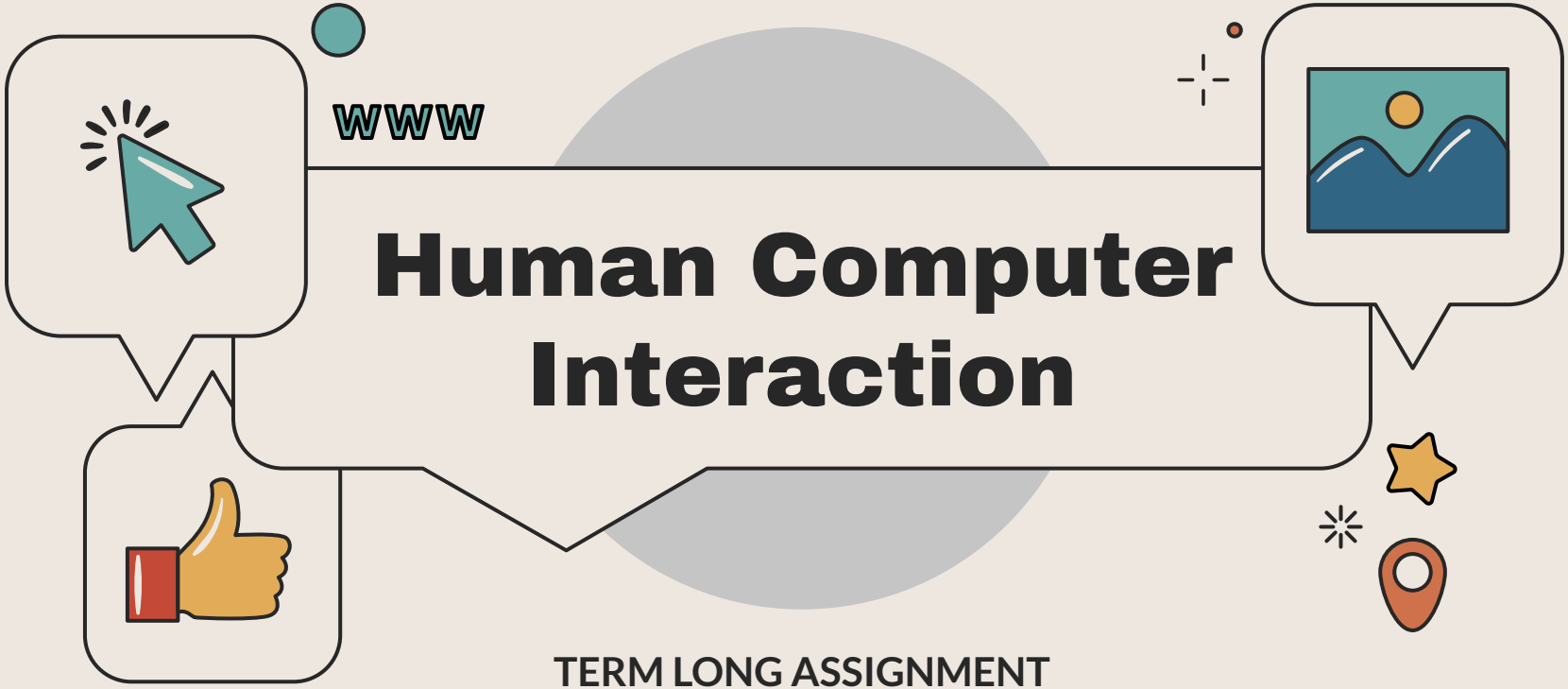

Human Computer Interaction

TERM LONG ASSIGNMENT

DATA ANALYSIS & INTERPRETATION
PRESENTATION

SOCIAL MEDIA: YOUTUBE SOLUTION PITCH

Data Analysis & Interpretation

Group: Benjamin Robinson (2000724), Errol Hunter (1905299) and Iyana Taylor (2209566)
Course: Human Computer Interaction (UN1) Monday 8 AM Tutorial with Ms. Nadine Maitland

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01| Introduction and Recap on Data Collection Methods Used.

In our previous presentation, we proposed the idea of a Smart Contextual History Search, an AI-powered natural language search across users' YouTube watch history. In this presentation, we will share the analysis and interpretation of the data collected using our three methods: Semi-Structured Interviews, an Online Survey Questionnaire and Secondary Data Analysis/ Document Review.

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02| Questionnaire Findings.

Section A: Demographics and Usage (6 questions)

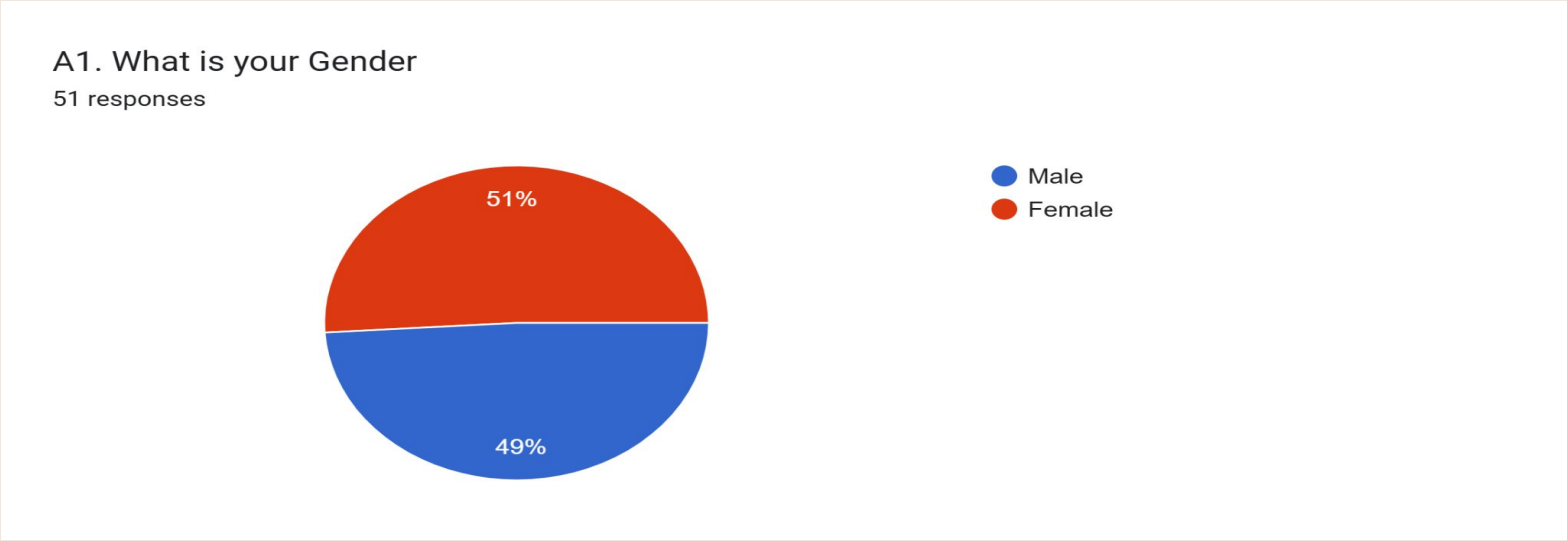

Figure 1 shows that the shows the genders of the participants surveyed. The sample included a slightly higher proportion of female respondents (51%) compared to to male respondents (49%). This relatively balanced gender distribution ensures the finding reflect perspectives from both genders.

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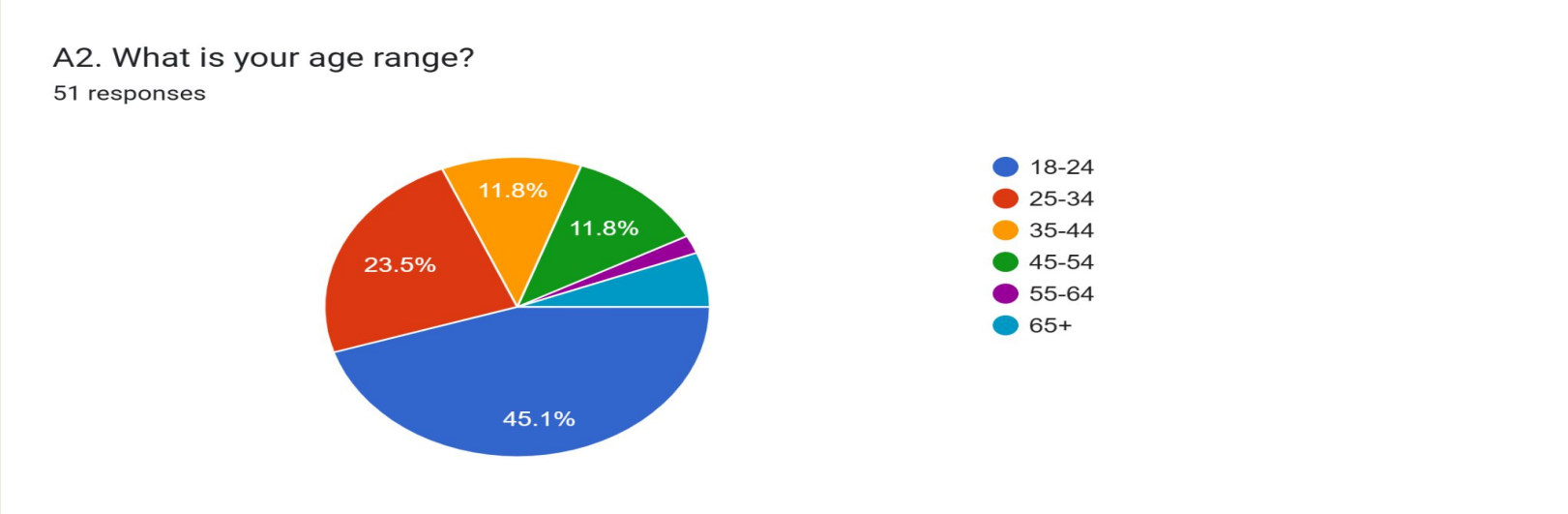

Figure 2 shows the ages ranges of participants surveyed. The majority of respondents fall within the 18-24 age group, representing 45.1% of the sample. This indicates that the study reached a predominantly young adult demographic, who are likely to be familiar with or open to digital platforms like youtube but also got insights from other age groups such as 25-34, 35-44, 45-54, 55-64 and 65+ which made up 23.5%, 11.8%, 11.8%, 2% and 5.9% respectively of the remaining respondents to ensure different perspectives were procured from all age demographics for the study.

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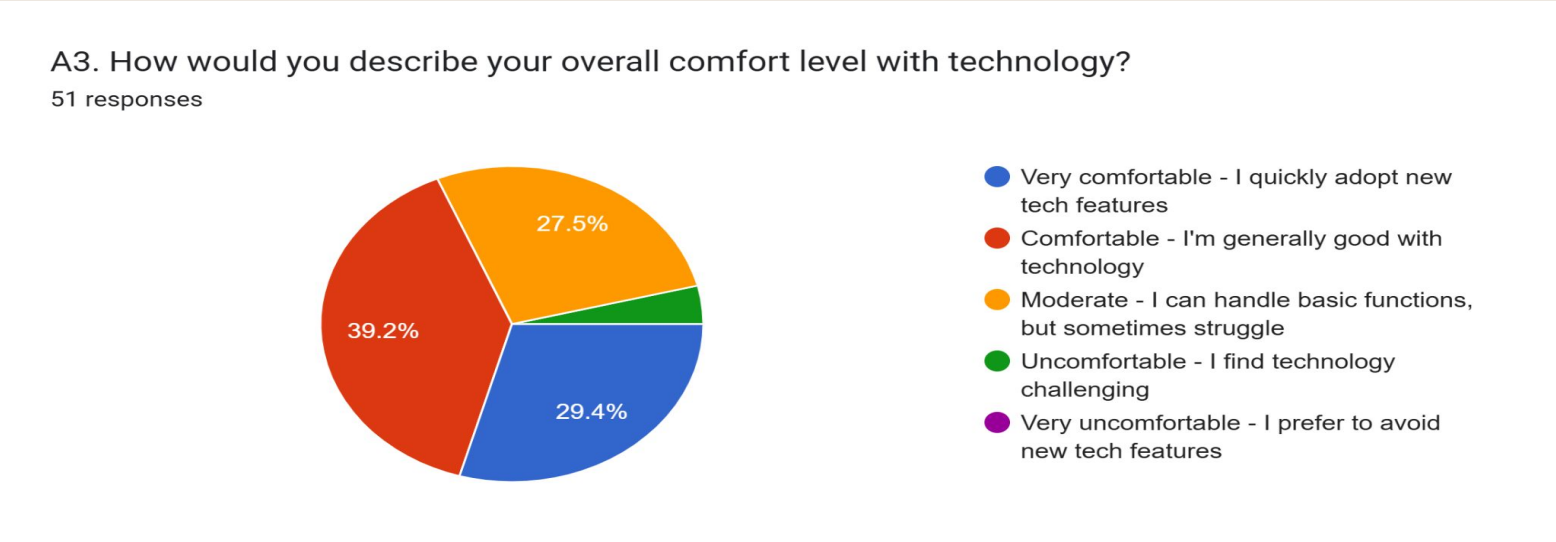

Figure 3 show that of the participants reported being comfortable or very comfortable with technology, with 39.2% describing themselves as generally good with technology and 29.4% as quick adopters of new features. About one-quarter (27.5%) had moderate comfort levels, while only 3.9% found technology challenging. This indicates the sample consists primarily of technologically proficient users, which may influence responses to technology-related questions in the study

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02| Questionnaire Findings.

Section A: Demographics and Usage (6 questions)

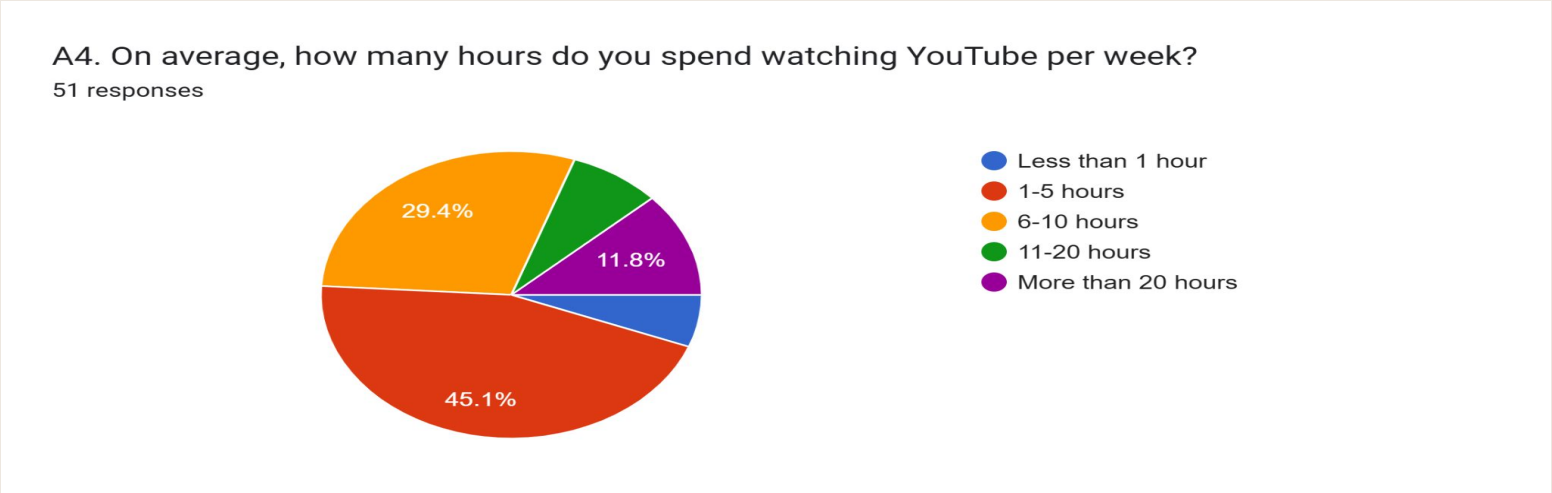

Figure 4. shows that the majority of participants (45.1%) are moderate YouTube users, spending 1-5 hours per week on the platform. Nearly one-third (29.4%) are more engaged viewers, watching 6-10 hours weekly. Heavy users represent a notable portion of the sample, with 19.6% watching more than 10 hours per week (that is a combine of 7.8% watching 11-20 hours, 11.8% exceeding 20 hours). Only a small minority (5.9%) are minimal users with less than one hour of weekly viewing. This distribution indicates the sample consists primarily of regular to heavy YouTube consumers, suggesting participants have substantial experience with the platform.

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02| Questionnaire Findings.

Section A: Demographics and Usage (6 questions)

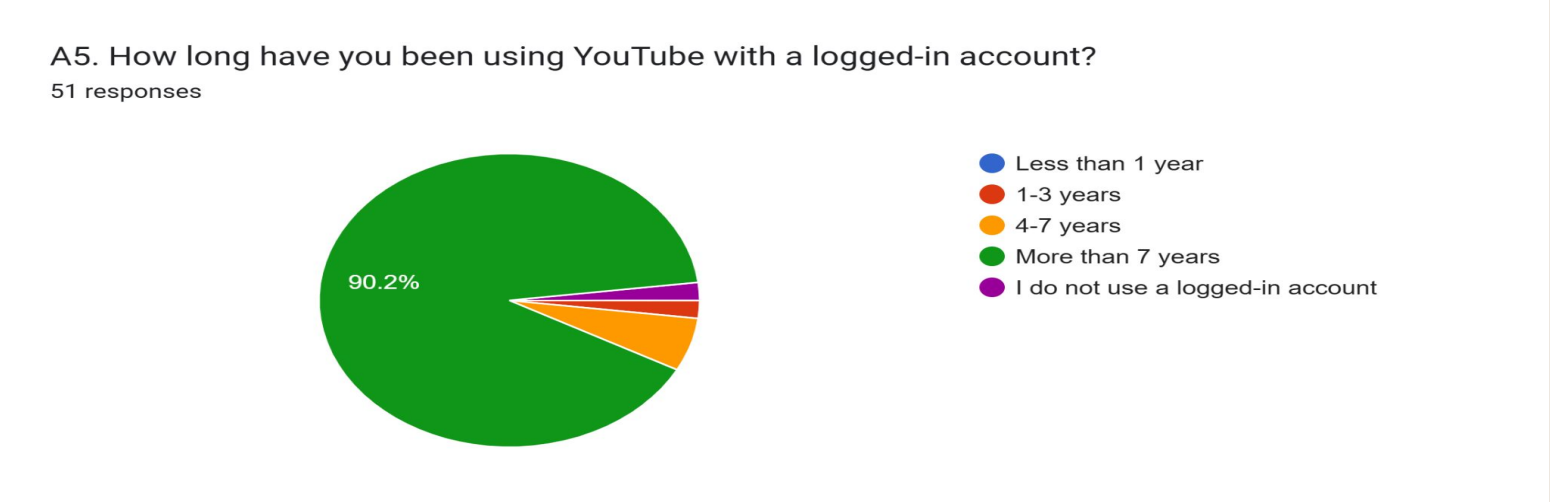

Figure 5 shows that the vast majority of participants (90.2%) are experienced YouTube users with more than 7 years of logged-in account usage. Only small percentages represent newer users, with 5.9% having 1-3 years of experience and 2% using accounts for less than one year. An additional 2% do not use logged-in accounts. This distribution indicates the sample consists overwhelmingly of long-term, established YouTube users who likely have well-developed platform habits and preferences, which should be considered when interpreting study findings.

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02| Questionnaire Findings.

Section A: Demographics and Usage (6 questions)

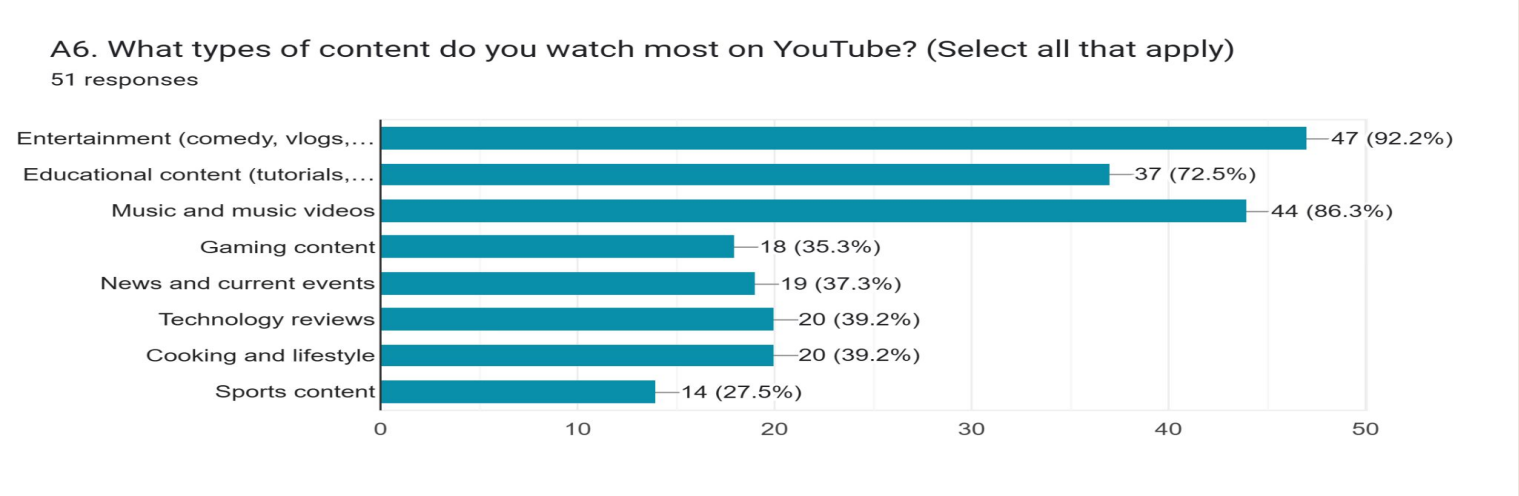

Figure 6 shows a multi-select question where Entertainment content dominates viewing preferences, with 47 of 51 participants (92.2%) watching comedy, vlogs, and similar content. Music and music videos are nearly as popular, selected by 44 participants (86.3%), followed by educational content chosen by 37 participants (72.5%). Technology reviews and cooking/lifestyle content each appeal to 20 participants (39.2%), while gaming content attracts 18 participants (35.3%) and news/current events 19 participants (37.3%). Sports content has the lowest engagement with 14 participants (27.5%). This multi-select data reveals that participants have diverse viewing habits, with most consuming entertainment and music content while also seeking educational material, indicating a blend of leisure and learning motivations among the 51 respondents.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

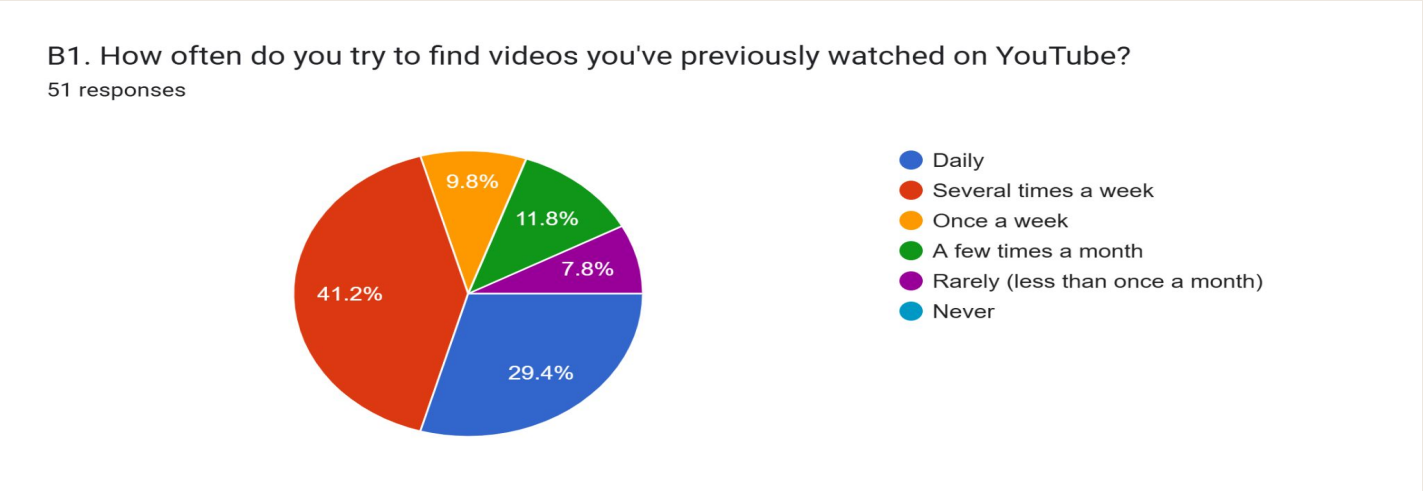

Figure 7. shows that the majority of participants frequently search for previously watched videos, with 41.2% doing so several times a week and 29.4% searching daily. Weekly searchers represent 9.8% of respondents, while 11.8% search a few times per month. Only a small minority rarely engage in this behavior, with 7.8% searching less than once a month and no participants reporting they never search for previous videos. This pattern indicates that re-finding previously watched content is a common and regular behavior among YouTube users, suggesting the platform serves as a repository that users actively revisit for content they've previously consumed.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

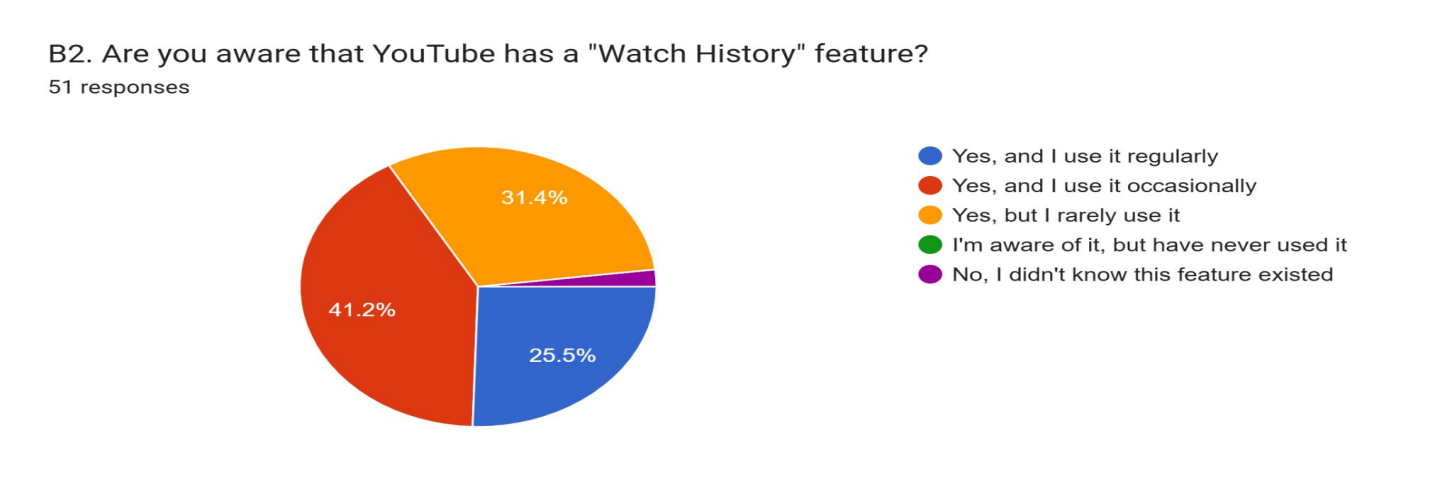

Figure 8 shows that nearly all participants are aware of YouTube's Watch History feature, with varying levels of usage. Occasional users represent the largest group at 41.2%, followed by infrequent users at 31.4% who rarely utilize the feature. Regular users comprise 25.5% of respondents. Only a small minority are aware but have never used it (2.0%) or were completely unaware of the feature's existence (2.0%). Despite high awareness levels, the data reveals a usage gap, with most participants knowing about the feature but not incorporating it regularly into their YouTube experience, suggesting potential barriers to adoption or perceived limited utility.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

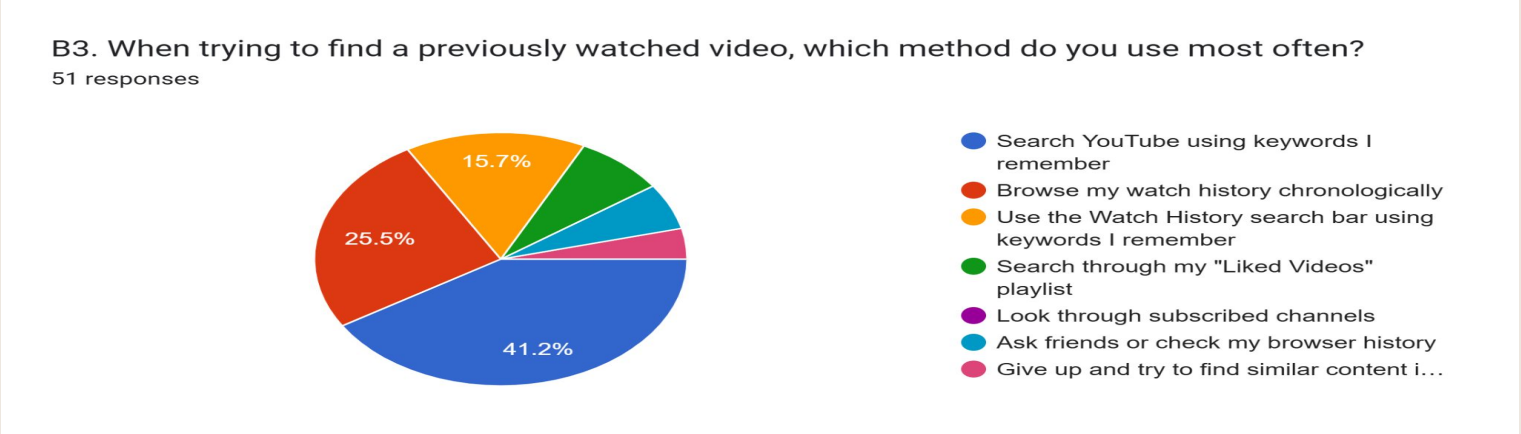

Figure 9 shows that the majority of participants (41.2%) rely on YouTube's main search function using remembered keywords rather than utilizing dedicated history features. Chronological browsing of watch history is the second most common approach at 25.5%, followed by using the Watch History search bar at 15.7%. Alternative methods are less popular, with 7.8% searching through liked videos, 5.9% consulting external sources like friends or browser history, and 3.9% abandoning their search entirely. This pattern reveals that users primarily depend on general search functionality over specialized history tools, suggesting either limited awareness of history-specific search features or preference for the familiar main search interface when attempting to relocate previously watched content.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

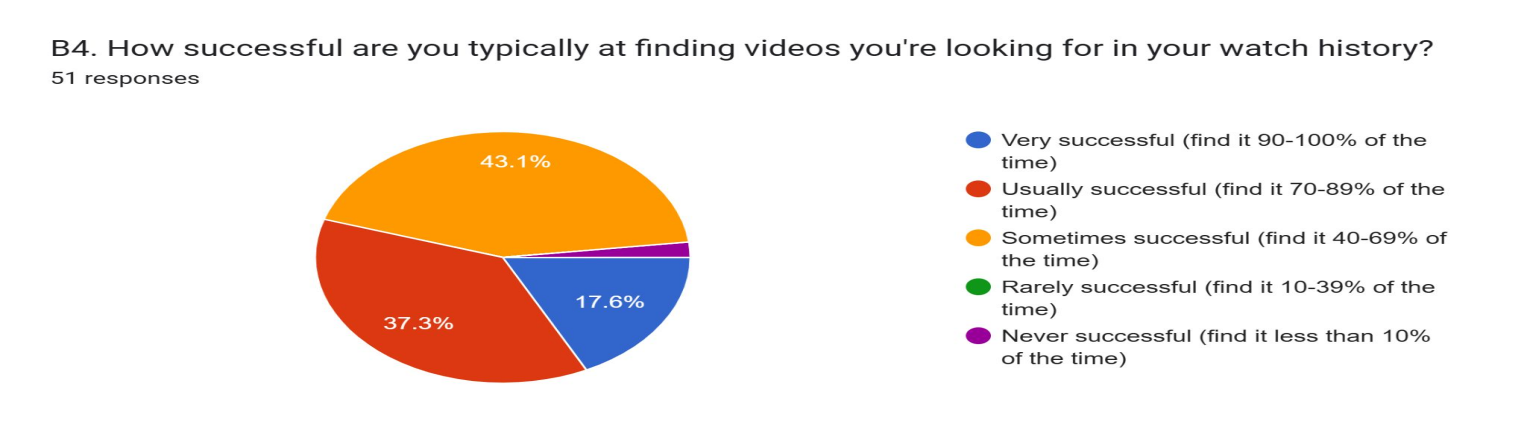

Figure 10 shows participants report moderate success rates when searching for videos in their watch history. The largest group (43.1%) experiences inconsistent results, finding videos only 40-69% of the time. About 37.3% are usually successful with 70-89% success rates, while 17.6% report very high success rates of 90-100%. Only a small minority struggle significantly, with 2% rarely successful and no participants reporting complete failure. Overall, just over half of users (54.9%) achieve success rates of 70% or higher, while 45.1% experience more limited success. This distribution suggests that while the Watch History feature works well for some users, a substantial portion faces challenges in reliably locating previously watched content.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

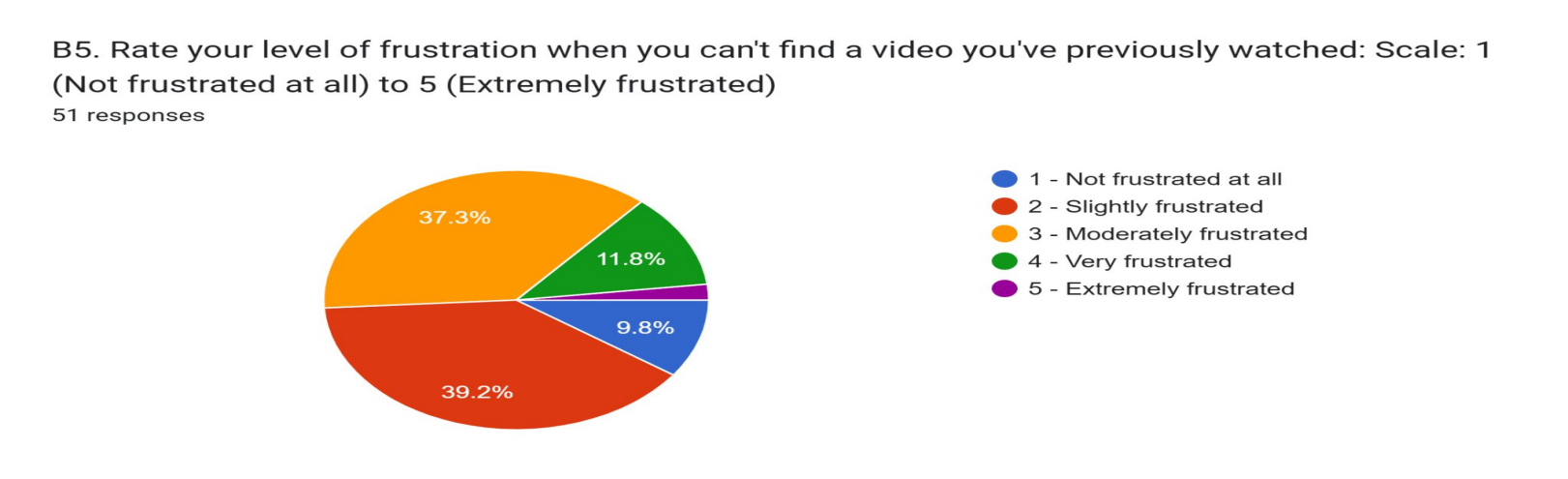

Figure 11 shows that most participants experience some level of frustration when unable to locate previously watched videos, with 39.2% reporting slight frustration and 37.3% experiencing moderate frustration. High frustration levels are less common, with 11.8% very frustrated and 2.0% extremely frustrated. Only 9.8% report no frustration at all when facing this issue. The data shows that 76.5% of users experience at least slight to moderate frustration, indicating that unsuccessful video retrieval is a meaningful pain point for the majority of YouTube users, though extreme emotional responses remain uncommon.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

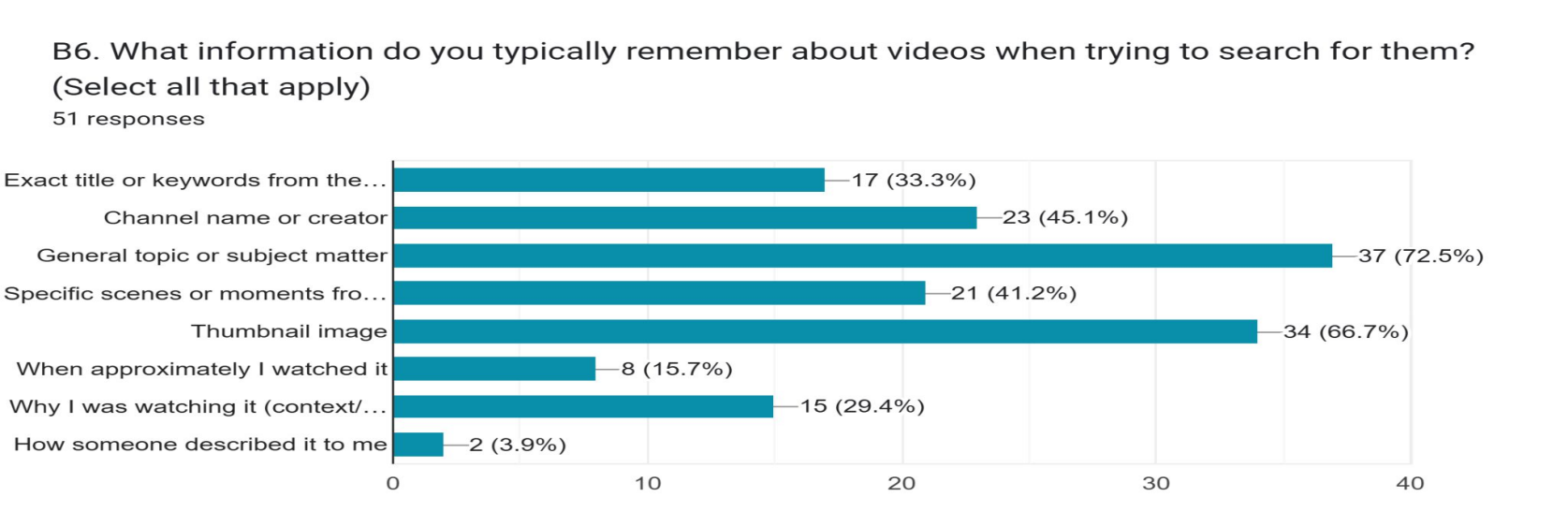

Figure 12 shows that general topic or subject matter is the most commonly remembered information, selected by 37 of 51 participants (72.5%). Visual memory is also strong, with 34 participants (66.7%) remembering thumbnail images. Channel identification follows at 23 participants (45.1%), while 21 participants (41.2%) recall specific scenes or moments from videos. Exact titles or keywords are remembered by 17 participants (33.3%), and contextual information about why they watched is recalled by 15 participants (29.4%). Temporal memory is weaker, with only 8 participants (15.7%) remembering when they watched videos. External descriptions are least memorable, with just 2 participants (3.9%) recalling how someone described the video to them. This multi-select data shows users primarily rely on topical and visual memory cues when searching for previously watched content.

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

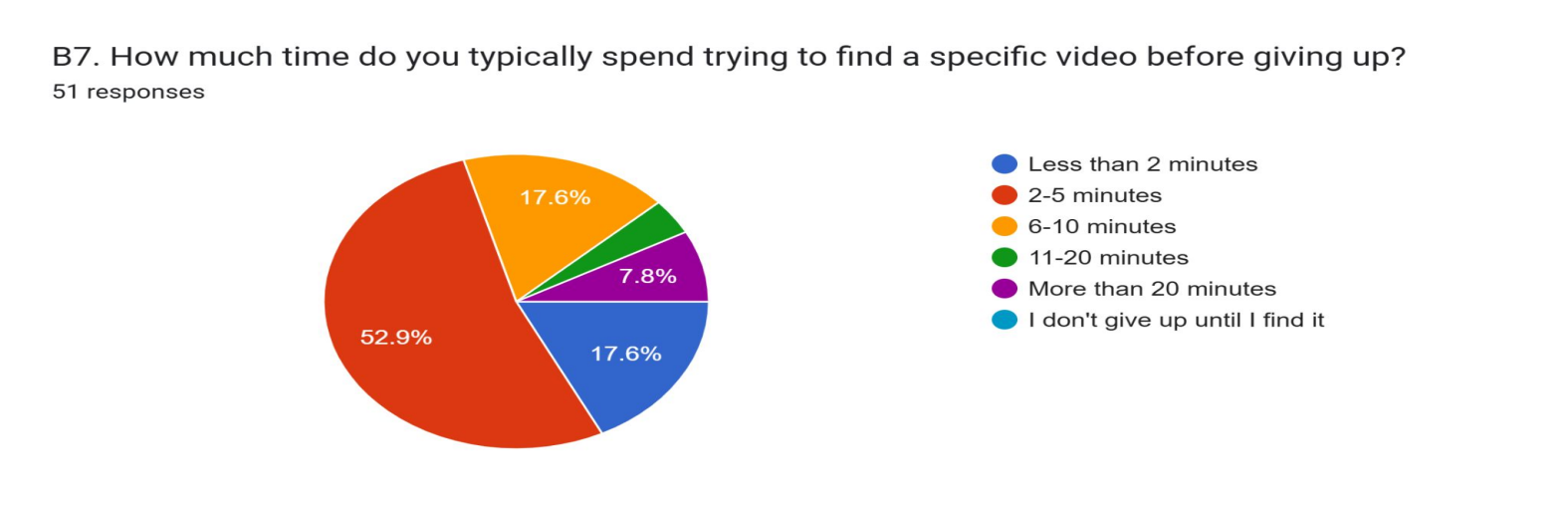

Figure 13 shows that the majority of participants (52.9%) spend 2-5 minutes searching for a specific video before abandoning their search. Equal proportions (17.6% each) either give up quickly (less than 2 minutes) or persist for 6-10 minutes. A smaller group (7.8%) extends their search to 11-20 minutes, while 2.0% spend more than 20 minutes searching. Notably, 2.0% of users report never giving up until they find the video they're looking for. This distribution shows that most users have moderate patience for video searching, with the 2-5 minute range representing the typical threshold before frustration leads to abandonment of the search effort

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02| Questionnaire Findings.

Section B: History Search Experience (8 questions)

B8. Describe a recent situation where you couldn't find a YouTube video you had watched before. What were you looking for, and what made it difficult to find? *[2-3 sentences]* 30 responses

Codes / Themes Identified:

Most participants struggled because they couldn't recall the exact **title, channel, or keywords**, which made search results either too broad or irrelevant. Others relied on **scrolling history**, but found it slow and often unsuccessful. A few mentioned that the **video seemed removed or unavailable**, while some specifically highlighted the challenge of finding **music videos or remixes** when only partial lyrics or vague memories were available. A minority recalled videos mainly by **visuals or scenes** instead of text. Only one participant said they never had this problem, and a few gave no response.

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02| Questionnaire Findings.

Section C: Preferences and Accessibility (3 questions)

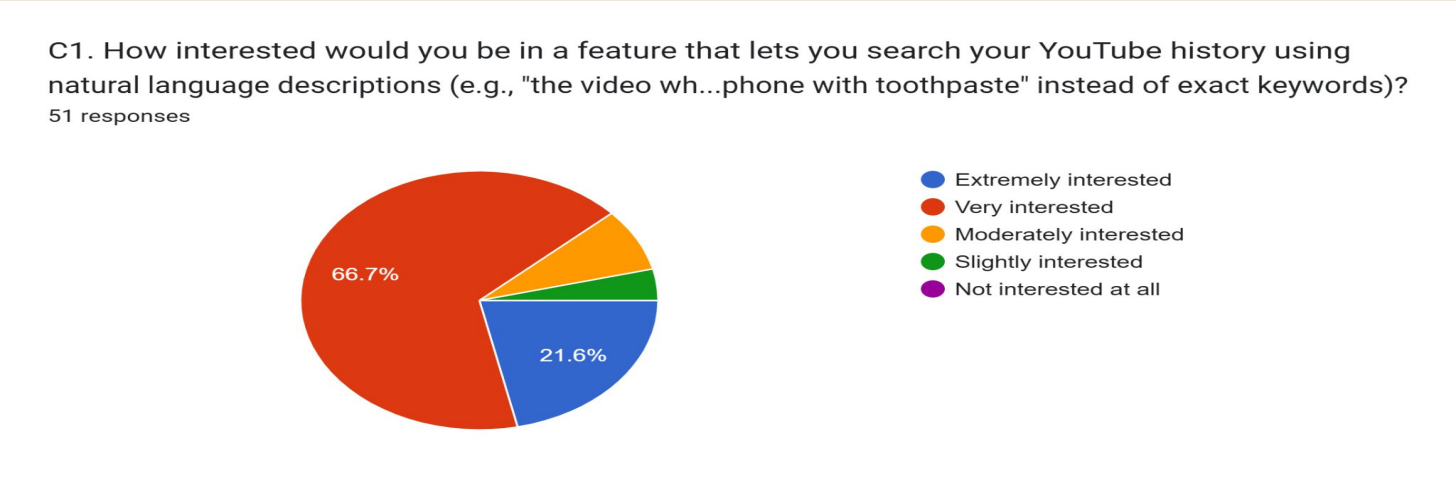

Figure 14 shows there is overwhelming interest in a natural language search feature for YouTube history, with 88.3% of participants expressing high enthusiasm (21.6% extremely interested, 66.7% very interested). Only 7.8% show moderate interest, while 3.9% are slightly interested and no participants report being completely uninterested. This strong positive response suggests that users recognize the limitations of current keyword-based search methods and see significant value in being able to describe videos using natural, conversational language rather than having to recall exact titles or keywords. The feature appears to address a genuine user need for more intuitive video retrieval methods.

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02| Questionnaire Findings.

Section C: Preferences and Accessibility (3 questions)

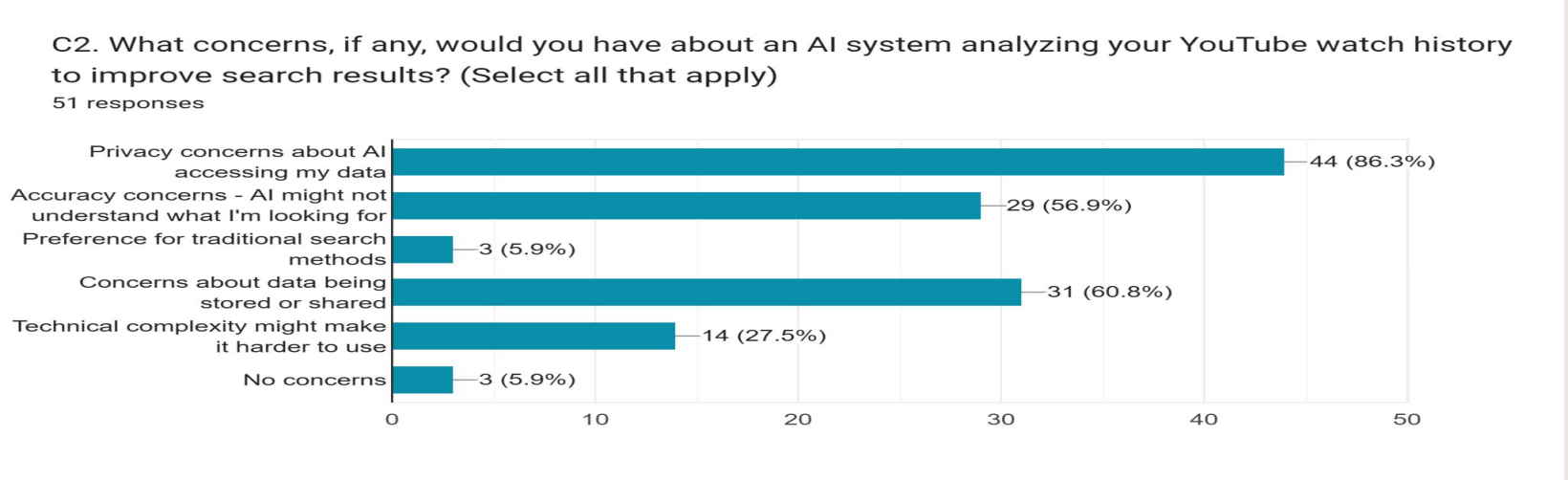

Figure 15 shows that privacy concerns dominate user apprehensions, with 44 of 51 participants (86.3%) worried about AI accessing their data. Data storage and sharing concerns follow at 31 participants (60.8%), while accuracy issues affect 29 participants (56.9%) who worry the AI might misunderstand their search intent. Technical complexity concerns are expressed by 14 participants (27.5%), fearing the system might be difficult to use. Only 3 participants (5.9%) prefer traditional search methods, and an equal number (5.9%) have no concerns at all. This multi-select data reveals that while users are interested in AI-powered search features, significant privacy and data security concerns exist that would need to be addressed for successful adoption among the 51 respondents.

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02| Questionnaire Findings.

Section C: Preferences and Accessibility (3 questions)

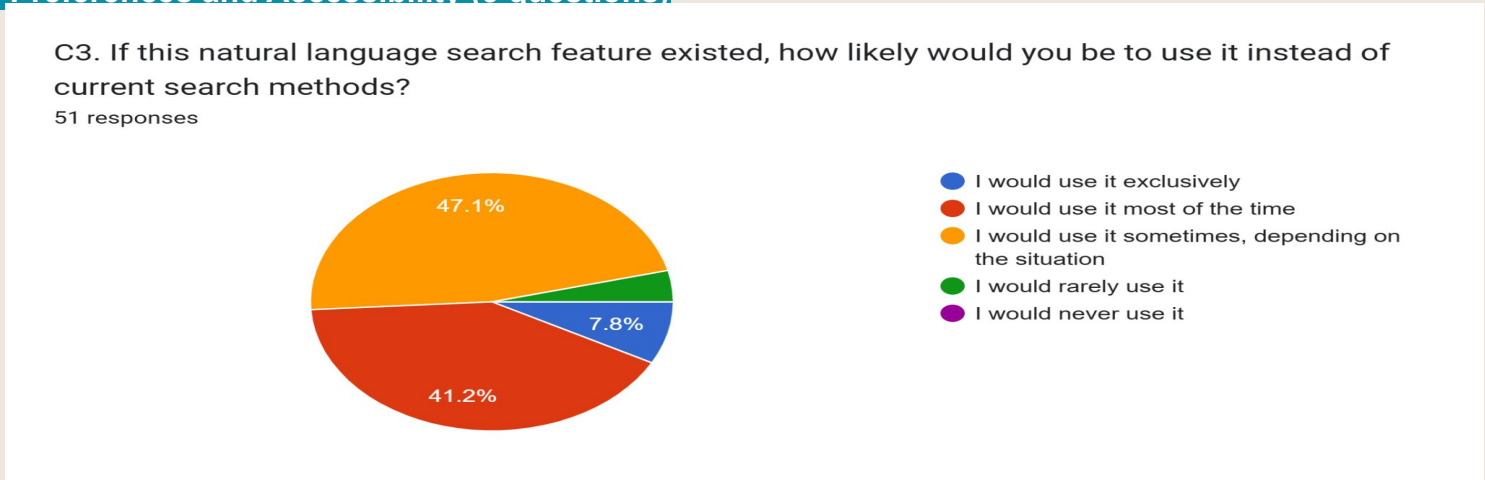

Figure 16 shows that Nearly half of participants (47.1%) would use the natural language search feature situationally, while 41.2% would adopt it as their primary search method most of the time. Only 7.8% would use it exclusively, and minimal resistance exists with 3.9% rarely using it and no participants completely rejecting the feature. The combined 88.3% who would use it most of the time or situationally indicates strong adoption potential, suggesting users see natural language search as a valuable complement to existing methods rather than a complete replacement. This pragmatic approach reflects users' recognition that different search scenarios may benefit from different search strategies.

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03| Interview Findings.

1. Tell me about your YouTube usage habits. How often do you watch YouTube, and what types of content do you typically watch? 50 responses

1. Usage Frequency Categories

- **Daily users (watch every day / multiple hours daily):** ~30 responses
- **Several times per week (2–5 times/week):** ~14 responses
- **Occasional users (once/twice a week or rarely):** ~6 responses

Summary: The majority are **daily users**, often for multiple hours, either actively watching or having videos run in the background. A smaller group watches a few times weekly, and very few use YouTube rarely.

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03| Interview Findings.

1. Tell me about your YouTube usage habits. How often do you watch YouTube, and what types of content do you typically watch? 50 responses

2. Types of Content Watched (grouped into themes)

- **Entertainment (music videos, vlogs, memes, lifestyle, commentary):** ~25
- **Educational / School-related (lectures, study tips, tutorials, research help, coding, lesson ideas):** ~16
- **Practical How-To (DIY, cooking recipes, repairs, product reviews):** ~15
- **News / Current Events / Documentaries:** ~10
- **Sports (football, cricket, highlights, fitness):** ~6
- **Faith/Devotionals/Gospel content:** ~4
- **Professional / Career Development (business tips, marketing, productivity, financial advice):** ~6

Summary: Content consumption is diverse, but the strongest clusters are **entertainment/music**, **educational/tutorials**, and **practical life help** (recipes, repairs, product reviews).

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03| Interview Findings.

1. Tell me about your YouTube usage habits. How often do you watch YouTube, and what types of content do you typically watch? 50 responses

3. Combined Insight

- **YouTube is part of daily routines** for most (background entertainment, study aid, or work resource).
- **Entertainment and learning** are the two dominant drivers of use.
- **Frustrations with recall** which makes sense, since people jump across a wide variety of topics (e.g., music, tutorials, sports, faith), making it harder to track down specific videos later.

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03| Interview Findings.

2. Can you walk me through what happens when you're trying to find a video you've watched before but can't remember the exact title? 50 responses

Summary of Findings

- **Most users rely on keyword searches and scrolling history.** However, both methods are hit-or-miss, especially when memory is fuzzy or watch history is long.
- **Visual recall (thumbnails, scenes)** plays a huge role in recognition — people often search until they “see” something familiar.
- **Frustration is common.** Many abandon the search altogether if they don’t find the video quickly.
- **Workarounds exist,** like liked videos, playlists, subscriptions, or external Google searches, but these aren’t reliable or systematic.

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03| Interview Findings.

3. When you're trying to remember a video, what details typically come to mind first? 50 responses

Summary of Findings

- **Most participants remember the topic or subject matter first.** People think in broad categories like “the food being cooked” or “the math trick.”
- **Visual memory (thumbnail, face, color)** is the second most common recall aid. Users strongly rely on recognition of familiar visuals.
- **Identity cues** (creator’s face, voice, or channel) are also important.
- **Music/video audio cues** are a strong recall trigger for music-related searches.
- Some participants remember **specific objects, tools, or results** that stood out.
- A few tie memory to **religious or school-related context**.
- Others skip memory and go straight to **navigation behaviors** like history or playlists.

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03| Interview Findings.

4. Give a short/concise breakdown/description of how you would try to find videos in your history? 49 responses

Summary of Findings

- **Most common strategy:** Scrolling through history (often time-consuming and frustrating).
- **Second most common:** Keyword search in history, though many users find it ineffective because titles don't match their memory.
- **Many combine both methods:** Start with keyword search, then revert to scrolling.
- **Other cues used:** Thumbnails, remembered dates, or partial channel names.
- **Frustration is real:** Several participants noted annoyance, fatigue, or giving up when videos can't be found.
- **Some use alternatives:** Google search, liked videos, or playlists—but only if they remembered to save the video in advance.
- **Edge case:** At least one user has history turned off, making recovery impossible.

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03| Interview Findings.

5. If you could design the perfect way to search through your YouTube history, what would that look like? 49 responses

Summary of Findings

- **Most common wish:** Smarter search that works with natural language (describe what you remember instead of exact words).
- **Voice search** was popular among multiple users, often tied to convenience ("just say what I remember").
- **Filters** (by category, date, video length, or channel) were also requested frequently, showing a desire for more structured ways to navigate history.
- **Folders, tags, and bookmarks** highlight that users want more manual control over organizing their watched content for easy retrieval.
- Several users emphasized **better visuals and layout** (bigger thumbnails, timelines, highlights) to make history scanning faster.
- A few mentioned **caption/transcript search** as a powerful way to find specific videos.
- Some **unique or niche ideas** like "most rewatched videos" or automatic "history playlists" popped up but were less common.
- Only one participant said they weren't sure how to improve it.

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04| Secondary Data Analysis/Document Review Findings.

As part of our secondary data gathering, we reviewed existing studies that examined YouTube content through different lenses. Deghani et al., 2025, and Ebardo et al., 2020, focused on how natural language processing (NLP) and sentiment analysis could improve Youtube's ranking system, highlighting how algorithms shape the way users discover and engage with videos. Compared with our primary findings from group interviews and online surveys where participants expressed strong interest in entertainment, music, and educational content, the secondary data emphasizes a broader, system-level perspective. It shows how YouTube data is not only about individual viewing habits but can also be harnessed for technological innovation and professional research across different fields. Shen, 2021, conducted a study where participants lauded YouTube for its search algorithm, they described how its quickness and ease of use positively impacts User Experience by saving time, helping users achieve their goals and aid in interface organization. Our goal is to extend these benefits to the Watch History search and make that part of the platform more efficient.

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05| Data Analysis and Interpretation Submission Items.

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06| What was learnt from the Study?

The Youtube user behavior study of 51 respondents reveals several key insights about video re-discovery patterns and preferences. What was learnt and will prove valuable to research when developing a solution includes:

1. **Search Method Limitations:** The Study reveals a concerning gap between user needs and available tools. Users primarily rely on Youtube's main search function 41.2% rather than specialized history features with only 54.9% achieving reliable success rates above 70%. Also majority of users 52.9% give up searching after just 2-5 minutes, with 76.5% in total experiencing frustration when unsuccessful.

2. **Memory Patterns:** Users predominantly remember general topics (72.5%) and visual elements like thumbnails (66.7%) rather than exact titles (33.3%) or temporal information (15.7%), creating a fundamental mismatch with keyword-based search systems.

3. **Solution Demand:** There is exceptional interest in natural language search capabilities, with 88.3% expressing high enthusiasm and equal percentages willing to adopt such functionality. Users envision this as a situational tool (47.1%) rather than complete replacement, suggesting pragmatic adoption patterns.

In summary The study demonstrates a clear market need for improved YouTube history search functionality that bridges the gap between how users naturally remember content (descriptive, visual) and current search capabilities (keyword-based).

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07| What tasks, problems, or opportunities were uncovered during your research?

During the group interviews, a challenge we faced was that some participants had difficulty expressing themselves, which limited the depth of the responses we received. It was also a bit challenging to gather a wider variety of participants in terms of age, which may have influenced the range of perspectives we were able to collect. On the secondary data analysis we had some difficulty in finding studies that had done exactly what we are trying to achieve or similar to what we had done in the interviews or questions in the survey. This showed that not much research had been done on this and our study can provide new insights.

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08| Were there difficulties establishing rapport or getting the desired information?

Overall, the group worked well together, maintaining good rapport and collaborating effectively to complete the required tasks. We also built positive rapport with most participants during data collection; they were comfortable enough to engage with us, answer our questions, and articulate their thoughts to the best of their ability. Gathering data through the questionnaire posed no major difficulties, as participants were generally willing to complete it, especially since most of the questions were closed-ended. However, they were more hesitant with the single open-ended question, and this hesitancy carried over into the interview stage. Many participants declined to take part in the interview, likely because it was fully open-ended and required more time, and those who did participate sometimes struggled to express their thoughts in detail. For our third method, *Secondary Data Analysis and Document Review*, we found it challenging to source studies directly aligned with our proposed solution. As a result, we had to adapt by reviewing adjacent research, such as analyses of YouTube's search functionality and studies on AI semantic and natural language search.

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09| At the end of the presentation/document you should also include a discussion of the *high-level patterns, themes* and *problems* that the participants shared. Do these patterns, themes or problems suggest tasks that are important for the proposed improved design?

Based on the finding from the participants key patterns themes and problems were observed.
Major Patterns observed were:
Pattern 1: Frequent Re-Discovery Behaviour- a dominant pattern emerged showing that 70.6% of users in total regularly attempt to re-find previously watched (daily or several times weekly). This frequent behaviour demonstrates that video re-discovery is not an occasional need but a fundamental user activity that warrants dedicated design attention.

Pattern 2: Memory-Search method Mismatch - Users predominantly remember videos through general topics (72.5%) , visual cues like thumbnails(66.7%) and content descriptions rather than exact titles (33.3%) or temporal information. However, current search methods require keyword precision. Hence, the proposed design must accommodate natural, description-based recall rather than forcing users to remember specific keywords.

Pattern 3: Tool Awareness vs. Tool Usage Gap - Despite 96.1% awareness of the Watch History feature, users overwhelmingly default to the main YouTube search function (41.2%) rather than specialized history tools (15.7% use Watch History search bar). This gap indicates that existing tools either lack discoverability, usability, or perceived effectiveness. The improved design must integrate seamlessly into user workflows and demonstrate clear value over general search.

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09| At the end of the presentation/document you should also include a discussion of the *high-level patterns, themes* and *problems* that the participants shared. Do these patterns, themes or problems suggest tasks that are important for the proposed improved design?

Major themes observed were:

Theme 1:Time Sensitivity and User Patience - The majority (52.9%) abandon searches within 2-5 minutes, with frustration levels rising significantly (76.5% experience at least moderate frustration). This theme reveals that users have limited patience for inefficient search processes, likely because they know the video exists somewhere in their history. The design must deliver rapid results to prevent abandonment and maintain user engagement.

Theme 2: Contextual Flexibility Over Rigid Methods Users envision adopting natural language search situationally (47.1%) rather than exclusively (7.8%), suggesting they recognize different search scenarios require different approaches. This theme indicates users want flexibility and choice rather than a one-size-fits-all solution. The design should offer multiple search modalities that users can select based on their specific needs.

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09| At the end of the presentation/document you should also include a discussion of the *high-level patterns, themes* and *problems* that the participants shared. Do these patterns, themes or problems suggest tasks that are important for the proposed improved design?

Major Problems observed:

Problem 1: Low Search Success Rates Only 54.9% of users achieve reliable success rates above 70%, with 43.1% finding videos only 40-69% of the time. This represents a significant usability problem where the majority of users cannot consistently locate content they know exists in their history. The improved design must dramatically increase search accuracy and relevance to address this fundamental failure of current systems.

Problem 2: Insufficient Support for Visual Memory Users strongly rely on visual memory (66.7% remember thumbnails, 41.2% remember specific scenes), yet current text-based search systems don't leverage this. This problem suggests the design should incorporate visual search capabilities, thumbnail-based browsing, or scene recognition to align with how users naturally encode video memories.

Problem 3: Lack of Contextual Search Options Users remember various contextual details - channel names (45.1%), why they watched content (29.4%), and specific moments (41.2%) - but cannot effectively search using these diverse memory types. The problem is that current systems offer limited search dimensions. The proposed design should support multi-dimensional queries that combine topics, channels, timeframes, and contextual descriptions.

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10| References.

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THANKS!

Do you have any questions for us?

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