Appendix report 08 okada

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

国立研究開発法人
科学技術振興機構
Japan Science and Technology Agency

Moon Shot Millennia Program

新たな目標検討のためのビジョン策定

シンポジウム SY3-3-1

知人・知面・知心分野を越えた融合研究による Human-well being を支える技術

JUNE 17 ——— 2021

WHAT IS MOON SHOT MILLENNIA PROGRAM ?

わが国は新型コロナウイルス感染症の影響により、今後の社会が急速かつ著しく変容していくことが想定されます。ポストコロナ／アフターコロナ時代における社会像を明確化し、目まぐるしく変化する経済社会情勢に対応すべく、新たなムーンショット目標を検討することとなりました。

* JSTのHPより

MOON SHOT MILLENNIA PROGRAM

THEME 1

岡田 志麻（立命館大学 理工学部　准教授）

“

年齢、性別、国籍の制約なく良好な人間関係を時空を超えて
構築する孤独ゼロのウルトラダイバーシティ社会

”

第１演題：王天一

第２演題：西原陽子

MOON SHOT MILLENNIA PROGRAM

THEME 2

秋山 肇（筑波大学 人文社会系　助教）

地球が安心できる地球をつくろう。

第３演題：秋山 肇

06 — 17 2021

MOON SHOT MILLENNIA PROGRAM

THEME 3

吉田 慎哉（東北大学 大学院工学研究科　特任准教授）

望めば誰もが、将来に夢と希望を持って、
子供を産み育てられる社会。

第4演題：吉田 慎哉

06 — 17 2021

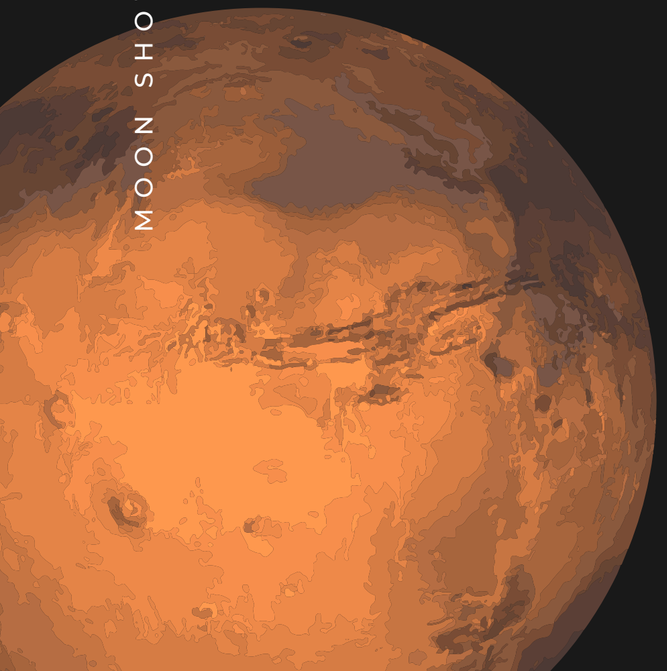
MOON SHOT MILLENNIA PROGRAM

THEME 4

佐久間洋司（大阪大学 グローバルイニシアティブ機構，東京大学 大学院総合文化研究科）

06 — 17 2021

思考転写、合意形成、融和を促進する科学技術により、
個人や集団の分断が克服され「人類の調和」が実現



第5演題：佐久間洋司

MOON SHOT MILLENNIA PROGRAM

THEME 5

熊谷 誠慈（京都大学 こころの未来研究センター　准教授）

PSYCHE NAVIGATION SYSTEMによる安寧と活力が共存する社会の実現

第6演題：熊谷 誠慈

06 — 17 2021

THEME 6

樋口 ゆり子（京都大学 大学院薬学研究科　准教授）

若手研究者の分野横断的連携により実現される「診断から治療を自宅で受ける究極の個別化医療」

第7演題：樋口 ゆり子

MOON SHOT MILLENNIA PROGRAM

THEME 1

岡田 志麻（立命館大学 理工学部　准教授）

“

年齢、性別、国籍の制約なく良好な人間関係を時空を超えて
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”

06 — 17 2021

第１演題：王天一

第２演題：西原陽子

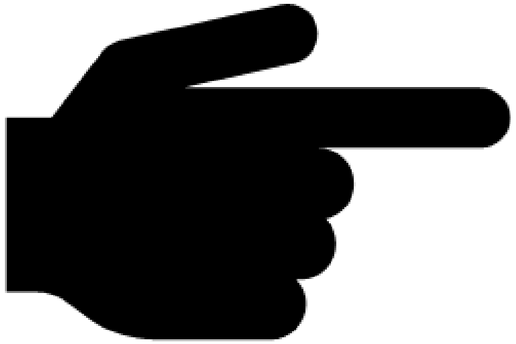
MOON SHOT MILLENNIA PROGRAM

WHAT KIND OF WORLD DO YOU IMAGINE THE FUTURE OF 2050?

WE WOULD LIKE TO THINK ABOUT FUTURE SCIENCE AND TECHNOLOGY WITH EVERYONE WHO ATTENDS THIS SYMPOSIUM.

THANK YOU!

06 — 17 2021



アンケート回答はこちら

https://forms.gle/sDGVbFZFYkduqcgu7

年齢、性別、国籍の制約なく良好な人間関係を時空を超えて
構築する孤独ゼロのウルトラダイバーシティ社会

Appendix report_08_okada

2050年 自遊に生きる

暮らしと場所、コミュニケーション、ウエルビーイング

2021.6.21 月 15:00-18:00

会場 オンラインセミナー(Zoomウェビナー)

参加費 無料

申込み方法 WEBよりお申込みください

参加ご希望の方は上記のQRコードを読み込み、WEBサイトよりお申込みくださいませ。

https://sites.google.com/kyoto-u.ac.jp/moonshot-workshop

PROGRAM

15:00 開会挨拶

15:05 講演1 神奈川の科学技術イノベーション：未病から「2050年 自遊に生きる」への熱きメッセージ
牧野義之 氏 | 神奈川県政策局いのち・未来戦略本部室 室長代理(オープンイノベーション担当)兼最先端医療産業グループリーダー

講演2 EQ HouseとArchiphiliaについて
花岡郁哉 氏 | 株式会社竹中工務店 東京本店設計部 アドバンストデザイングループ長

講演3 ブロックチェーンで自遊に生きる(仮)
加藤明洋 氏 | スタートバーン株式会社 開発部 フロントエンドエンジニア

休憩

16:45 ムーンショットミレニアプログラムについて

16:55 各チームが考える2050年の未来像

Flexインフラを考える会

今西 美音子氏
株式会社竹中工務店
技術研究所
研究員

当チームは、多様性が享受され災害にも動じず技術革新や社会変化にも柔軟に対応できる都市・まちを2050年の社会像として掲げ、その実現に必要な、建物等のハードとそれを制御するソフトやセンサーが連携する自律進化型基盤「Flexインフラ」を提案します。研究調査では多様な価値観を俯瞰するためのアンケート調査や国内外の先進事例調査などを通じて、メンバーの各専門視点からこの社会像実現の技術的課題を検討します。

ウルトラダイバーシティ社会実現チーム

岡田 志麻氏
立命館大学
理工学部
准教授

2050年の社会像として、当チームは「サイバー空間の次世代コミュニケーションインフラ構築によるウルトラダイバーシティ社会の実現」を提案します。本調査研究では、web環境における人の反応や場の空気感・雰囲気といった情報を可視化し、サイバー空間における円滑なコミュニケーションの支援について必要な技術、環境の調査を行います。私たちのチームでは、国内外の小、中、高校生を巻き込んだ多世代で調査を実施します。

Intelligent Living Cell ～究極の個別化医療の実現～

樋口 ゆり子氏
京都大学
大学院薬学研究科
准教授

当チームは、細胞のように機能する非細胞微粒子"Intelligent Living Cell"の開発を通して、個人の遺伝子・タンパク質情報に基づき処方設計された個別化医薬を自宅で調剤、投薬し、治療効果を診断することを可能にする究極の個別化医療実現を提案します。本調査研究では、動物細胞と植物細胞の融合、細胞への外部エネルギーの備蓄と利用、センシング機能の搭載に向けた技術開発と治療応用について調査します。

17:15 パネルディスカッション

<共催>京都大学 大学院薬学研究科・株式会社竹中工務店・立命館大学　<後援>国立研究開発法人科学技術振興機構

<お問い合わせ>シンポジウムHPよりお問い合わせください。

Appendix report_08_okada

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

RITSUMEIKAN ROBOTICS

Department of Robotics
Faculty of Science and Engineering
Ritsumeikan University

WORKSHOP

知人・知面・知心

Human Relation in Physical & Cyber Space

Ritsumeikan

2021.05.18 (Tue)
2021.05.25 (Tue)
2021.06.08 (Tue)

SICE 公益社団法人 計測自動制御学会
ライフエンジニアリング部門

Excellent Work Group
Recommended Presentation
2021.09.03~05

Ritsumeikan Junior and
Senior High School

โรงเรียนมหิดลวิทยานุสรณ์
Mahidol Wittayanusorn School

Ritsumeikan Global Innovation
Research Organization
Ritsumeikan University

RITSUMEIKAN GLOBAL INNOVATION RESEARCH ORGANIZATION
R-GIRO

Appendix report_08_okada

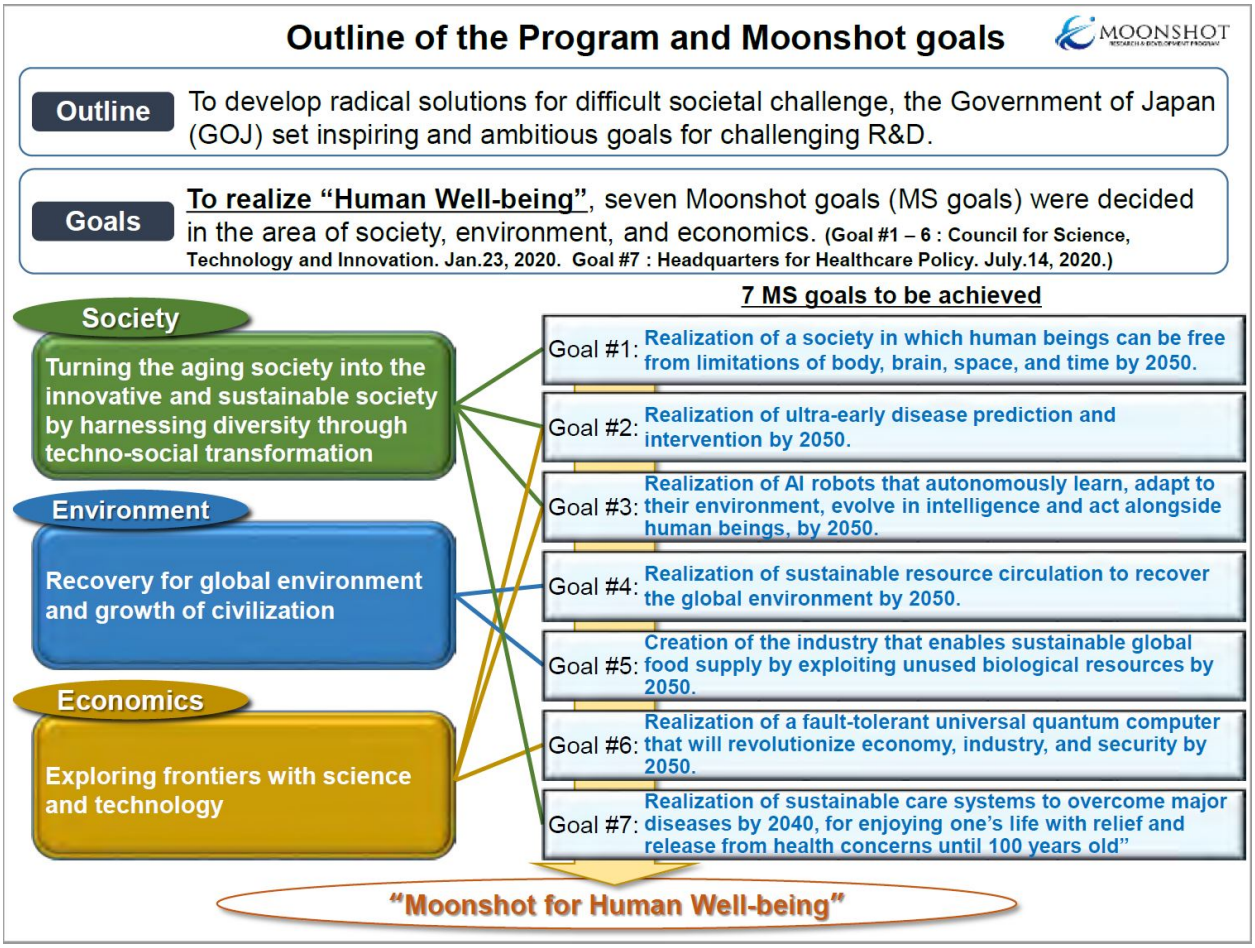
Contents

About

Moonshot

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

The Moonshot Research and Development Program sets ambitious goals to attract people, and promotes challenging R&D projects with the aim of resolving difficult societal issues while bringing together the wisdom of researchers from all over the world.



More information can be found at: `https://www8.cao.go.jp/cstp/english/moonshot/top.html`

Moonshot: MILLENNIA Program

The COVID-19 pandemic and its impacts have forced us to create new Moonshot Goals aimed at tackling the challenges of our post-crisis society and economy. As it is today's youth that will be responsible for tomorrow's society, we must incorporate the flexible and unconventional thinking of young people when setting goals for the 'new normal'. Therefore, JST held a call for proposals for new Moonshot Goal candidates and selected 21 youth-focused teams to assess them.

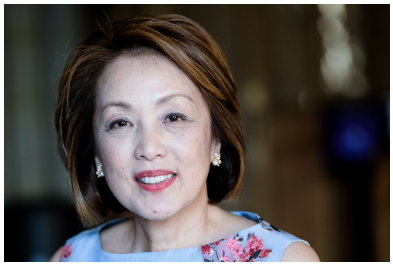
In the process of their investigation research activities in approximately 6 months, teams are expected to investigate the social issues that may become apparent globally in the post COVID-19 era, validate their proposed ideas as the Moonshot Goal candidates, determine the specific goals to be achieved in 2030 by backcasting from their visions of the society in 2050, summarize the scenarios for achieving their ideas, clarify the scientific feasibility and verifiable success criteria of their proposing goals and make 'Investigation Research Reports' through their activities. After the investigation research period, JST will select ideas that are considered to be suitable as the MS Goal candidates. Based on JST's selection as well as the 'Elements of MS Goals, CSTI will then select the new MS Goal(s).

More information can be found at: `https://www.jst.go.jp/moonshot/en/program/millennia.html`

MILLENNIA Program Vision Leader

Dr. KUNO Sachiko

President & CEO, S&R Foundation / Founder & Chair, Halcyon / Executive Vice-President, Kyoto University / Co-founder & Executive Director, Phoenixi



Sachiko earned her Ph.D. in biochemical engineering from Kyoto University, Japan and conducted post-doctoral research at the Technical University of Munich, Germany. In the mid-1980s, Sachiko joined Dr. Ryuji Ueno in establishing R-Tech Ueno Ltd. in Japan. Sachiko engaged herself in all development research, including basic research and applied research, a production, and an application for approval, and the successful launch of Rescula® eye drops, the first bioactive lipid ever used to treat glaucoma in Japan.

Leveraging R-Tech's success in Japan, the two moved to Bethesda, MD and established Sucampo Group, an affiliation of companies in the Americas, Asia and Europe. Sachiko was Sucampo Group's founding CEO and Chair of the Board, and served there until 2012. During her time at Sucampo, Sachiko conducted the research and development, and the operation of the company, and the successful launch of Drs.' second product AMITIZA® for the treatment of chronic idiopathic constipation in adults, irritable bowel syndrome with constipation and opioid-induced constipation in adults. Sucampo, which acquired R-Tech Ueno in 2015, was listed and traded on NASDAQ until its acquisition. In 2013, Sachiko co-founded VLP Therapeutics to combat the 21st century global public health problems through revolutionary vaccine technology.

As a social entrepreneur, Sachiko co-founded S&R Foundation, a 501(c)(3) that supports talented individuals with great potential and high aspirations in the arts, sciences, and social entrepreneurship, and Halcyon, a nonprofit dedicated to the power of human creativity, in 2000 and 2017 respectively both in Washington, D.C.. In Japan Sachiko co-founded Phoenixi, a Kyoto-based residential incubator for social entrepreneurs and intrapreneurs, in 2018. Sachiko currently serves as a board member of numerous organizations including Johns Hopkins Medicine, Kyoto University, Okinawa Institute of Science and Technology Graduate University and The Maureen and Mike Mansfield Foundation. She also serves as Specially Appointed Professor, Graduate School of Management at Kyoto University.

Sachiko has received numerous awards over the years, including the Ernst and Young Entrepreneur of the Year Award for the Greater Washington Area in the Life Sciences Category (2007). recognition as one of the 25 "Women Who Mean Business" by The Washington Business Journal (2009), one of Forbes Magazine's America's Richest Self Made Women (2015 and 2020) and the World's 100 Most Powerful Women by Forbes Japan (2015). More recently, Dr. Kuno has been awarded Stateswoman of the Year 2016 by the Harvard Business School of Japan, received the AVON Awards to Women 2016, and was listed as one of Washingtonian's 2017 Tech Titans. She has completed certificate coursework in international business management at Georgetown University in Washington, DC.

Our Project: Survey for achieving an ultra-diversity society

"An ultra-diversity society that builds good relationships regardless of age, gender, or nationality and does not leave the world alone"

Project Title: Achievment of an ultra-diversity society where no one feels lonely in the world by building next-generation communication infrastructure in cyberspace.

Vision for 2050: As a social image for 2050, our team proposes "Realization of an ultra-diversity society by building next-generation communication infrastructure in cyberspace." In this research, we will visualize information such as human reaction in the web environment and the atmosphere and atmosphere of the place, and investigate the technology and environment necessary for supporting smooth communication in cyberspace. Our team conducts surveys for multiple generations involving elementary, junior high, and high school students from Japan and overseas.

Workshop

Purpose: As one of the longest studies in the world, researchers from HARVARD University revealed the key to the happiness. What is that? Technology, a double-edged sword, is changing the way we are living even before we are aware of it. What kind of role is high-tech playing when we are pursuing the happiness? And what will it play and what should it play? Answers to those questions may help you to have a healthier and happier life, and also can provide us new knowledge about new vision of future society.

As the arising force to the world, idea and opinion from the young generation are important to us. We'd like to hear the young voice both from the domestic (Ritsumeikan Senior High School, Tokyo, Japan) and the foreign (Mahidol Wittayanusorn School, Thailand), about their opinions on these topics.

Thus, we are organizing a four-week period workshop (three-day activity), consisting of mini-lecture, research equipment demonstration, group debate, discussion, and presentation. In this workshop, we expect and encourage students to 1. Discover and provide present topics; 2. Refine the topics and provide possible solution; 3. Extend and explore new topics.

Organizing committee

General Chair: Okada Shima, Ritsumeikan University
Workshop Chair: Okada Shima, Wang Tianyi, Ritsumeikan University
High School Organizing Chair (Japan): Tanaka Hiroshi, Takeda Nanako, Ritsumeikan Junior and Senior High School
High School Organizing Chair (Thailand): Thanaphat Sinthawashewa, Mahidol Wittayanusorn School
Technique Support Chair: Tusji Ryohei, Ritsumeikan University
Online Workspace Chair: Masuda Hazuki, Ritsumeikan University

Member List

Project Leader,
General Chair,
Workshop Chair:
Dr. OKADA Shima

Associate Professor, Ritsumeikan University

Shima OKADA completed the doctoral program at the Graduate School of Medicine, Osaka University in 2009 (Doctor of Health Science). She is an Associate Professor in Ritsumeikan University, Department of Robotics, Faculty of Science and Engineering where she has been a faculty member since 2017. She has collaborated actively with researchers in several other disciplines of biomedical engineering, particularly bio signal sensing at the hardware/software interface. Affiliated academic societies: IEEE Engineering in Medicine and Biology Society, Japan Society for Kansei Engineering, Japan Society for Biomedical Engineering.

Project Sub-Leader, Workshop Chair:
Dr. WANG Tianyi

Researcher, Ritsumeikan University

Wang received his Ph.D. Degree in Health Science from Osaka University, Japan in 2020. For present, he is a senior researcher in Department of Robotics, Faculty of Science and Engineering, Ritsumeikan University. His research interests include engineering in healthcare science, human-robot interaction, human posture and application of artificial intelligence for healthcare robot. Affiliated academic society: IEEE Life Science Community, IEEE Young Professionals, The Society for Nursing Science and Engineering, Japan Society of Maternal Health.

Project Member:
Dr. ISAKA Tadao

Professor, Ritsumeikan University

Tadao ISAKA is a Vice Chancellor of Ritsumeikan Trust and Professor of Applied Biomechanics at Ritsumeikan University. He received his Ph.D. from Ritsumeikan University. His research area is included with sports biomechanics, muscle-tendon mechanics, and clinical biomechanics. His laboratory is conducting research to scientifically elucidate the mechanisms of the moving body, and to realize high performance and high activity. He is also working as a research leader with a research hub of “Active for All”, one of A big project (COI stream) supported by the Ministry of Education.

Project Member:
Dr. SHIOZAWA Naruhiro

Professor, Ritsumeikan University

Naruhiro SHIOZAWA received the PhD degrees in Engineering from Ritsumeikan University, Shiga, Japan, in 2005. He was a postdoctoral researcher at Ritsumeikan University from 2005 to 2007, a specially appointed senior lecturer at Aino University from 2007 to 2009, and an associate professor in College of Sport and Health Science, Ritsumeikan University from 2009 to 2018. He is currently a professor in College of Sport and Health Science, Ritsumeikan University. His research interests include biosignal instrumentation and ubiquitous health technology. He is a member of JSMBE, SICE and IEEE.

Project Member:
Dr. NISHIHARA Yoko

Professor, Ritsumeikan University

She received her B.E., M.E., and Doctor degree from Osaka University in Japan in 2003, 2005, and 2007, respectively. She was a JSPS research fellowship for young scientists (DC1 and PD). She was an assistant professor in the Faculty of Engineering at the University of Tokyo in 2008 and a lecturer in 2009. She was an associate professor in the College of Information Science and Engineering at Ritsumeikan University. She became a professor in 2021. She is interested in human-computer interaction and natural language processing. She is a member of IPSJ and JSAI.

Project Member:
Dr. YAMAURA Kazuho

Professor, Ritsumeikan University

Kazuho YAMAURA is a Professor of Industrial/Organizational Psychology at Ritsumeikan University. She received her Ph.D. from Hiroshima University. Prior to moving to the Japan Industrial Safety & Health Association, she was employed by the Japan Institute for Group Dynamics. She then moved to the University of Shizuoka where she was tenured. Her research is in the area of leadership and team management, with a particular focus on how damaged trust in superior-subordinate relationships can be restored, and how collective efficacy in a team is enhanced.

Project Member:
Dr. MUKAI Eri

Professor, Ritsumeikan University

She received her Ph.D. from Kyoto University. After she was a postdoctoral researcher at Kyoto University etc. (including DC and PD), she was a senior lecturer at Chiba University. She has been an associate professor at the College of Life Sciences at Ritsumeikan University since 2016. Her specialty is basic medical research in diabetes, and she is conducting elucidation of the detailed mechanism of insulin secretion from pancreatic β cells and identification of abnormal sites in diabetic conditions. She is recently interested in lifestyle habits to prevent the onset and development of diabetes.

High School Organizing Chair (Japan):
Mr. TANAKA Hiroshi

Associate Professor, Ritsumeikan University

Tanaka taught Mathematics at Ritsumeikan High School from 1983 to 2007. He served as principal of Ritsumeikan High School from 2008 to 2013. He currently teaches Math education, international education, and curriculum design for young teachers at Graduate School of Professional Teacher Education of Ritsumeikan University which was established in 2017. He has worked to develop Super Science High School Project at Ritsumeikan High School for a long time. He has greatly contributed to construct a big network of science schools all over the world and coordinated Japan Super Science Fair. His research area is international science education. Affiliated academic society: Japan Society for Science Education, Mathematics Education Society of Japan, Japan Association for International Education.

High School Organizing Chair (Japan):
Ms. TAKEDA Nanako

Director of SSH, English Teacher, Ritsumeikan High School

Nanako Takeda graduated with a Master's degree in English Language Studies and Methods from Warwick University, the UK. She has been working as English teacher since 2015 and currently working as Director of SSH for Ritsumeikan High School. Ritsumeikan high school has been designated as SSH(Super Science High School) by the ministry of education since 2002 for 5 times as one of only two schools in Japan. She and her SSH team have held Japan Super Science Fair, one of the biggest high school students science fair in Japan, every year for 18 times since 2003 and have contributed to provide experiences and expand network for high school students all over the world. She includes Science Project Presentation and Science Discussion as powerful methods to teach English for Japanese high school students.

High School Organizing Chair (Thailand): Mr. Thanaphat Sinthawashewa

International Relations Officer, Mahidol Wittayanusorn School

Thanaphat graduated with a Master's degree in Linguistics from Faculty of Arts, Chulalongkorn University, Thailand in 2010. His thesis is "The Bangkok Thai Tones Produced by Japanese Speakers: An Acoustic and Perception Study". He is interested in Japanese language and culture. He previously worked as an associate linguist at Google Thailand and currently work as an international relations officer, Corporate Relations Department at Mahidol Wittayanusorn School. His willingness is to assist students who would like to broaden their world perspective through many international activities i.e. exchange program, science project competition, academic activities etc.

Online Workshop Chair: Ms. MASUDA Hazuki

Master Student, Ritsumeikan University

Hazuki MASUDA is a second-year master's student of Science and Engineering at Ritsumeikan University in Japan. She received her B.E. from Ritsumeikan University in 2020. She was a Kashiyama Scholarship student from 2016 to 2020. She is interested in biomedical engineering, particularly bio signal sensing at the hardware/software interface. Affiliated academic societies: IEEE, IEEE Engineering in Medicine and Biology Society, Japan Society for Biomedical Engineering.

Technique Support Chair: Mr. TSUJI Ryohei

Assistant Researcher, Ritsumeikan University

Ryohei TSUJI received his B.E. from Ritsumeikan University in 2021. For present he is an assistant researcher in Research Organization of Science and Technology, Ritsumeikan University. He is interested in software, healthcare science and application of artificial intelligence.

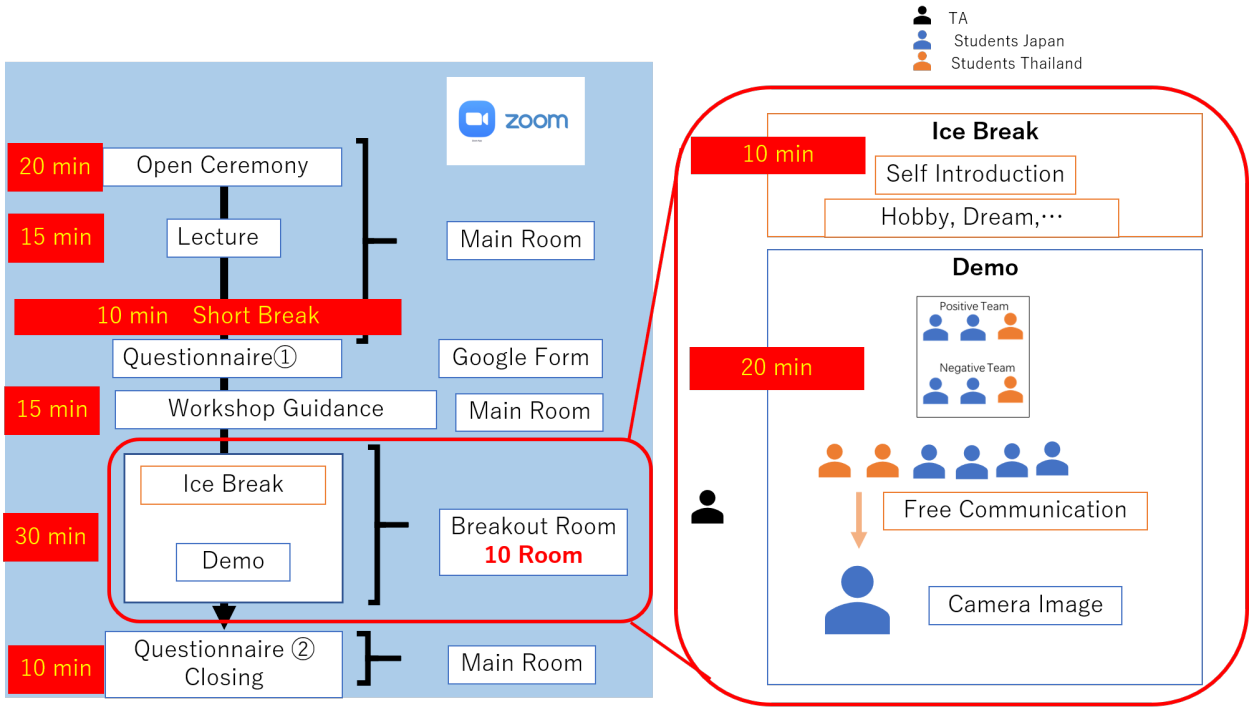
Workshop Agenda

Workshop Agenda

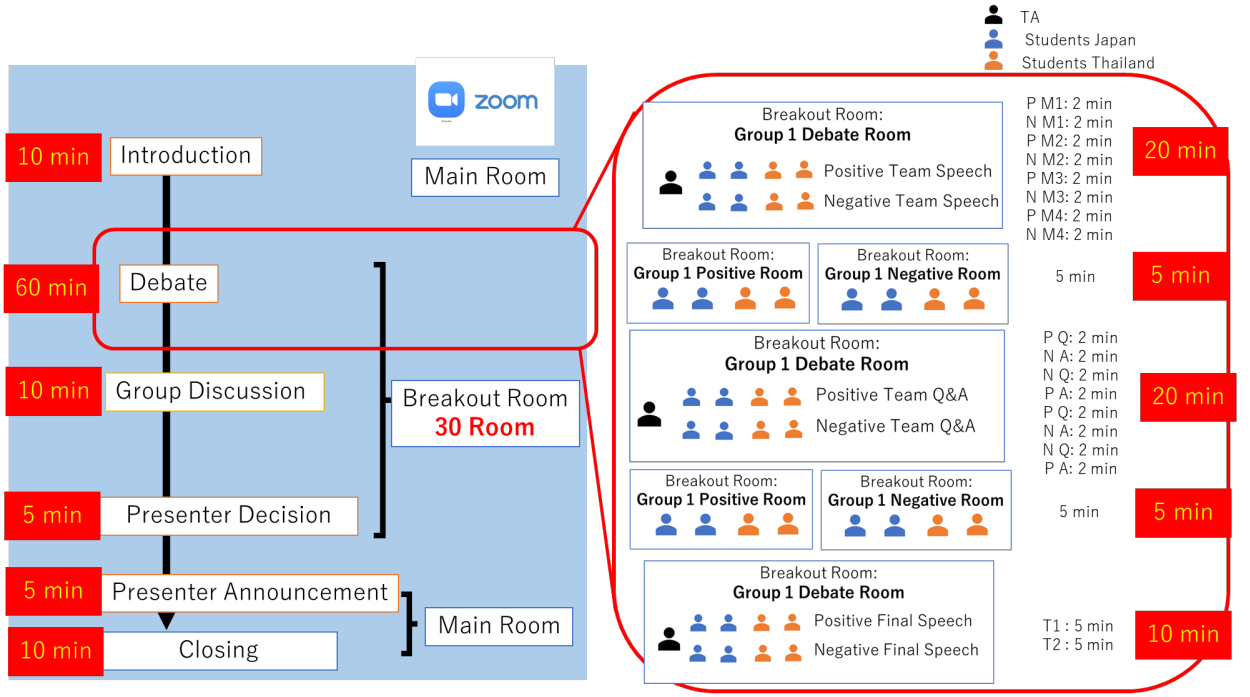
2021.05.18 (Tue) 14:35 ~ 16:15	
14:35~14:55	Opening Ceremony
14:55~15:10	Lecture
15:10~15:20	Short Break
15:20~15:35	Workshop Guidence
15:35~16:05	Demonstration
16:05~16:15	Closing
2021.05.25 (Tue) 14:35 ~ 16:15	
14:35~14:45	Introduction
14:45~15:35	Debate
15:35~15:55	Group Discussion
15:55~16:00	Presenter Decision
16:00~16:05	Presenter Announcement
16:05~16:15	Closing
2021.06.08 (Tue) 14:35 ~ 16:15	
14:35~14:40	Opening
14:40~15:40	Presentation
15:40~15:50	Vision Leader Speech
15:50~16:05	Award Ceremony
16:05~16:15	Closing Ceremony

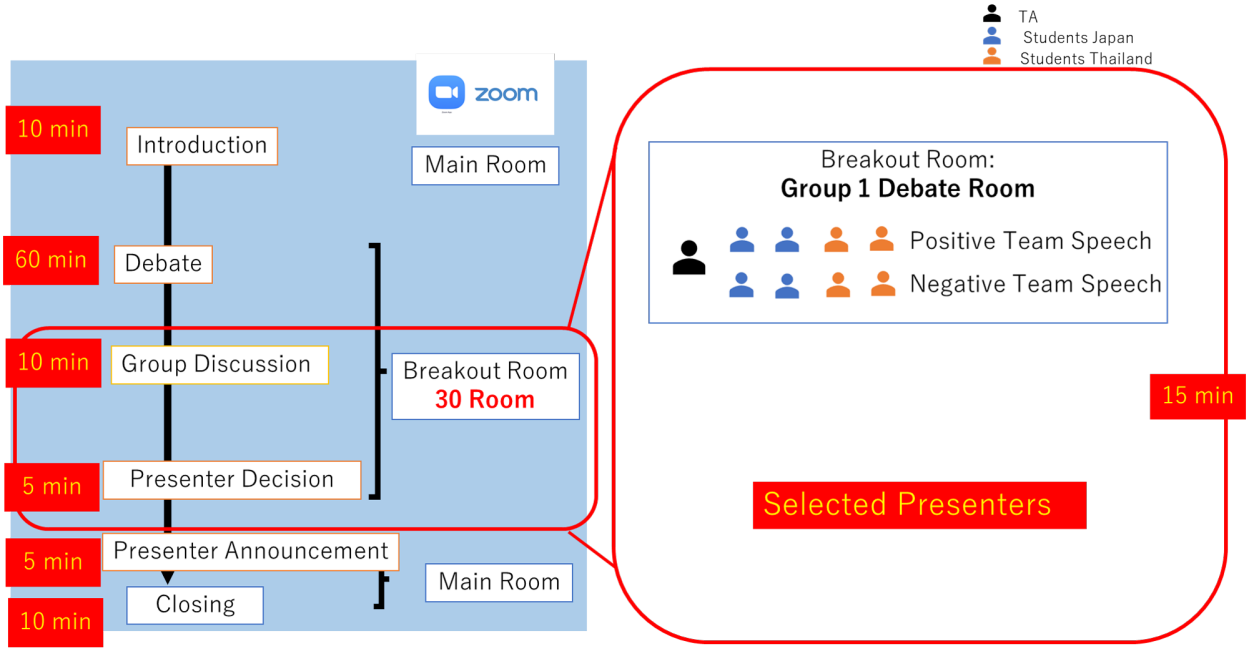
Workshop Flowchart

Week 1: 2021.05.18

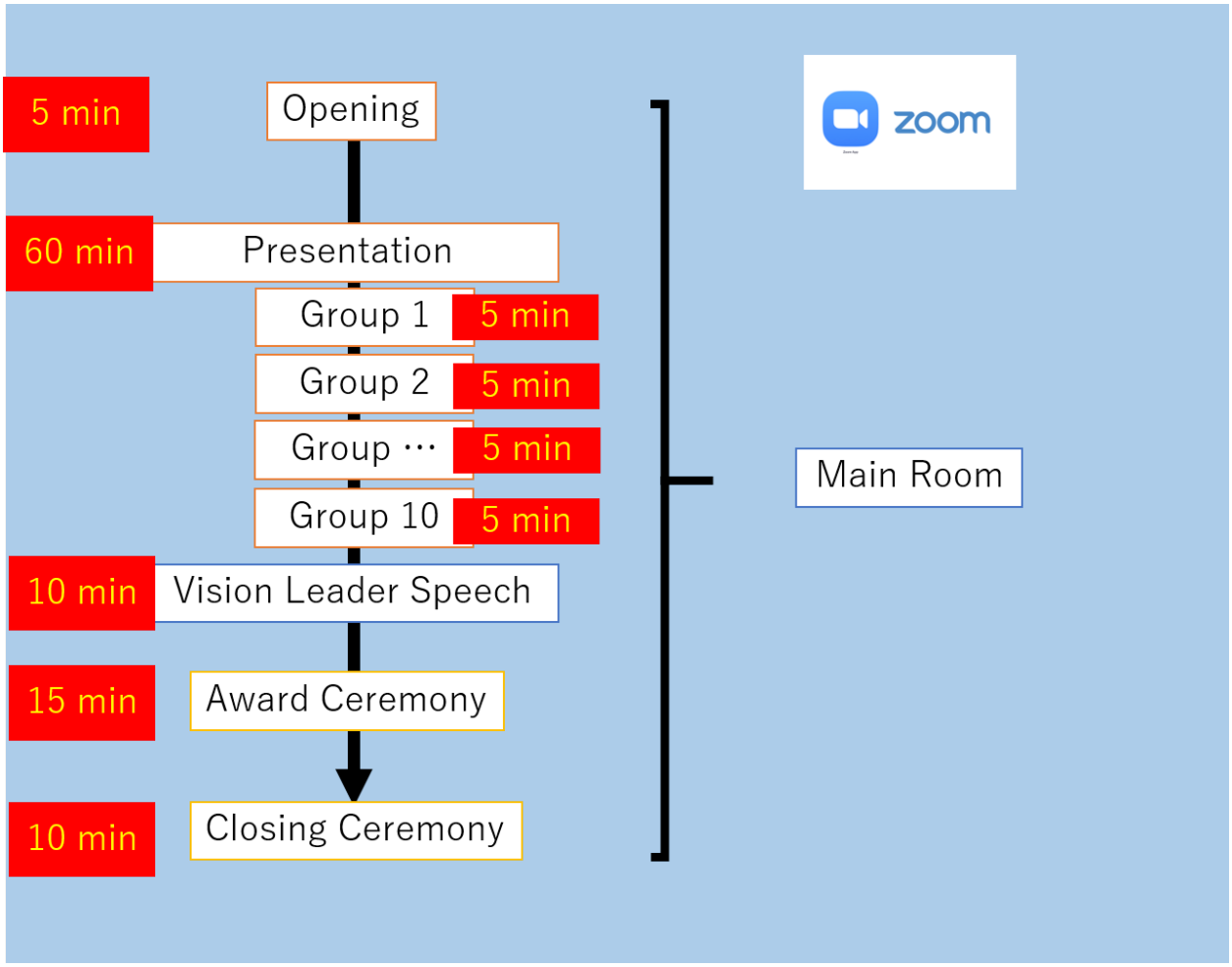


Week 2: 2021.05.25





Week 3: 2021.06.08



List of Work Groups

Group	Positive Team	Negative Team
1	A4,A14,B18,B15	A13,A27,B31,B24
2	A28,A21,B6,B34	A9,A36,B26,B32
3	A33,A37,B7,B16	A18,A22,B13,B3
4	A35,A2,B23,B30	A40,A20,B5,B25
5	A23,A5,B21,B27	A39,A16,B36, B37
6	A17,A24,B4,B29	A8,A38,B10,B20
7	A11,A30,B1,B22	A32,A19,B11,B8
8	A15,A12,B35,B14	A29,A34,B33,B17
9	A3,A1,B2	A41,A31,B9
10	A6,A25,B19	A7,A26,A10,B28

A: Ritsumeikan Junior and Senior High School

B: Mahidol Wittayanusorn School

Useful Information

How to use RGB Camera?

TABLE OF CONTENTS

HOW TO USE - CAUTIONS WHEN USING P.1

For Accurate Measurement

○ Examinee **removes the mask and glasses**
(Please keep a distance from the next person)

○ Do **not turn your face to the side**
(Do not move your face as much as possible)

○ Make sure that **only one person** appears on the screen

HOW TO USE - STEPS FOR USING 1/2 P.2

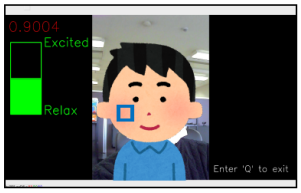
1. Please stop Video on zoom
   (Refer to right figure).

2. Double-click "**MeasuringGR(0).exe**" in File.
   [It takes time to start.
   There is **no problem** with a black screen. **Please wait.**]
   ※ If the software is closed, please read Q2 on the Q&A page.

3. Click the **square buttons** in the middle of the three
   at the top right of the window.
   (No need to do if it's already full screen.)

HOW TO USE - STEPS FOR USING 2/2 P.3

4. If the screen looks like the one on the right,
   you are **successful**.
   (Screen description is in next page.)

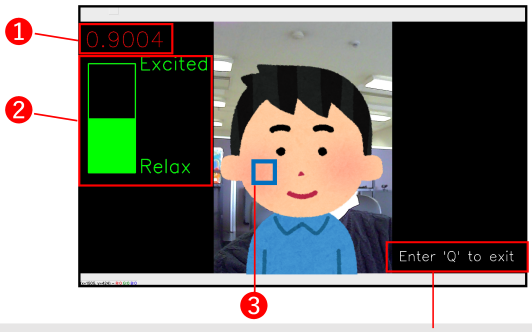


5. Share your screen. (like right image)

↪Please proceed to the next page

HOW TO USE - STEPS FOR USING P.4

●Screen description



❶ **Value of G/R ratio**
Let's check the change of this value (please refer to Q3 on the Q&A page)

❷ **G/R ratio Bar**
Let's check the change of this height

❸ **Measurement point**
Be careful not to let this blue square stick out of your face

(※ Explanation of **what is the G/R**: Read the "**Operating Principle**" page, please.)

When you **finish software**, press the "Q" key on your keyboard
(Please wait for a while.)

HOW TO USE - Q&A P.5

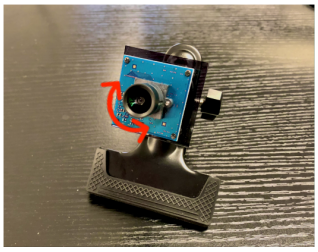
Q1: The software suddenly ended. What should I do?
↪A1: Once the software has started, please start the software again.
If it never started, please refer to Q2

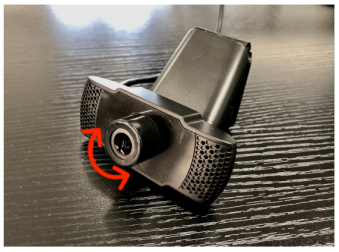
Q2: I tried many times, but the software never start.
↪A2: Double-click "**MeasuringGR(1).exe**" in File.
If you've tried it but the software doesn't work, please ask TA.

Q3: What should I do to change the G/R ratio?
↪A3: Let's try…
- Speaking English
- Work Difficult Calculation in your head
- Singing a Song

HOW TO USE - Q&A P.6

Q4: Video is **blurry**; not clear. How can I clear it ?
↪A4: Try **turning the lens part** of the camera.

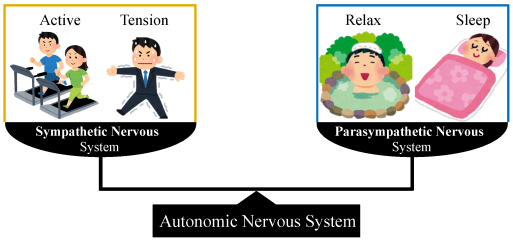




OPERATING PRINCIPLE -AUTONOMIC NERVOUS SYSTEM P.7

● **Autonomic Nervous System**

Autonomic Nerve is composed of two nerves,
which is the **sympathetic** and **parasympathetic** nerve.



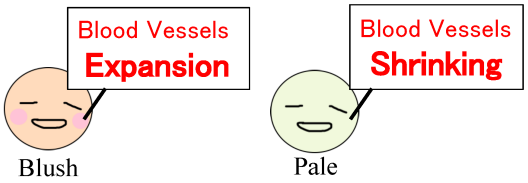
These nerves work in antagonism to **regulate body activities**
such as heart rate and blood pressure.

OPERATING PRINCIPLE -NATURES OF BLOOD VESSELS P.8

● Nature of Blood Vessels

・The complexion changes when we exercise or feel cold etc.

Autonomic nerves shrink or expand **blood vessels** depending on the situation



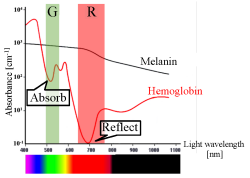
The reason is...

OPERATING PRINCIPLE -NATURES OF BLOOD VESSELS P.9

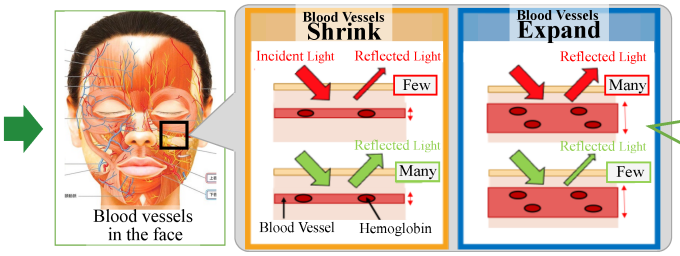
● Relationship between **Blood Vessels** and **RGB Color**

・Hemoglobin is contained in **blood vessels**

- Easy to absorb Green light
- Easy to reflect Red light



Absorption characteristics



Hemoglobin in blood **increase**

Red in the face→ Increase
Green 〃→ Decrease

OPERATING PRINCIPLE -NATURES OF BLOOD VESSELS P.10

● Relationship between **Blood Vessels** and **RGB Color**

	Blood Vessels **Shrink**	Blood Vessels **Expand**
Blood volume in face	Decrease↘	Increase↗
Amount of hemoglobin under the skin	Decrease↘	Increase↗
Red value in face image	Decrease↘	Increase↗
Green value in face image	Increase↗	Decrease↘

● What is G/R ratio ?

When we use Green value and Red value in a single color,
we cannot evaluate accurately. It is because the skin color varies from person to person by melanin.

so → We use $\frac{\text{Green value}}{\text{Red value}}$ (G/R ratio) in RGB Images

Related paper can be found at:

R. Tsuji, S. Okada and T. Wang, "Noncontact Measurement for the Autonomic Nervous System through RGB Camera," 2021 IEEE 3rd Global Conference on Life Sciences and Technologies (LifeTech), 2021, pp. 18-19, doi: 10.1109/LifeTech52111.2021.9391815.

https://ieeexplore.ieee.org/document/9391815

Academic Conference

Excellent work group(s) has a chance to make a presentation at the academic conference: SICE Division of Life Engineering 2021, LE2021, 2021.09.03–05 (online).

More information can be found at
The Society of Instrument and Control Engineers (SICE):
`https://www.sice.jp/english/`

Partner Institutions

Ritsumeikan Junior and Senior High School

โรงเรียนมหิดลวิทยานุสรณ์
Mahidol Wittayanusorn School

Ritsumeikan Global Innovation Research Organization
Ritsumeikan University

Department of Robotics
Faculty of Science and Engineering
Ritsumeikan University

RITSUMEIKAN ROBOTICS

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

WORKSHOP

Schedule

Day 1: 2021.05.18

Topic Provided
Demonstration

Debate
Discussion

Day 2 : 2021.05.25

Week 3: 2021.06.08

Presentation
Award Ceremony

Virtual

zoom slack miro

Appendix report_08_okada

Moonshot Workshop Report

Outline

Appendix report_08_okada

Workshop

Title: 知人·知面·知心 Human Relation in Physical & Cyber Space

Date: 2021.05.18 ~ 2021.06.08

Participates: 76 senior high school students
(40 from Ritsumeikan Junior and Senior High School, Japan
36 from Mahidol Wittayanusorn School, Thailand)

Location: Japan (On-site) and Thailand (Online)

Workshop Purpose

What is the key to the happiness?
What kind of role is high-tech playing when we are pursuing the happiness?
What will it play and what should it play?

Answers to these questions may help us to have a healthier and happier life, also can provide us new knowledge about new vision of future society.

Idea, Opinion, Voice from the young generation are valuable.

Workshop Outline

■ Mini-lecture

What is the key to the happiness?

■ Equipment demonstration

in-field experience of present technology

Week 1

Teamwork

■ Group debate and discussion

What kind of role is high-tech playing when we are pursuing the happiness?

What will it play and what should it play

Week 2

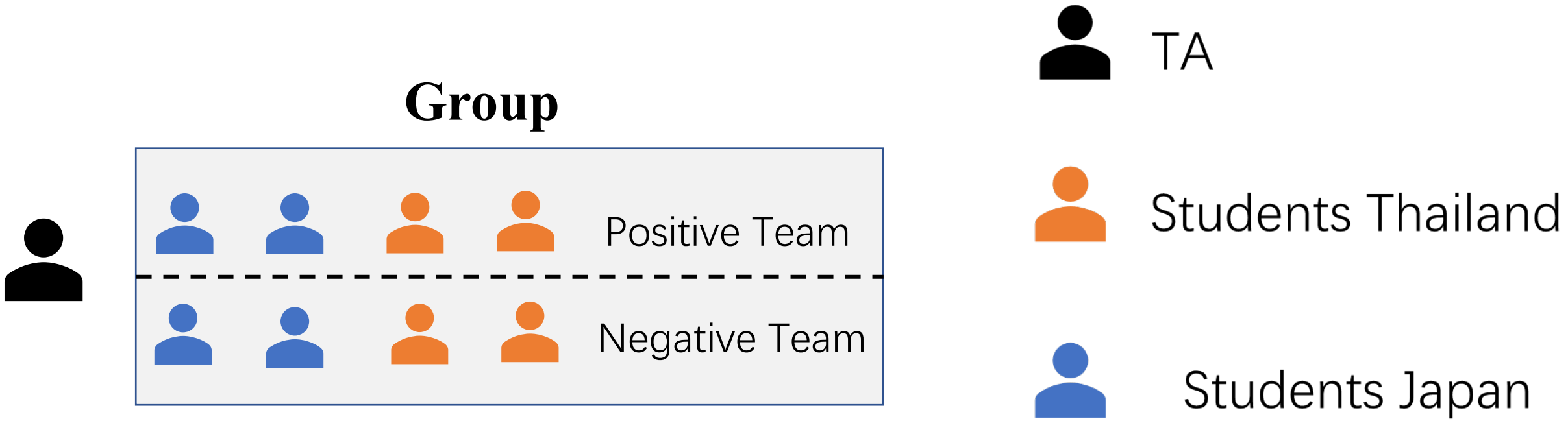
Teamwork

■ Presentation as ONE Team

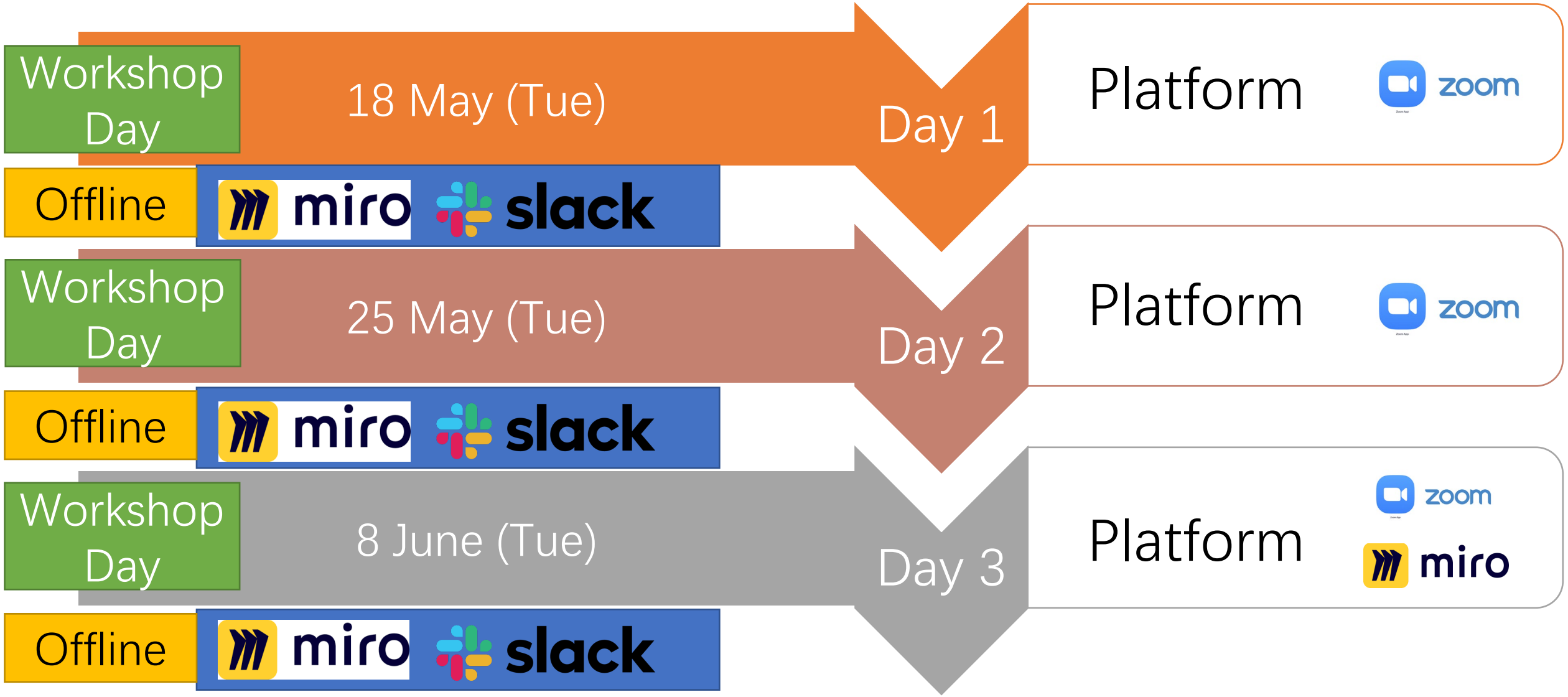
Voice from the young generation

Week 4

Workshop Group and Team

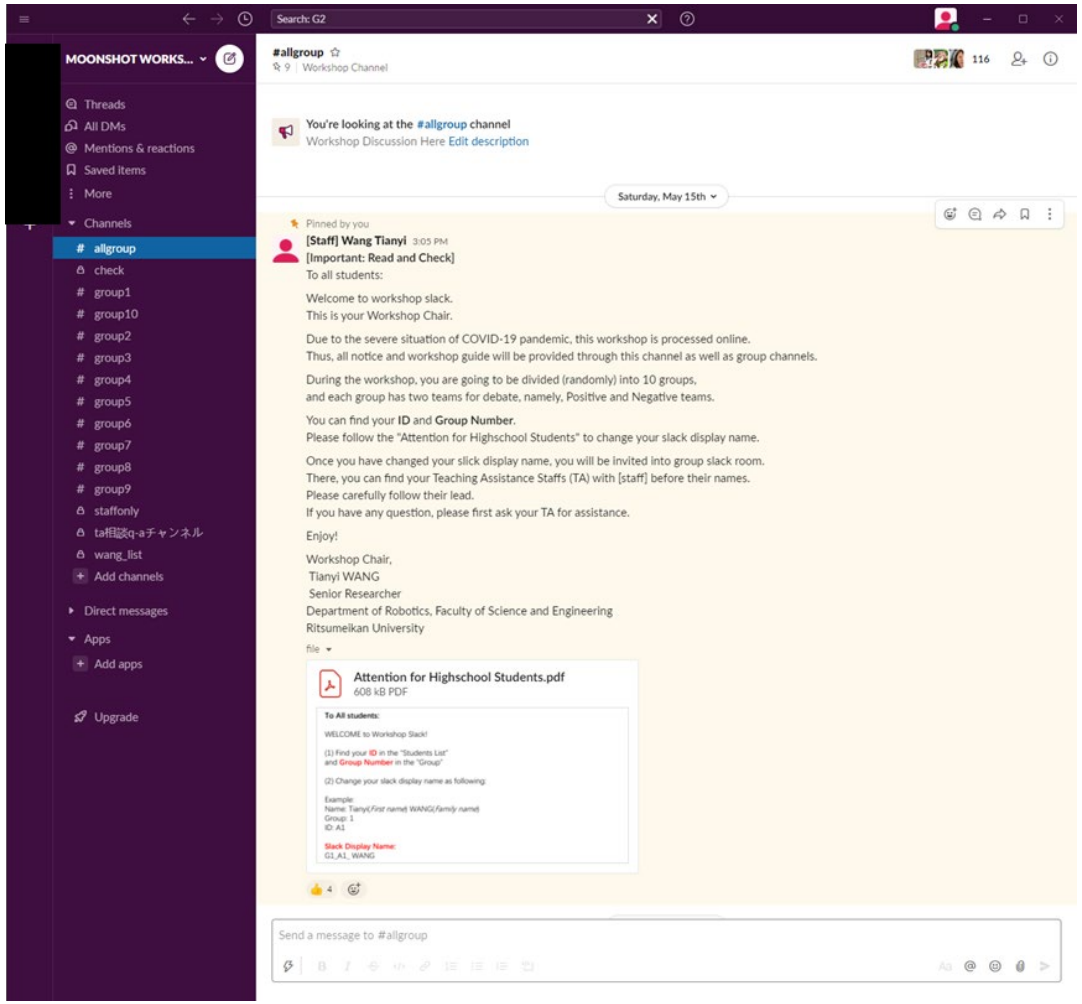


Workshop Platform



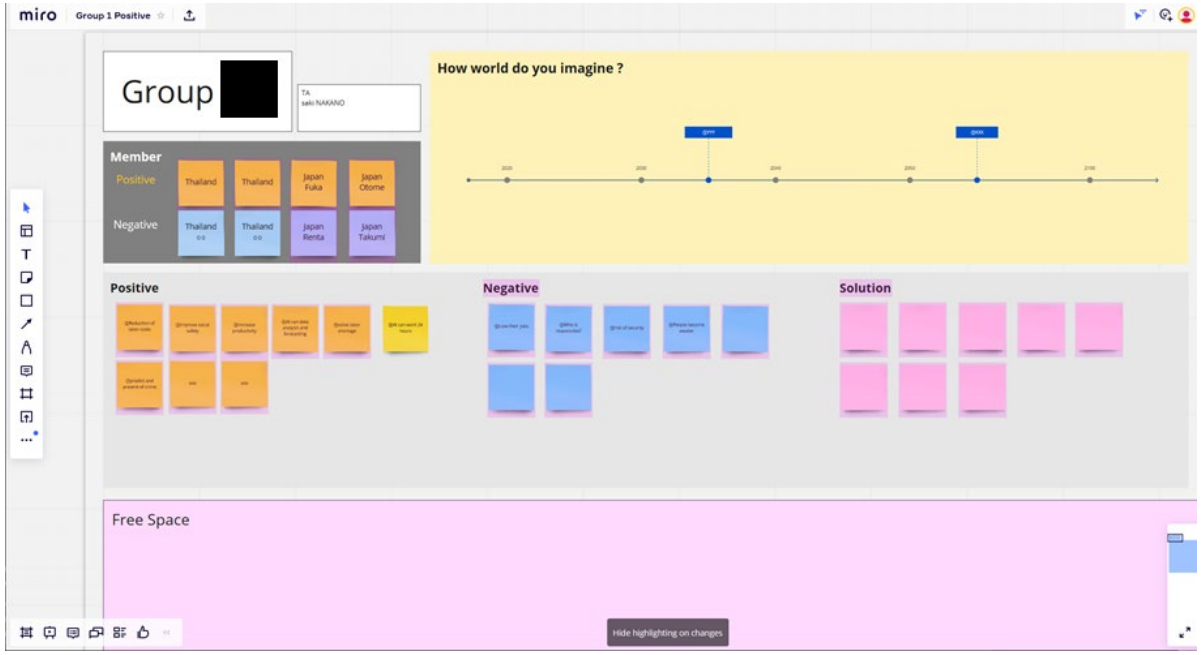
Workshop Platform

slack



Workshop Organization

miro



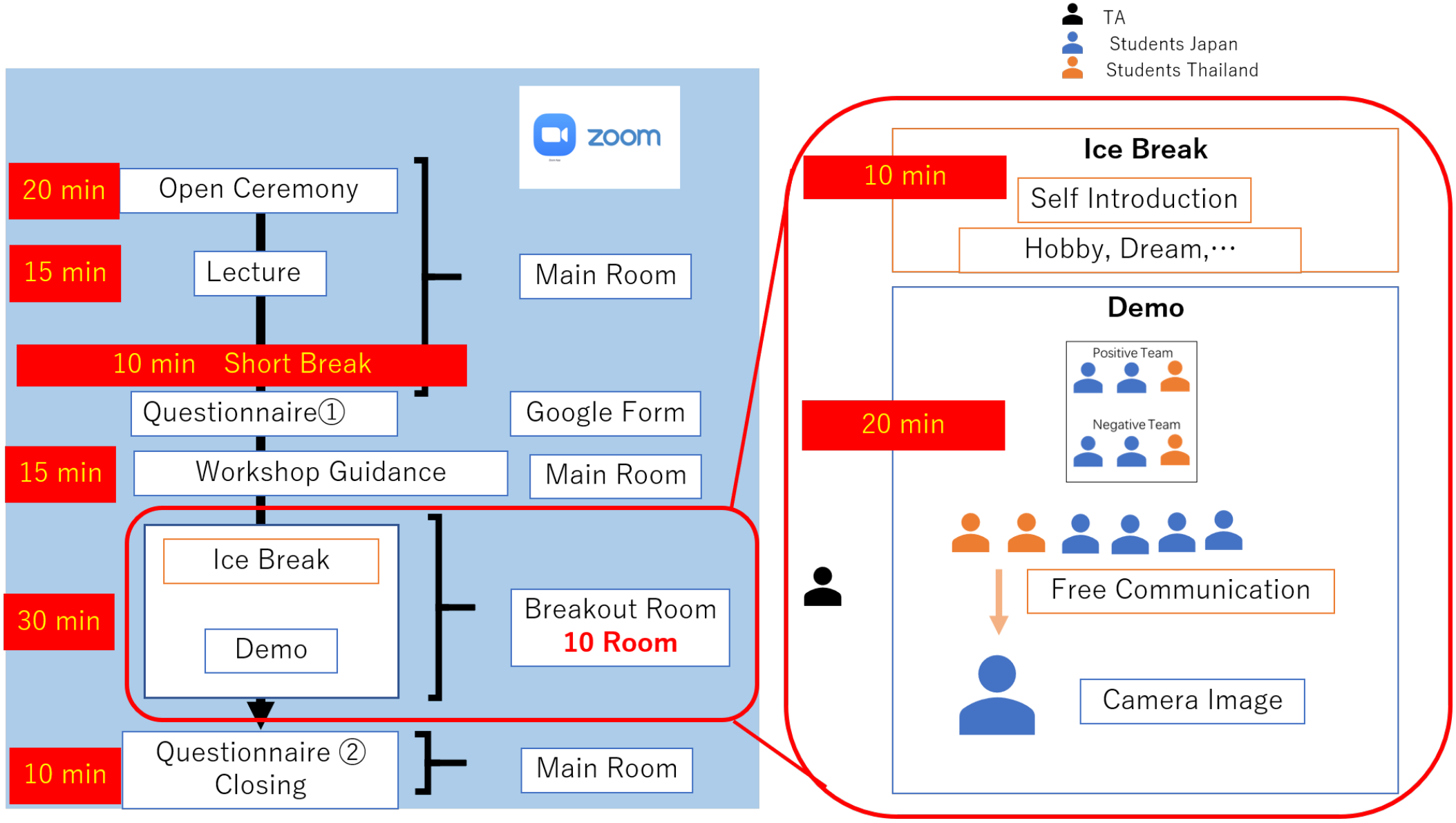
Teamwork

Appendix report_08_okada

Moonshot Workshop Report

Week 1

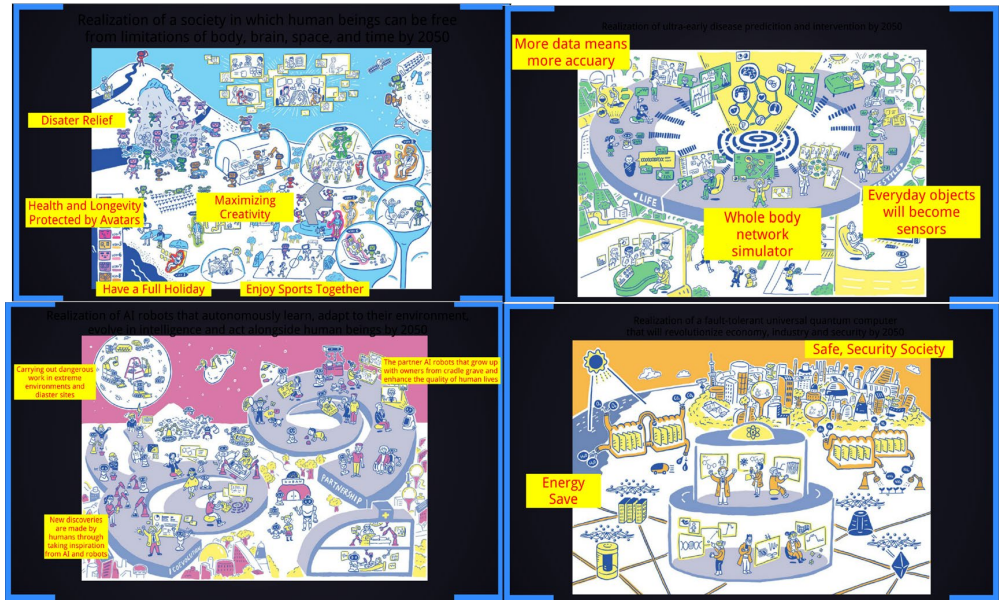
Week 1: Timeline



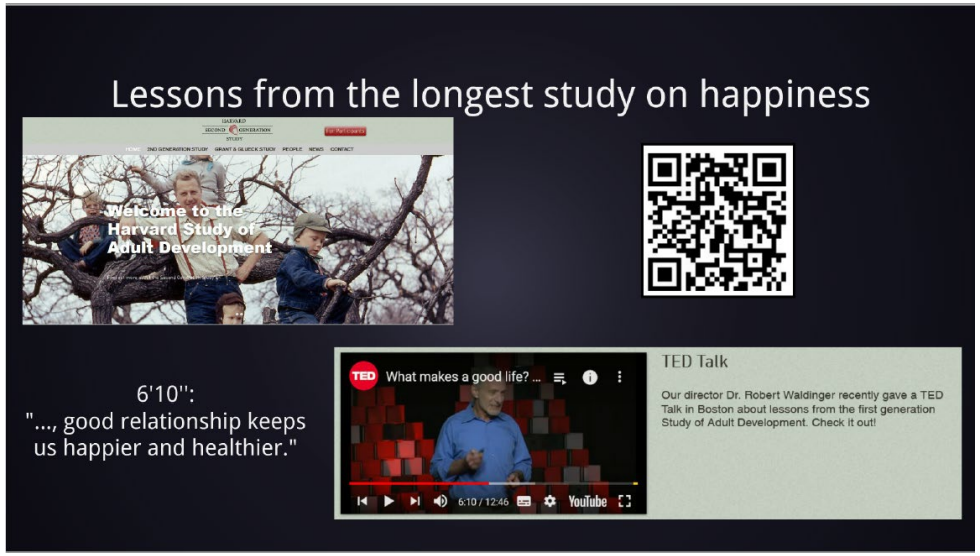
Appendix report_08_okada

Week 1: Lecture Example

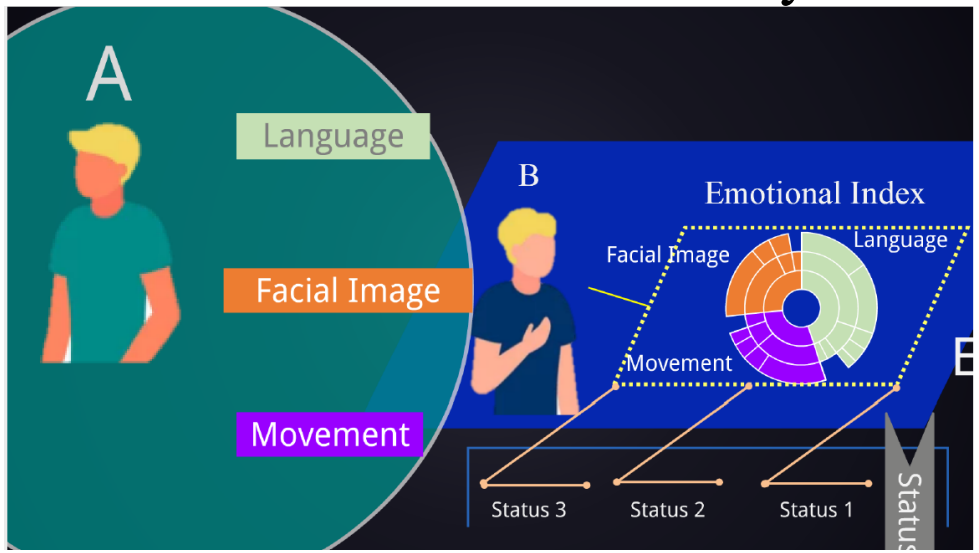
Title Page



Vision of Future Society

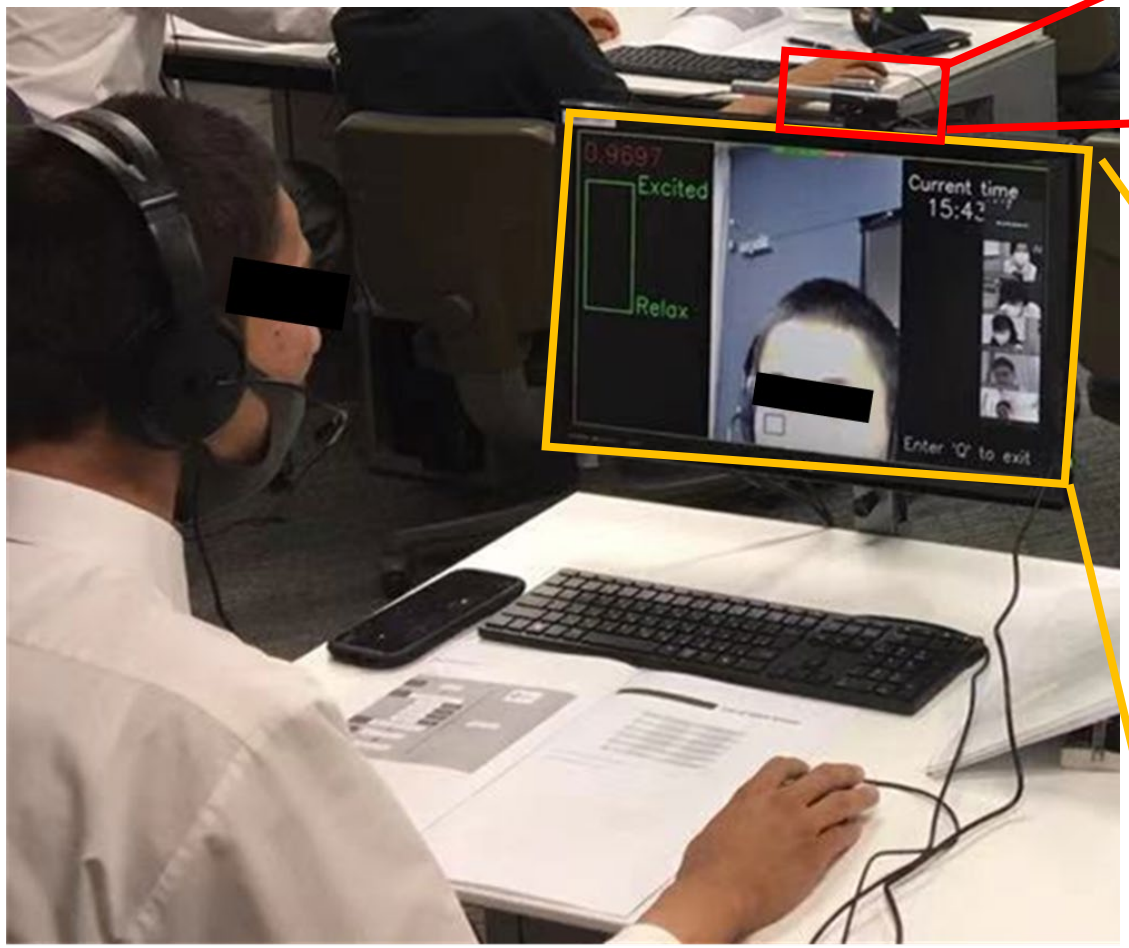


Key to the Happiness

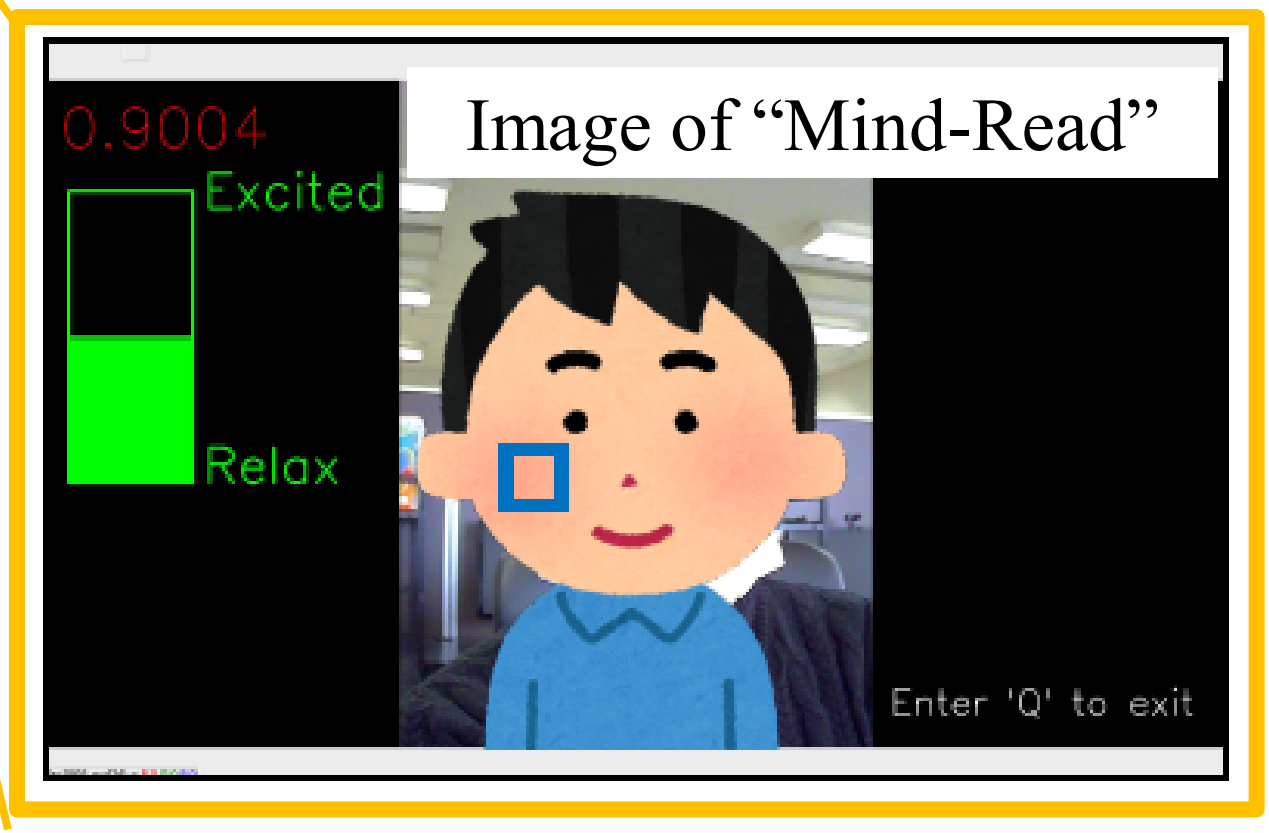


New Vision (Mind-Read Technology)

Week 1: Equipment Demonstration



RGB
Web Camera



Week 1: Equipment Demonstration (On-Site)

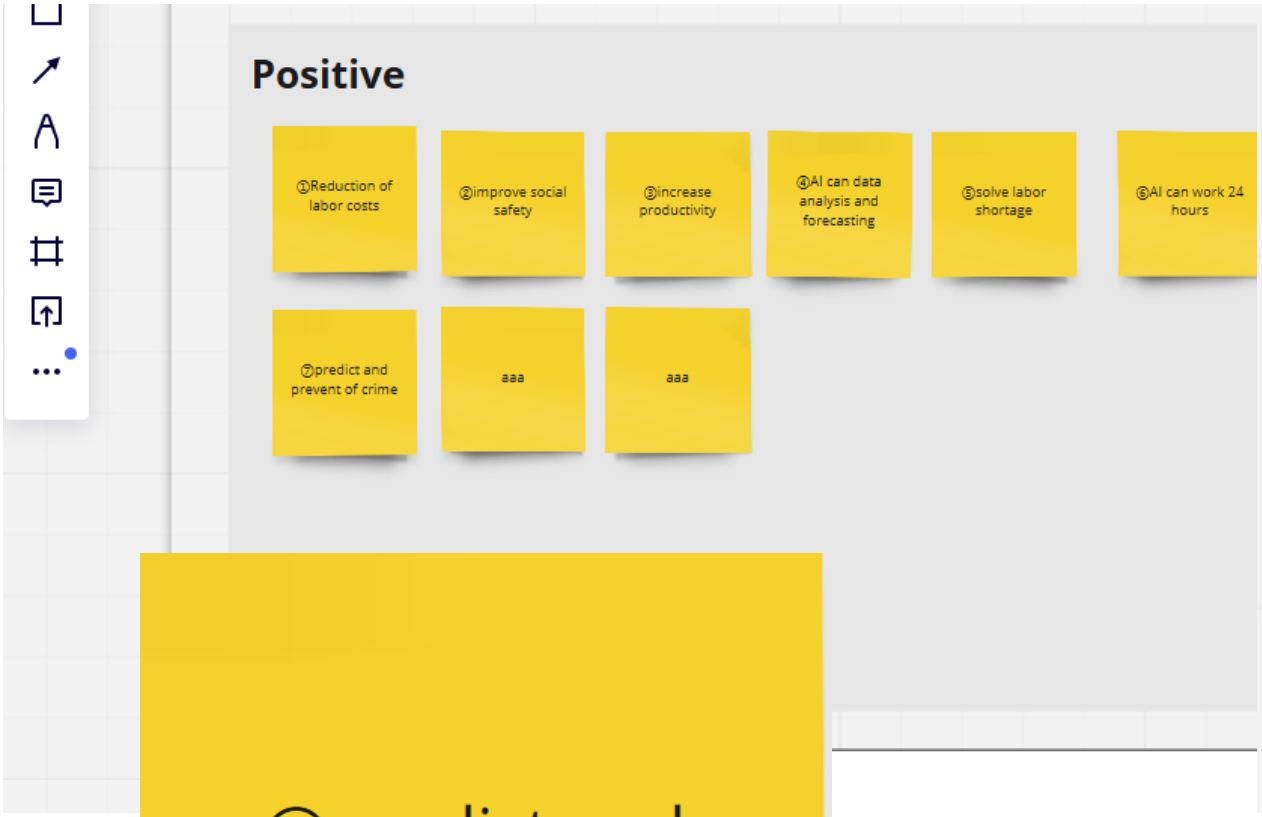
Ritsumeikan Junior and Senior High School (Japan)

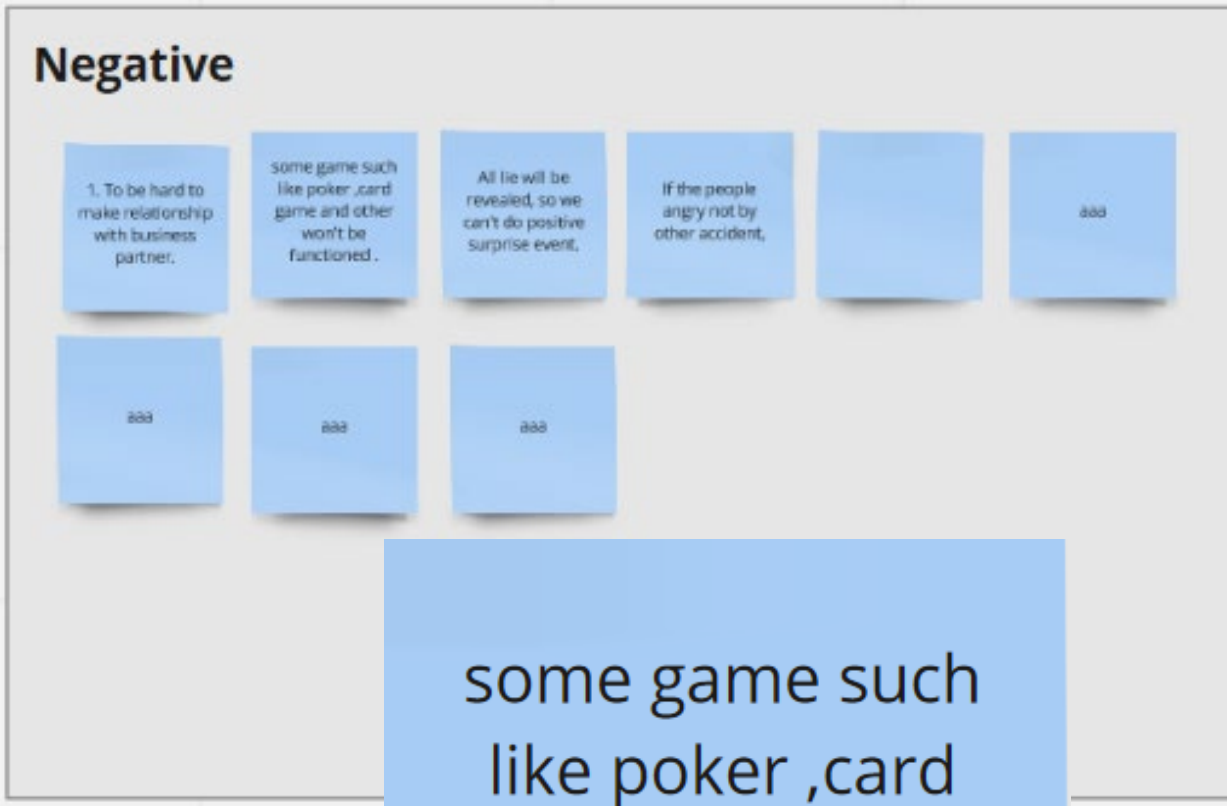
Week 1: Debate Topic

Mind-Read Technology will bring Positive/Negative Effect to the Future Society

Debate Next Week

Week 1: Activated Teamwork Example





⑦predict and prevent of crime

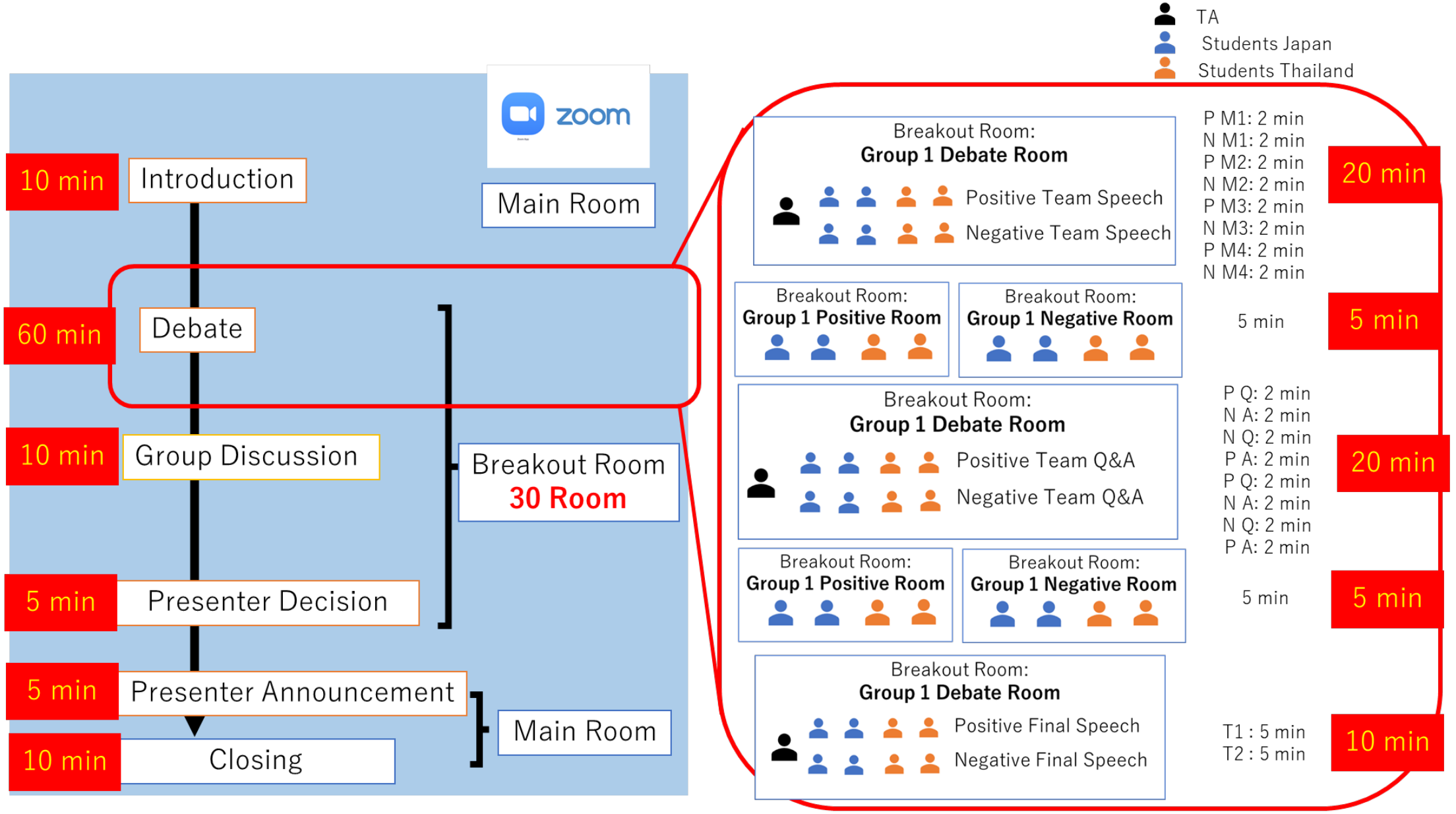
some game such like poker ,card game and other won't be functioned .

Appendix report_08_okada

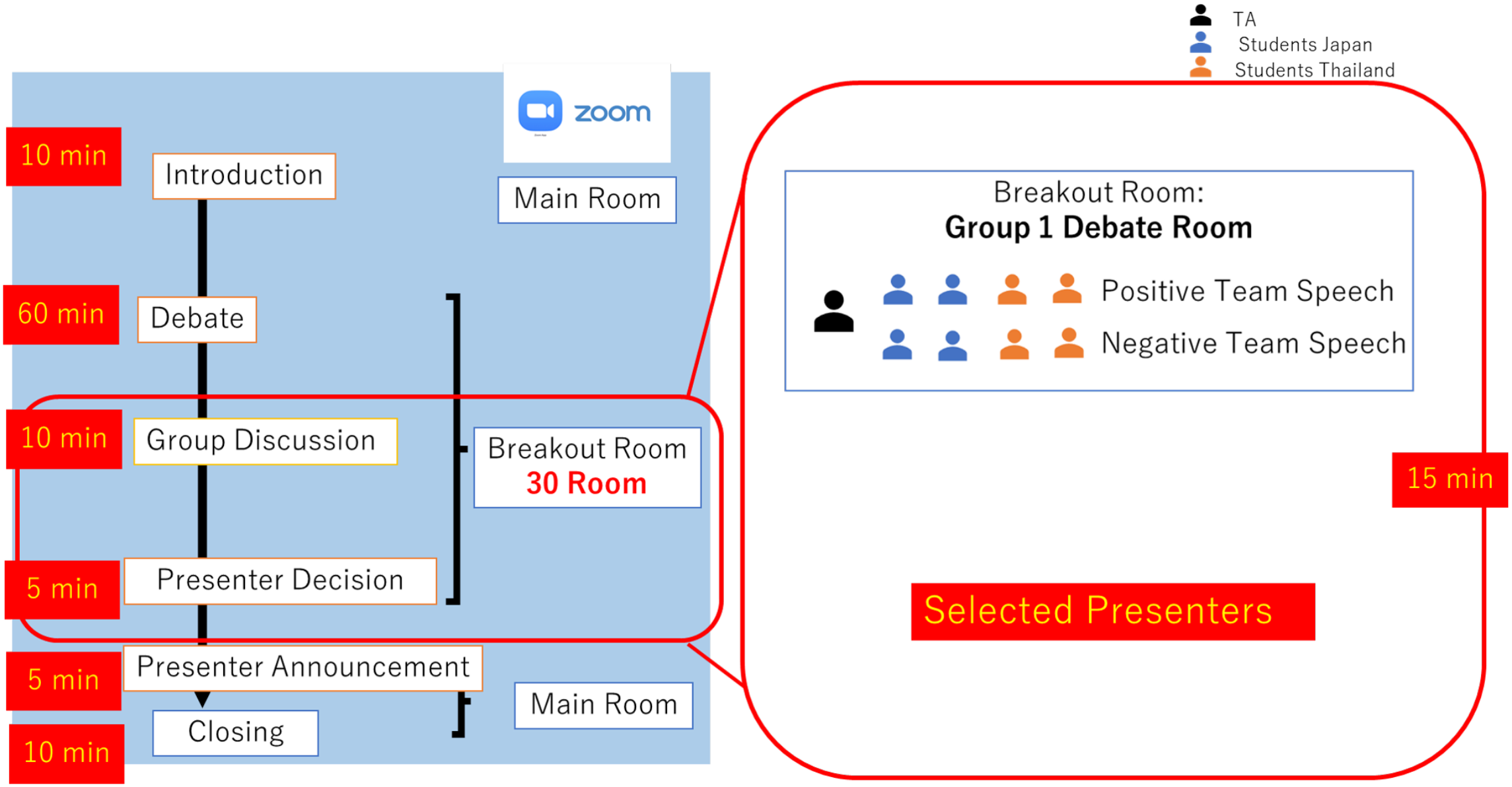
Moonshot Workshop Report

Week 2

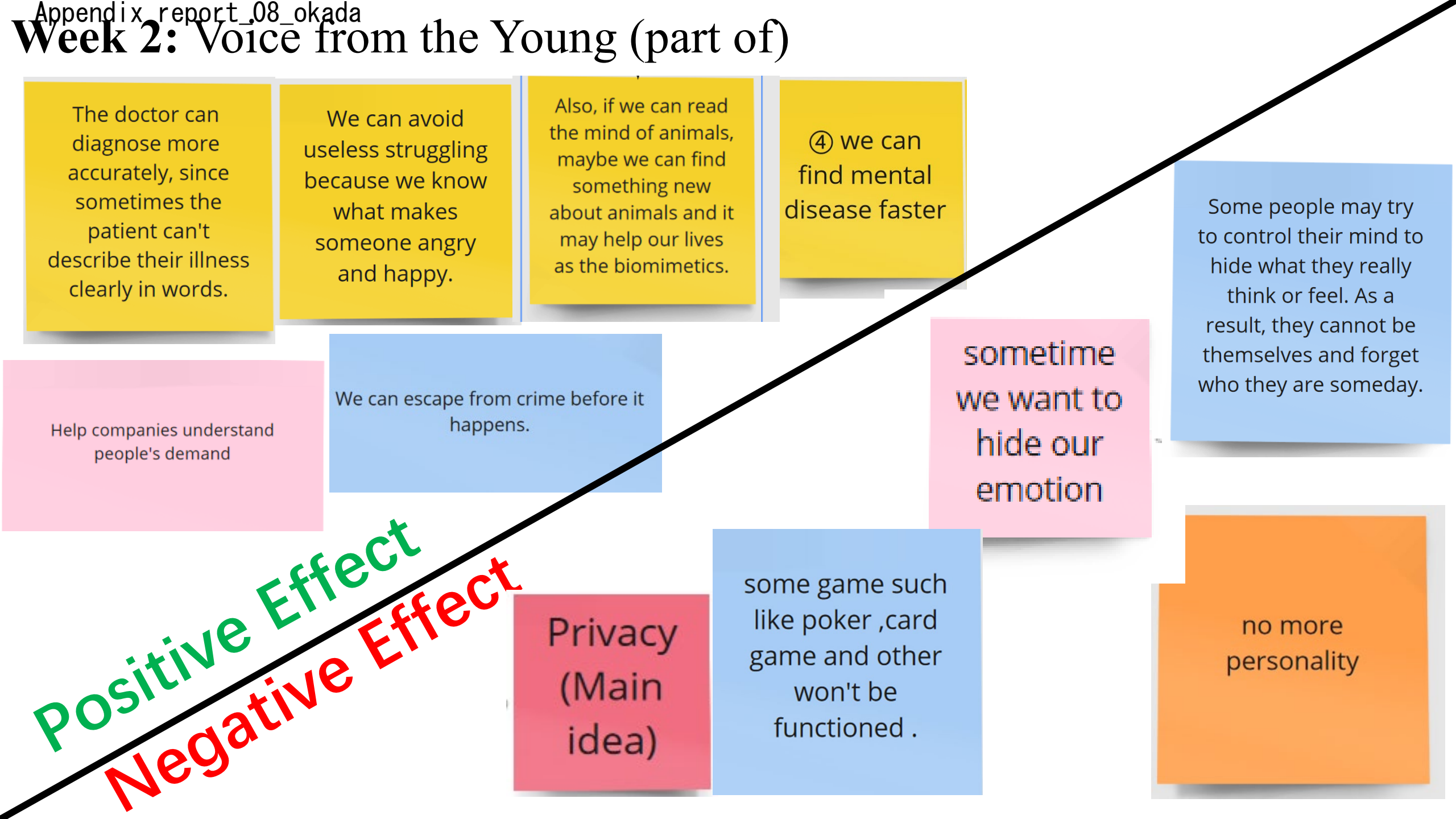
Week 2: Debate



Week 2: Group Discussion



Week 2: Voice from the Young (part of)



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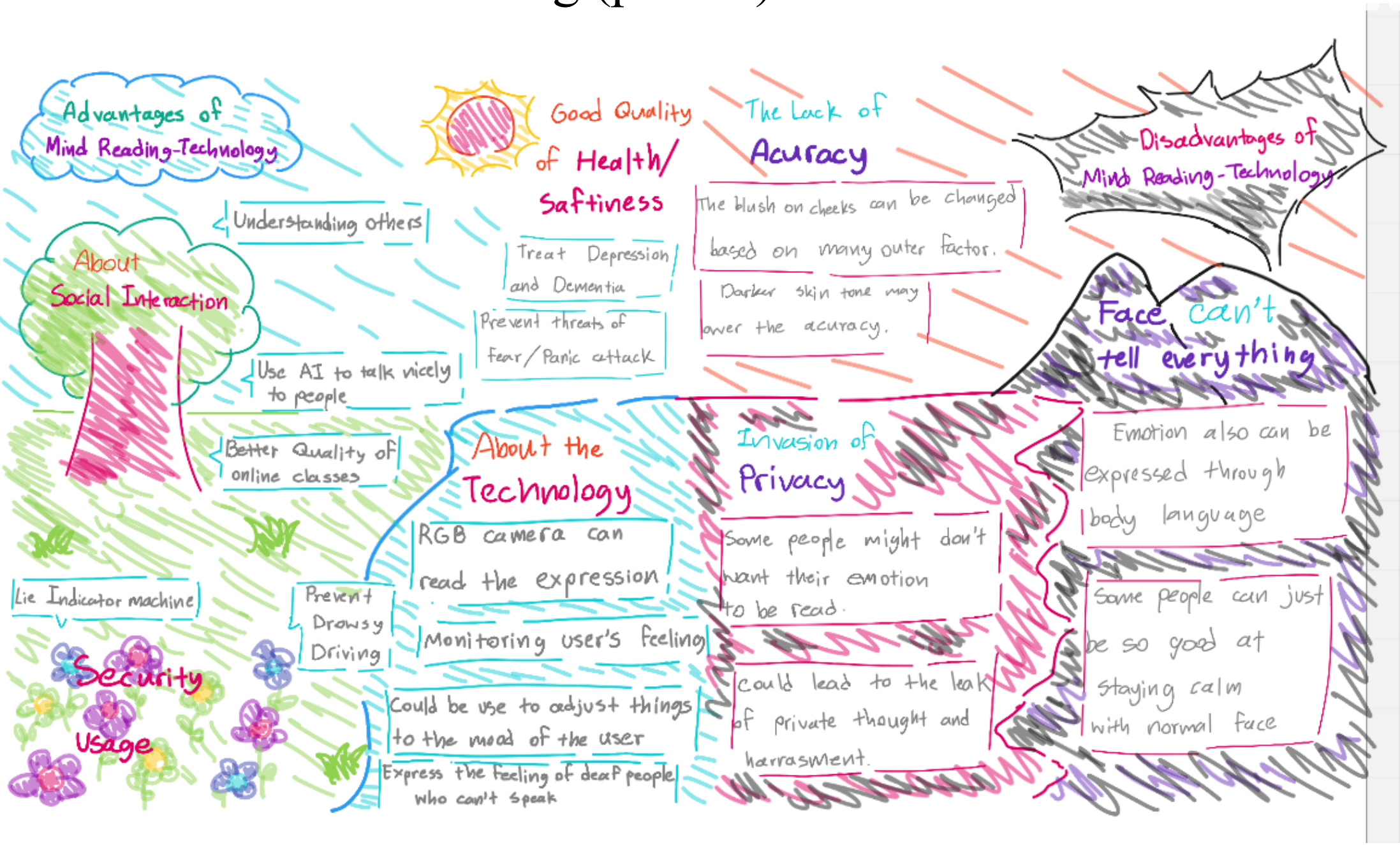
Week 2: Voice from the Young (part of)



Appendix report_08_okada

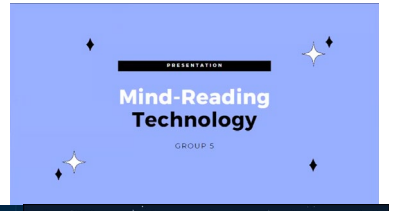
Moonshot Workshop Report

Week 3

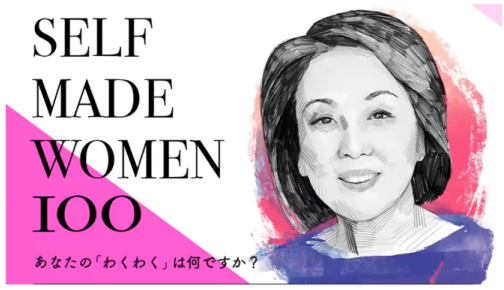
Appendix report_08_okada

Week 3 Outline

- 5 min — Opening
- 60 min — Presentation
  - Group 1 — 5 min
  - Group 2 — 5 min
  - Group … — 5 min
  - Group 10 — 5 min
- 10 min — Vision Leader Speech
- 15 min — Award Ceremony



Vision Leader



Dr. Sachiko Kuno

Woman entrepreneur
Social entrepreneur
Researcher
Company executive

The Ernst and Young Entrepreneur of the Year Award for the Greater Washington Area in the Life Sciences Category 2007
One of the 25 "Women Who Mean Business" by The Washington Business Journal 2009
One of Forbes Magazine's America's Richest Self Made Women 2015 and 2020
The World's 100 Most Powerful Women by Forbes Japan 2015
Stateswoman of the Year 2016 by the Harvard Business School of Japan
The AVON Awards to Women 2016
One of Washingtonian's 2017 Tech Titans

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

Striving for Better World!

For Team Okada 2021.06.16

[S&R] Foundation
WE Capital

Sachiko Kuno, PhD
President, S&R Foundation; Founder and Chair, Halcyon
Special Assigned Professor and EVP, Kyoto University
Co-Founder, Phoenixi; Co-Founder, WE Capital

Phoenixi Super Ecosystem
halcyon

Appendix_report_08_okada

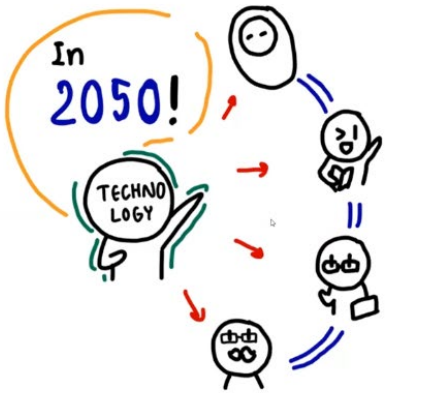
Week 3 Final Presentation (Sample of Outstanding Speech)

Group 7 presentation

Introduction

Free space　Communication

Cyber-bullying

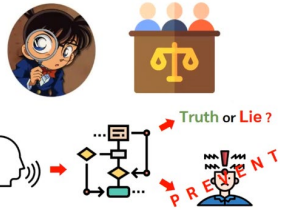


HOW TECHNOLOGIES WILL INTERFERE OUR LIVES?

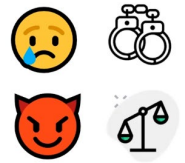
let's goo

Investigation and Judgment

Positive [Tinna's]



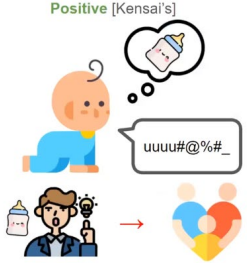
Negative [Group7's]



human consideration

Babysitting

Positive [Kensai's]

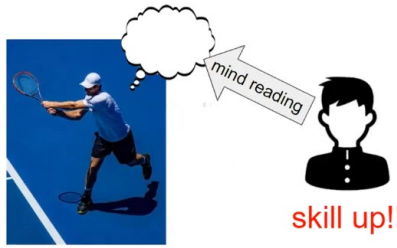


Negative [Passanan's]

Under parental control !

Learning and training process development

Positive [Hikaru's]



skill up!!

Negative [Reimi's]

Invasion of privacy

We need to get permission

Human relationship

Positive [Diamond's]

Negative [Poon & Yu's]

Both of good and bad effect on relationship

Appendix_report_08_okada

Week 3 Final Presentation (Sample of Outstanding Speech)

PROPONENTS OF MIND-READ TECHNOLOGY

- **COMPANY** — Companies can understand people's demond.
- **DISABLED PERSON** — Helping people who can't speak or otherwise express their feeling

OPPONENTS OF MIND-READ TECHNOLOGY

MISTAKE OF MACHINES

Overconfidence lead misunderstandings

SOCIAL ANXIETY

Mind-read technology > normal human's mind reading behavior

Social anxiety disorder : fear of being judged negatively

PROPONENTS EFFECT OF MIND-READ TECHNOLOGY ON HUMAN RELATIONSHIP

MIND Understanding the state of mind

DON'T FEEL BAD Knowing the emotions

MORE RELATIONSHIP Stronger and closer relationship

OPPONENTS EFFECT OF MIND READ TECHNOLOGY ON HUMAN RELATIONSHIP

Crime prevention camera

Using deep learning of AI

law

To prevent outlaws

Definitely change our relationship with other people

Appendix report_08_okada

Week 3 Final Presentation (Sample of L.E. Challengers)

Mind-Read Technology

Group 1 members

r Presentation Schedule

02 Negative Side O

01 Positive Side Opinion

03 Conclusion

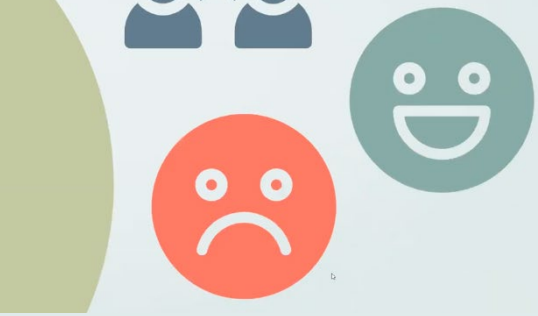
Court
Take correct judge

Hospital
Take the best treat

Consumer
Know mind of consumer

Relationship

There is no privacy.And if we don't have privacy,many people will try to control and hide their mind and they will forget their own mind.



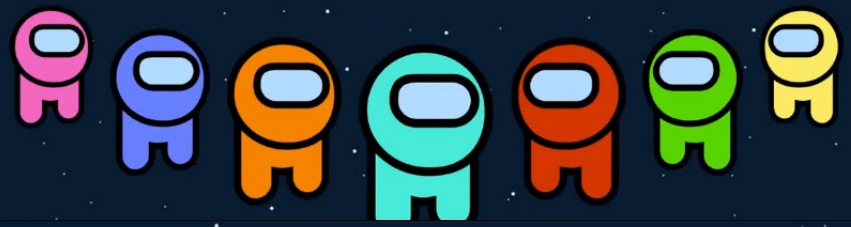
Solution of Negative Points

Add the system of hide and represent there emotion themselves anytime.

Week 3 Final Presentation (Sample of L.E. Challengers)

IMPACTS OF MIND READING TECHNOLOGY

There are 4 Impostors among us



ADVANTAGES < DISADVANTAGES

⇒REGULATIONS

01 Predict & Prevent Crime

02 Understanding

03 Communication

04 Privacy

05 Masking

06 Accuracy

WE CAN'T PLAY AMONG US!!!

Appendix report_08_okada

Week 3 Final Presentation (Sample of Dr. KUNO Special Award)

G4
Moonshot

MIND-READ TECHNOLOGY

4 main points

1. Jobs
2. Mental disease
3. Relationship
4. Studying

Jobs -Positive-

No lie
easy in advance (negotiating etc.)
real impression --> Better manufactures

Police officers and suspects
--> smooth, exact interrogation

Jobs -Negative-

Unemployment (counsellor etc.)
49% of all jobs --> disappear in 20 years
Developing this technology --> more jobs will be replaced by it

Art
A picture which was painted by AI --> 48 million JPY (13.6million THB)
The value of art and artist --> decrease

Mental disease -Positive-

Diagnose more accurately
Sometimes patients can't describe their illness or they lie
--> their real feeling can be explained via this technology

Find disease faster
From application's results of how they feel
For example, panic in phobia situation (darkness, insects, narrow space etc.) --> they will be nervous more.

Mental disease -Negative-

Error
- Misdiagnosis (complicated mind make it hard for AI)
- In mental therapy --> make more serious mental illness
- AI malware, which maybe affect patients.

Relationship -Positive-

Friends
Understand each person's personality
--> make friendship easily

Yourself
Know how you feel with me
--> improve myself to be better

Relationship -Negative-

Others will know/notice our mind
--> private, frustration

No joke or good lie
--> not fun

Studying -Positive-

Presentation
Presenter can get some responses from audience
--> They can improve presentation skill next time.

Online learning
Teachers know how their students feel while studying
--> Teachers can adapt their teaching style to make students pay more attention.

Studying -Negative-

Being able to cheat in the exam
- friends mind
- teachers mind

RITSUMEIKAN ROBOTICS
立命館大学 ロボティクス学科
大学院 ロボティクスコース

Department of Robotics
Faculty of Science and Engineering
Ritsumeikan University

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

General Chair: Okada Shima, Ritsumeikan University
Workshop Chair: Okada Shima, Wang Tianyi, Ritsumeikan University
High School Organizing Chair (Japan): Tanaka Hiroshi, Takeda Nanako, Ritsumeikan Junior and Senior High School
High School Organizing Chair (Thailand): Thanaphat Sinthawashewa, Mahidol Wittayanusorn School
Technique Support Chair: Tusji Ryohei, Ritsumeikan University
Online Workspace Chair: Masuda Hazuki, Ritsumeikan University

Partner Institutions

Ritsumeikan Junior and Senior High School

โรงเรียนมหิดลวิทยานุสรณ์
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RITSUMEIKAN GLOBAL INNOVATION RESEARCH ORGANIZATION
R-GIRO

Ritsumeikan Global Innovation Research Organization
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