above 19 gave more critical ratings, especially for Physical Resources ($M = 1.67$), the lowest mean recorded. By program, BTVTED students showed the highest satisfaction, particularly with Library Services ($M = 4.53$) and Campus Safety and Security ($M = 4.46$). By sex, both males and females reported high satisfaction overall, with males rating Campus Safety and Security ($M = 4.41$) and Registrar Services ($M = 4.28$) highly, while females rated Finance Services ($M = 4.24$) highly. Athletics and Canteen services received comparatively lower ratings within the high satisfaction range. The study concludes that Chernoff face visualization can support clearer interpretation of student satisfaction data and help identify service areas needing improvement.

Keywords: *Chernoff faces; Continuous quality improvement; Holistic development; Student affairs; Student support.*

In contemporary higher education, student satisfaction has become a critical indicator of institutional effectiveness and sustainability. As the primary beneficiaries of educational services, students can be viewed as the ultimate customers of the academe, and their perceptions provide essential insights into how well programs, services, and learning environments support their growth and development. Student feedback, when systematically gathered and meaningfully interpreted, not only reflects the quality of academic and non-academic

provisions but also signals whether institutions are responsive to the evolving needs, expectations, and well-being of their learners. In this context, there is a growing need for assessment approaches that are both analytically robust and intuitively accessible to diverse stakeholders.

Student Assessment Systems (SAS) play a pivotal role in advancing this agenda. Well-designed SAS contribute to quality assurance by generating evidence on how effectively student affairs and services (SAS) units support institutional goals and student outcomes (Arrabaca & Tan, 2025; Bucad Jr & Perez, 2021). They inform instructional and co-curricular improvement by highlighting specific strengths and gaps in learning environments, guidance and counseling, health and wellness, safety, and resource provision. SAS also supports data-informed decision-making, enabling leaders to allocate resources strategically, justify budgetary priorities, and safeguard the continuity of services that demonstrably benefit students (Buban & Janer, n.d.; Tan & Prado, 2020). Importantly, contemporary assessment frameworks emphasize student-centered evaluation, in which students are not passive recipients of services but active partners whose feedback shapes program design, delivery, and improvement (SARVIDA & SARVIDA, 2023). Without credible evidence of impact, student affairs and services units risk marginalization within institutional structures, including budget reductions and staff realignments (Buban & Janer, n.d.; Henning & Roberts, 2023). Thus, robust, innovative, and communicative assessment tools are essential for demonstrating value and ensuring continuous quality improvement.

In this regard, Chernoff faces offer a promising yet underutilized visualization technique for representing multivariate assessment data in higher education. Conceptually, Chernoff faces transform multiple quantitative variables into distinct facial features—such as the size and shape of the face, eyes, mouth, and other elements—allowing complex patterns to be interpreted at a glance through intuitive, human-like representations (Chernoff, 2025; Lopez-Conde et al., 2022). Recent studies have explored Chernoff faces to visualize student perceptions and satisfaction, showing that this method can effectively highlight differences across groups and dimensions in a way that is more immediately interpretable than traditional tables or charts (AKRAM, 2021; Chen et al., 2025). Beyond education, Chernoff faces have been applied in healthcare to depict patient satisfaction, treatment outcomes, and service quality profiles (Nagi et al., 2024; Shmagin, 2021), and in economics to illustrate regional disparities, market performance, and multidimensional indicators of well-being (Kozicki et al., 2021; Ramlall, 2025). These applications demonstrate that Chernoff faces can bridge the gap between statistical complexity and intuitive understanding, making them particularly suitable for communicating assessment findings to non-specialist stakeholders, including students, practitioners, and policymakers.

Despite these advances, the use of Chernoff faces in systematically assessing student affairs and services in higher education—especially within emerging local colleges in developing contexts—remains limited. Existing SAS often rely on conventional numerical reports or static graphs that, while precise, may not fully capture the nuanced, multidimensional nature of student satisfaction across age, sex, and academic programs. For newly established institutions operating in rapidly developing urban centers, such as local colleges in Cagayan de Oro City, there is a pressing need for assessment approaches that not only generate reliable evidence but also present it in engaging, holistic, and actionable formats. Visualizing satisfaction data through Chernoff faces can help institutional leaders and practitioners quickly discern patterns of strength and concern, prioritize interventions, and communicate findings to internal and external stakeholders more compellingly.

Against this backdrop, the present study, entitled "Visualizing Student Satisfaction: A Chernoff Face Approach to Assessing Student Affairs and Services Programs in a Local College," focuses on a newly established local college in Cagayan de Oro City, Philippines. It examines student feedback on key student affairs and services programs—such as learning spaces, guidance and counseling, registrar, library, canteen, health, ICT, athletics, finance, and campus safety—using Chernoff faces to represent multidimensional satisfaction profiles across demographic groups. As a new academic institution in a dynamic economic hub, the college must ensure that its support services and initiatives remain aligned with the shifting academic and non-academic milieu and are continuously enhanced through evidence-based decision-making.

In light of the identified gaps and needs, this study pursues the following specific objectives:

1. To assess the level of student satisfaction with selected student affairs and services programs in a local college, disaggregated by age, sex, and academic program.
2. To construct Chernoff face visualizations that represent multidimensional patterns of student satisfaction

- across these demographic groups.
3. To interpret the resulting Chernoff faces to identify areas of strength, concern, and disparity in student affairs and services provision.
 4. To derive implications and recommendations for institutional quality assurance, student-centered assessment practices, and strategic decision-making in a newly established local college context.

Methodology

Research Design

A descriptive research design was used to systematically capture and analyze student satisfaction levels with respect to the implementation of various Student Affairs and Services programs, without manipulating any variables. Deckert and Wilson (2022) explained that this design quantifies satisfaction levels using structured survey instruments and Likert-scale ratings, allowing a clear picture of student experiences. Moreover, a descriptive research design supports the use of Chernoff face visualization, which transforms multidimensional data into intuitive graphical representations, making differences in student satisfaction more comprehensible (Lopez-Conde et al., 2022). By employing such a design, the study ensures that the findings are data-driven, visually interpretable, and actionable to improve the quality of student affairs and services in the school and the greater community.

Research Locale

The study was conducted in a local college in Cagayan de Oro City, Philippines. This local college, founded in 2018, started as a technical-vocational institute, offering several TESDA-accredited qualifications in plumbing, housekeeping, and shielded metal arc welding, among others. With a change in leadership in 2022, a new City Mayor assumed the role, and one of his top priorities, as articulated in his RISE CDO Governance Platform, was to provide access to quality education, leading to the vision of establishing a local college. In 2023, City Ordinance 14564-2023 was passed, paving the way for the creation of the local college. This ordinance expanded the mandate of the technical-vocational institute, transforming it into a higher education institution offering diploma and bachelor's degree programs.

Sampling Design

A non-probability sampling design, specifically total population sampling, was employed in this investigation. All students enrolled in the local college during the current school year were invited to participate and included in the study, provided they consented. This approach ensured that every student who had direct exposure to the institution's student affairs and services programs, activities, and initiatives had the opportunity to contribute data.

Total population sampling was deemed appropriate for several reasons. First, it allows for comprehensive representation by capturing the full range of perspectives across age groups, academic programs, and sexes, rather than limiting the analysis to a subset of the student body. In educational research, census-based or whole-population designs are recognized for minimizing sampling bias and enhancing inclusiveness, as they reduce the risk that particular subgroups will be underrepresented or excluded from the analytic frame (Galang et al., 2025; Gitanes et al., 2024). As a result, the findings are more directly generalizable to the institution's entire student population, since they are based on all eligible students rather than a probabilistic or convenience-based sample.

Second, given that the study focuses on visualizing student satisfaction through Chernoff faces, utilizing the full population frame strengthens the accuracy and interpretive value of the visual representations. With data drawn from all enrolled students, the resulting Chernoff faces more faithfully mirror the aggregate experience and perceptions of the student body, as well as meaningful variations across demographic groups. This comprehensive coverage is particularly important when constructing visual profiles intended to guide institutional decision-making, quality assurance processes, and student-centered improvements in student affairs and services.

Respondents

The study respondents were 256 students officially enrolled in the local college during Academic Year 2024–2025. These students were drawn from three undergraduate degree programs: Bachelor of Arts in Communication major in New Media (BACOMM), Bachelor of Technology Education major in Industrial Arts (BTLED), and Bachelor of Technical-Vocational Teacher Education major in Electrical Technology (BTVTED).

To capture variation in satisfaction across study stages, respondents were categorized by year level based on their official enrollment status at the time of data collection. The sample included first- and second-year students across the three programs, reflecting the college's current program maturity and cohort structure in AY 2024–2025. First-year students were those in their initial year of enrollment in any of the three programs, and second-year students were in their second consecutive year of study.

This distribution by academic year and year level enabled the study to compare satisfaction patterns among students at different stages of academic and co-curricular engagement with the institution's student affairs and services. By including all enrolled students across BACOMM, BTLED, and BTVTED in AY 2024–2025, the respondent profile provides a comprehensive view of the student body's perceptions of the college's support programs and services.

Research Instruments

A self-made research instrument was used in the study. To build and design a sound and comprehensive tool that will genuinely measure the implementation of student affairs and services of the local college, several references were used, including the institution's Student Affairs and Services (SAS) Manual, the institution's 5-year Development Plan, and CHED Memorandum Order No. 9, s. 2013, otherwise known as Enhance Policies and Guidelines on Student Affairs and Services. The tool examined SAS across several areas, including physical plant services, guidance and counseling, library, canteen, culture and the arts, admissions, athletics, registrar, multi-faith, health, student activities, campus organizations, school publications, job placement, finance, and ICT services.

Likewise, the tool was tested for validity and reliability. Content validity was established by having experts review the tool to confirm that it covers all relevant aspects of the subject. The same tool was also tested for reliability. A pilot test was conducted to help identify inconsistencies and refine vague indicators. The reliability estimate using McDonald's Omega was 0.9782, exceeding the threshold of 0.7 (acceptable) and well above 0.9, indicating an excellent level of reliability.

Data Gathering

Data collection followed institutional protocols and ethical standards. Formal approval was first obtained from the Office of the College President, upon the recommendation of the Vice President for Academic Affairs and the Vice President for Student Affairs and Services. Once approval was granted, coordination with program chairs and the Student Affairs and Services (SAS) office was undertaken to schedule on-site data collection.

The survey instrument—a 70-item Likert-type questionnaire on satisfaction with various SAS domains—was administered in person during the signing of clearance, a period when all enrolled students were expected to report to the campus. Before distribution, the researcher oriented the students regarding the aims and purposes of the study, the voluntary nature of participation, and the confidentiality of their responses. Informed consent was obtained, and students were assured that no identifying information would be linked to their answers. Respondents then completed the paper-and-pencil questionnaire on site and returned it to the researcher.

Simultaneously, the data-gathering process was designed with Chernoff face visualization in mind. The survey items were pre-structured so that responses could be directly aggregated by SAS domain and demographic subgroup (age bracket, academic program, sex), forming the numerical inputs for Chernoff faces. After collection, the completed questionnaires were encoded into a statistical software package, where domain-level mean scores were computed and normalized. These normalized means were then imported into a visualization tool to generate Chernoff faces in parallel with the computation of descriptive statistics.

In this way, a single data-gathering process produced two complementary outputs: numerical summaries of satisfaction (means, standard deviations, frequency distributions) and corresponding Chernoff face profiles. The survey captured students' perceptions quantitatively, while the Chernoff faces transformed these same data into intuitive visual representations, allowing student satisfaction to be examined and interpreted concurrently through both numerical and graphical lenses.

Ethical Considerations

Comprehensive ethical procedures, such as obtaining informed consent, maintaining confidentiality, protecting participants' rights, ensuring voluntary participation, and adhering to research ethics review, were implemented to safeguard participants' rights and well-being. With these safeguards in place, the study was guaranteed to adhere to the strictest ethical principles, honor participant autonomy, and protect participant privacy.

Statistical Treatment of Data

The study used descriptive statistics and Chernoff face visualization to analyze students' satisfaction with Student Affairs and Services (SAS) programs. Descriptive statistics were first computed to summarize the data: means were calculated for each SAS domain for the overall sample and by subgroup, providing the basis for classifying satisfaction levels and identifying the highest- and lowest-rated domains. These numerical results then served as inputs for Chernoff face visualizations, which depicted multidimensional satisfaction profiles across age brackets, programs, and sex.

For each subgroup, mean satisfaction scores for selected domains were normalized to a common scale and systematically mapped to specific facial features (e.g., face width/height, eye size, mouth curvature and width, nose length, ear size). Higher satisfaction was represented by more positive or pronounced features (e.g., larger, more open eyes; broader, upward-curving mouth), whereas lower satisfaction appeared as more neutral or constrained features. Interpretation involved reading each Chernoff face as an overall visual profile and linking individual features back to their corresponding domains. These visual patterns were then compared with the descriptive statistics to confirm consistency: expressive, positive faces were associated with higher mean scores, while muted features were associated with relatively lower means. In this way, Chernoff complements the numerical results, providing an intuitive, holistic view of strengths, concerns, and disparities in SAS provision.

This visualization offered a unique and intuitive method for analyzing and presenting multidimensional satisfaction data. Mapping institutional services – such as learning spaces, health services, admissions, and ICT – to distinct facial features enabled quick visual comparisons across academic programs and demographic groups. Each facial trait corresponded to a specific satisfaction dimension, with more pronounced or expressive features indicating higher satisfaction. The approach thus supported data-driven decision-making by highlighting strengths and areas for improvement in student services.

The facial chart presented in Table 1 was constructed using mean scores and standard deviations derived from the survey data. Each facial feature was mapped to a specific variable, with the mean scores representing the baseline expression for each characteristic. Standard deviations indicated variability, adjusting the intensity or prominence of certain features to reflect the degree of dispersion within the dataset. This method ensured that the Chernoff face visualization effectively translated numerical data into an intuitive, multidimensional representation of student satisfaction, capturing both central tendencies and variations across responses.

Table 1. *Chernoff Face Chart*

Face Feature	Variable Represented	Interpretation (Higher Value)
Height of Face	Learning Spaces	Taller face = More satisfied with learning spaces
Width of Face	Campus Safety and Security	Wider face = More satisfied with campus safety and security
Structure of Face	Guidance	More defined structure = Better satisfaction with guidance
Height of Mouth	Library	Higher mouth = Better library satisfaction
Width of Mouth	Canteen	Wider mouth = More satisfied with canteen services
Smiling	Admission	More smile = Happier with admission process
Height of Eyes	Athletics	Taller eyes = Greater satisfaction with athletic programs
Width of Eyes	Registrar	Wider eyes = More satisfied with registrar services
Height of Hair	Physical Resources	Taller hair = Higher satisfaction with physical resources
Width of Hair	Health Services	Wider hair = Better health services experience
Style of Hair	Student Activities	More stylized hair = Higher student activities satisfaction
Width of Nose	Campus Organization	Wider nose = More engaged or satisfied with orgs/activities
Width of Ear	ICT	Wider ears = More satisfied with ICT support
Height of Ear	Finance	Taller ears = Greater satisfaction with financial services

Finally, a descriptive table was developed to document how each facial feature corresponds to a specific variable.

Higher values correspond to higher satisfaction scores for that variable, resulting in more positive or enhanced facial features, thereby reinforcing the link between the numerical data and their visual representation. Table 1 helps interpret the Chernoff face chart, which provides a compact way to visually compare satisfaction levels across multiple dimensions for different programs.

The table detailing the relationship between Chernoff face features and satisfaction variables serves as a powerful interpretive framework for understanding multidimensional student feedback in a visually compact form. Each face feature corresponds to a distinct institutional service or experience—such as learning spaces, guidance, health services, or ICT—and the size or prominence of each feature reflects the reported level of satisfaction. For example, a taller face signifies a high satisfaction rating for learning spaces, while a wider face indicates a positive view of campus safety and security. These mappings allow viewers to decode facial expressions as data points, turning abstract survey scores into easily interpreted visual cues.

A key implication of this model is its ability to highlight institutional strengths and weaknesses at a glance. Programs or student groups with faces showing large, expressive features—like broad smiles (admission), wide eyes (registrar), or tall ears (finance)—suggest strong performance in those areas. In contrast, small or compressed features point to dissatisfaction. This provides administrators with a clear, immediate understanding of which services are performing well and which may require targeted improvement. It avoids overwhelming stakeholders with numerical data, instead offering an accessible summary that can be quickly communicated in reports, planning sessions, or consultations with student leaders and other stakeholders.

Another important implication is its value in comparative analysis across demographics or academic programs. For instance, by applying this face-feature mapping to different cohorts (e.g., gender or course), institutions can detect patterns of inequity or variation in student experience. If one group consistently has shorter hair (lower satisfaction with physical resources) or lacks a smile (admission issues), it signals a need to investigate underlying causes—be they procedural, cultural, or systemic. This diagnostic capability is particularly useful for promoting equity and ensuring that student services are responsive to diverse needs.

The table also supports strategic resource allocation. If certain features, like the width of the mouth (canteen services) or the structure of the face (guidance), are consistently underdeveloped across all faces, the institution can prioritize those areas for budgetary support, staff development, or policy revision. Conversely, highly rated areas can serve as models of best practice or even as sources of student testimonials, reinforcing institutional strengths. By linking satisfaction data to specific service domains, the table ensures that decision-making is not only evidence-based but also contextually grounded.

Lastly, the table enhances mixed-methods evaluation by bridging quantitative and qualitative data. While it translates numeric satisfaction scores into visual expressions, it also invites follow-up investigation—such as student interviews or focus groups—to unpack the "why" behind each face. For example, a narrow nose (low campus organization satisfaction) might prompt questions about student engagement, leadership opportunities, or inclusivity in extracurriculars. Thus, the Chernoff face-feature mapping is not just a summary tool—it is a strategic entry point for holistic, student-centered institutional assessment.

Results and Discussion

Satisfaction Differences vis-à-vis Age Bracket

Table 2 presents the mean satisfaction scores for students with various Student Affairs and Services (SAS) programs across three age brackets: below 18 years old, 18–19 years old, and above 19 years old. Overall, younger students (under 18 and 18–19) report consistently high satisfaction, whereas students aged 20 and above show markedly lower satisfaction across almost all domains. For students below 18, all means fall within the "Satisfied" to "Very Satisfied" range. The highest ratings are found in Physical Resources ($M = 4.35$), Health Services ($M = 4.38$), ICT ($M = 4.38$), and Library ($M = 4.40$), all of which are interpreted as "Very Satisfied." This suggests that younger students perceive their learning environment, facilities, health support, and access to information and technology as highly adequate and responsive to their needs.

This trend of declining satisfaction with increasing age may suggest shifting priorities or expectations in student services among older students (Arrabaca & Tan, 2025; Henning & Roberts, 2023). Furthermore, while services related to academic and support resources, such as the "Library" and "Guidance and Counseling," scored

consistently high across all age groups, areas like "School Publication" received a notably low score ($M = 1.25$) from older respondents, indicating potential areas for improvement in communication and student engagement efforts (Wildschut & Luescher, 2023). Such insights are essential for institutions aiming to enhance their services and meet the evolving needs of their diverse student populations.

Table 2. Mean Scores of the Respondents' Assessment of the Various Student Affairs and Services Programs Based on Age Bracket

Variable	Age Bracket					
	Below 18 years old	Interpretation	18-19 years old	Interpretation	Above 19 years old	Interpretation
Learning Spaces	4.2	Satisfied	4.17	Satisfied	2.5	Dissatisfied
Campus Safety and Security	4.33	Very Satisfied	4.46	Very Satisfied	2.33	Dissatisfied
Guidance and Counseling	4.32	Very Satisfied	4.56	Very Satisfied	3.33	Very Satisfied
Library	4.4	Very Satisfied	4.58	Very Satisfied	3.4	Somewhat Satisfied
Canteen	4.23	Very Satisfied	3.92	Satisfied	2.2	Dissatisfied
Admission	4.28	Very Satisfied	4.49	Very Satisfied	2.67	Somewhat Satisfied
Athletics	4.19	Satisfied	4.11	Satisfied	3	Somewhat Satisfied
Registrar	4.31	Very Satisfied	4.32	Very Satisfied	2	Dissatisfied
Physical Resources	4.35	Very Satisfied	4.38	Very Satisfied	1.67	Very Dissatisfied
Health Services	4.38	Very Satisfied	4.52	Very Satisfied	2	Dissatisfied
Student Activities	4.3	Very Satisfied	4.4	Very Satisfied	2.2	Dissatisfied
Campus Organization	4.19	Satisfied	4.18	Satisfied	1.84	Dissatisfied
School Publication	4.27	Very Satisfied	4.41	Very Satisfied	1.25	Very dissatisfied
Finance	4.34	Very Satisfied	4.4	Very Satisfied	2.5	Dissatisfied
ICT	4.38	Very Satisfied	4.56	Very Satisfied	2.33	Dissatisfied

Legend: 4.21-5.00 (Very Satisfied) 3.41-4.20 (Satisfied) 2.61-3.40 (Somewhat Satisfied) 1.81-2.60 (Dissatisfied) 1.00-1.80 (Very Dissatisfied)

Similarly, the 18–19 age group exhibits very high satisfaction across most domains. The highest mean is observed for Library ($M = 4.58$, "Very Satisfied"), closely followed by Guidance and Counseling ($M = 4.56$, "Very Satisfied") and ICT ($M = 4.56$, "Very Satisfied"), as well as Health Services ($M = 4.52$) and Admission ($M = 4.49$). These results imply that mid-adolescents particularly value and positively experience academic support services, access to information, and student support structures.

In contrast, the above-19 age group shows a generally critical stance. Many domains fall in the "Dissatisfied" range, with several in "Somewhat Satisfied" and only one domain—Guidance and Counseling ($M = 3.33$, "Very Satisfied" according to the table's label but numerically aligned with "Somewhat Satisfied")—approaching more favorable perceptions. The lowest means in this group are seen in School Publication ($M = 1.25$, "Very Dissatisfied"), Physical Resources ($M = 1.67$, "Very Dissatisfied"), and Campus Organization ($M = 1.84$, "Dissatisfied"). These lowest scores indicate serious concerns about information dissemination, facility adequacy, and opportunities for organizational engagement among older students.

The sharp contrast between the very high means of younger groups (e.g., Library $M = 4.58$; Health Services $M = 4.52$; ICT $M = 4.56$) and the very low means of older students (e.g., School Publication $M = 1.25$; Physical Resources $M = 1.67$) has important implications. First, it suggests that institutional services may be more attuned to the expectations and usage patterns of younger cohorts. At the same time, older students may have higher standards, more complex needs, or longer exposure that makes them more aware of gaps and limitations. Second, persistent dissatisfaction with physical resources and communication channels among older students may signal infrastructure and information-flow issues that affect those who rely more heavily on facilities for advanced coursework and organizational involvement.

To further visualize Table 2 using Chernoff faces, Figure 1 presents three facial representations corresponding to different age groups—below 18, 18-19, and above 19—where various facial features symbolize satisfaction levels with campus-related variables. The younger group (below 18) exhibits taller and wider faces, reflecting their strong satisfaction with learning spaces and campus safety and security. Their defined facial structure suggests a favorable experience with guidance services, and their expressive mouths indicate contentment with the library and canteen. Furthermore, their bright smiles reflect happiness during the admission process, indicating a smooth transition into their academic environment. Taller and wider eyes suggest enthusiasm for athletics and registrar services, while their highly stylized, voluminous hair implies satisfaction with physical resources, health services, and student activities.

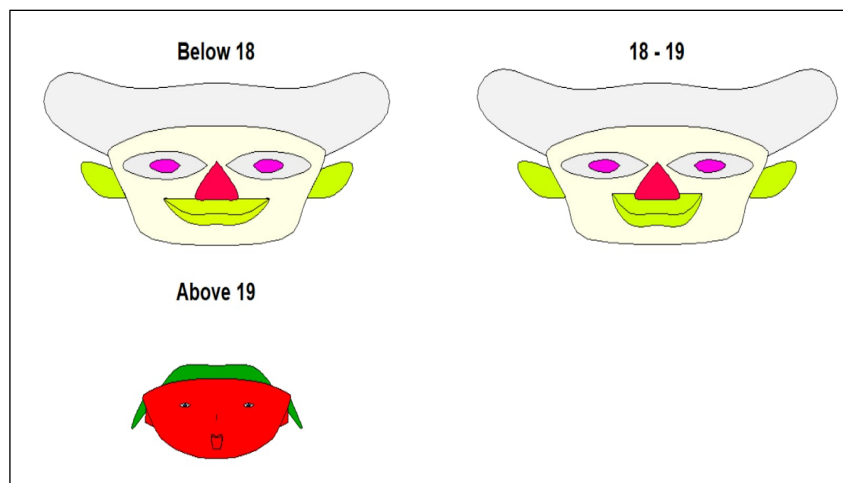


Figure 1: *Chernoff Faces vis-à-vis Age Bracket*

In contrast, the middle-aged group (18-19) retains many positive indicators but shows slight declines in certain areas. Their slightly shorter, narrower faces suggest a mild reduction in satisfaction with learning spaces and campus security. Their mouths remain engaged but show less height and width, implying a more neutral stance on library and canteen services. While their expressions remain largely positive, their eyes show marginal declines in height and width, suggesting a tempered enthusiasm for athletics and registrar services. Their hair maintains its volume but demonstrates a slight decrease in stylization, hinting at a moderate shift in attitudes toward physical resources and student activities. The width of the nose and the width and height of the ears remain relatively unchanged, signifying steady engagement in campus organizations, ICT support, and financial services.

The most notable differences emerge in the oldest age group (above 19), which demonstrates a visible reduction in facial prominence. Their shorter and narrower faces indicate diminished satisfaction with learning spaces and campus security. Less-defined facial structure suggests weaker engagement with guidance services, and their muted mouth dimensions point to dissatisfaction with library and canteen offerings. Unlike the younger groups, they are no longer smiling, implying frustration or disappointment in the admission experience. Their smaller eyes reflect a decline in enthusiasm for athletics and registrar services, while their flatter, less-stylized hair suggests lower satisfaction with physical resources, student activities, and health services. A thinner nose and reduced ear size suggest declining interest in campus organizations, ICT support, and financial services.

The implications of this figure highlight how satisfaction levels tend to shift as students mature. Younger students, possibly entering the campus for the first time, exhibit excitement and appreciation for its resources, as evidenced by their highly expressive, expansive features (Al-Fardi, 2024; Lopez-Conde et al., 2022). Tan and Prado (2020) explain that as these students progress through their academic journey, their initial enthusiasm steadily decreases—a shift that may be attributed to accumulated experiences, evolving expectations, and changing priorities. This gradual adjustment in affective responses is manifested visually, where the enthusiasm seen in early impressions gives way to more tempered expressions over time.

In a similar manner, the oldest student group shows the greatest decline in satisfaction. This suggests that increased academic pressures, fewer perceived opportunities, and occasional dissatisfaction with service provisions contribute to a marked reduction in positive engagement (Corbita et al., 2024; McClellan & Kiyama, 2023). Such visual cues underscore the complex interplay between student maturity and the evolving nature of satisfaction. These findings imply that institutions should refocus their efforts, particularly toward addressing the concerns of older students. McClellan and Kiyama (Kozicki et al., 2021) state that when we enhance campus resources, refine administrative processes, and promote robust engagement in campus organizations, schools can develop support systems that adapt to the changing and varied needs of their studentry. Understanding these trends is crucial for tailoring programs, activities, and initiatives that sustain student satisfaction throughout their academic journey.

Satisfaction Differences vis-à-vis Program Offerings

The assessment of various student affairs and services programs, as depicted in Table 3, reflects students'

satisfaction levels across different program offerings. The mean scores for the BTLED program ranged from 4.09 to 4.39, indicating that students were generally satisfied with areas such as Learning Spaces and Campus Safety and Security, which received scores of 4.09 and 4.14, respectively. In contrast, the BTVTED program consistently scored higher, with most areas achieving "Very Satisfied" ratings, particularly in Library services (4.53) and Campus Safety and Security (4.46). BACOMM program participants also reported high satisfaction, with a notable score of 4.33 in Library services, suggesting that access to academic resources significantly impacts student contentment.

The findings generally highlight a positive perception of student affairs services, particularly regarding safety, health services, and access to educational resources. Notably, programs that emphasize guidance and counseling scored well, indicating that emotional and academic support are crucial for student satisfaction.

Table 3. Mean Scores of the Respondents' Assessment of the Various Student Affairs and Services Programs Based on Program Offerings

Variable	Program					
	BTLED (X̄)	Interpretation	BTVTED (X̄)	Interpretation	BACOMM (X̄)	Interpretation
Learning Spaces	4.09	Satisfied	4.39	Very Satisfied	4.13	Satisfied
Campus Safety and Security	4.14	Satisfied	4.46	Very Satisfied	4.31	Very Satisfied
Guidance and Counseling	4.15	Satisfied	4.37	Very Satisfied	4.28	Very Satisfied
Library	4.31	Very Satisfied	4.53	Very Satisfied	4.33	Very Satisfied
Canteen	4.19	Satisfied	4.2	Satisfied	4.12	Satisfied
Admission	4.23	Very Satisfied	4.32	Very Satisfied	4.18	Satisfied
Athletics	4.17	Satisfied	4.17	Satisfied	4.12	Satisfied
Registrar	4.2	Satisfied	4.29	Very Satisfied	4.17	Satisfied
Physical Resources	4.24	Very Satisfied	4.33	Very Satisfied	4.2	Satisfied
Health Services	4.22	Very Satisfied	4.32	Very Satisfied	4.32	Very Satisfied
Student Activities	4.16	Satisfied	4.25	Very Satisfied	4.25	Very Satisfied
Campus Organization	4.13	Satisfied	4.22	Very Satisfied	4.09	Satisfied
School Publication	4.17	Satisfied	4.24	Very Satisfied	4.19	Satisfied
Finance	4.19	Satisfied	4.28	Very Satisfied	4.21	Very Satisfied
ICT	4.23	Very Satisfied	4.33	Very Satisfied	4.26	Very Satisfied

Legend: 4.21-5.00 (Very Satisfied) 3.41-4.20 (Satisfied) 2.61-3.40 (Somewhat Satisfied) 1.81-2.60 (Dissatisfied) 1.00-1.80 (Very Dissatisfied)

The Chernoff faces (Figure 2) presented offer a powerful visual summary of how students from three different programs— Bachelor of Arts in Communication major in New Media (BACOMM), Bachelor in Technology Education major in Industrial Arts (BTLED), and Bachelor in Technical-Vocational Teacher Education major in Electrical Technology (BTVTED)—perceive various institutional services. Using the previously provided face-feature-to-variable mapping, we can interpret the satisfaction levels across 14 dimensions. Among the three, BTVTED exhibits the most expressive and positive facial features, such as wide, smiling lips, tall ears, stylized, prominent hair, and a broader facial structure. These indicate that BTVTED students are highly satisfied with aspects such as the admission process, financial services, ICT support, health services, and campus safety. The wide eyes and well-defined nose suggest a strong appreciation for registrar services and campus organization involvement.

Conversely, BTLED presents a much less satisfied face. Its expression includes a flat mouth without a smile, small, expressionless eyes, a narrower head, and a shorter ear span. This suggests dissatisfaction or low satisfaction levels in most categories, especially in admission, finance, student activities, and ICT. The only slightly pronounced features are the width of the face and the width of the ears, possibly indicating modest satisfaction in campus safety, but these are not enough to balance the overall negative expression of the face. The green hair may suggest some satisfaction with physical resources, but the general impression reflects various institutional gaps for BTLED students.

The BACOMM face is markedly different, with slightly pronounced ear width and height but minimal or downplayed features for the mouth, eyes, and nose. This implies that while *ICT and financial services* are perceived relatively well, satisfaction with the canteen, admissions, athletic programs, library, registrar, and campus organization is quite low. The very narrow mouth and nearly invisible smile suggest dissatisfaction in student social experiences or emotional engagement. The minimal hair structure also reflects low perceptions of health services and physical facilities. These patterns may indicate that the program's focus or student expectations are being met only in technical or career-aligned services, but not in interpersonal or campus life dimensions.

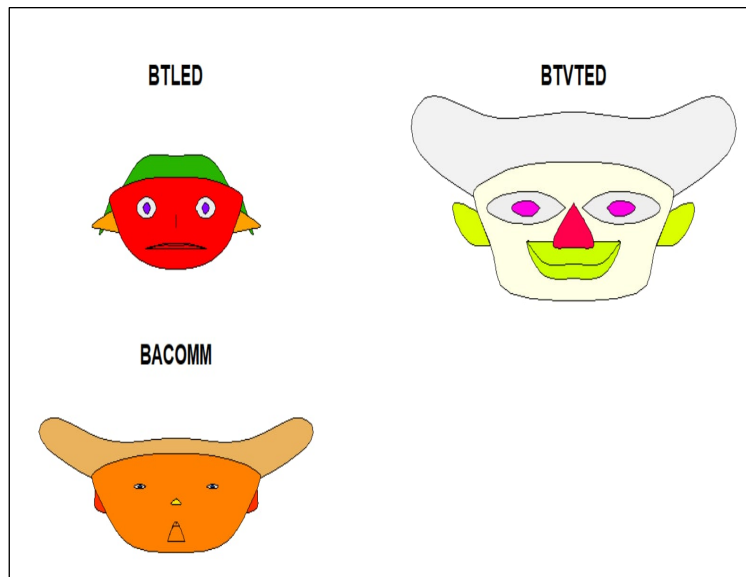


Figure 2: *Chernoff Faces vis-à-vis Program Offerings*

The differences among the faces can guide administrators in tailoring interventions. BTVTED's profile shows a well-rounded experience and could be used as a benchmark for what other programs might aspire to achieve. The data suggest that when students feel supported across academic, social, and administrative domains, this is reflected in higher overall satisfaction. For BTLED and BACOMM, focused improvements are needed—BTLED requires attention across almost all aspects, while BACOMM's issues seem to center more on campus life and support services than on career-related areas. Understanding these nuances helps allocate resources efficiently and encourages a data-driven approach to institutional improvement.

All in all, the Chernoff face technique does more than visualize data; it narrates a multidimensional story of student experience (Kozicki et al., 2021). Lopez-Conde et al. (2022) elucidated that visualizations allow stakeholders to spot satisfaction disparities at a glance and design program-specific action plans. For instance, BTLED may need holistic attention—particularly in guidance, student activities, and library access—while BACOMM may benefit from more robust extracurricular engagement and improved health services. BTVTED can serve as a model or peer mentor unit to support inter-program improvement. Ultimately, this method promotes reflective, student-centered development rooted in both qualitative insight and quantitative structure.

Satisfaction Difference vis-à-vis Sex

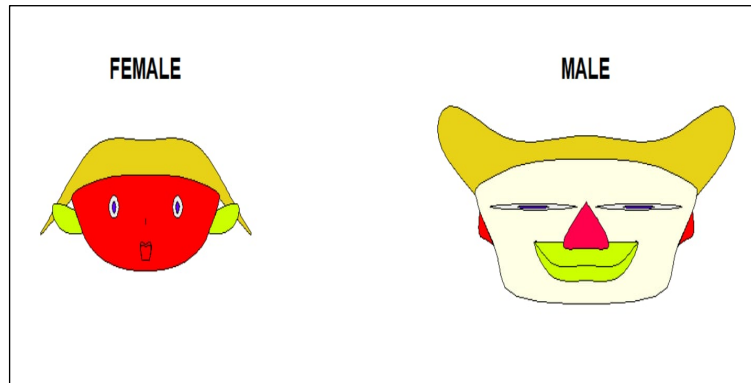
Table 4 summarizes the mean satisfaction scores of students with various Student Affairs and Services programs, categorized by sex. Both female and male respondents generally express high levels of satisfaction across programs, with notable differences in specific areas. Males tend to report higher satisfaction in Campus Safety and Security (4.41) and Registrar Services (4.28), while females score higher in Finance Services (4.24). Learning Spaces, Guidance and Counseling, and Library Services receive high ratings from both groups. However, lower satisfaction is noted in Athletics, with males scoring 4.12 and females 4.17. In the Canteen category, males are more satisfied (4.23) than females (4.13). Overall, the findings indicate that while satisfaction levels are high, there are opportunities for improvement in certain areas, particularly in athletics and dining services.

To further demonstrate the findings in Table 4, the Chernoff faces by sex in Figure 3 reveal notable differences in satisfaction levels between male and female respondents. The male face features a broad, smiling mouth, high, wide ears, well-defined hair, and wide eyes—suggesting high satisfaction with finance services, ICT, health services, athletics, registrar support, and student activities. The smile is particularly significant, as it directly reflects the admission process and indicates that male students feel positively about their entry experience. In contrast, the female face shows a neutral or flat mouth, narrow eyes, and a generally compressed facial structure. This implies lower satisfaction with areas such as admissions, athletics, and guidance services, which may highlight gender-based disparities in how institutional services are perceived or accessed.

Table 4. Mean Scores of the Respondents' Assessment of the Various Student Affairs and Services Programs Based on Sex

Variable	Sex			
	Female ($\bar{X}$)	Interpretation	Male ($\bar{X}$)	Interpretation
Learning Spaces	4.2	Satisfied	4.22	Very Satisfied
Campus Safety and Security	4.26	Very Satisfied	4.41	Very Satisfied
Guidance and Counseling	4.27	Very Satisfied	4.28	Very Satisfied
Library	4.39	Very Satisfied	4.4	Very Satisfied
Canteen	4.13	Satisfied	4.23	Very Satisfied
Admission	4.24	Very Satisfied	4.25	Very Satisfied
Athletics	4.17	Satisfied	4.12	Satisfied
Registrar	4.18	Satisfied	4.28	Very Satisfied
Physical Resources	4.26	Very Satisfied	4.25	Very Satisfied
Health Services	4.29	Very Satisfied	4.29	Very Satisfied
Student Activities	4.22	Very Satisfied	4.23	Very Satisfied
Campus Organization	4.14	Satisfied	4.17	Satisfied
School Publication	4.2	Satisfied	4.21	Very Satisfied
Finance	4.24	Very Satisfied	4.2	Satisfied
ICT	4.3	Very Satisfied	4.23	Very Satisfied

Legend: 4.21-5.00 (Very Satisfied) 3.41-4.20 (Satisfied) 2.61-3.40 (Somewhat Satisfied) 1.81-2.60 (Dissatisfied) 1.00-1.80 (Very Dissatisfied)

**Figure 3:** Chernoff Faces vis-à-vis Sex

Furthermore, the female face, although exhibiting broad ears (positive perceptions in ICT and finance), has less stylized hair and a shorter face height, suggesting low satisfaction with physical resources, learning spaces, and health services. Moreover, the lack of a smiling expression and reduced mouth height and width hint at disengagement or unmet expectations regarding the library and canteen services—areas often linked to the daily student experience. The sharp contrast between the ear measurements (relatively high) and other subdued facial features indicates that while financial and other areas may be viewed favorably, the day-to-day academic and support environment may not resonate well with female students.

Meanwhile, the male face displays a more dynamic and expressive structure overall, especially with pronounced smiles and stylized hair, suggesting positive evaluations of student activities and admission services. The structured nose and broad face also indicate comfort with campus organizations and safety. This more holistic satisfaction pattern may reflect either actual differences in experience or perceived differences in how services cater to gender-specific needs. It's also notable that the male face maintains balance across most features, suggesting a generally well-rounded institutional experience.

These visual contrasts carry important implications for raising the quality of student affairs and services, not just in the local college setting but across all higher education institutions in the country. Policies and programs in SAS may have a unique implementation style, but the program's purpose and outcomes remain the same: to complement academic instruction and contribute to total human formation. Thus, institutions must consider whether their current programs, services, and initiatives are attuned to the needs and demands of the generation and if they are equally inclusive, accessible, and meaningful across sexes (Perozzi et al., 2022; Wildschut et al., 2026). The neutral-to-negative tone in the female Chernoff face calls for deeper exploration of whether systemic gaps—such as underrepresentation in athletic or leadership programs, perceived safety, or campus voice—exist.

Targeted qualitative follow-up (e.g., focus groups or interviews) with female students can uncover specific barriers and inform interventions that ensure equity (Chih-Pei & Chang, 2017). Fundamentally, as described by Lopez-Conde et al. (2022), the Chernoff faces not only quantify satisfaction but also expose potential blind spots in institutional responsiveness, calling attention to the nuanced, gendered nature of student experiences.

Conclusion

The study's findings effectively translate complex, multivariate survey data into intuitive visual cues. Each facial component is mapped to a specific area of student satisfaction, allowing for instant recognition of strengths and weaknesses across various institutional dimensions. For example, a face with high cheekbones and a wide smile clearly signals strong satisfaction with financial services and the admissions process, even without numeric data.

Using Chernoff faces, institutions can quickly identify which services align with student expectations and which do not. A program or group with compressed or neutral facial features may signal areas of disengagement, such as insufficient support from guidance offices or dissatisfaction with facilities like the canteen or library. This allows for targeted resource allocation and service redesign to enhance specific elements, rather than overhauling systems that may already work well.

When applied to demographic (e.g., sex) or course offerings comparisons, the table enhances the interpretive power of the faces. For instance, as noted in the earlier face comparisons, male students showed broader, more expressive features, indicating generally higher satisfaction, while female students had more subdued features, highlighting possible gaps in inclusivity, safety, or service responsiveness.

This visualization technique, grounded in the findings, supports data-driven decision-making for stakeholders, including Student Affairs and Services practitioners and School Administrators. By linking satisfaction dimensions to specific services (e.g., wider noses = stronger campus organization engagement), planners can prioritize interventions based on clear visual indicators. This is especially useful for quick presentations to stakeholders who may not have time to interpret detailed statistical tables.

While Chernoff faces are highly illustrative, they work best when combined with other methods. For example, a face may show low satisfaction with "Registrar" (narrow eyes). Still, follow-up surveys or interviews can uncover whether it's due to long queues, unclear procedures, or rude staff. Thus, your table serves not only as a legend but also as a gateway for deeper, mixed-methods investigation into student experiences.

Overall, this study on visualizing student satisfaction with student support programs, which are deemed crucial to students' holistic development, using Chernoff faces presents a unique and meaningful approach to understanding students' needs by specific demographics without delving into the dynamics and intricacies of quantitative analysis. It allows policymakers to gain a clearer picture of how students perceive the services institutions provide, enabling them to make informed decisions to address weaknesses, inconsistencies, or discrepancies in program implementation. This way, schools create an atmosphere that is student-centered and values continuous quality improvement.

Contributions of Authors

The editing, writing, supervising, data analysis, and encoding tasks were distributed among the authors, who collectively reviewed and approved the final manuscript. Author 1 conceived and designed the study, formulated the research questions, and designed the study protocol. Authors 3 and 4 collected and encoded the data, while Author 2 helped with the analysis and interpretation. Author 1 wrote the initial draft while Author 2 contributed to the subsequent revisions. All authors provided final approval for publication.

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