The Workforce Development Applied Research Fund (WDARF) Grant Call Singapore - 2020

RESEARCH FOCUS

Contents

PREFACE

Globalisation and the technological revolution that began in the last decades of the 20th century have affected how, what, and where we work. Coupled with the local labour market conditions, they are impacting current and future workforce development at a pace that has not been experienced before.

On the global front, there is growing access to and use of information and communication technology, which is changing how goods and services are produced and how they are provided and consumed. There is also growing employment in high-skilled and services occupations, as well as creation of jobs with new skills required. With the rapid pace of skills obsolescence and technology deployment at the workplace, many of the jobs today will not exist in 2030. A list of reports on the recent developments in the area of workforce development and lifelong learning is attached in Annex A.

On the local front, Singapore is growing its economy, transforming the enterprises and creating opportunities for its people. As emphasized by the Deputy Prime Minister Mr Heng Swee Keat during the Budget 2020: Advancing as One Singapore[1], the third thrust of Singapore's Transformation and Growth effort is to develop its people by bringing in different partners, including Institutes of Higher Learning (IHLs), enterprises and the labour movement.

At pre-employment training stage (tertiary education), the IHLs provides a strong foundation in learning, and have partnership with industry. IHLs and the industry have distinct roles, and by aligning these to keep learning relevant, students can secure good jobs.

During the working years, the SkillsFuture movement seeks to enable the people to learn, develop new skills and stay employable. This is against the backdrop of shorter technology cycles and more intense global competition. Skills acquired when young needs to be constantly refreshed, and career transitions will be more common.

There is also a special focus on mid-career workers currently in their 40s and 50s. As enterprises restructure, the nature of jobs has changed. The mid-career workers can seize these opportunities and do better for themselves and their families. New initiatives such as SkillsFuture Mid-Career Support Package provides incentives

---

[1] Details on the budget speech can be found at https://www.singaporebudget.gov.sg/budget_2020/budget-speech

to employers who hire local jobseekers aged 40 and above through a reskilling programme.

A senior worker support package has also been introduced to support the seniors' aspirations to work longer, including the provision of grants to employers for hiring seniors.

As part of the efforts to enable the people to access good jobs, earn good wages and stay employable, the next bound of [SkillsFuture](#) aims to[2]:

    a.   enable individuals to continue learning;

    b.   enhance the role of enterprises in developing their workforce; and

    c.   have a special focus for mid-career workers through a new SkillsFuture Mid-Career Support Package for locals in their 40s and 50s to help them stay employable and move to new jobs or new roles.

Realizing the SkillsFuture key thrusts requires evidence-informed policies and development of best-in-class practices that are underpinned by high quality, reliable, and responsive workforce development research. Unlike the quantity and quality of research efforts and capabilities in other areas, workforce development research activities in Singapore could be considered as still in its infancy.

To proliferate research relevant to realize the SkillsFuture key thrusts, we have therefore set up a national-level research fund. Called the Workforce Development Applied Research Fund (WDARF), the fund will:

    a.   Allow for the expansion of our research scope and capability in the three research thrusts presented in following chapter to meet our policy development and programme design needs; and

    b.   Provide funds for competitive bidding to allow research institutions and individuals to further contribute to our research.

To be considered for funding through the WDARF, researchers' proposed projects must be in at least one of the three key research thrusts articulated in this document.

---

[2] Details on the next bound of SkillsFuture can be found at https://www.ssg-wsg.gov.sg/budget2020.html

RESEARCH FOCUS

Research Thrust A

Enabling and Sustaining Economic Performance through Workforce Development and Skills

This research thrust aims to generate insights and provide recommendations for sustaining Singapore's competitive advantage in the global economy through workforce development and skills. Research should be directed at examining skills strategies and utilisation, nature of jobs and employment arrangements, returns and other benefits of Continuing Education and Training (CET) investments, and the impact of skills on workplace outcomes (e.g. productivity, innovation, learning, skills retention) and business performance. This enables Singaporeans to access good jobs, earn good wages and stay employable.

Broad research question:

What is the role of workforce development and skills in enabling and sustaining economic vibrancy and growth in Singapore?

Areas of focus:

1. Skills strategies and utilisation

2. Returns on investment to workforce development and skills – individual, organization, society

3. Future of Work – Impact of technological advancements and new business models on skills and workforce development

Research questions may include but are not limited to the following:

1. Returns on Investment

    a. To what extent, do large, medium and small size employers understand, recognise, develop and pay for skills since the successful completion and launch of the skills frameworks? What are their means of doing so?

b. What are the returns on skills investment (e.g., individual income, business performance, economic growth and competitiveness) to individuals, enterprises and society?

c. Do large enterprises have the influence to lead smaller enterprises in its industry to increase skills contents of jobs and skills of the workforce? If there is, how could the large enterprises lead these other enterprises?

2. Job Design

   a. What are the archetypes of job content designs in Singapore, and their corresponding propensity to learn new knowledge and skills?

   b. What are the drivers of job redesign and its impact on skills and jobs (salary, retention, attraction)?

   c. How is job design impacted by the digitalisation of the workplace and production process(es)?

   d. What are employees and employers' perspectives on job re-design and job crafting, and how can they be supported in the transformation of workplaces?

   e. How can companies (re)design jobs and work processes to improve business performance?

3. Technology and Automation

   a. What is the automation potential of organisations' functional areas and work tasks?

   b. What is the impact of technology on the future of work, jobs, labour market structure?

c. How have job roles changed or are changing against the broader changing global and technological-laden landscape?

d. How can workplaces transform to better leverage skills and experience (especially of the older workforce) vis-à-vis technologies?

e. What are the methodologies to study and monitor job role changes as a result of impact of technology?

f. What implications do the emergence of the gig economy have on skills development and acquisition?

4. Measuring Outcomes

a. How do we define and measure training outcomes? Apart from Kirkpatrick's Training Evaluation Model, how can we measure training quality and what would be critical tracking indicators in such measures?

b. How can we measure outcomes from on-the-job training in terms of workplace performance and employment outcomes (such as increased wages and employability), as compared to classroom training and informal learning?

c. How do we measure the impact of funding schemes on encouraging skills upgrading, improving career options and raising earning potential?

d. What are the non-monetary behavioural nudges that the agency could deploy to achieve manpower development outcomes (e.g. improving career options and raising earning potential, opportunities for in-company placements and improved work satisfaction)?

e. How are the following supported and what other ways can they be supported?

      i.   Recognition of skills;

     ii.   Assessment of skills and workplace performance

    iii.   Utilisation of skills

5. Talent and Skills Strategies

    a. How are talent and skills strategy(ies) understood and deployed in organisations? What are the outcomes from these strategies and deployments in terms of business outcomes, productivity and talent performance?

    b. How do organisations' talent and skills strategy(ies) affect low income workers and the success of their businesses?

    c. How can workplaces facilitate skills acquisition and skills utilisation?

6. What are the skill trends in the short, medium and long-term?

    a. How can emerging skills be identified? How does training address skills trends and emerging skills?

    b. How do enterprises identify current and future skills needs?

7. What is the relationship between productivity and lean manpower schemes and initiatives and skills utilisation?

    a. Why, when and how do companies make use of productivity and lean manpower schemes and initiatives?

    b. How do productivity and lean manpower schemes and initiatives shape companies' HR practices?

c. How do companies decide on the balance between a high skills manpower strategy and other manpower and productivity initiatives?

d. How can the interventions result in lasting behavioural change beyond the duration of the intervention/initiatives?

Research Thrust B

Shaping Employment and Continuing Education and Training (CET) Decisions of All Stakeholders

This research thrust aims to support the formulation and implementation of policies, strategies and initiatives by identifying the key factors influencing career, employment and CET decisions, including the understanding of cognition, emotion and behaviours of all stakeholders concerned (i.e. individuals, employers, career facilitators, policy-makers). Research should include exploration of various approaches and tools (e.g. behavioural insights, financial and non-financial incentives) that could be used to guide locals towards better leveraging of learning, better employment outcomes and improved career resilience.

Broad research question:

How can we support all stakeholders concerned to make better employment and CET decisions? What are the career and education trajectories that individuals are experiencing in an increasingly digitalised economy and society?

Areas of focus:

i.   Employment facilitation and career guidance

ii.   Lifelong learning culture

iii.   Incentive/ intervention design

Research questions may include but are not limited to the following:

1. What are the lessons that could be gleaned from the different monetary nudges (e.g. SkillsFuture Credits, Mid-Career Enhanced Subsidies), and information nudges (e.g. MySkillsFuture Portal, and SkillsFuture Advise workshop) on the effectiveness of shaping decision making to undertake skills upgrading?

2. What are the roles and efforts of education and training providers (including IHLs and private training providers) in driving the consumers' desire to sign up for SkillsFuture supported training?

9

3. Career expectations and career decision making

   a. What impact does the digitalisation of the workplace and occupation has on an individual's career? How is the labour market being impacted by such digitalisation?

   b. How are individuals planning their careers and navigating the pathway to their career goals in a labour market that is seeing more diversity in employment arrangements?

   c. What is the role of professional career facilitators in supporting individuals' career navigation and decision-making (i.e. longitudinal study) in a digitalised labour market?

   d. What are workers' attitudes towards employment and career development, and how do these affect how they plan for their careers/employment?

   e. What are the strategies to encourage proactive career planning, especially for those who are currently employed?

   f. What is the impact of various career transition programmes (public and private) in the market? What are the features of successful career transition programmes?

4. Understanding the unemployed and/or older workers

   a. What are the new ways that are emerging to support the unemployed and/or older workers in a technology rich economic environment?

   b. What is the recovery process following job loss and does it vary according to industry or workforce segment?

c. What are the changes in the characteristics of the long-term unemployed (LTU) in Singapore and what are the key contributing factors?

5. Building a career-resilient workforce

   a. What can be defined as a career-resilient workforce? What are the changes that individuals are experiencing to obtain a job and stay employable?

   b. What enhances and constrains career resilience and how can it support an individual's career development?

   c. How do individuals develop career resilience? What are the strategies for fostering individual ownership of career planning and job search?

   d. How do workers and employers perceive the relationship between education, employment, future of work, and how have their beliefs and perceptions changed over time?

6. What key competencies are needed in the changing employment landscape and what are the best ways to develop such key competencies?

7. Employers' recruitment needs and strategies

   a. How have the key indicators used by employers for assessing potential job candidates (e.g. soft/hard skills, work experience, paper qualifications) change with the changes in business needs and increasing digitalisation of work and production?

   b. What is the impact of wage subsidy on employer's decision to hire and retain workers?

c. How could employers work with education and training providers to improve training quality and the responsiveness of the training to business needs?

d. How can training be evaluated to support employers?

8. Career facilitation services

a. How can we enable job seekers to use self-help tools effectively to support their career development? What are the effective self-help tools available in the market today, and how can we enable job seekers to use self-help tools effectively to support their career development?

b. What is the impact of training subsidy on individuals' commitment to learning and eventual placement in job?

c. What is the impact of wage subsidy on individuals' placement, retention and job motivation outcomes?

d. How will labour market trends (e.g. gig economy and emerging growth sector) affect employment facilitation and career guidance strategies?

9. Pre-Employment Education and Training (PET) upgraders (referring to students who seek to continue upgrading before starting full time employment) and their CET decision making process

a. Who are the PET upgraders?

b. Where are they upgrading from?

c. When do they make their upgrading decisions?

d. What are their mental models when deciding to upgrade?

e. What factors influence their choice of PET upgrade?

f. Who influence their decision-making?

g. Who finance their PET upgrade?

h. What channels do they get their information to shape their decisions?

i. What are employers' perceptions of PET upgraders?

j. How do employers' recruitment criteria affect PET upgraders?

k. How does PET upgrading decision affects graduate employment outcome?

10. Stakeholders' roles in enabling a vibrant, sustainable, responsive skills ecosystem

a. How can employers work with education and training providers to improve training quality and the responsiveness of the training to business needs?

b. How can trade associations and chambers (TACs) in Singapore play a larger role in fostering a quality CET system/ high-skills ecosystem as well as facilitate skills matching and job placement?

c. What are the successful partnership models and roles of various stakeholders (learners, employers, training organisations, public agencies, Trade Association and Chambers) that enable a vibrant, sustainable, responsive skills ecosystem?

11. How can the features of work and job be designed to facilitate/optimise the match between skills and aspirations of individuals and the work/job demand? How can jobs be better clustered to facilitate/optimise the match between skills and aspirations of individuals and the work/job demand?

12. Skills Upgrading

a. How can workers be better equipped with skills and experience to new jobs and next careers?

b. How can individuals make use of labour market insights to make sense of choices and make decision making on re-skilling and up-skilling?

c. What skills can be used across different occupations?

d. How can workers be better equipped with these adjacent skills?

13. What are the ways to motivate and influence individuals to take ownership of learning, skills acquisition and employment in a sustainable manner?

14. What is the extent of individuals' and employers' reliance on incentives/interventions for CET and employment facilitation?

15. What is the impact of government support for self-directed learning on the business models of training providers and individual learning behaviour?

16. What is the impact of government grant (including course fee funding) and initiatives in shaping CET decisions?

17. Lifelong learning Culture

a. How has lifelong learning evolved and what should be its role in a digitalised economy?

b. How do we engender and sustain a lifelong learning culture? How do we inculcate a culture of self-directed learning from young?

c. How do we determine or know how pervasive or 'un-pervasive' lifelong learning culture in individuals or in Singapore is?

d. How do we grow, develop and shift mindsets to embrace lifelong learning?

e. How do we shape individuals' behaviours such that they actively engage in lifelong learning?

f. What are some key approaches and strategies to encourage and inculcate lifelong learning in individuals and in Singapore; and how may these approaches and strategies differ for different learner archetypes?

g. How may behavioural insights be used to shift mindset and nudge individuals to engage in lifelong learning?

h. Which countries are most advanced in lifelong learning and how/what can we learn from them?

18. Educational and Career Guidance (ECG)

a. How can ECG effectively impact an individual's career and training choices?

b. How should ECG approaches and strategies differ for different worker archetypes, different age groups, between students, pre-employment students and working adults?

Research Thrust C

Developing Effective and Impactful Approaches in Learning, Technology and Pedagogy to Enhance Learning and Employability

This research thrust focuses on enhancing the effectiveness and impact of learning approaches, via technology, pedagogy and innovations, as well as corresponding policy and practice considerations to achieve the desired CET outcomes. These approaches should take into account the varying needs and differences of adult learners including the aspects of accessibility, adaptability and appropriateness.

Broad research question:

What are the ways to ensure and enhance the efficacy, accessibility, adaptability and appropriateness of learning, through technology, pedagogy and innovations for effective and impactful learning and employability outcomes?

Areas of focus:

i. Blended and tech enabled-learning

ii. Adult learning

iii. Workplace learning

iv. Adult educator competencies and professional development

v. Value of learning

vi. Learning provisions

vii. Sciences of learning

Research questions may include but are not limited to the following:

1. What unique institutional arrangements would encourage the deployment of learning-tech and education-tech?

2. How does Singapore's learning provisions compare with those in global cities (e.g. China – informal learning sector, Africa – alternative education system)?

What can Singapore learn from these cities to raise the quality of our own provisions?

3. What are the driving forces behind and outcomes of trans-national organizations' investment in learn-tech to support their employees' learning?

4. How does blended learning improve adult learning outcomes? What are the best practices for blended learning?
    a. What are the barriers and reasons that contribute to the low level of digital literacy?
    b. How can we up-skill the digital literacy of target segments of the workforce (i.e. older workers, rank-and-file workers)?
    c. How can we enhance the efficacy of digital literacy programmes?

5. What are the learning needs/barriers and strategies of different groups (e.g. sectors, occupations, age, qualification backgrounds, etc.), in particular, mid-career workers? What is the definition of a quality training programme by different workforce segments and age groups? How does each group identity quality training programme for work and for personal development?

6. How can workplaces be transformed for effective workplace learning?

7. What are some of the barriers faced by employers in implementing and for employees in participating in work-learn initiatives? What is the support required for employers to effectively implement workplace learning programmes?

8. Recognising learning in, at and through work

    a. How do companies and individual understand, harness and ascertain the value

       of learning in, at and through work?

9. How should training providers respond in the new landscape of workplaces that

    are impacted by technologies/robotics and new skills and training demands from

    changing business models?

10. What are the effectiveness of new trends in learning design and delivery (e.g.

    methodologies such as informal learning/ micro-learning/ blended learning/in

    between learning) in the Singapore context?

ANNEX A – LIST OF RECOMMENDED READING

Thrust A: Enabling and Sustaining Economic Performance through Workforce Development and Skills

World Economic Forum (2020). *Jobs of Tomorrow: Mapping Opportunity in the New Economy.* Retrieved from https://www.weforum.org/reports/jobs-of-tomorrow-mapping-opportunity-in-the-new-economy

(Focuses on fast emerging professions)

International Labour Organisation (2019). *Work for a Brighter Future: Global Commission on the Future of Work.* Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_662410.pdf

(Focuses on a human-centred agenda for the future of work)

World Economic Forum (2019). *Strategies for the New Economy Skills as the Currency of the Labour Market.* Retrieved from https://www.weforum.org/whitepapers/strategies-for-the-new-economy-skills-as-the-currency-of-the-labour-market

(Documents strategies for building a skills-based labour market)

Key Journals

- Work and Occupations (https://journals.sagepub.com/home/wox)

- Journal of Industrial Relations (https://journals.sagepub.com/home/jir)

- The international Journal of Human Resource Management (https://www.tandfonline.com/action/showAxaArticles?journalCode=rijh20)

Thrust B: Shaping Employment and Continuing Education and Training (CET) Decisions of All Stakeholders

Organisation for Economic Cooperation & Development (2020). *Continuous Learning in Working Life in Finland.* Retrieved from https://www.oecd-ilibrary.org/sites/2ffcffe6-en/1/1/1/index.html?itemId=/content/publication/2ffcffe6-en&_csp_=46e1e4785a276963426792140c5707f5&itemIGO=oecd&itemContentType=book

(Focuses on the assessment of the current system of continuous learning in working life in Finland)

Organisation for Economic Cooperation & Development (2019). *Getting Skills Right: Future-Ready Adult Learning Systems, Getting Skills Right, OECD Publishing.* Retrieved from https://read.oecd-ilibrary.org/education/getting-skills-right-future-ready-adult-learning-systems_9789264311756-en#page15

(Analysis of the adult learning systems across 32 countries)

Deloitte Global Human Capital Trends (2019*). Leading the social enterprise: Reinvent with a human focus.* Retrieved from https://www2.deloitte.com/us/en/insights/focus/human-capital-trends.html

(Highlights future trends of the workforce and of organizations, the workplace learning environment, and the changing talent landscape)

Wales 4.0 (2019). *Delivering Economic Transformation for a Better Future of Work).* Retrieved from: https://gov.wales/sites/default/files/publications/2019-09/delivering-economic-transformation-for-a-better-future-of-work.pdf

(Focuses on the Wales' strategies for economic transformation through digital innovations)

Key Journals

- Work, Employment and Society (https://journals.sagepub.com/home/wes)

- Higher Education, Skills and Work-based learning (https://www.emeraldgrouppublishing.com/heswbl.htm)

- Journal of Vocational Behaviour (https://www.journals.elsevier.com/journal-of-vocational-behavior)

Thrust C: Developing Effective and Impactful Approaches in Learning, Technology and Pedagogy to Enhance Learning and Employability

UNESCO Institute for Lifelong Learning (2019). *4th Global Report on Adult Learning and Education.* Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000372274?posInSet=1&queryId=1107c3fc-7705-460f-9547-fc8025fc912b

(Global developments on adult learning that is updated once every three years.)

World Economic Forum: *Global Social Mobility Report (2020)*. Retrieved from
http://reports.weforum.org/social-mobility-report-
2020/?doing_wp_cron=1583976643.6790208816528320312500
(Offers ideas for organizations and policy makers to enhance and accelerate social mobility)

UNESCO Education Sector (2018). *Digital Credentialing: Implications for the recognition of learning across borders*. Retrieved from
https://unesdoc.unesco.org/ark:/48223/pf0000264428
(Focuses on the challenges of digital qualifications)

Key Journals

- Journal of Workplace Learning (http://emeraldinsight.com/1366-5626.htm)

- Journal of Education and Work (https://www.tandfonline.com/toc/cjew20/current)

- Research in Learning Technology (https://journal.alt.ac.uk/index.php/rlt)

- Journal of Vocational Education & Training
  (https://www.tandfonline.com/loi/rjve20)