Critical Inquiry Topics
Semester 2 AY2023/2024

Project ID	Project Title	Supervisor
AC-01	Analysis of communities	Alton Chua
AC-02	Analysis of user-generated content	Alton Chua
AC-03	Deception on social media	Alton Chua
AC-04	Rumors and rumor denials	Alton Chua
AC-05	Reduction of Confirmation Bias	Alton Chua
AC-06	Bias Unveiled: A Comparative Analysis of AI Chatbots	Alton Chua
AH-01	Any issues/topics in Singapore	Adrian Heok
AH-02	Public health issues in new media	Adrian Heok
AH-03	Fake News	Adrian Heok
AH-04	Design thinking at work	Adrian Heok
AH-05	LGBTIQ issues in social media	Adrian Heok
AH-06	Ethics in Knowledge Management	Adrian Heok
AH-07	Technology facilitated violence & abuse	Adrian Heok
BK-01	Leading through stories	Brenda Lee
BK-02	Leadership through storytelling	Brenda Lee
BK-03	Storytelling in speechmaking for an occasion	Brenda Lee
BK-04	Storytelling in speechmaking during a crisis	Brenda Lee
BK-05	Leading in a crisis through stories	Brenda Lee
BK-06	Virality of Stories	Brenda Lee
BK-07	Storytelling on Video	Brenda Lee
BK-08	Leadership in Literature	Brenda Lee
BL-01	The Social Context of Libraries and Librarians	Brendan Luyt
BL-02	Understanding Wikipedia as a social technology	Brendan Luyt

Project ID	Project Title	Supervisor
BL-03	Domain analysis of academic disciplines or sub-disciplines	Brendan Luyt
CK-01	Analytics of Crime and Sentencing Information from the Singapore State Courts	Chris Khoo
DG-01	Understanding perceptions of deepfakes	Dion Goh
DG-02	Designing games for deepfake identification	Dion Goh
DG-03	Understanding perceptions of safety in the metaverse	Dion Goh
DG-04	Understanding generative AI usage patterns	Dion Goh
DG-05	Perceptions of generative AI at work and play	Dion Goh
FT-01	The Value and Impact on a Business' revenues through the use of Digital Proximity Solutions	Francis Tay
FT-02	Customer Intelligence collection methods and analysis	Francis Tay
FT-03	Digital Transformation	Francis Tay
FT-04	Data Analysis in the Workplace	Francis Tay
FT-05	Data Analytic Tools	Francis Tay
FT-06	Intelligent Automation Solutions and Tools	Francis Tay
HO-01	Investigating hallucination and misinformation from large language models use	Hamzah Osop
HO-02	Improving LLMs with knowledge bases	Hamzah Osop
HO-03	Investigating health misinformation in social media content	Hamzah Osop
JP-01	Evaluating deepfake detection algorithms	Jonathan Pan
JP-02	Security Audit using LLM	Jonathan Pan

Project ID	Project Title	Supervisor
JS-01	Perception and use of libraries	Joanna Sin
JS-02	Everyday life information behaviour	Joanna Sin
JS-03	Information inequality: Status, effects, and remedies	Joanna Sin
JS-04	Trending topics in Library and Information Science	Joanna Sin
LCK-01	Porting the arXif dataset into Neo4j	Lee Chu Keong
LCK-02	Porting the movies dataset into Neo4j	Lee Chu Keong
LCK-03	Vertical farming: A bibliometric analysis	Lee Chu Keong
LCK-04	Storage of Family Tree Information Using Neo4J	Lee Chu Keong
LCK-05	Storage of Research Publications Using Neo4J	Lee Chu Keong
LCS-01	Social Media for Teaching and Learning – The Future	Lee Chei Sian
LCS-02	Investigating Crowdsourcing	Lee Chei Sian
LCS-03	Making sense of social media data	Lee Chei Sian
LCS-04	Effects of Cute Aesthetics Interface Design	Lee Chei Sian
LCS-05	Investigating Digital Nudging Applications	Lee Chei Sian
LGP-01	Case study of sustainability informatics in organizations	L. G. Pee
LGP-02	Critical success factors of sustainability information management in organizations	L. G. Pee
LGP-03	Survey of sustainability information management in organizations	L. G. Pee
LGP-04	Use of generative artificial intelligence (AI) in organizations	L. G. Pee
LGP-05	Use of generative artificial intelligence (AI) by professionals	L. G. Pee

Project ID	Project Title	Supervisor
NJC-01	Sentiment Analysis of Social Media Content	Na Jin Cheon
NJC-02	Analysis of Online Discussions about Emerging Subjects in Singapore	Na Jin Cheon
NPS-01	Understanding the library trends in post-pandemic period	Nirmal Prabu S/O Sangar
NPS-02	Ensuring Accessibility in Libraries: Strategies and Tools for Providing Equitable Access to Information and Services	Nirmal Prabu S/O Sangar
RSD-01	Adaptive Knowledge Management Strategies for Post-Covid Business Resilience	Rajesh Singh Dhillon
RSD-02	Fostering Sustainable Knowledge Management to Prevent Knowledge Loss	Rajesh Singh Dhillon
RSD-03	Optimizing Knowledge Management to Enhance Productivity in Distributed Work Environments	Rajesh Singh Dhillon
RSD-04	The Impact of DEI Initiatives on Knowledge Sharing within Multinational Corporations	Rajesh Singh Dhillon
RSD-05	Artificial Intelligence and Ethical Knowledge Management	Rajesh Singh Dhillon
RSD-06	Leveraging Generative AI for Enhanced Knowledge Creation and Innovation in Organizations	Rajesh Singh Dhillon
RSD-07	Optimizing Supply Chain Dynamics through Information & Knowledge Management Integration	Rajesh Singh Dhillon
RSD-08	Knowledge Management for Organizational Readiness and Resilience: Navigating Opportunities, Challenges, and Innovations	Rajesh Singh Dhillon
RSD-09	Leveraging Knowledge Management for Impactful and Sustainable Philanthropy	Rajesh Singh Dhillon
RSD-10	Knowledge Management in Non-Profit Organizations: Enhancing Impact and Efficiency	Rajesh Singh Dhillon
TYL-01	Trend Analysis of Metaverse Technology by Altmetrics and Bibliometrics	Theng Yin Leng
TYL-02	Emerging Jobs and Skills Prediction & Visualisation	Theng Yin Leng
TYL-03	Associations between Environmental Characteristics and Cognitive Functioning	Theng Yin Leng
TYL-04	Improving Intergenerational Communication and Bonding through Applying Video-mediated Communication and Simultaneous Gameplay	Theng Yin Leng

Project ID	Project Title	Supervisor
TYL-05	Conceptualisation of Self-administered Multidimensional Frailty Screening Tools	Theng Yin Leng
TYL-06	Use of Gamification to Promote Medication Adherence through Patient Education	Theng Yin Leng
TYL-07	The effects of gamified interventions on physical and cognitive frailty in community-dwelling older adults: A systematic review and meta-analysis	Theng Yin Leng

AC-01: Analysis of communities

This project requires students to analyze the relationship patterns among members of an online community. Members therein may transcend geographical and cultural boundaries but are bound together to pursue mutual goals or interests. The goal of this project is to study how members are brought together, and how they co-create content for the community. Students undertaking this project need to be conversant with the use of a web crawler.

AC-02: Analysis of user-generated content

The advent of Web 2.0 has promoted active user participation. Users can now easily contribute their own content, as well as comment on others'. This project requires students to collect and analyze user-generated content. The goal is to identify themes in the content and examine the interaction patterns among users. Students undertaking this project need to be familiar with web crawling and content analysis.

AC-03: Deception on social media

Deceptions on social media have become increasingly prevalent. This project seeks to better understand the ways in which deceptions present themselves, and how users can fall prey into these deceptions. Students undertaking this project need to be familiar with basic statistical techniques.

AC-04: Rumors and rumor denials

With the rise of the Internet, false rumors are ubiquitous. As a way to combat falsehood, some users and organizations develop rumor denial messages. For rumor denials to be effective, they must be shared. This project studies the factors which affect the virality of rumor denials. Students undertaking this project need to be familiar with basic statistical techniques.

AH-01 Any issues/topics in Singapore

AH-02 Public health issues in new media

AH-03 Fake News

AH-04 Design thinking at work

AH-05 LGBTIQ issues in social media

AH-06 Ethics in Knowledge Management

AH-07 Technology facilitated violence & abuse

Please email the lecturer at adrian.heok@ntu.edu.sg to enquire if interested.

Lecturer and students will develop the topic together.

BK-01: Leading through stories

Howard Gardner says that every great leader is a great storyteller. Much of this great storytelling skill is evident in the speeches of the great leader. In this project, students will select a notable woman leader in business or in politics, and study her speeches over the course of her leadership. The goal of the study is to determine the extent of the leader's story use, uncover the types of story that the leader tells, and if possible, examine the effects of story choice on leadership.

BK-02: Leadership through storytelling

Howard Gardner says that every great leader is a great storyteller. Much of this great storytelling skill is evident in the way the great leader communicates, whether orally or in writing or in some other form. In this project, students will select a notable leader, whether in business or in politics, and study his various modes of communication in the context of his leadership. The goal of the study is to determine the leader's use of storytelling in his leadership.

BK-03: Storytelling in speechmaking for an occasion

This project will analyse the use of storytelling in speechmaking for one type of occasion. Students keen on this project will focus on a select group of leaders who are well-known for their speeches. The goal of the project is to uncover story types and storytelling strategies used by great speakers for that occasion of choice.

BK-04: Storytelling in speechmaking during a crisis

This project will analyse the use of storytelling in speechmaking during a crisis, whether personal or organisational. Students keen on this project will focus on a number of leaders in business and/or in politics, and study the stories they tell in their speeches to frame/reframe the crisis. The goal of the project is to uncover story types and storytelling strategies used by leaders during times of crisis.

BK-05: Leading in a crisis through stories

Howard Gardner says that every great leader is a great storyteller. Much of this great storytelling skill is evident in the way the great leader communicates, whether orally or in writing or in some other form. In times of crisis, the leader's skill in using storytelling as a communication tool becomes all the more critical.

In this project, students will take the climate change as a crisis under study, select key leaders from various spheres of influence, and study the stories they tell in various modes of communication for climate change. The goal of the study is to survey the

development of the climate change story as it emerges and evolves to its current status.

BK-06: Virality of Stories

Students keen on this project will collect a repertoire of stories fulfilling a range of characteristics from a particular domain of their interest, and conduct a survey on the type of story that is most- shared. The goal of the project is to determine the factors that promote virality of stories.

BK-07: Storytelling on Video

Students keen on this project will take a story filmed on video that has attracted a significant amount of traffic, and analyse the attitudinal response of viewers to the story from the comments posted on major social media platforms. The goal of the project is to determine story impact and uncover storytelling strategies used in the video that have contributed to its virality, and if possible, measure the subjective effect of the emotional value of the story on the viewers in objective terms.

Students can select more than one video on a particular topic.

BK-08: Leadership in Literature

According to Shoup and Hinrichs (2020), great literature can serve as tutors and mentors in the ways of leadership, equipping leaders and managers with the knowledge and skills to navigate the drama of leadership and engage in meaningful sensemaking to help organizations thrive. The plot and characterizations in novels, novellas, and short stories can act as simulations of real-world situations, fostering empathic growth and prosocial behavior in real-world interactions, equipping readers to properly and adequately handle the often-tangled knot of real-life problems and personalities and improve their social-inference skills.

Students keen on this project will read fiction drawn from the canon of great literature, and elicit key insights useful for effective, empathetic, and ethical leadership.

BL-01: The Social Context of Libraries and Librarians

Libraries and librarians are integral parts of a wider social landscape which shapes and filters their image, policies and general discourse. This project would see students examine some aspect of the relationship with libraries, past or present, and this wider environment.

BL-02: Understanding Wikipedia as a social technology

Wikipedia is much maligned in information studies circles as an inaccurate and even dangerous source of information. However, those studies which have been done suggest that its accuracy is comparable to more traditional encyclopedias. What is perhaps of more interest is the social dynamics of the organization as it represents a novel and collective approach to the dissemination of knowledge. Students undertaking projects in this area would examine, with the aid of the instructor, various aspects of these dynamics.

BL-03: Domain analysis of academic disciplines or sub-disciplines

Knowledge is generated by people working within various disciplinary traditions. The study of these traditions is important in order to develop a deeper theoretical and practical understanding of how people look for and use information. The domain analytic approach is one way to study the knowledge traditions of a discipline. In this project students would apply this approach to particular academic disciplines or sub-disciplines.

DG-01: Understanding perceptions of deepfakes

This project investigates deepfakes, videos that replace a person's face with another. Studying deepfakes is important as people become more dependent on various online information services and could fall prey to misinformation. This project will study how people perceive and respond to deepfakes. Topics include the extent to which deepfakes are believable, why people fall prey to them, and how they verify the authenticity of videos.

DG-02: Designing games for deepfake identification

There are two options for this project. The first is to design an educational game to teach people about deepfakes and how to identify them. The second is to design a crowdsourcing game in which people spot deepfakes among videos found online as a warning to others about potential sources of misinformation. In both options, groups can either focus on low fidelity prototyping (using storyboarding, i.e. no programming) or high fidelity prototyping (i.e. programming). This project is thus suitable whether groups have coding skills or not.

DG-03: Understanding perceptions of safety in the metaverse

The metaverse refers to virtual/online spaces where people can create and explore with other people. Although the technology is emerging and potentially useful, concerns about safety and wellbeing are already raised by researchers, end-users and policymakers. The goal of this project is to investigate perceptions of safety about potential metaverse users and how to keep them safe from such concerns. Possible topics include identify possible harms in relation to personal safety among different groups (e.g. children or females), how to encourage safety and welbeing, and proposing types of measures that could be taken. Research methods may include interviews, surveys and systematic literature reviews.

DG-04: Understanding generative AI usage patterns

Effective use of generative AI requires appropriate prompts. Groups will select a freely accessible generative AI system with the goal of uncovering how people use it to create output that meets their needs, focusing on prompts and their refinement over time. Observational and interview methods will be used as part of this project.

DG-05: Perceptions of generative AI at work and play

Given the increasing popularity and advancement of generative AI systems like ChatGPT and Midjourney, there are concerns about how these technologies will impact people's lives and livelihoods. This project aims to investigate how people perceive generative AI in terms of benefits and risks across work, study, home and/or leisure contexts. Both qualitative (e.g. interviews) and quantitative (e.g. surveys) data collections methods are possible with this project.

FT-01: The Value and Impact on a Business' revenues through the use of Digital Proximity Solutions

Students will explore the various ways that businesses can use digital proximity solutions for marketing, customer service, etc. The students will compare how businesses in different markets approach the use of such technologies to have a positive impact on their business.

FT-02: Customer Intelligence collection methods and analysis

Students will look at the array of ways to gather customer intelligence across the various customer touch points. The focus can be on B-to-B or B-to-C business models. Students would develop a framework on what would be a good way to collect customer intelligence for different types of business models.

FT-03: Digital Transformation

Students will research how companies are transforming themselves, if at all. The focus will be on what companies' perception of digital transformation is, what it entails, and are already implementing. Students will write-up case examples as part of their final report.

FT-04: Data Analysis in the Workplace

Students will research what type and level of data analysis is being done, the expectation by companies, and the tools or software used, by employees in companies. The objective is to better understand the job skills expected of employees today and in the future. Students, through interview and surveys, come up with a list of must have skills that employees should have in the future.

FT-05: Data Analytic Tools

Students will do a comprehensive research on the tools available in the market that can be used to conduct basic and advanced data analysis. The objective is to come up with an unbiased toolkit list that can be used by companies for the varying analysis across the value-chain. The final report will be primarily based on secondary research but supplemented with user and/or customer survey.

FT-06: Intelligent Automation Solutions and Tools

Students will research the extent of interest and use of Intelligent Automation solutions in business operations. The focus will be on the awareness, interest and use of solutions and tools like Robotics Process Automation (RPA), Keyboard Automation, WebApps, Virtual Reality (VR) and Augmented Reality (AR). Students will write-up case examples as part of their final report.

HO-01: Investigating hallucination and misinformation from large language models use

Large language models (LLMs) are powerful tools that potentially span various applications. However, issues such as misinformation and fake news tend to mislead users. Despite these issues, its utilisation in healthcare is steadily increasing. This project requires students to analyse freely accessible LLMs and understand the causes and concerns of misinformation in healthcare. This project aims for students to understand how LLMs can be implemented better for healthcare decision support.

HO-02: Improving LLMs with knowledge bases

While LLMs have significantly progressed, improvements are still needed. The size and diversity of training data and the incorporation of knowledge bases have been identified as ways to enhance the performance of LLMs. In this project, students are required to transform medical literature from databases such as PubMed or Nature into a graph database or knowledge base. The aim is for students to study the impact of knowledge bases on the performance of LLMs.

HO-03: Investigating health misinformation in social media content

This project uses analytical and computational techniques to investigate health misinformation circulating on social media.

JP-01: Evaluating deepfake detection algorithms

This project studies and evaluates deepfake detection algorithms (including the use of the popular Transformer models). The ability to detect deepfakes is increasingly important as people increases their consumption of online materials. Deepfakes on online platforms could mislead people with negative consequence. To deal with such misinformation, many researchers have developed deepfake detection algorithms. This project involves the gathering of openly published source codes of such algorithms, the analysis and evaluation of these algorithms. Programming and knowledge of artificial intelligence algorithms will be the prerequisites.

JP-02: Security Audit using LLM

This project involves the development of audit tools that perform cyber security audit using Large Language Models (LLM). Working prototypes and academic report are the expected deliverables for this project. Some knowledge of cyber security will be the prerequisites. The project will provide an opportunity to learn about prompt engineering with LLM.

JS-01: Perception and use of libraries

Nowadays, individuals often turn to sources beyond libraries for their information needs. This project aims to study the perception and use of libraries by a specific group (e.g., adolescents, parents, etc.). Researchers may also focus on a particular type of library (e.g., public, school, or academic libraries). The goal is to identify how libraries can improve and promote their services. The study may examine: How do individuals perceive and use libraries and other sources such as social media platforms? What library services are most valuable to the user group? What services do users want the library to provide or

enhance? What are the demographic, cognitive, affective and contextual factors that contribute to use or non-use?

JS-02: Everyday life information behaviour

The advent of social media and mobile communication has led to an explosion of information being disseminated through many channels. How do individuals stay informed about daily happenings and topics of interest to them? Researchers may focus on a specific demographic group and investigate some of the following areas: Everyday information needs and information barriers; information behaviour on social media; information overload; credibility assessment; or factors affecting users' everyday life information behaviour.

JS-03: Information inequality: Status, effects, and remedies

Recent technological development has not mitigated the unequal access and use of information resources among different user groups. It may even have exacerbated the digital and information divide. In this project, researchers may study specific demographic groups, types and channels of information (e.g., health information, printed materials, the Internet), and geographic scopes. The study may focus on: mapping and charting the status and changes in information inequality; identifying the factors that contribute to unequal access and usage; examining the effects of information inequality on different groups; or exploring practices and policies that address information gaps.

JS-04: Trending topics in Library and Information Science

Research in Library and Information Science (LIS) plays an important role in informing the effective provision of up-to-date library and information services. This topic explores the subjects and issues central to LIS and its subfields. The research may focus on: longitudinal changes in topics discussed in Singapore and worldwide; changing usage of theories and methods in LIS research; and differences in topics covered by scholarly publications and informal channels such as social media.

LCK-01: Porting the arXif dataset into Neo4j

The arXif dataset contains the metadata of over 1.7 million scholarly papers. In this project, students will study the arXif dataset (downloadable from https://www.kaggle.com/datasets/Cornell-University/arxiv and write a Python program to port the data over to a graph database (specifically, the Neo4J database). We will then use the Neo4j database to perform graph theoretic analysis on the collaboration/co-authorship graph.

LCK-02: Porting the movies dataset into Neo4j

The Movies dataset contain the metadata of 45,000 movies. In this project, students will study the Movies dataset (downloadable from https://www.kaggle.com/datasets/rounakbanik/the-movies-datasetand write a Python program to port the data over to a graph database (specifically, the Neo4J database). We will then use the Neo4j database to perform graph theoretic analysis on the dataset.

LCK-03: Vertical farming: A bibliometric analysis

Vertical farming involves growing plants indoors in multi-storied structures. LED lighting is used to control growth and nutrition is carefully monitored. In this project, we will perform a bibliometric analysis of the academic literature of vertical farming.

LCK-04: Storage of Family Tree Information Using Neo4J

In this project, students will explore two things:

1. the possibility of using Neo4J for the storage and retrieval of information related to family trees
2. the visualisation of family trees on the Web using the Django web framework

The deliverable is a basic website that displays family configurations.

LCK-05: Storage of Research Publications Using Neo4J

In this project, students will explore two things:

1. the possibility of using Neo4J for the storage and retrieval of bibliometric information related to academic publications (journal papers, conference papers and monographs)
2. the visualisation of collaborative patterns on the Web using the Django web framework

The deliverable is a basic website that displays collaborative patterns between academics.

The two projects have some overlaps, and the two groups working on the projects are encouraged to collaborate. For more information, please email me at ascklee@ntu.edu.sg.

LCS-01: Social Media for Teaching and Learning

This project examines the use of social and mobile communication media for teaching and learning. Educators are increasingly interested in the social tools available to facilitate engagement and encourage learning. What trends are emerging for teaching and learning? What are the motivations driving educators and students to use some tools? What concerns might be keeping educators and students from using them? How should learning be conducted in the new "normal"?

LCS-02: Investigating Crowdsourcing

Crowdsourcing is the practice of engaging a 'crowd" or a group for a common goal. Put differently, crowdsourcing relies on the power of the crowd and has the ability to draw from the collective memory, expertise and experience of other people. The project will investigate different crowdsourcing approaches/techniques for play and work.

Examples of projects include: (1) Motivations for participating on a crowdsourcing platform. (2) Incentives and mechanisms (including gaming techniques) to motivate participation on a crowdsourcing platform. (3) Exploring the feasibility of crowdsourcing at work. (4) Developing mobile crowdsourcing applications for different contexts of use. (5) Investigating factors influencing quality of participation on a crowdsourcing platform. Students who are interested to explore crowdsourcing can also propose related projects.

LCS-03: Making sense of social media data

This is an interdisciplinary research project that explores the use of computation techniques and analytics to provide insights from social media data.

LCS-04: Effects of Cute Aesthetics Interface Design

This project aims to explore the cognitive and affective effects of cute aesthetics design (mobile and web-based application) on online user behaviors. Specifically, the project will examine how cute aesthetics interface design effects user experiences and usage intention across different demographic profiles and different types of online applications (mobile and web).

LCS-05: Investigating Digital Nudging Applications

This project investigates the notion of digital nudging and explores its effectiveness in changing online and offline behaviors across various contexts.

LGP-01: Case study of sustainability informatics in organizations

LGP-02: Perceptions and expectations of climate change: A survey

LGP-03: Survey of sustainability information management in organizations

LGP-04: Use of generative artificial intelligence (AI) in organizations

LGP-05: Use of generative artificial intelligence (AI) by professionals

Please email the faculty at peelg@ntu.edu.sg to enquire if interested.

NJC-01: Sentiment Analysis of Social Media Content

Sentiment analysis is a type of subjectivity analysis which analyses sentiment in each textual unit with the objective of understanding the sentiment polarities (i.e., positive, negative, or neutral) of the opinions toward various aspects of a subject. The CI group will investigate sentiment analysis of user generated content using machine learning algorithms. Especially, the CI group will explore aspect-based sentiment analysis of social media content using a deep learning approach. Text/Data mining and computer programming skills are required for the project.

NJC-02: Analysis of Online Discussions about Emerging Subjects in Singapore

(check with supervisor for more information)

NPS-01: Understanding the library trends in post-pandemic period

Information about the CI project: The impact of the COVID-19 pandemic on library services has been significant, and these changes are still ongoing. Libraries face a fundamental shift that will extend far into the future and beyond the pandemic. This project requires students to analyse the current technological trends and how it can be mapped to the different libraries, including public and academic libraries. The goal of this project is for students to survey and understand what technological trends are important to patrons and librarians. The results will need to be analysed and assessed on how it can be fed into the Library Management System.

NPS-02: Ensuring Accessibility in Libraries: Strategies and Tools for Providing Equitable Access to Information and Services

The paper should cover:

- What accessibility means in the context of libraries and library systems, including the importance of ensuring that all members of a community have equal access to information and services.
- The barriers that people with disabilities may face in accessing library resources, including physical barriers (such as stairs or narrow aisles) and digital barriers (such as inaccessible websites or online resources).
- Strategies and best practices for ensuring accessibility in libraries, such as creating accessible physical spaces, providing assistive technology and devices, and designing accessible websites and online resources.
- Examples of successful accessibility initiatives in libraries, and the impact these initiatives have had on patrons with disabilities.
- The role of librarians and library staff in promoting accessibility, including the importance of training and education on accessibility issues.

Overall, this topic would allow students to explore the ways in which libraries can promote equity and inclusion by prioritizing accessibility and ensuring that everyone has equal access to information and services.

RSD-01: Adaptive Knowledge Management Strategies for Post-Covid Business Resilience

With the advent of the COVID-19 pandemic, Knowledge Management (KM) has escalated from a strategic advantage to a business imperative due to the dispersed nature of workforces across home settings and traditional workplaces. In this project, students will undertake a deep dive into a chosen industry to dissect and evaluate the KM adaptations that businesses have implemented and should consider persisting or modifying to manage their knowledge assets in a post-pandemic landscape.

Students should evaluate the impact of remote and hybrid work models on KM practices across different industries post-COVID-19, analyze how businesses have adjusted their KM strategies in response to the dispersal of their workforce and identify the challenges and opportunities presented by the pandemic in the context of KM. The findings should include recommend sustainable KM strategies that businesses can implement for long-term resilience and predict future trends in KM that can help businesses prepare for similar disruptions. In addition they can also create a compendium of best practices in KM specifically tailored for a post-pandemic business environment.

RSD-02: Fostering Sustainable Knowledge Management to Prevent Knowledge Loss

In the dynamic post-COVID business landscape, the risk of knowledge attrition has been magnified by remote work and rapid organizational changes, making Sustainable Knowledge Management (KM) not just beneficial but essential for organizational success. This CI topic will explore the concept of Sustainable KM, its critical importance in retaining organizational knowledge, and the strategies to implement it effectively to prevent knowledge loss.

The aim is for students to gain insights into implementing and sustaining KM strategies that are not just beneficial but essential for preventing knowledge loss and securing a competitive advantage in today's fast-paced business environment.

RSD-03: Optimizing Knowledge Management to Enhance Productivity in Distributed Work Environments

KM has regained its stand as an essential part of business efficiency and has become even more essential with the COVID-19 pandemic's hybrid work structure. In this project students will look at the efforts to ensure effective and efficient use of its diverse resources and information in their quest to achieve competitiveness as well as to increase productivity that must be managed.

Students should critically evaluate the role of KM in boosting business efficiency and productivity within the context of hybrid work models that have become prevalent due to the COVID-19 pandemic and explore how KM strategies and tools have adapted to ensure the effective and efficient utilization of diverse resources and information to maintain competitiveness. The findings should guide KM practitioners and organizational leaders in formulating and refining KM strategies that align with new work paradigms for sustainable competitive advantage.

RSD-04: The Impact of DEI Initiatives on Knowledge Sharing within Multinational Corporations

Students can research or study how Diversity, Equity, and Inclusion (DEI) policies can foster or hinder the exchange of knowledge in multinational settings. The research will delve into the dynamics of multicultural teams, examining the correlation between DEI initiatives and the effectiveness of knowledge sharing. In this topic students are expected to discuss how do DEI initiatives affect communication and interpersonal dynamics in global teams?, the roles of leadership

What roles of leadership in facilitating an inclusive culture for knowledge exchange and can enhanced DEI practices lead to improved knowledge sharing outcomes in multinational corporations? The outcome of this research is expected to contribute to the theoretical understanding of DEI in knowledge management while offering practical guidance for leaders in creating strategies that bolster knowledge sharing in culturally diverse workplaces.

RSD-05: Artificial Intelligence and Ethical Knowledge Management

The CI aims to explore the ethical dimensions of utilizing Artificial Intelligence (AI) in the processes of knowledge management, focusing on the challenges of ensuring ethical compliance while leveraging AI for knowledge acquisition, organization, dissemination, and retention. In this topic students may explore what ethical considerations arise from the use of AI in knowledge management practices?

How can organizations balance the efficiency offered by AI with the need for human judgment in managing knowledge and what frameworks or guidelines can be developed to govern the ethical use of AI in knowledge management? As AI becomes increasingly integrated into knowledge management systems, understanding the ethical implications is critical for maintaining trust, privacy, and compliance with legal standards. This CI should help in developing ethical guidelines for AI in knowledge management, which would be valuable for practitioners and developers in the field.

RSD-06: Leveraging Generative AI for Enhanced Knowledge Creation and Innovation in Organizations

This topic is pertinent given the rapid advancement and adoption of Generative AI in various sectors, and its potential to significantly alter how knowledge is produced, managed, and utilized in the professional world. Students should study the transformative potential of Generative AI in the processes of knowledge creation, innovation, and decision-making within organizations so as to identify the opportunities and challenges posed by Generative AI technologies in augmenting human expertise and creativity.

In this topic students can explore How does Generative AI contribute to the development of new knowledge and innovation in organizational settings and its implications for knowledge workers in terms of skill enhancement and job roles? Additionally how organizations ensure the reliability and integrity of knowledge generated by AI systems? This CI should uncover critical insights into how Generative AI can be strategically integrated into KM practices to support competitive advantage and continuous innovation.The findings might also offer a framework for balancing human cognition with AI capabilities, ensuring ethical and efficient use of Generative AI in knowledge ecosystems.

RSD-07: Optimizing Supply Chain Dynamics through Information & Knowledge Management Integration

The importance of managing information and knowledge in supply chain operations is pivotal for maintaining competitive advantage and ensuring operational agility. This study seeks to uncover the depths of how information and knowledge management (IKM) serve as the backbone for intricate supply chain networks and the ensuing impact on their overall functionality and resilience. The CI will look at how IKM contributes to strategic decision-making processes, with a focus on predictive analytics for demand forecasting, inventory optimization, and supplier selection and evaluation.

Explore of the role of IKM in facilitating cross-functional collaboration between various supply chain entities, including logistics, procurement, inventory management, and customer service. Investigation of how the exchange and application of knowledge within supply chains can drive innovation, from the development of new logistical strategies to the adoption of emerging technologies like IoT and blockchain and examine how IKM practices enhance supply chain resilience, particularly in the face of disruptions such as those experienced during the COVID-19 pandemic, including the swift reconfiguration of supply networks and recovery strategies.

RSD-08: Knowledge Management for Organizational Readiness and Resilience: Navigating Opportunities, Challenges, and Innovations

This project will critically examine the emerging developments of Knowledge Management (KM), and how these can be strategically leveraged by organisations to build their readiness and resilience for the future in a sustainable manner. Students should conduct a comprehensive analysis of the recent advancements in Knowledge Management (KM) and their strategic application for bolstering organizational readiness and resilience in order to identify sustainable practices within KM that equip organizations to thrive amidst rapidly changing business landscapes and unforeseen challenges.

In this topic students can explore the strategic significance of KM in strengthening organizational adaptability and agility. Evaluate the tangible and intangible benefits that sustainable KM practices deliver to organizations, including enhanced decision-making, improved efficiency, and competitive advantage and discuss how these innovations can be integrated into KM practices to create resilient and forward-thinking organizations. This CI will provide a robust framework for understanding the multifaceted nature of KM as a tool for organizational readiness and resilience and the insights gained will be valuable for KM practitioners, strategists, and organizational leaders aiming to build sustainable, knowledge-driven enterprises.

RSD-09: Leveraging Knowledge Management for Impactful and Sustainable Philanthropy

The deployment of information and knowledge management (IKM) practices in philanthropy has the potential to significantly magnify the impact and sustainability of charitable efforts. This research will delve into the transformative role IKM plays in shaping a more strategic and outcome-oriented philanthropic landscape.

In this CI, Students will evaluate how IKM aids philanthropic organizations in making strategic decisions that align with long-term goals and sustainability principles. Investigate into how IKM practices improve the assessment and measurement of philanthropic outcomes, facilitating a better understanding of impact and value. Explore how knowledge captured from past philanthropic endeavours drives innovation in philanthropic strategies and initiatives. Consideration of how IKM aligns philanthropic activities with the United Nations SDGs, promoting efforts that contribute to global sustainable development and study how IKM fosters collaboration and communication among various stakeholders, including beneficiaries, donors, and non-profit partners, to achieve cohesive and unified efforts.

RSD-10: Knowledge Management in Non-Profit Organizations: Enhancing Impact and Efficiency

Non-profit organizations operate in complex environments where they are expected to do more with less. Effective Knowledge Management (KM) is critical in these organizations to ensure that they can fulfil their missions in an impactful and sustainable way. This CI topic will explore the implementation and benefits of KM in the non-profit sector.

In this CI, students will analyse how KM practices can improve operational efficiency in non-profit organizations, explore the role of KM in enhancing the impact of non-profit programs and initiatives, examine the ways in which KM facilitates better stakeholder engagement and communication and identify challenges and best practices in the adoption of KM strategies in non-profits. The aim is to provide actionable insights for non-profits to harness the power of KM to maximize their social impact while ensuring sustainability and operational excellence.

TYL-01: Trend Analysis of Metaverse Technology by Altmetrics and Bibliometrics

The metaverse is a fast-growing trend with a considerate penetration rate of users for various applications such as gaming, content creation, social interaction, learning and training, online shopping and healthcare. This study aims to gain insights into the overall application of metaverse technology in the study of healthcare areas with the following two steps:

1) analyse research papers for metaverse in healthcare research using Altmetrics and Bibliometrics methods. Altmetrics can be described as new or alternative metrics based on activities on social media for measuring scholarly impact. Different altmetrics systems exist that offer dashboards and tools for viewing bibliometrics and altmetrics.

- Perform trend analysis of data (already) collected over the last 3 - 4 months;
- Visualize the data.

2) establish a visual and unbiased approach to exploring hotspot knowledge frontiers in the metaverse research area. The distribution and research influence of countries, regions, institutions, and journals will be analysed.

- Determine whether the usage of altmetrics would better quantify research impact compared to using bibliometric measurements;
- Build some machine learning models to predict bibliometrics based on altmetrics.

TYL-02: Emerging Jobs and Skills Prediction & Visualisation

Faced with rapid changes brought by the ageing population and COVID-19, it is urgent to re-locate and re-map employees, especially the ageing workforce in their career paths. New emerging skills will also enlarge the existing skills gaps between the new requirements of this sector and individuals. This study aims to investigate the million historical job postings, reflecting the skills employers demand in Singapore.

- Perform trend analysis of job roles from job postings (existing available);
- Perform trend analysis of skills in demand;
- Perform clustering analysis by job role and skills;
- Visualize Job Postings and Skills.

TYL-03: Associations between Environmental Characteristics and Cognitive Functioning

GPS technology has the potential to examine the highly detailed geographic and temporal scope of mobility in older adults, thus providing a "holistic view" of mobility in real-time and enabling prompt interventions to prevent adverse health events resulting from mobility limitations. This study aims to identify meaningful GPS-derived mobility patterns and develop standardized guidelines for GPS use and data analytics (e.g., distance, recording period, and speed).

- Perform points clustering analysis of GPS data (existing available);
- Perform correlation analysis between environmental parameters and mobility variables (speed and distance);
- Perform correlation analysis between mobility variables and socio-demography;
- Visualize / Animate raw GPS data.

TYL-04: Improving Intergenerational Communication and Bonding through Applying Video-mediated Communication and Simultaneous Gameplay

Risks of COVID-19 have aggravated social exclusion of older persons through measures to restrict movement and contact such as stay-at-home restrictions and lockdowns. While such measures are crucial for ensuring the safety of all, they have increased the elderly's social isolation, disrupt their connectivity with others, and worsen their health outcomes. Moreover, United nations has recently reported an increase in ageism and discrimination towards older people during this pandemic crisis. Communication across generations needs to be strengthened to foster intergenerational solidarity. Since the Covid-19, video-mediated communication technology has been massively adopted across the globe. It provides a vital infrastructure for (re-)connecting elderly so to mitigate social isolation risk while remaining at safe physical distance from others.

Using motion-based sensors, our team has developed Virtual Exercise Therapist System (VETS) which allows single-player offline exergames (video games for the purposes of exercising) to promote physical and intergenerational activity between elderly and youths. In this proposal, leveraging on existing teleconferencing platform (e.g., Zoom), we will first incorporate Video Communication Components to VETS (VETS-VCC). It will allow exergame-play between 2 (or more) players simultaneously within the video call. To evaluate the benefits of the VETS-VCC, 60 elderly-youth pairs will be recruited. They will be communicated over 8 weeks through VETS-VCC or video call only (without exergame). Impact on changes in well-being, exercise motivation, and intergenerational perceptions will be compared. Conversational analysis will also be conducted based on the audio and video streams of the video call to understand the development and dynamics of the intergenerational bonding.

We aim to introduce an inexpensive, accessible, potentially scalable technology solution to improve the connectivity of elderly through exergaming within video-mediated communication platform so to mitigate the negative effect of the social distancing. The intergenerational bonding fostered during the exergaming can also improve the mental well-being of the elderly.

TYL-05: Conceptualisation of Self-administered Multidimensional Frailty Screening Tools

Using Singapore as a case example, this project aims to develop a Mobile-based Frailty Screening Tool to help detect frailty early so that it can further reduce the existing healthcare burden. The concept and procedure of self-screening for frailty conditions is still developing on the global stage. The detection for frailty is usually done in primary care setting (e.g., hospitals, clinics) through trained medical personnel and focuses mainly on physical frailty.

The current project proposes to develop a multidimensional frailty (physical, cognitive, and social) screening tool that can be self-administered through a smartphone or web-browser (i.e., mobile-based) that is suitable for large-scale screening for the local Singaporean multilingual population. Specifically, we aim to (i) systematically review of the existing physical, cognitive, and social frailty indicators and diagnostics tools to identify the potential to be implemented as a self-screening tool for the senior citizens (50 years or above) and (ii) conceptualise an assistive mobile-based (smartphone or web-based) tools to be used for self-screening of frailty among older adults in the community with different modality such as computerised task or voice-bot to accommodate various literacy and language proficiency levels.

The proposed self-screening frailty tool will radically improve the process of identifying frailty in the community. It will supplementing the existing frailty assessment that often requires trained personnel/clinician to perform. It can also help to early detect and alerts of pre-frail older adults in the community so that it allows follow up for early frailty intervention to reverse or delay the progression to frailty.

TYL-06: Use of Gamification to Promote Medication Adherence through Patient Education

In this project, we aim to explore the use of technology and gamification to educate and improve patients' understanding of their medical conditions and medications. Through greater understanding of their medical conditions and medications, we hypothesise that patients will be more adherent to their prescribed medications. Based on previous works in Patient-ACE Frameworks and Tamamon game, we propose to design, develop and evaluate a mobile game module to the PACE prototype for patients to use during their in-patient stay at the Integrated Care Hub (ICH) Trial Ward, as well as on-discharge and post-discharge. PACE mobile game module will equip and educate patients with knowledge to better understanding their medical conditions and medications. There are two phases: Phase 1 - Assessment and Conceptualisation: (i) To assess patients' level of understanding of their health conditions and prescribed medications; and (ii) To conceptualise the PACE mobile game module with purpose to prepare, guide and assist patients during their in-patient stay at ICH, on-discharge and 1 month post-discharge. Phase 2 – Development and Evaluation: (i) To develop the PACE mobile game prototype; and (ii) To evaluate PACE mobile game module usability with patients at ICH Trial Ward.

In this project, the Beliefs about Medication Questionnaire (BMQ) will be administered to patients who consent to participate in the project. This will form the baseline measure of the patient's beliefs about medications Patients will then be introduced to the PACE mobile game

module during their stay at the hospital. The PACE game will have content that can be customised to their healthcare needs such as management of hypertension, diabetes, pain, bowel movement, etc.

TYL-07: The effects of gamified interventions on physical and cognitive frailty in community-dwelling older adults: A systematic review and meta-analysis

Frailty is a public health priority, since it is highly prevalent, negatively affects the quality of life of older adults and their families and generates significant social and economic costs. Numerous interventions and programmes to promote healthy behaviours and lifestyle, have been introduced to address frailty prevention and delay.

Game-based interventions (GBIs) have been used to promote health-related outcomes, including physical and cognitive functions. However, criteria for selecting game-elements (GE) have not been adequately described in terms of their ability to address older adult's conditions or targeted health outcomes. This present review aims to identify the GE applied in GBI and their effectiveness for physical and cognitive frailty.

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