

Job Seekers' Learning Attitudes in the face of Digital Disruptions and the COVID-19 Pandemic: Investigating an Upskilling Programme in Singapore

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Presentation outline

- Industry 4.0 and the Future of Work
- Rethinking Human Capital Theory for Industry 4IR
- Singapore's Policy Response
- Study of SkillsFuture Singapore SGUS Programme: Trainees and Findings

Industry 4.0 and the future of work

- Industry 4.0 and technological job disruptions (Acemoglu and Autor, 2011)
- Rapid transformation of jobs and industries (Frey and Osborne, 2013; Skog et al., 2018)
- COVID-19 accelerating digitalisation and digital transformation:
 - Platform/gig economy and remote work
 - Widespread industry disruption, growth of new digital sectors/start-ups and advanced manufacturing



Rethinking Human Capital for Industry 4IR

- Investment in education, skills and training to achieve greater earnings and productivity (Becker 1962; Mincer 1958; Schultz, 1961)
- Oversimplifies complex nature of production and differential opportunities/outcomes in education/labour (Bowles and Gintis, 1975; Marginson, 2019)
- Rethinking human capital in the digital age:
 - Role of advanced technologies in boosting demand for skilled and educated workers (Brown et al., 2010)
 - Mismatch between education, training, and skills (Borner et al., 2018; Osmundsen, 2020)



Singapore policy responses

- Long-term investment in education to drive productivity due to limited natural resources (Osman-Gani, 2004)
- Increased policy focus on reskilling in the context of digital disruption (Nair et al., 2021).
 - Industry Transformation Maps (ITMs) (2017)
 - Continuing Education and Training (CET) (2008; 2014)
 - SkillsFuture Singapore (SSG) (2019)
- Current measures focus on job outcomes:
 - Post-course evaluation surveys, longitudinal studies on impact of training on workers (SSG-MTI)
 - Tracking of labour market and training statistics



Additional COVID-19 Labour Market Responses

- SGUnited Skills Programme - SGUS (2020)
 - Part of SGUnited Jobs and Skills Package
 - Certifiable courses by CET Centres
 - Monthly training allowance of S\$1200 and career advisory
 - Modular, flexible exit upon job employment
 - Focused on acquiring in-demand and emerging skills

SKILLS *future* SG

SG UNITED

a Singapore Together initiative



Study of SGUS Trainees

Present Study

- 91 trainees taking part in SGUS programme (commenced July 2020) for Singaporean/ PR job seekers
- 6-12 months certifiable courses by CET Centres including Institutes of Higher Learning (IHLs) - NUS and SUTD
- Programmes: FinTech, Data Science; Digital (HR, Marketing); Advanced Manufacturing

Research Aims and Methods

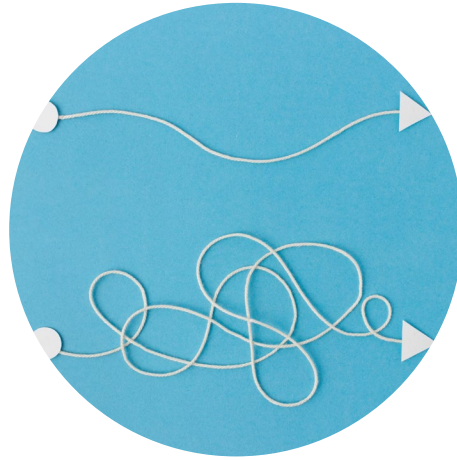
- Study focused on three key areas: (1) participants' perceptions towards learning, (2) perceived usefulness of upskilling and (3) their self-efficacy in completing the programme
- Understand potential mismatch in participant expectations with programme design objectives
- Examine differences across participants with varying work experience
(“early career”: less than 10 years of work experience; “mid to late career”: 10 or more years of experience)
- Preliminary findings/baseline survey conducted at the start of programme

Going beyond job outcomes



MOTIVATION

Motivation and outcome expectations key to individual's learning



LEARNING ADAPTABILITY

Adaptability and willingness to learn are important for learning tech-related processes and tools



SELF-EFFICACY

Self-belief in ability to accomplish desired goals affects motivation for upskilling

Survey measures

Usefulness of skills upgrading (Lim and Chan, 2003)

5-items measuring success in completing skills-upgrading. Example questions:

- My job should be more secure if I upgrade my skill level
- My pay will increase if I upgrade my skills

Learning self-efficacy (Lim and Chan, 2003)

7-items measuring success in completing skills-upgrading. Example questions:

- I will have no problem learning new skills
- I will have the capability to handle the demands of an upgrading course
- As a person gets older, he/she will find it harder to learn new skills

Adaptability (Learning subscale) (Ployhard and Bliese, 2006)

9-items measuring adaptability to learning and development. Example questions:

- I take responsibility for acquiring new skills
- I often learn new information and skills to stay at the forefront of my profession
- I am continually learning new skills for my job

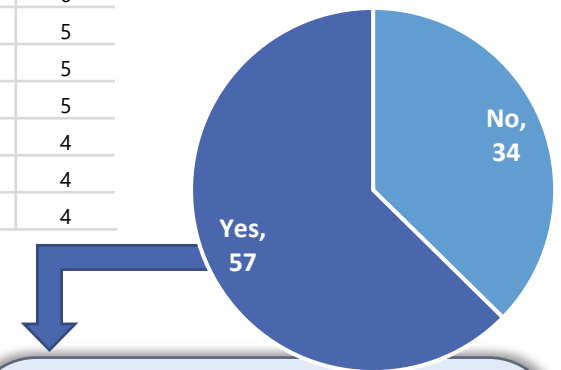
Key finding 1: Course choices reflect transitions to growth sectors

- Participants come from a range of industries
- Many are transiting to growth sectors such as Fintech, Data Science, Advanced Manufacturing etc.
- This observation is encouraging and aligns with the aims of the SGUS programme to reskill workers and help them transit into new growth sectors

Sector Breakdown

Financial services	19
ICM (ICT & Media)	15
Education	7
Healthcare & Community care	6
Oil & Gas, Marine & Shipping	5
Construction/ facilities management	5
Transport and Logistics	5
Advanced Manufacturing	4
Retail	4
Human Resources	4

SGUS Programme in Different Sector



New Sector Breakdown

Advanced Manufacturing	7
Data Science	11
Digital HR	2
Digital Marketing	3
Digital skills	1
Fintech	21
Infocomm and Media	5
Prefer not to say	7

Key finding 1: Course choices reflect transitions to growth sectors

- “Early career” transiting toward doing data science (25% vs 13.8%); More “mid to late career” prefer advanced manufacturing than “early career” (17.2% vs 7.1%)
- Indicates willingness among both early and mid to late career participants to transition from disrupted sectors to growth sectors through skills training

	Total Sample (n = 91)	Early Career (n = 48)	Mid to late career (n = 43)
Undertaking SGUS Programme in a different sector			
Yes	62.6	58.3	67.4
No	37.7	41.7	32.6
New Sector Breakdown (Yes)			
<i>n</i>	57	28	29
Fintech	36.8	39.3	34.5
Data Science	19.3	25.0	13.8
Prefer not to say	14.0	17.9	10.3
Advanced Manufacturing	12.3	7.1	17.2
ICM	8.8	3.6	13.8
Digital Marketing	5.3	3.6	6.9
Digital HR	3.5	3.6	3.4

Key finding 2: Trainees upskill to transition

- Participants see need to learn new skills and take personal interest in skills required in growth sectors
- Upskilling is seen as a means to achieve career goals (new career pursuit/industry)
- Promising sign that workers are taking ownership in upgrading themselves

Reasons for participating in SGUS Programme	Total Sample (n = 91)	Early Career (n = 48)	Mid to late career (n = 43)
Learn new skills in growth sectors of the future	22.8	21.7	24.0
Personal interest in the topic	19.5	17.5	21.7
Relevance to the career I want to pursue	18.0	18.2	17.8
To move into a new industry	12.9	14.7	10.9
Provision of a monthly stipend	10.7	9.8	11.6

Note: The figures represent the percentage of participants who reported the motivation.

Key finding 3: Trainees are new to upskilling

- More than half of the participants had not attended any training before. This is an area of concern in the context of digital transformation in industries and the nature of jobs
 - Training participation is comparatively lower for company-led trainings
 - Half of “Mid to late career” participants had attended government-supported training within the last six months, possibly related government supported training schemes made available due to the pandemic
- Self-initiated trainings (e.g., MOOCs) were attended more amongst “early career” than “mid to late career” participants

	Total Sample (n = 91)	Early Career (n = 48)	Mid to late career (n = 43)
Last attended skills training (Govt-supported schemes e.g. SkillsFuture, e2i/PCP/WSG, R3)			
In the last 6 months	20.9	16.7	25.6
In the last 12 months	4.4	4.2	4.7
In the last 2 years	12.1	12.5	11.6
Longer than 2 years	8.8	8.3	9.3
Have not attended any	53.9	58.3	48.8
Last attended skills training (Company-led in-house job training)			
In the last 6 months	3.3	4.2	2.3
In the last 12 months	6.6	6.3	7.0
In the last 2 years	14.3	16.7	11.6
Longer than 2 years	13.2	4.2	23.3
Have not attended any	62.6	68.8	55.8
Last attended skills training (Massive Online Open Courses e.g. Coursera, Udemy etc.)			
In the last 6 months	29.7	35.4	23.3
In the last 12 months	8.8	10.4	7.0
In the last 2 years	0.0	0.0	0.0
Longer than 2 years	2.2	2.1	2.3
Have not attended any	59.3	52.1	67.4

Key finding 4: Positive perceptions of upskilling and self

- “Mid to late career” participants reported similarly high learning adaptability and upskilling self-efficacy as “early career” participants.
- Participants perceived that upskilling is useful and important for their careers. No difference between career stages.

	Total Sample (n = 91)	Early Career (n = 48)	Mid to late career (n = 43)	Difference between groups (p)
Learning Adaptability	4.05	3.91	4.21	0.66
Upskilling Self-efficacy	3.97	3.92	4.03	0.24

	Total Sample (n = 91)	Early Career (n = 48)	Mid to late career (n = 43)	Difference between groups (p)
Perceived Usefulness of Upskilling				
My job should be more secure if I upgrade my skill level	3.54	3.63	3.44	
Skills upgrading will improve my chances of promotion	3.45	3.56	3.33	
My pay will increase if I upgrade my skills	3.27	3.40	3.14	
Upgrading of skills is not important in my job*	3.89	3.73	4.07	
Skills upgrading may not make my job any easier*	3.36	3.29	3.44	
Overall	3.50	3.52	3.48	0.33

Note: Scores are mean scores. Responses were on a 5-point Likert scale, ranging from 1 ‘Strongly disagree’ to 5 ‘Strongly agree’. *Reverse-scored for analysis

Discussion: Trainings can be more applied and tailored

- Applicability of the learning outcomes
 - Programme focus on providing knowledge and skills that are relevant to the course area
 - Opportunity for programme participants to have hands-on experience to increase transfer of training
 - Adult internships or short industry attachments could be incorporated into programme design
- Differences in perceived difficulty of such training programmes
 - Participants come from varying backgrounds
 - More targeted approach required
 - Pre-requisite courses or bootcamps helpful for participants without necessary skills
 - Automated self-assessment quizzes at point of course selection helpful for participants to gauge their competency levels as required by different courses
 - Course descriptions can be better tailored according to prior levels of knowledge

Conclusion

- Part of ongoing study on the effectiveness of the SGUS Programme
- Findings from first stage – study to continue tracking progress of trainees after programme completion
- Initial findings show that programme has provided workers with opportunity to upskill and reskill in preparation to enter new growth sectors
- Matching of programme to personalised needs of workers could be improved
- Trainees motivated to undergo and complete the programme
- Participants had positive attitudes as well as strong sense of self as they embarked on the programme
- Overall encouraging sign for policymakers exploring similar programmes to address the reskilling and training needs of their workforce

Thank you for your time

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