Table of Contents

List of Figures

Important Links

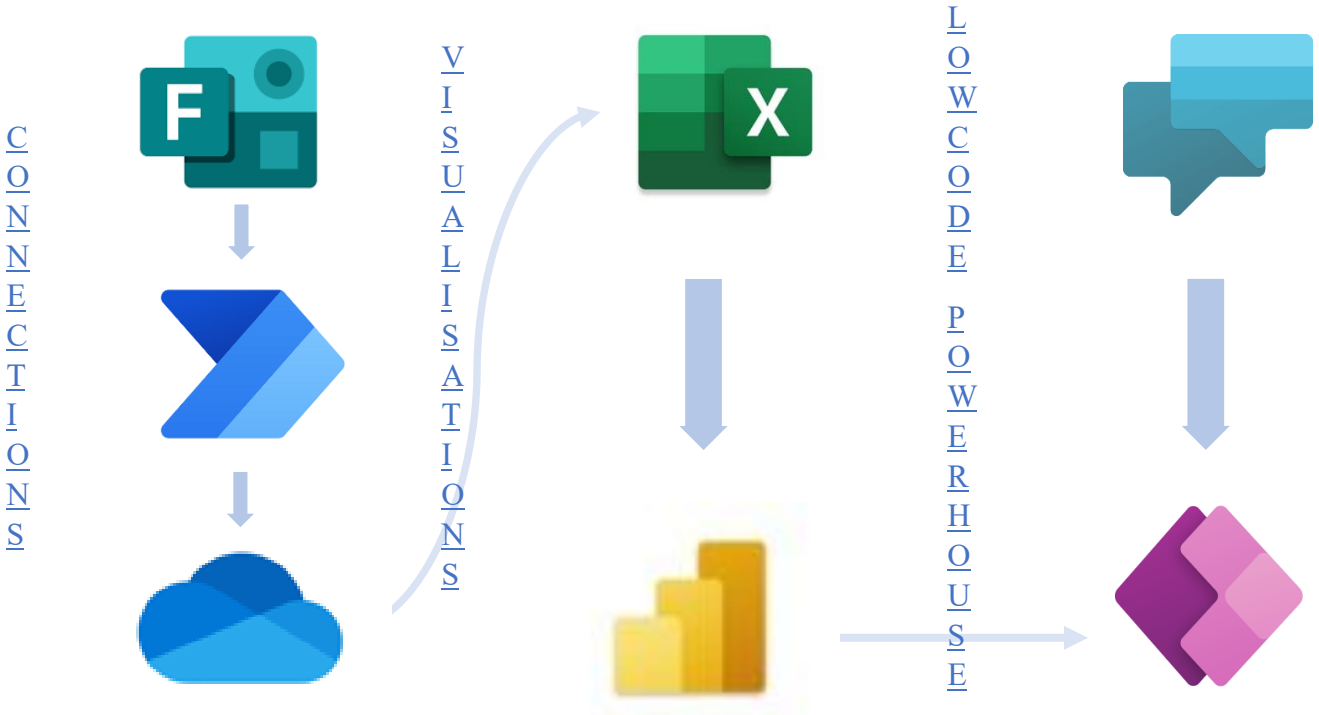
Microsoft Forms	Link
PowerBI Dashboard	Link
Chat Bot (Virtual Agent using Power App)	Link

Introduction: Hybrid Learning-Survey

In today's rapidly evolving educational landscape, technology has become an integral component, revolutionizing traditional learning methods. A paradigm shift is the adoption of hybrid learning environments in pursuing higher education, particularly a Master's Degree, combining the benefits of in-person and online instruction. This report delves into the advantages and disadvantages of obtaining a Master's Degree in a hybrid-learning environment. We have conducted a detailed survey among fellow students, alumni, and upcoming students as well using Microsoft tools like MS Forms, OneDrive, Power BI and Power Automate. The survey was anonymous and consisted of a diverse demographic of respondents from various colleges, nationality allowing us to gather a wide range of perspectives.

Our approach involves the use of data storytelling, enhancing our ability to provide a comprehensive understanding of hybrid learning experiences. We explore the opportunities that arise from the flexibility, personalized learning experiences, and global connectivity that hybrid learning provides. Simultaneously, we probe into the challenges, such as technological barriers, reduced face-to-face interactions, and increased need for self-discipline. By providing a balanced perspective, we aim to equip readers with a comprehensive understanding of the implications of pursuing a Master's Degree in a hybrid-learning environment. We hope this report offers valuable insights that can guide prospective students and educational institutions in making informed decisions regarding hybrid learning.

WORKFLOW



Microsoft Forms

Microsoft Forms provides an ideal platform for conducting surveys, with its user-friendly interface, diverse question types, real-time data collection, and robust analysis features. Here is how we have leveraged this powerful tool for conducting a survey on this specific topic:

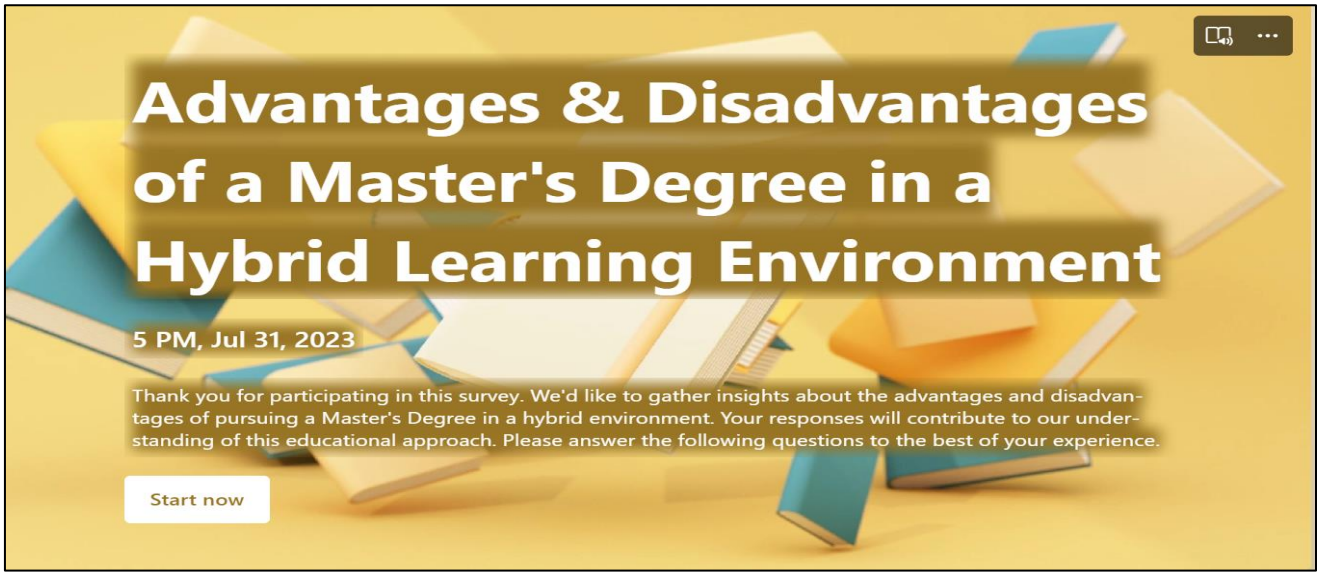


Fig1. Introductory Survey Page

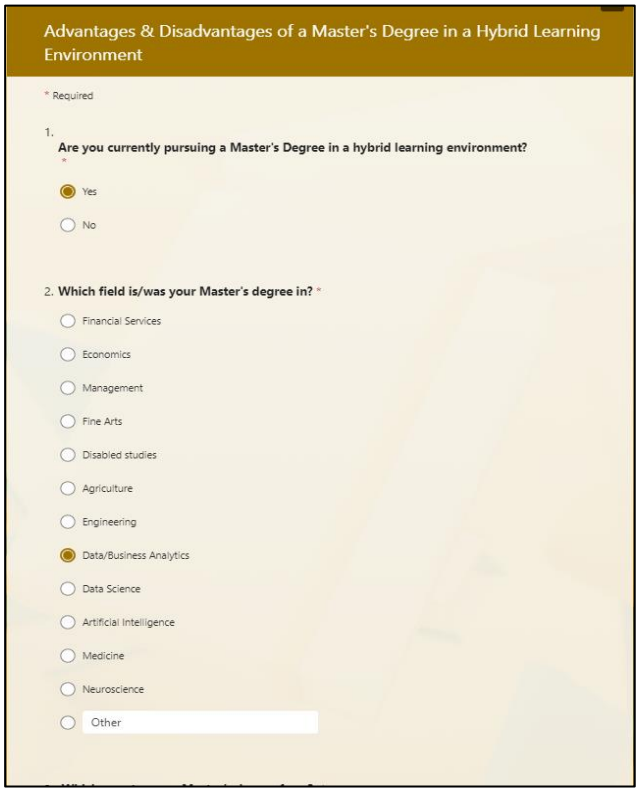


Fig2. Sample Survey Mobile View1

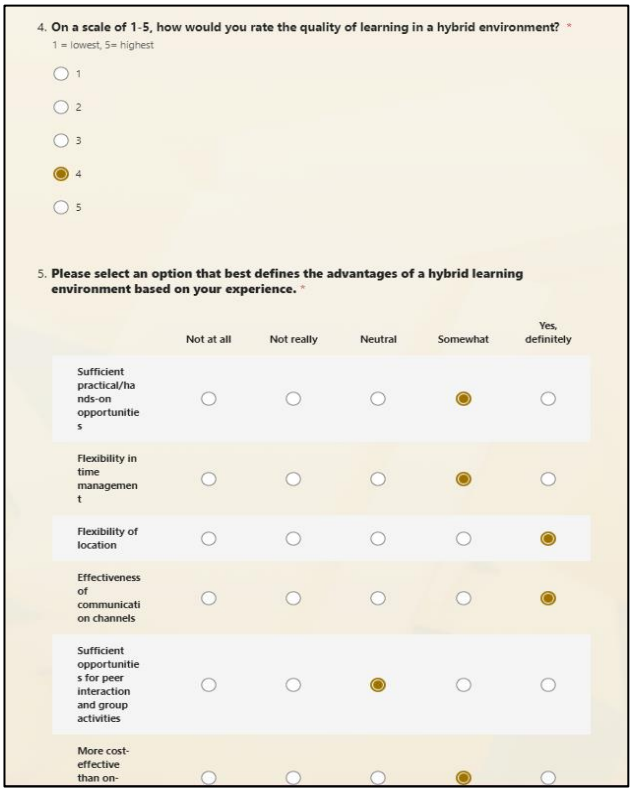


Fig3. Sample Survey Mobile View2

a. Survey Design:

Started by creating a new survey in Microsoft Forms. Consider structuring the survey into two main sections: one focused on the advantages of pursuing a master's degree in a hybrid-learning environment and the other on the disadvantages. Within each section, incorporate various question types to gather both quantitative and qualitative data. For example:

- Multiple-choice questions to assess most significant advantages and disadvantages as perceived by participants.
- Rating scales to measure level of agreement or disagreement with specific statements about hybrid learning.
- Text boxes to allow respondents to elaborate on their experiences or provide additional comments.

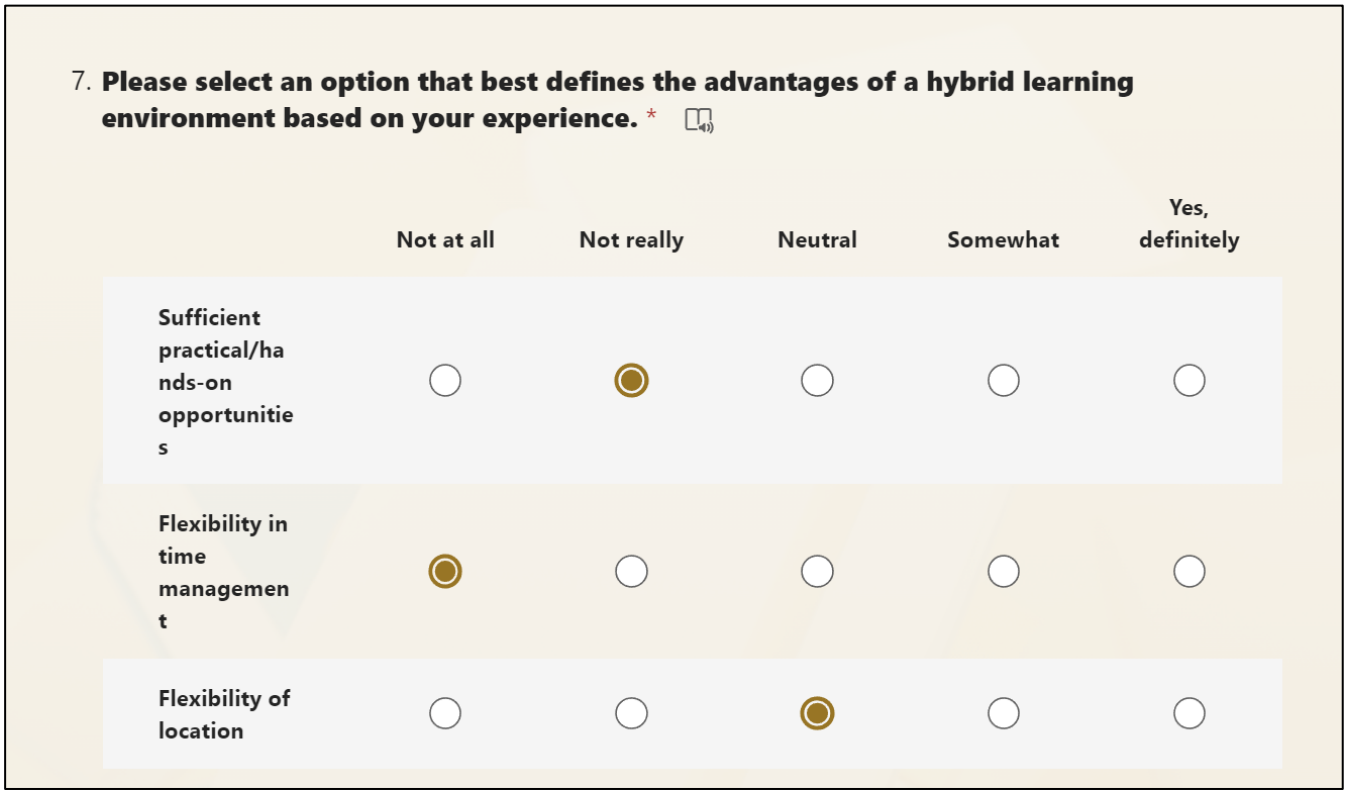


Fig4. Rating question from Survey

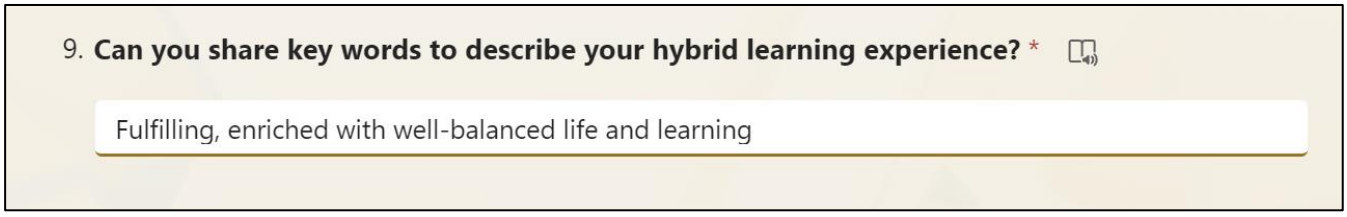


Fig5. Open text box question from Survey

b. Crafting Questions:

Construct clear and concise questions that address different aspects of the hybrid-learning model. For instance:

- "How would you describe the quality of interaction experienced with other students in the course?"
- "On a scale of 1 to 5, how would you rate the quality of learning in a hybrid environment?"

c. Neutral Language:

Ensured that the survey questions were in a neutral tone to avoid any bias in responses. The goal is to collect genuine feedback from participants without leading them to a specific viewpoint.

d. Implementing Branching Logic:

Utilize branching logic to create a more tailored survey experience. For instance, if a respondent indicates that they have not pursued a hybrid master's degree, the survey can automatically skip questions that are specific to the experiences of hybrid learners.

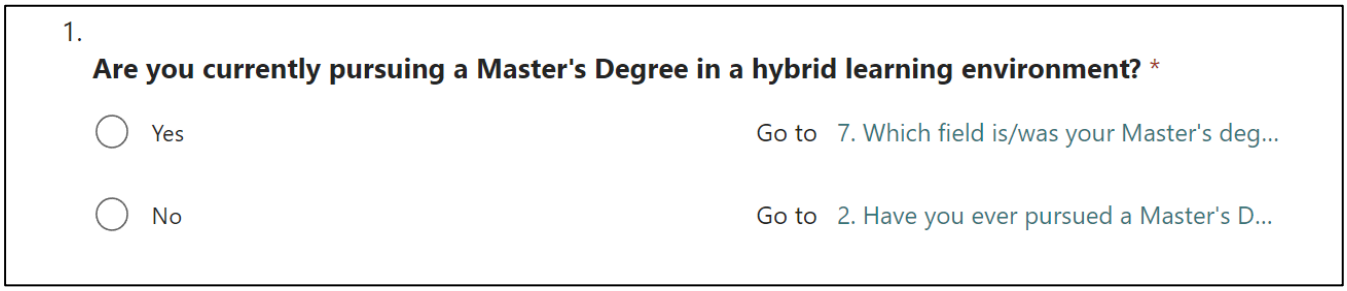


Fig6. Branching logic from the Survey

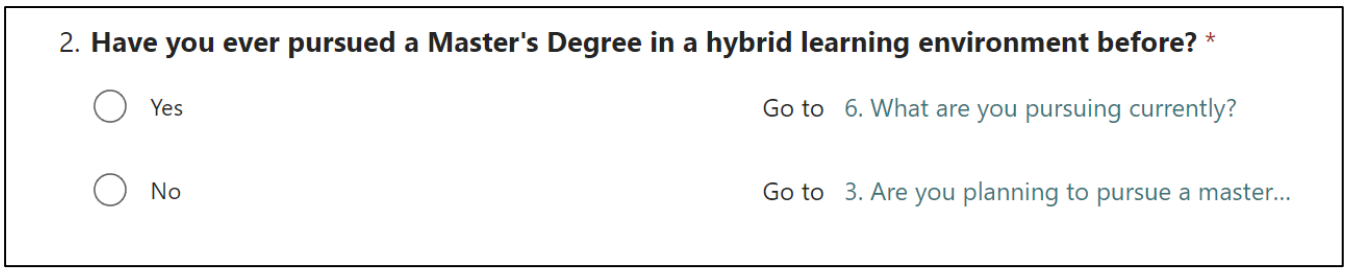


Fig7. Branching logic from the Survey

e. Demographic Questions:

Include a few demographic questions at the end of the survey, such as age, gender, and educational background. This information can be valuable for segmenting the data and identifying patterns among different groups of respondents.

f. Pre-testing the Survey:

Before launching the survey, we conducted a pre-test with a small group of individuals who closely resemble the target audience. This helped us to identify any issues with question clarity, flow, or technical errors, allowing us to refine the survey for a broader audience.

g. Distributing the Survey:

We shared the survey link via email, social media, or within relevant online communities. To maximize response rates, consider sending personalized invitations and reminders to potential participants. Highlighted the significance of the survey topic and emphasize the impact their feedback could have on improving hybrid master's degree programs.

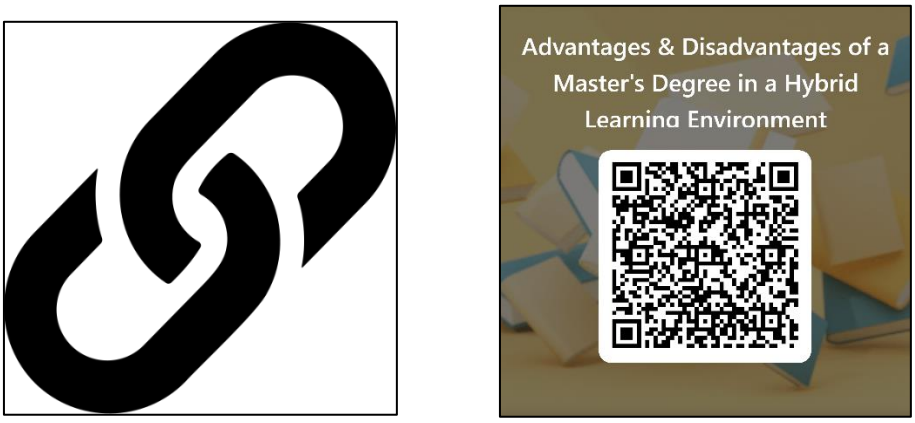


Fig8. Link and QR Code to the Survey

h. Real-time Data Analysis:

As respondents submit their answers, Microsoft Forms provides real-time data analysis, enabled us to monitor trends and responses as they come in.

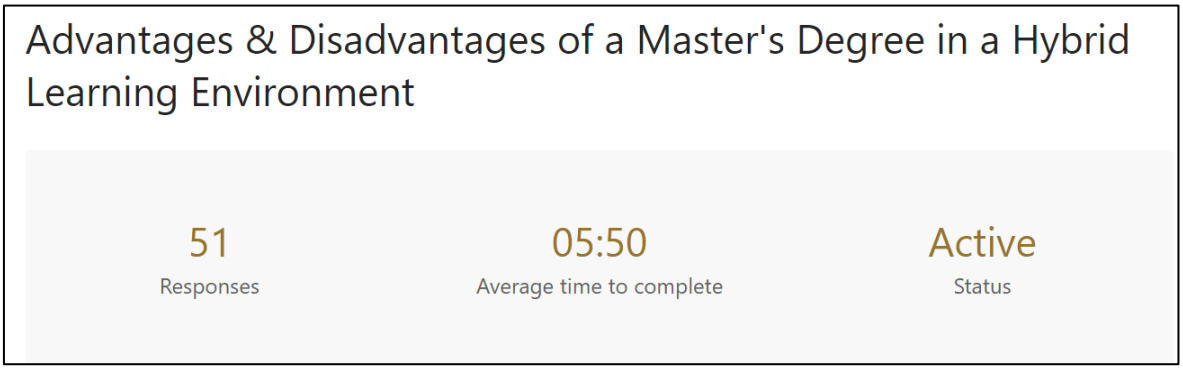


Fig9. Results from the Survey View1

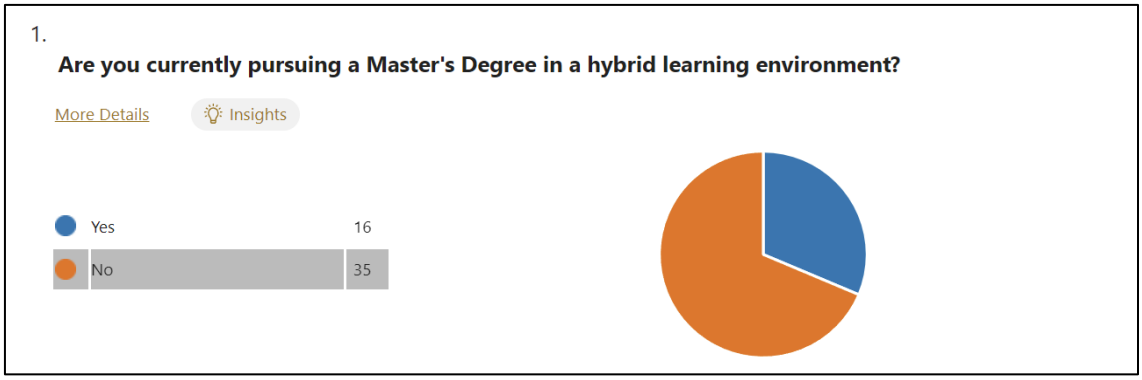


Fig10. Results from the Survey View2

i. Data Interpretation:

Once the survey reaches its desired response count, analyse the data to identify common themes, trends, and insights. Pay particular attention to contrasting opinions between participants who highlight advantages and those who emphasize disadvantages. This analysis will form the basis for drawing meaningful conclusions from the survey results.

j. Reporting and sharing findings:

Prepared a comprehensive report summarizing the survey findings. Include key takeaways, statistical analyses, and direct quotes from respondents to provide a holistic view of the advantages and disadvantages of a master's degree in a hybrid-learning environment. Share this report with relevant stakeholders, such as educators, academic institutions, and students, to foster informed discussions and decision-making.

By leveraging Microsoft Forms for conducting surveys on this topic, we have gained valuable insights into the perceptions and experiences of individuals regarding hybrid learning in the context of pursuing a master's degree. These insights can inform program improvements, guide future research, and help shape the future of higher education in an increasingly technology-driven world.

Power Automate

With Power Automate, creating "flows" that automate tasks and processes, eliminating the need for manual intervention is seamless. It effortlessly transfer data between applications, receiving real-time notifications, and even orchestrating complex business processes.

Trigger: The flow starts when a new response is submitted to the Microsoft Survey.
Data Retrieval: Power Automate gets the details of the newly submitted response from Microsoft Forms.
Data Storage: The flow adds a new row into a designated table in OneDrive, storing the response details securely.

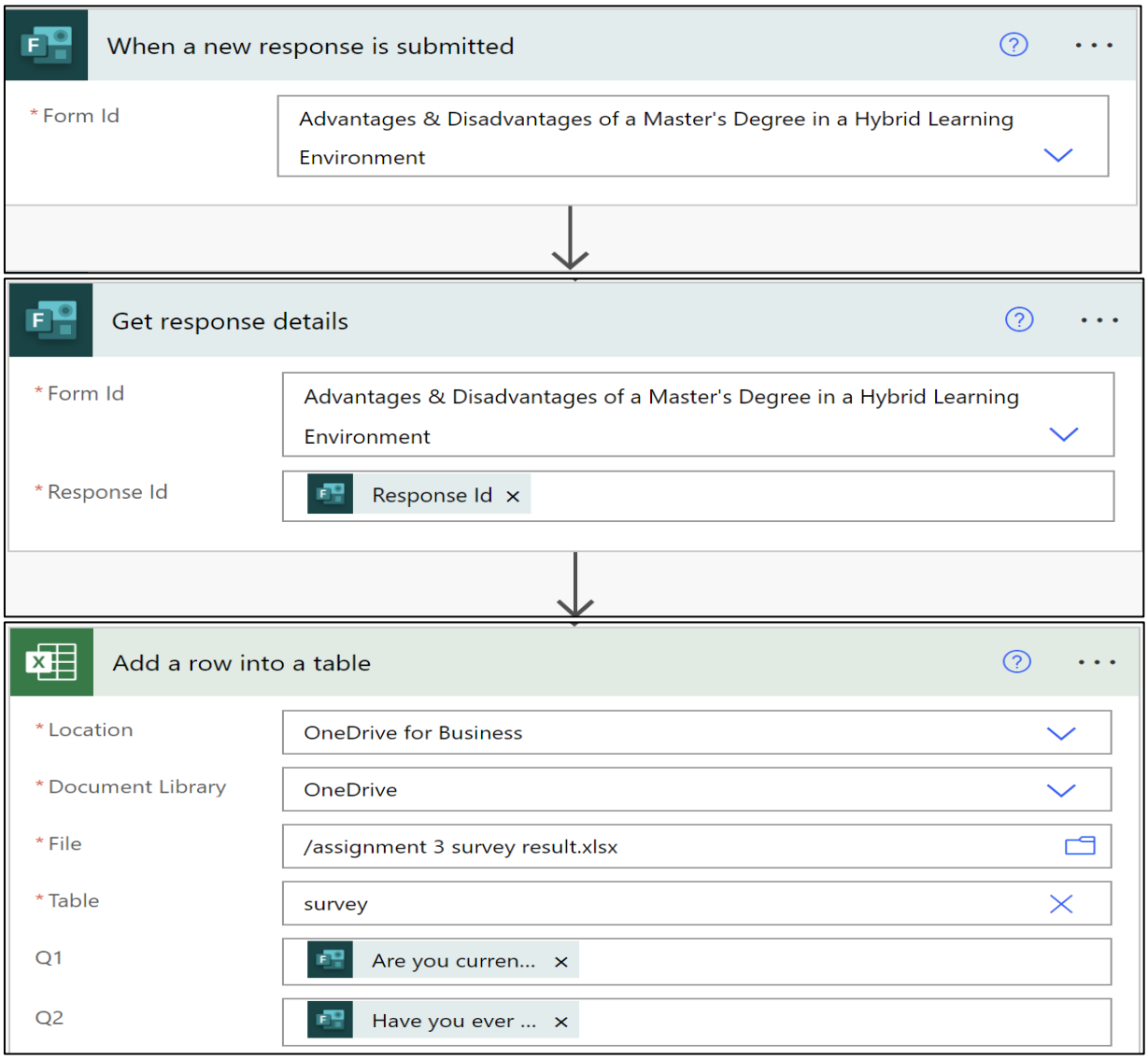


Fig11. Power Automate Flow

OneDrive

After creating the survey, we chose to save the survey results directly to OneDrive. This step ensures that the survey data is securely stored in the cloud for easy access and analysis.
Once the survey was completed, we shared the survey data with all the group members using OneDrive's sharing features.
The combination of Microsoft Forms and OneDrive offers a comprehensive solution for managing the entire survey process, from creation to data analysis of hybrid learning.

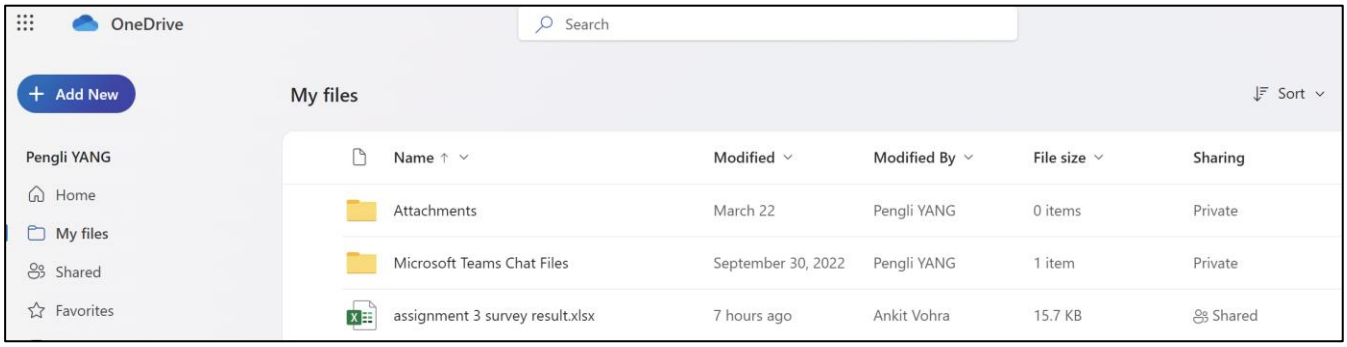


Fig12. Data stored in OneDrive

Power BI

We have used Power BI to analyse and visualize data related to the advantages and disadvantages of a master's degree in a hybrid-learning environment. Here is our observations from the data analysis using Power BI:

Data Model:
We were able to understand the relationships between these datasets by creating the below data model. The model has 3 different dimension tables all linked to the main table with a ***one to many relationship.***

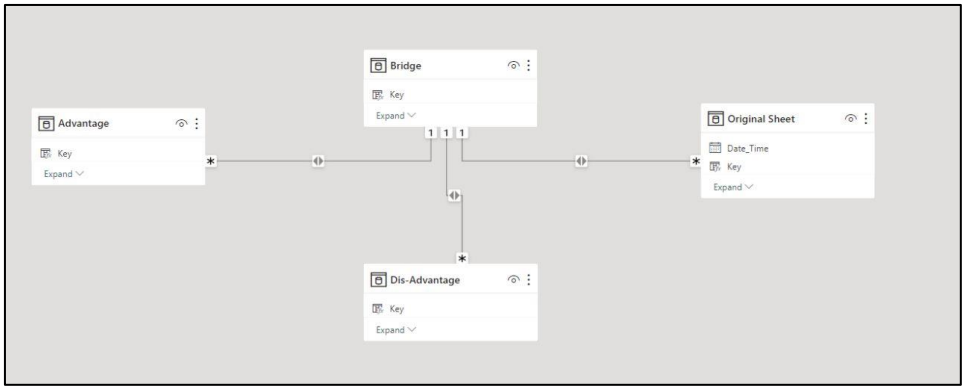


Fig13. Data Model View

Dashboard 1: Survey Overview

The dashboard provides valuable insights into the master's degree student population. It can help universities, education researchers, policymakers, and even students understand current trends and patterns in higher education. For example, we can identify the most popular destinations for studying, which domains are currently trending, or if there's a significant age or gender disparity among students. This analysis might guide strategic decisions, like creating programs targeting underrepresented groups or understanding which domains need more focus and resources.

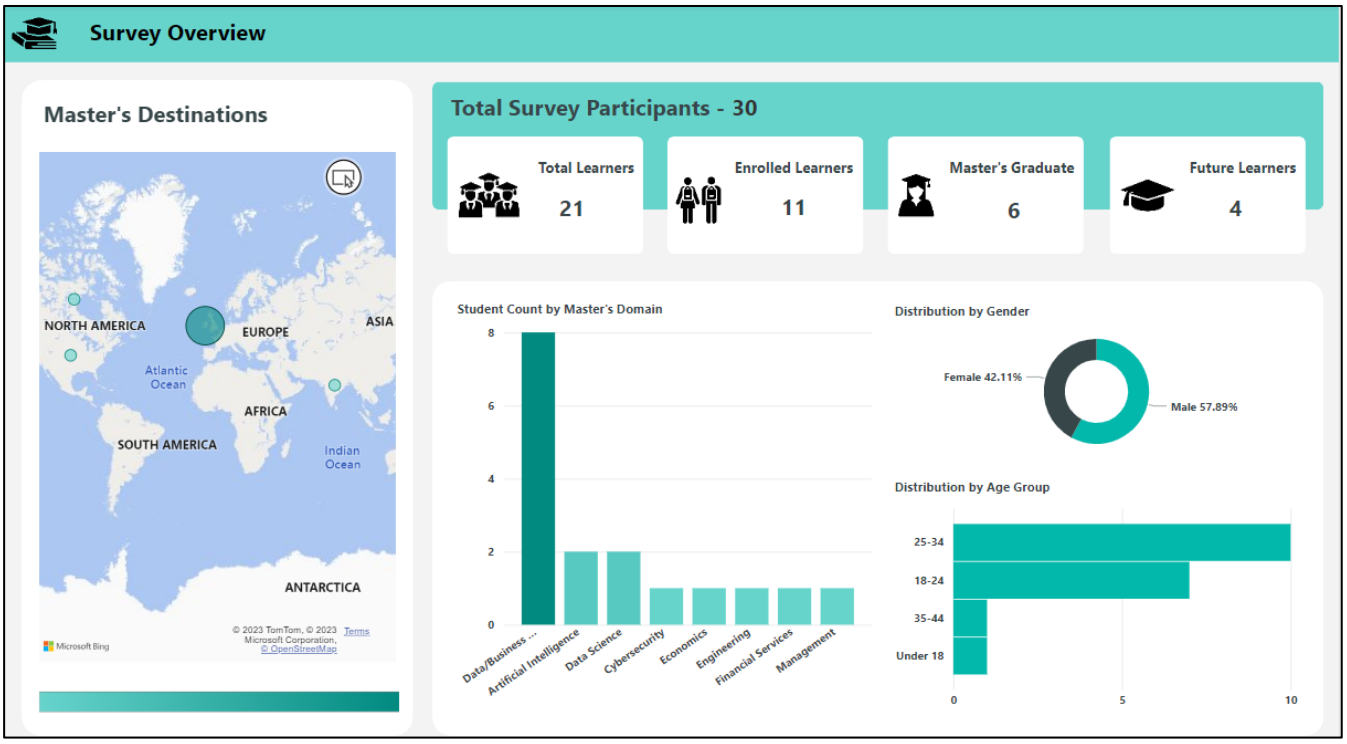


Fig14. Dashboard View1

Following are the key insights that we got from the Survey Overview Dashboard –

1. Demographics: Most respondents are either current or past master's students and a minority are potential students. Most are in the 18-34 age range, indicating a younger demographic and the gender ratio seems balanced.
2. Master's Domain: The most popular master's degree domain appears to be 'Data/Business Analytics', followed by 'Artificial Intelligence', 'Data Science', 'Cybersecurity', and 'Economic'. This indicates a high demand for technological and analytical skills among current, past, and potential students.
3. Master's destinations: This map-based visual shows where people are pursuing their master's degree from. It helps to understand the geographical spread of the students and possibly the popularity of certain regions or countries for higher education. The students are primarily studying in Ireland, with some in India and Canada.

Dashboard 2: Survey Analyser

The Survey Analyser dashboard is a data-driven tool that gives a comprehensive understanding of student sentiment and opinions regarding the hybrid mode of education. It offers a multi-dimensional perspective by allowing users to analyse various factors including age group, gender, college country, master's domain, and nationality. The visuals on this dashboard include ratings, motivations, lecturer availability, perceived advantages and disadvantages, and overall student experience with the hybrid mode of education.

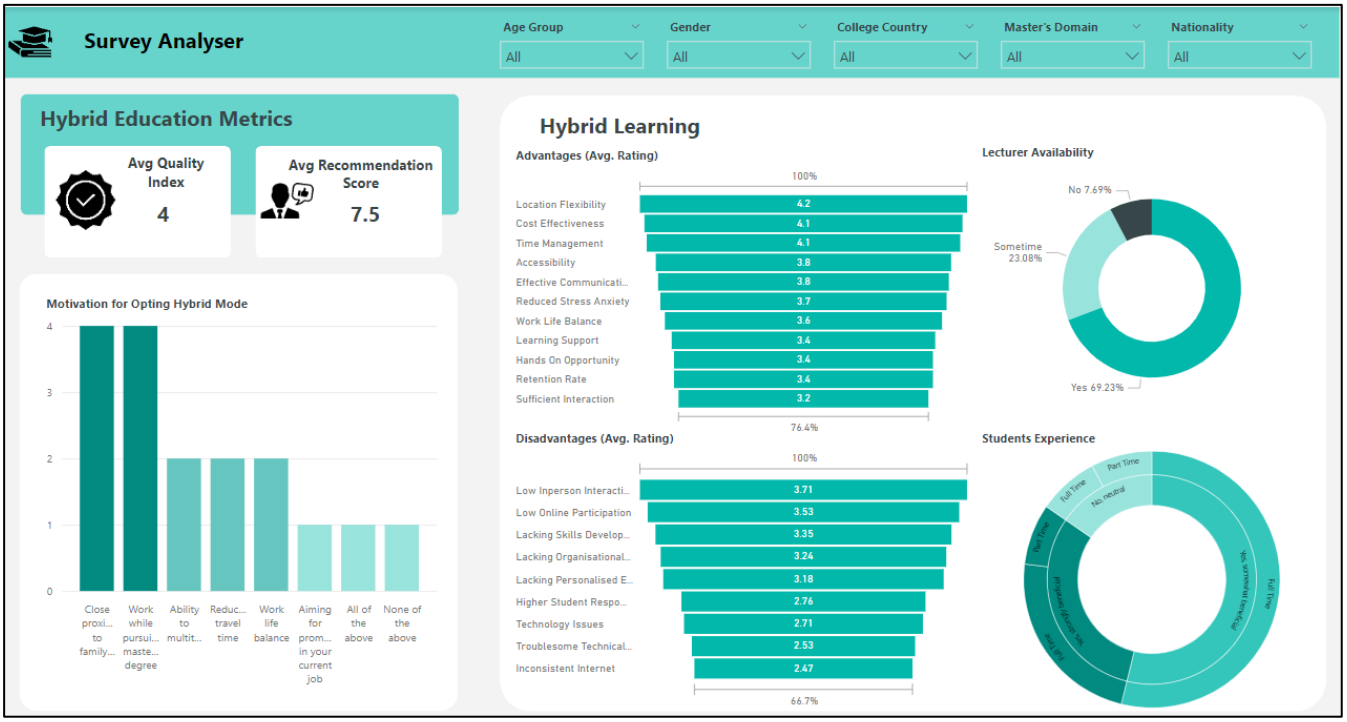


Fig15. Dashboard View2

Following are the key insights that we got from the Survey Analyser Dashboard –

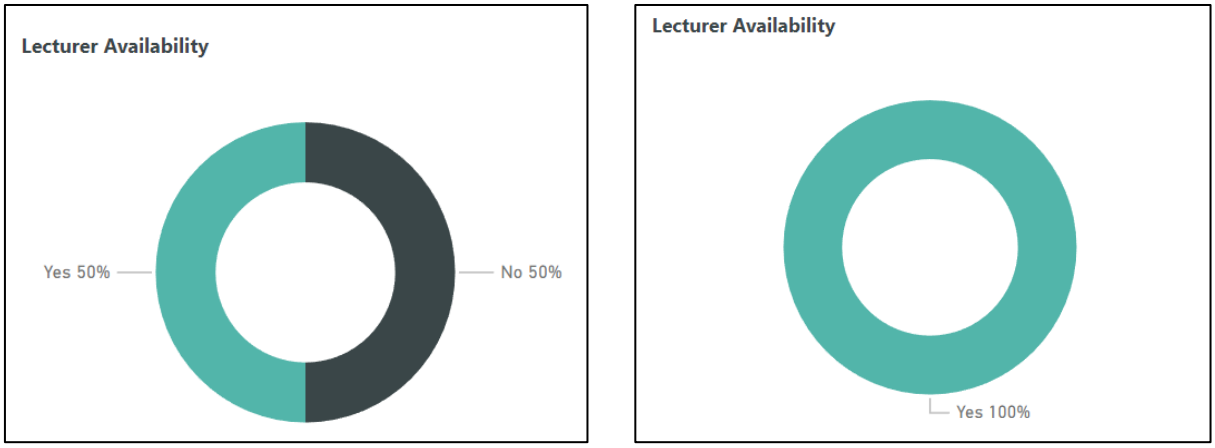
1. Hybrid Education Metrics: Most respondents gave an average quality index of 4 and a relatively high average recommendation score of 7.5. This indicates that students are satisfied with the combination of flexibility, accessibility, convenience, interactive tools, personalised learning, collaborative opportunities, and preparation in hybrid learning.

2. Motivation for Opting for Hybrid Mode: Male respondents have their motivational factors as close proximity to family/home and the ability to multitask while pursuing a master's degree with a relatively low recommendation score of 6.6. Whereas females' motivational factor is the reduced travel time and work while doing their masters with a fairly high recommendation score of 8.5.

3. Hybrid Advantages (Avg. Rating): Females from the regions of Ireland and Canada have rated cost effectiveness and time management with a higher rating of 4.4 for each. While Males coming from India, Ireland, and the United States rated location flexibility and cost-effectiveness with a rating of 4.2 and 3.9 respectively.

4. Hybrid Disadvantages (Avg. Rating): Females and males have given a high average rate for low in-person interaction of 3.86 and 3.60. This suggests the reduced face-to-face interaction with peers and instructors may have resulted in a sense of isolation and disconnection, affecting collaboration, and building meaningful relationships.

5. Lecturer Availability: Younger female respondents from the age group of 18-24 are experiencing 50% no lecturer availability, whereas young male respondents are 100% experiencing full lecturer availability.



Female respondents from the age group 18-24. | *Male respondents from the age group 18-24.*

Fig16. Lecturer Availability by Gender

Power BI Report Publication and Dashboard Pinning:

Upon compiling and processing the survey data, we successfully published the resulting Power BI report. Subsequently, we strategically pinned this report to a dashboard for a clear and concise overview of essential survey metrics and trends.

Published Dashboard:

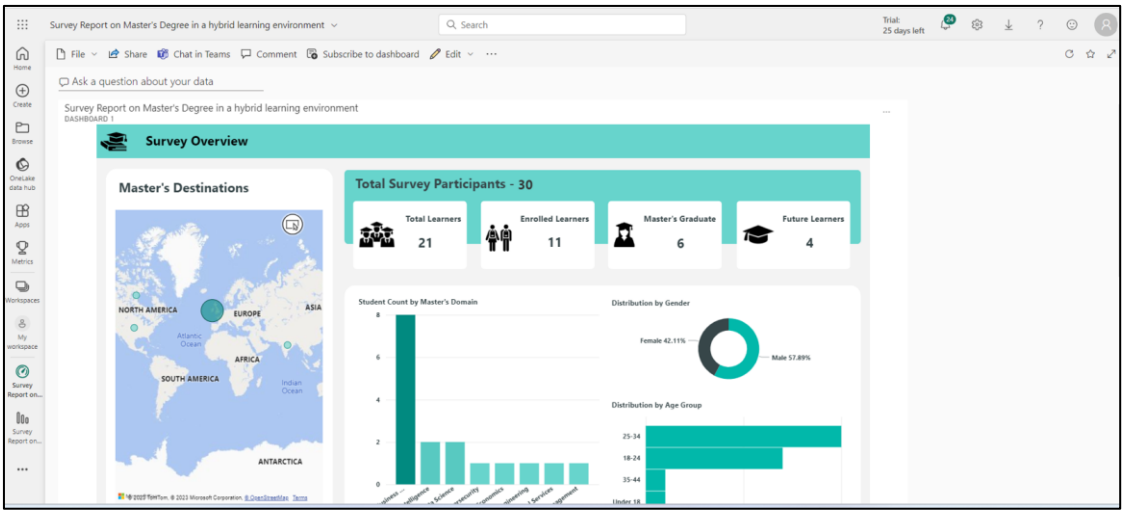


Fig17. Published Dashboard on PowerBI Service

Power Apps and Power Virtual Agents

Power BI Integration with Power Apps and Power Virtual Agents: In this section, we outline the seamless integration of survey data through Power BI and its incorporation into Power Apps, complemented by the utilization of Power Virtual Agents to enhance user interaction and access to analysis insights.

Power App:

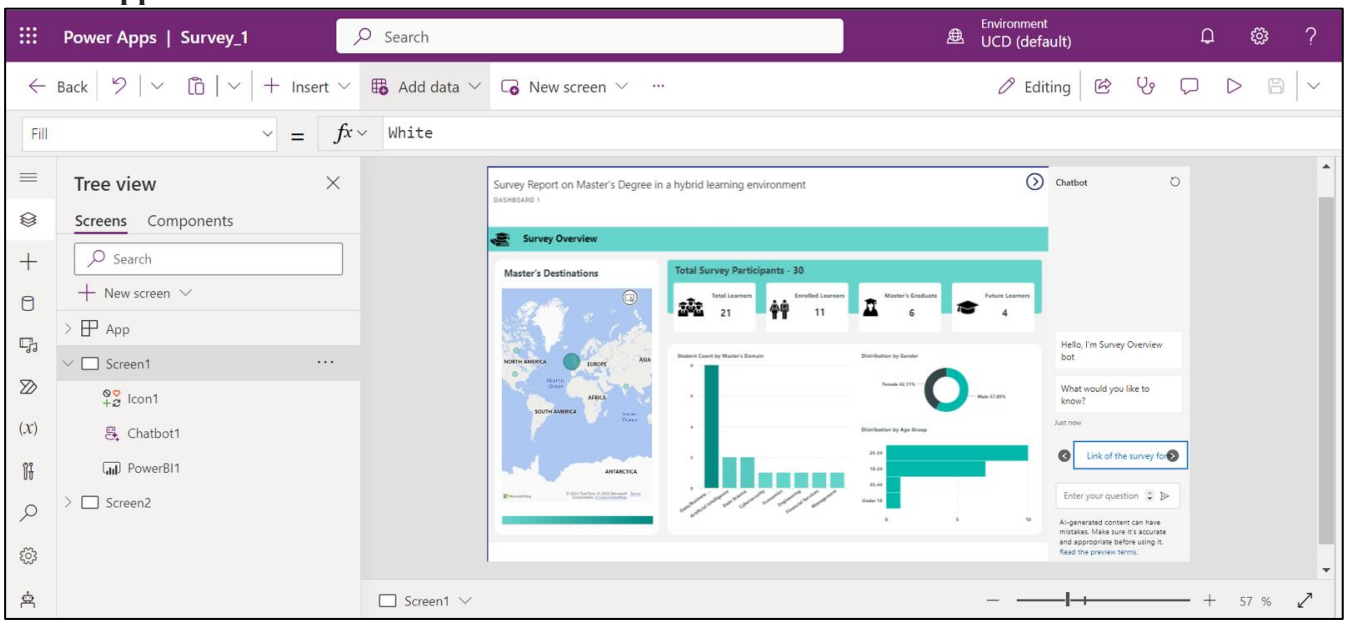


Fig18. Survey model in Power Apps

Power Apps Integration and Navigation Implementation:

1. To provide a user-friendly and interactive experience, we harnessed the potential of Power Apps by selecting a blank canvas app. Within this canvas, we skilfully embedded the Power BI dashboards, thus presenting users with a centralized and accessible platform for data exploration.

2. Navigation functionality was thoughtfully implemented using intuitive arrow icons, allowing users to seamlessly transition between different sections of the dashboard, facilitating a comprehensive understanding of the survey data.

Multi-Screen Deployment and Dashboard Interactivity:

3. Recognizing the need for a more comprehensive presentation, we employed two screens within the Power App interface to display the Power BI dashboards. This approach enabled users to access and analyse the survey data across multiple perspectives conveniently.

4. To ensure a seamless user experience, we enabled the AllowNewAPI feature, preserving the dashboard's inherent interactivity within the Power Apps environment. By doing so, users could

effortlessly interact with the visualizations and dynamically explore various aspects of the data without sacrificing functionality.

Integration of Power Virtual Agents for Enhanced User Support:

5. Understanding the importance of user support and assistance while interacting with complex datasets, we deployed two dedicated Power Virtual Agents (bots). Each bot was meticulously tailored to its respective screen, equipped with a predefined set of questions and response options relevant to the dashboard's contents.

Power Virtual Agent:

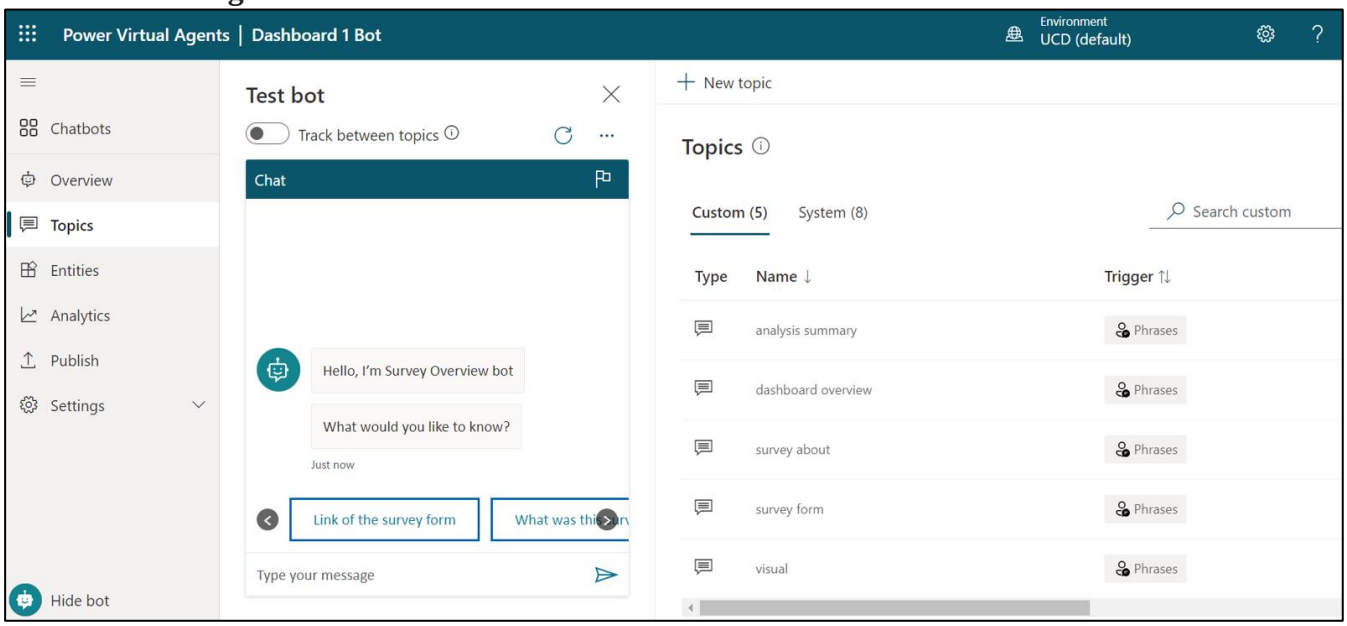


Fig19. Power Virtual Bot View1

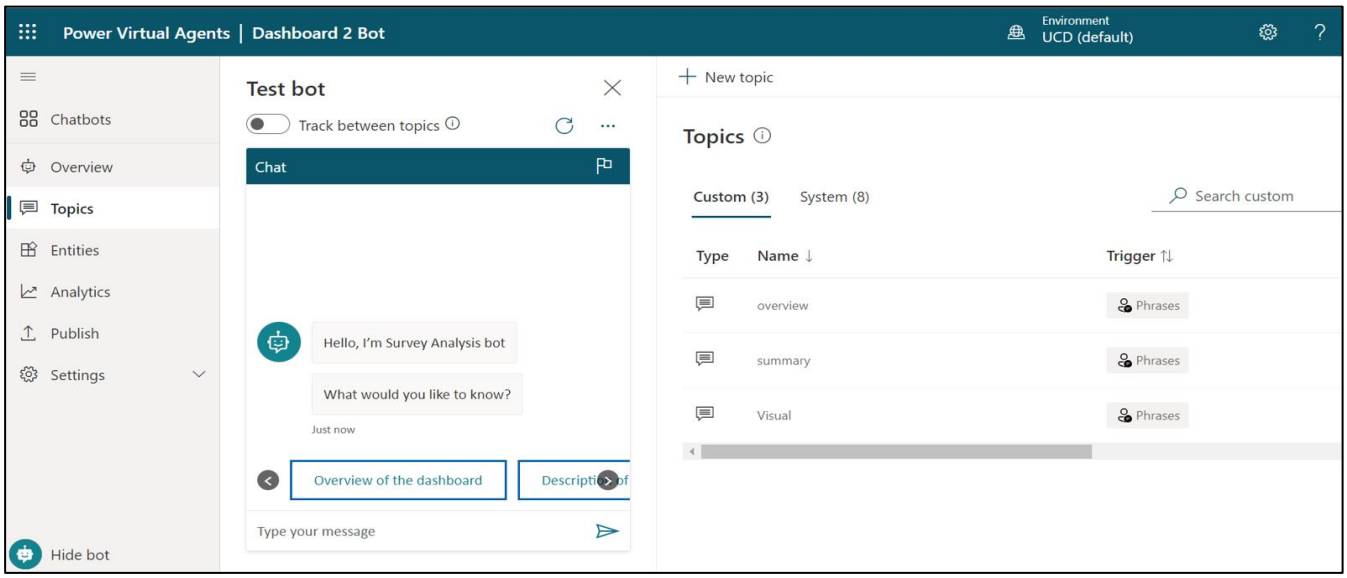


Fig20. Power Virtual Bot View2

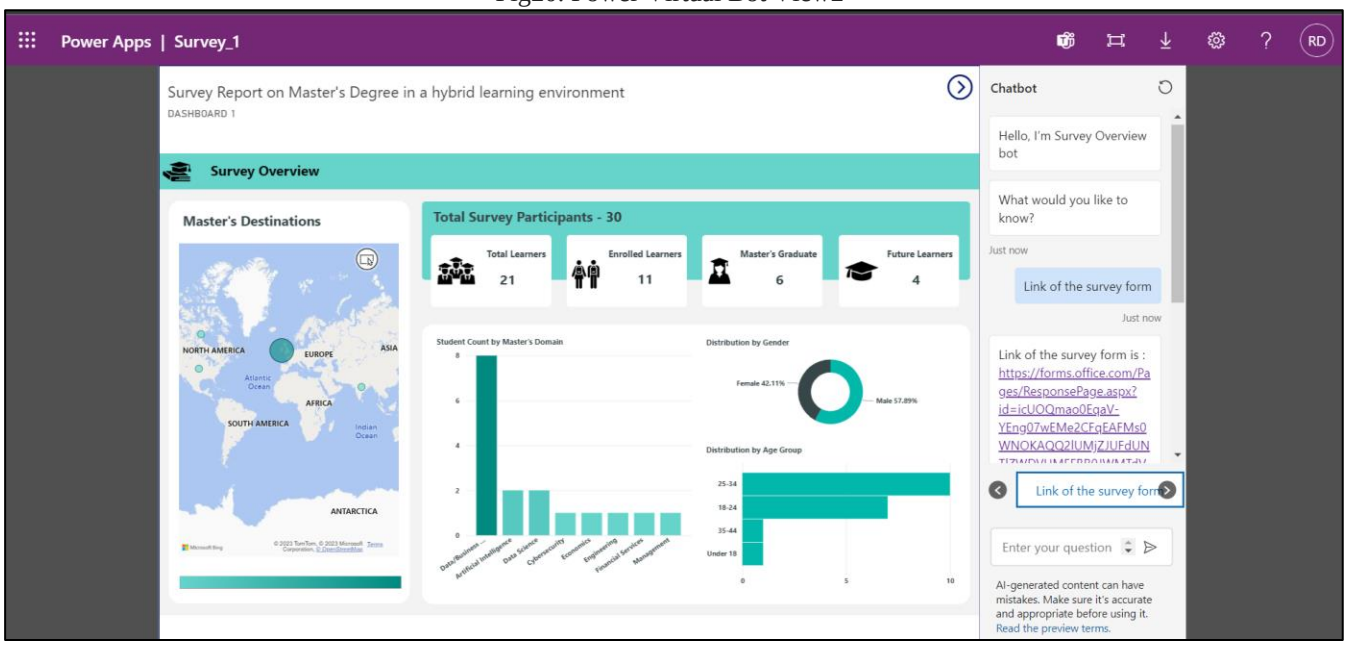


Fig21. Final Survey Interaction with chatbot through Power Apps

6. These Power Virtual Agents acted as knowledge-based aides, serving users with pertinent insights and facilitating a deeper understanding of the survey data. Their primary focus was to address frequently asked questions (FAQs) and provide valuable guidance, empowering users with an enhanced analytical experience.

In essence, the integration of Power BI reports with Power Apps and the integration of Power Virtual Agents significantly enriched the overall user experience, offering a powerful and seamless source of analysis information.

Overall Summary

In conclusion, the data analysis conducted on the topic of the advantages and disadvantages of a master's degree in a hybrid-learning environment using tools such as Microsoft Forms, OneDrive, Power BI, and Power Automate has streamlined the data analysis process, facilitating efficient data collection, storage, analysis, and visualization, providing valuable insights into the perceptions and experiences of students.

The findings indicate that hybrid learning offers several significant advantages. Participants appreciated the flexibility it affords, allowing them to balance work, personal commitments, and education effectively. However, the data analysis also shed light on some notable disadvantages of hybrid learning. Technical challenges, such as adapting to new technology and occasional connectivity issues were reported by some students. The study also highlighted disparities in the learning environment due to inconsistent access to resources and technology among students from different backgrounds.

The sentiment analysis revealed an overall slightly positive sentiment towards hybrid learning, with an emphasis on its convenience and adaptability. Based on the insights obtained from the data analysis, several recommendations are put forward to address the identified challenges and capitalize on the advantages of hybrid learning. Faculty training and support are crucial to ensure seamless integration of technology and effective delivery of hybrid learning programs. Measures should be taken to address disparities in access to technology and resources, ensuring a level playing field for all students. Strategies to promote virtual social interactions and networking opportunities should be implemented to enhance the overall learning experience and foster a sense of community among students.

Overall, a master's degree in a hybrid learning environment offers compelling advantages, particularly in terms of flexibility, accessibility, and enhanced learning experiences. However, the challenges associated with technology adoption and reduced face-to-face interactions require attention. By implementing the recommended strategies and continuously refining the hybrid learning approach based on feedback, educational institutions can create an inclusive and effective learning environment that maximizes the benefits of hybrid learning while mitigating its limitations. This report underscores the significance of data analysis in informing educational practices, promoting evidence-based decision-making, and shaping the future of learning in a dynamic and technologically driven world. As the educational landscape continues to evolve, leveraging data analysis and innovative tools will play a pivotal role in achieving educational excellence and meeting the diverse needs of learners pursuing a master's degree in the hybrid-learning era.

References

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5. https://learn.microsoft.com/en-us/power-apps/maker/canvas-apps/how-to/build-powerbi-visual
6. https://learn.microsoft.com/en-us/power-virtual-agents/fundamentals-get-started?tabs=web