Enhancing Student Clubs Through Data Driven Insights

RESEARCH METHODOLOGY
- Utilized R Studio for data analysis tasks
- Employed popular R libraries for data manipulation and visualization, including:
  - GGplot2 for creating complex and aesthetically pleasing visualizations.
  - Dplyr for data manipulation, simplifying cleaning, and preparation.
  - Tidyverse, an integrated collection of R packages designed to make data science faster, easier, and more fun.

BACKGROUND INFORMATION
- Mission:
  - Create an inclusive environment with engaging programs and essential services.
  - Enrich students’ lives and foster memorable experiences.

- Purpose:
  - Provide co-curricular learning experiences that drive personal growth.
  - Act as a catalyst for student development and offer resources to enrich the campus community.

- Project Introduction:
  - Conduct a thorough analysis of diverse datasets related to student engagement.
  - Examine demographics, group characteristics, academic metrics, and event participation.
  - Find the correlation between student organizations and academic performance.

- Motivations:
  - Clarify the factors that make student organizations successful and attractive.
  - Investigate the relationship between participation in groups and GPA.
  - Generate recommendations to boost student engagement and organizational effectiveness.
  - Establish a foundation for future research and strategy development.

FINDINGS
- Diverse range of student involvement across clubs.
- Disparities in gender representation within certain clubs.
- Significant international student participation.
- No large impact of club size on academic performance, suggesting a complex link between involvement and academic success. (Figure 3)

- Diversity of Interests (Figure 7):
  - Graphical results: wide range of interests among the student body.
  - Order of event frequency: Social, Learning, Athletics, Service, Fundraising, Arts & Music, Cultural, Spiritual.

- Insights and Recommendations:
  - The popularity of Social events underscores the importance of community engagement.
  - Learning events’ popularity suggests a need for more resources for academic clubs and study groups.
  - The lower frequency of Cultural and Spiritual events could indicate areas for growth or need for more support.
  - The existence of spaces like the Meditation room in Collie indicates efforts to support cultural and spiritual practices.

- Comparative GPA Analysis (Figure 1):
  - General Organizations lead with an average GPA of 3.46.
  - Campus Partners have the lowest at 3.28, prompting further investigation.
  - Collective average GPA of 3.37 across all types indicates robust academic performance.

- Event Distribution Insights (Figure 2):
  - Illustrates event distribution across Purdue University locations.
  - WALC tops the chart with 732 events, indicating high facility utilization.
  - The presence of online events underscores a trend towards virtual engagement.
  - Insights can guide campus planning, especially for underutilized spaces like BRNG.

- Cross-Analysis Insights:
  - Both graphs together offer a comprehensive view of student life dynamics.
  - GPA analysis underscores the academic commitment across organization types.
  - Event distribution data highlights student preferences and potential areas for infrastructure enhancement.
  - Together, these insights inform strategies for academic support and campus development.

SUGGESTIONS
1. Better Data Collection Methods: The current APF has many user text-inputs and many other qualitative variables that can be changed to selection boxes. Changing this would allow for more data-driven insights and a smoother experience for the clubs filling the form.

2. Longitudinal Studies: Implement tracking of club membership and activities to assess the long-term impact of involvement on academic and professional outcomes.

3. Cultural Competency Training: Provide training for club officers and faculty advisors to create an inclusive environment for all members.

4. Enhanced Communication Channels: Develop communication platforms to increase awareness and participation in SAO events, ensuring that information reaches a broad audience.

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