การสำรวจความคิดเห็นของคนทำงานในสถานประกอบการอุตสาหกรรมเกี่ยวกับความต้องการพัฒนาทักษะที่จำเป็น ด้วยการศึกษาตลอดชีวิตรูปแบบออนไลน์

Opinion Survey of Industrial Workers about the Need to Develop Essential Skills through Online Lifelong Learning

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ศุภนิตา สุดสวาสดิ์*[1] Supanita Sudsaward

ดวงพร ทรัพยลักษณ์[2] Duangbhorn Sapphayalak

บทคัดย่อ

ทักษะของคนทำงานในสถานประกอบการอุตสาหกรรมมีความสำคัญในการประกอบอาชีพ คนทำงานควรได้รับการพัฒนาทักษะเพื่อเพิ่มศักยภาพของตนเองให้ก้าวทันกับเทคโนโลยีที่เปลี่ยนไปอย่างรวดเร็วการสำรวจความคิดเห็นของคนทำงานในสถานประกอบการอุตสาหกรรมเกี่ยวกับความต้องการพัฒนาทักษะที่จำเป็นด้วยการศึกษาตลอดชีวิตรูปแบบออนไลน์ มีวัตถุประสงค์เพื่อ 1) สำรวจความคิดเห็นเกี่ยวกับทักษะของคนทำงานในสถานประกอบการอุตสาหกรรม 2) สำรวจข้อมูลเกี่ยวกับการพัฒนาวิชาชีพของคนทำงานที่ได้รับจากสถานประกอบการ และ 3) สำรวจความต้องการเรียนรู้ตลอดชีวิตรูปแบบออนไลน์ของคนทำงาน โดยมีผู้ตอบแบบสำรวจเป็นคนไทยทำงานในอุตสาหกรรมที่มีความต้องการพัฒนาตนเองด้วยการศึกษาตลอดชีวิตรูปแบบออนไลน์และสามารถให้ข้อมูลทางออนไลน์ได้ เครื่องมือที่ใช้ ได้แก่ แบบสำรวจความคิดเห็นคนทำงานโดยวิเคราะห์ข้อมูลด้วยค่าร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

ผลการสำรวจพบว่า 1) ความคิดเห็นเกี่ยวกับทักษะจำเป็นสำหรับคนทำงานในสถานประกอบการอุตสาหกรรม ในเรื่อง คุณลักษณะที่พึงประสงค์ต่อการปฏิบัติงาน สมรรถนะทางวิชาชีพที่พึงประสงค์ และ

*Corresponding author, e-mail: supanita.sud@stou.ac.th
[1] ผู้ช่วยศาสตราจารย์ ประจำสำนักเทคโนโลยีการศึกษา มหาวิทยาลัยสุโขทัยธรรมาธิราช
Assistant Professor in Office of Educational Technology, Sukhothai Thammathirat Open University. email: supanita.sud@stou.ac.th
[2] อาจารย์ ดร.ประจำสำนักเทคโนโลยีการศึกษา มหาวิทยาลัยสุโขทัยธรรมาธิราช
Dr. in Office of Educational Technology, Sukhothai Thammathirat Open University. email: duangbhorn@gmail.com

ทักษะสำคัญจำเป็นที่พึงประสงค์ที่สนับสนุนการทำงานในยุคดิจิทัลทั้งหมดอยู่ในระดับเห็นด้วยอย่างยิ่ง มีเพียงเรื่อง สมรรถนะหลักและสมรรถนะทั่วไปที่พึงประสงค์ในการปฏิบัติงาน อยู่ในระดับเห็นด้วย 2) ข้อมูลเกี่ยวกับการพัฒนาวิชาชีพของคนทำงานที่ได้รับจากสถานประกอบการ ส่วนใหญ่สถานประกอบการสนับสนุนให้คนทำงานได้มีการพัฒนาทักษะที่จำเป็น โดยสนับสนุนให้คนทำงานไปอบรมพร้อมทุนการอบรม ช่วงเวลาที่เปิดโอกาสให้คนทำงานพัฒนาทักษะ คือ ช่วงเวลาทำงาน รองลงมา คือ ช่วงเวลาพัก และสนับสนุนให้คนทำงานพัฒนาทักษะที่จำเป็นต่อการปฏิบัติงานในวิชาชีพจากหน่วยงานภายนอกและหน่วยงานภายในรูปแบบออนไลน์ 3) ความต้องการเรียนรู้ตลอดชีวิตรูปแบบออนไลน์ของคนทำงาน ประกอบด้วย 1. ช่องทางการเรียนรู้ 2. สื่อและข้อมูลที่ต้องการเรียนรู้ 3. การบริหารจัดการและระบบการสนับสนุนการเรียนรู้ 4. ช่องทางการปฏิสัมพันธ์การเรียนรู้ และ 5. อุปกรณ์การใช้งานการเรียนรู้ ความต้องการทั้งหมดอยู่ในระดับมาก ยกเว้นรายการสมาร์ตโฟนที่อยู่ในหมวดอุปกรณ์การใช้งานการเรียนรู้ ความต้องการอยู่ในระดับมากที่สุด

คำสำคัญ: ทักษะที่จำเป็นของคนทำงาน สถานประกอบการอุตสาหกรรม การศึกษาตลอดชีวิตรูปแบบออนไลน์

Abstract

Skills are important for industrial workers to be able to make a living. People working in industry should be able to develop their skills to increase their potential and keep up with rapid changes brought on by advances in technology. This survey of the opinions of industrial workers about their demand for development of necessary skills through online lifelong learning had the objectives of 1) surveying workers' opinions about skills needed for industrial workers; 2) collecting data about professional development opportunities currently provided by employers; and 3) surveying industrial workers'demand for online lifelong learning. The respondents are Thai citizens working in the Thailand industry who want to develop themselves through Online Lifelong Learning and can provide information by an online survey. Data were analyzed to find percentage, mean and standard deviation.

The results showed that 1) As for opinions about skills needed for industrial workers, the workers surveyed all strongly agreed that all 3 topics were needed, namely: desired worker attributes; professional competencies; and desired skills to support work in the digital era; topic namely: core competencies and general competencies the workers surveyed agreed. 2) As for professional development opportunities provided by employers, most employers supported workers in developing skills needed for their jobs through

training sessions. The time that employers allowed workers to develop skills was mostly during work time and during breaks. Employers supported online professional skill development from outside agencies and internal agencies. 3) The workers surveyed had a high level of demand for online lifelong learning, through every channel and medium, in every subject area, through any learning management and support system, with any method of interaction, and through any device. Except for smartphones in the category of learning devices, the demand is at the highest level.

Keywords: Essential Skills, Industrial Workers, Online Lifelong Learning

Introduction

Work skills are extremely important for working people. Skill development is one thing that can change people's quality of life and help drive national economies. The imbalance between the supply and demand of work skills has meant a shortage of labour that has the skills that industries need (OECD, 2019). In Thailand, where technological advancement plays a significant role in economic and social development, strengthening people to adjust to the changing situation is essential, so it has been included in national strategic development plans. There is a strategy to develop into a society of sustainable lifelong learning included in the 11th national economic and social development plan. It puts a priority on promoting lifelong learning and strengthening social institutions.

As many as three in five people do not utilize all the skills they have in their work (OECD, 2019). At the same time, many enterprises face recruitment problems because of a shortage of workers with the needed skills. People in the workforce need to develop the skills that are in demand so they can use their skills to their full potential. Efforts to develop the population to respond to changes should focus on learning, because if people have the potential to learn then they can adjust to new situations and environments quickly and continuously. A learning society will advance through the knowledge, abilities, skills and expertise of the people who will be able to make their organization successful, no matter which organization they are a part of. Organizations have to develop their personnel to keep up with the drive to promote and support sustainable learning, that is, lifelong learning (Owararint, 2019). Work skills are intermeshed gears that are part of the mechanism of both people and organizations (DEMITER, 2020). This includes existing skills

that can be further honed and brand-new skills that can be learned. In other words, people need to both "upskill" to be able to do their jobs better and "reskill" to adjust to the changing times and situations. New technology affecting the ability to perform routine tasks that workers used to do; and these trends continue. Workers must improve their existing skills and gain new skills throughout their careers. The need for this new environment must therefore change, not sticking with outdated educational models.

In an age where technology plays a prominent role and technological advancements happen very rapidly. Every country in the world strives to develop its workforce with high levels of skills and capabilities and more specialized expertise. Therefore, the researchers want to explore opinions on how to transform the learning process using online lifelong learning to develop the essential skills for Industrial Workers, to find a way to develop oneself and this will help drive the development of the work and organization.

Literature review

Skills for industrial workers

Necessary skills for industrial workers

There are official standards and curricula defining the skills necessary for industrial workers in the 21st century, as follows.

Worker Proficiency Standards

The Department of Skill Development (the Education Council, 2018, referenced in Office of the Education Council, 2020) defines "worker proficiency standards" as "academic regulations used as benchmarks to measure the level of work skills, knowledge, ability and attitude of people working in different lines of work" as set out in the Worker Skill Development Act of 2002. The main components of worker ability and attitude are 1) technical knowledge; 2) skills; and 3) attitude.

Vocational Education Curricula The Office of the Vocational Education Commission (2017) set a vocational education curriculum according to the National Education Act of 1999, amended (Version 2) in 2002 (in the Royal Gazette). It states that to produce quality graduates of every level of vocational studies and every subject area, the students must develop in all 3 components, namely 1) desired attributes: virtue, morals, ethics, professional behavior, character, and intellectual skills; 2) core

competencies and general competencies: communication skills, ICT skills, learning development and work development, teamwork, use of the scientific method, numeracy, and work management; and 3) vocational capacities: ability to apply knowledge and skills to real life work and to pursue a vocation.

Skills for the 21st Century Panich (2012) defined learning as the acquisition of both knowledge and skills, consisting of 1. life skills and work skills; 2. learning skills and innovation; and 3. information and communications technology and media skills. Learning must be "learning by doing and thinking" and "transformative learning," which means the learner participates in creating change. Otherwise, a learner who doesn't participate in making change happen will end up being the victim of imposed changes. The essential skills for life in the 21st century can be called "the 3Rs + 8Cs:" the 3Rs are 1. Reading, 2. Writing, and 3. Arithmetic; and the 8Cs consist of 1. Critical Thinking and Problem Solving, 2. Creativity and Innovation, 3. Cross – cultural Understanding, 4. Collaboration, Teamwork and Leadership, 5. Communications Information and Media Literacy, 6. Computing and ICT Literacy, 7. Career and Learning Skills, and 8. Compassion.

Concept of Lifelong Learning

In the draft Lifelong Education Act (Office of the Council of State, 2018.) "lifelong learning" means a process of education that combines every possible form of formal education, non-formal education and informal education in order to let every citizen at every age acquire expertise according to their individual talents and inclinations, and to continue learning throughout their lives, even if they do not have access to the formal education system, by utilizing methods that fit their lifestyle so they can gain the knowledge, skills and experience they need to live and work and so they can be savvy and adjust appropriately to changes in their society and environment.

Occupational Learning

Bersin & Marc (2019) wrote that learning should be a regular part of everyone's work life. One's job can generate learning opportunities every day, such as by observing the methods and techniques of your colleagues and supervisors, and observing and analyzing people's opinions and responses to your work, as well as learning from outside sources. Workers should subscribe to many networks to get updated on news and should share interesting things they have learned with co-workers. Every organization should

check to make sure its knowledge management system is up-to-date and easy to use, and should provide online space for learning. They should promote participation in learning by the owners of the enterprise and the workers.

Online Learning for Self-Development

Organizations should encourage their personnel to develop themselves through online classes, because that will be beneficial in reducing the organization's human resources development budget, and it will be more convenient for the workers and enable them to choose what really interests them from a very wide variety of courses available worldwide. In the digital era, there is no cap on classroom size; enrolment is unlimited. Many online course providers have sprung up, allowing learners to learn at their own pace, anytime, anywhere. People can "rewind" any number of times to go back over parts that are difficult or when they were distracted. The online courses are also accessible through a wide range of devices, including smart phones. Online courses range from formal, professional subject matter to general knowledge and all kinds of informal education opportunities. They cover knowledge from general sources to experts on all kinds of special interest topics. Every working age person should adjust to this new model of learning and keep up with the technology in order to develop their potential and increase their knowledge. Besides the benefits of online learning already mentioned, enrolling in a class can help people practice discipline and responsibility. It can open avenues for increased income and could be a springboard for launching a new business (Preuk, 2019).

In summary, the necessary skills for industrial workers are the desired work attributes, core, basic, and professional competencies, and specific skills that support work in the digital age. People need to use a form of learning that fits in well with daily life so that learning will be sustainable and lifelong. It can include formal education, non-formal education and informal education. The digital era has provided multitudinous opportunities for online learning that cater to the individual needs and interests of each learner, and workers can access online learning anytime, anywhere, through a variety of devices. And employees have many reasons to want lifelong learning. Organizations should provide an online learning space specifically for learning within the organization, and it should be modern and easy to use so that it will encourage the participation of enterprise owners and all workers.

Methods

The populations are Thai citizens working in Thailand industry, amounted to 3,719,525 people. (The data from National Statistical Office: NSO, 2020). Industrial factory statistics registered with the Ministry of Industry and are allowed to operate (According to the Factory Act B.E. 2535

The respondents are Thai citizens aged 15-60 working at legally registered enterprises in the industry sector that according to official statistics of the Labour Department with their premises located in all regions in Thailand, who want to develop themselves through Online Lifelong Learning and can provide information by an online survey.

The respondents were from network sampling, Industry sector: The grouping guidelines can clearly reflect the type of business of the listed company and reflects more on the country's industry. (The Stock Exchange of Thailand: SET, 2021) Thailand is divided into 8 Industry sectors and 28 business groups as follows:

Table 1: Thailand is divided into 8 Industry sectors and 28 business groups

Industry Sectors	Business groups
1. Agro & Food Industry	1) Agribusiness 2) Food & Beverage
2. Consumer Products	3) Fashion 4) Home & Office Products 5) Personal Products & Pharmaceuticals
3. Financials	6) Banking 7) Finance & Securities 8) Insurance
4. Industrials	9) Automotive 10) Industrial Materials & Machine 11) Packaging 12) Paper & Printing Materials 13) Petrochemicals & Chemicals 14) Steel and Metal Products
5. Property & Construction	15) Construction Materials 16) Construction Services 17) Property Development 18) Property Fund & Real Estate Investment Trusts
6. Resources	19) Energy and Utilities 20) Mining
7. Services	21) Commerce 22) Health Care Services 23) Media & Publishing 24) Professional Services 25) Tourisms & Leisure 26) Transportation and Logistics
8. Technology	27) Electronic components 28) Information & Communication Technology

Instrument and Data collection

The data collection tool was an online survey developed by researchers after a review of the literature according to the conceptual framework that consisted of questions of 4 parts: 1. General data 2. Opinions about skills needed for industrial workers; 3. Data about professional development opportunities provided by employers; and 4. Demand for online lifelong learning. The questionnaire was a multiple choice and rating scale format. The survey was corrected according to vetted by experts on lifelong learning.

The online survey was disseminated through an industry sector online network and was open to receive responses for one month (during the Covid situation). The system was set up to accept only completed surveys that had a response given for every question.

The data from the received surveys was analyzed to find percentage, mean and standard deviation. Rating criteria 1-5 scale: the most is assigned 5 points and the least amount is assigned 1 point, with the following meanings:

Table: 2 Rating criteria 1-5 scale and Levels of satisfaction

Scale	Mean Range	Levels of satisfaction/Opinion	Levels of satisfaction/demand
5	4.21 – 5.00	Strongly agree	highest level
4	3.41 – 4.20	Agree	high level
3	2.61 – 3.40	Neither agree nor disagree	moderate
2	1.81 – 2.60	Disagree	low level
1	1.00 – 1.80	Strongly disagree	lowest level

Results and Analysis

The results and analysis, presently followed the research objectives of 1) surveying workers' opinions about skills needed for industrial workers; 2) collecting data about professional development opportunities currently provided by employers; and 3) surveying industrial workers'demand for online lifelong learning.

General data

A total of 341 surveys were received, a part of the workers who work in 8 industry sectors and 26 business groups. There were only 2 business groups that did not access the surveys: 1) Property & Construction; Property Fund & Real Estate Investment Trusts and 2)

Resources; Mining. For general data, 51.30% of respondents were female and 48.70% male. Most were in the 31 – 40 age group (28.20%) and were educated to bachelor's degree level (54.50%). The greatest number worked in the Technology; Information & Communication Technology (7.92%), followed by the Services; Health Care Services (7.62%), while the Industrials; Automotive, Industrial Materials & Machine, and the Services; Transportation and Logistics were all ranked number 3, with (6.74%) of respondents each. The majority (64.20%) worked at a workplace located in the greater Bangkok area. The greatest number had worked at their present place of employment for 5 years or less (39.60%).

1) Opinions about skills needed for industrial workers – There were 4 topics in this category, as follows.

1. Desired work attributes: On a Likert scale, the majority of respondents "Strongly agree" (M = 4.40, SD = 0.59) that industrial workers should have virtue, morals, and ethics such as willingness to sacrifice, honesty, endurance, conscience and a good attitude toward their career and society. They also "Strongly agree" (M = 4.39, SD = 0.63) that industrial workers should have desired work behaviour such as discipline, responsibility, unity, good human relations, regard for safety, regard for occupational health, and regard for conserving energy and the natural environment. The majority of respondents "Strongly agree" (M = 4.31, SD = 0.64) that industrial workers should have the desired intellectual skills, comprising theoretical knowledge involved with their work duties, desire to learn, creativity, and analytical thinking.

2. Core competencies and general competencies: The majority of respondents "Agree" (M = 4.15, SD = 0.71) that industrial workers should have knowledge and skill of communication to reach mutual understanding, teamwork skills, management skills, ability to develop their learning, and ability to develop work.

And next, the respondents also answer the survey on the Professional competencies as follows:

Table 3: Professional competencies

Item	M	SD	Mean Interpretation
Channels for interaction	4.28	0.69	Strongly agree
1) industrial workers should have the ability to apply their knowledge to their work			
2) practical skills for their specific job, and ability to apply their skills to their career	4.24	0.70	Strongly agree
total average	4.26	0.69	Strongly agree

3. Professional competencies: The majority of respondents "Strongly agree" (M = 4.26, SD = 0.69) that industrial workers should have the ability to apply their knowledge to their work, practical skills for their specific job, and ability to apply their skills to their career.

4. Desired skills to support work in the digital era (skills for the 21st century): The majority of respondents "Strongly agree" (M = 4.24, SD = 0.68) that industrial workers should have the 3Rs: 1. Reading, 2. Writing, and 3. Arithmetic and the 8Cs: 1. Critical Thinking and Problem Solving, 2. Creativity and Innovation, 3. Cross – cultural Understanding, 4. Collaboration, Teamwork and Leadership, 5. Communications Information and Media Literacy, 6. Computing and ICT Literacy, 7. Career and Learning Skills and 8. Compassion.

2) Data about Professional Development Opportunities Provided by Employers

The majority of respondents (84.75%) reported that their place of employment had an agency responsible for developing the work skills and knowledge of personnel. Most of them reported that their place of employment supported workers in developing skills needed for their jobs, through training sessions (59.50%), supplying facilities/sources for independent study (28.70%), or allowing them to continue their education (6.70%). Most (71.00%) had attended training sessions relevant to their line of work and supported by their employer, while 18.20% had never attended a training session, and 10.90% had gone to receive training at their own expense. The time that employers allowed workers to learn and develop skills they needed for work was mostly during work time (59.50%)

and during breaks (30.20%). Employers supported professional skill development from outside agencies, internal agencies, and online (71.30%).

3) Demand for Online Lifelong Learning

Table 4: The ways of workers learn and develop skills

Item		M	percentage
The ways of workers learn and develop skills			
	1) supervisors	170	49.90
	2) colleagues	159	46.60
	3) libraries	37	10.90
	4) websites	232	68.00
	5) social media	187	54.80
	6) applications	106	31.10
	7) online training/learning courses	195	57.20
	8) training sessions	205	60.10
	Total	341	100.00

Respondents said the major ways they could learn and develop skills needed for their work were, in order of frequency, 1. websites, 2. training sessions, 3. online training/learning courses, 4. social media, 5. their supervisors, 6. their colleagues, 7. applications, and 8. libraries (68.00%, 60.01%, 57.20%, 54.80%, 49.90%, 46.60%, 31.10%, and 10.90 %, respectively). Some respondents had taken online courses before (52.50%) and many had not (47.50%). (Figure 1.)

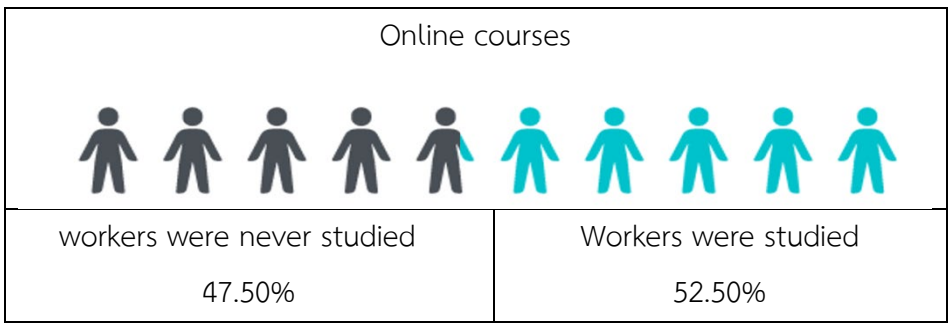

Figure 1. Online courses with workers

Respondents were surveyed about 5 aspects of their desire for opportunities for online lifelong learning to develop necessary work skills and capacities for the industry sector, as follows.

1. Learning channels: Highest mean score was for websites, such as websites of government agencies and private sector agencies that offer supplemental knowledge and skills (M = 4.17, SD = 0.82), followed by online learning services such as eLearning, MOOC, Digital platform; SkillLane, 9Skills, and RooDee (M = 4.12, SD = 0.89), social media applications like Facebook, YouTube, Twitter, Instagram, and Pinterest (M = 4.10, SD = 0.84), and lastly, applications such as Podcast, Pod bean, and Sound Cloud (M = 4.08, SD = 0.85), all of which fell in the "high" demand category.

2. Media and content: Highest mean score was for sources that compile educational media for online self-learning about jobs and industries (M = 4.10, SD = 0.81), followed by media from social media (M = 4.06, SD = 0.85), sources that compile information about workers in the industry sector (M = 4.06, SD = 0.81), stories about different jobs/careers (M = 4.04, SD = 0.80), industrial news (M = 4.01, SD = 0.77), audio-visual media (videos and video clips) about different jobs/careers (M = 3.99, SD = 0.89), image media (photographs/graphics/infographics) about different jobs/careers (M = 3.98, SD = 0.86), and lastly, media from applications (M = 3.91, SD = 0.91), all of which fell in the "high" demand category.

3. Management and support systems: The highest mean score was for a system that insures user privacy (M = 4.16, SD = 0.86), followed by user friendliness (M = 4.16, SD = 0.88), a system that can store and manage information about jobs and industries organized into different categories (M = 4.13, SD = 0.82), a system that allows users to search for different jobs and industries (M = 4.12, SD = 0.81), and lastly, a system with responsive display that can be used on different screen sizes including desktop computers, laptops, tablets and smart phones (M = 4.11, SD = 0.84), all of which were in the "high" demand category.

Table 5: Channels for interaction and Learning devices

Item	M	SD	Mean Interpretation
Channels for interaction	3.95	0.88	high
1) Web board			
2) Chat room	4.01	0.93	high
3) Comment	3.99	0.86	high
4) Email	3.95	0.90	high
5) Social media applications like Line and Instagram	4.02	0.88	high
6) Online meetings	4.03	0.92	high
7) telephone	4.03	0.90	high
Learning devices			
1) desktop computer	4.00	0.90	high
2) laptop computer	4.17	0.88	high
3) tablet	3.90	1.05	high
4) smart phone	4.38	0.80	highest

4. Channels for interaction: The highest mean score was for online meetings (M = 4.03 SD = 0.92), followed by telephone (M = 4.03, SD = 0.90), social media applications like Line and Instagram (M = 4.02, SD = 0.88), chat rooms (M = 4.01, SD = 0.93), “comment” format (M = 3.99, SD = 0.86), email (M = 3.95, SD = 0.90), and lastly, web board (M = 3.95, SD = 0.88), all of which were in the “high” demand category.

5. Learning devices: The highest mean score was for smart phone (M = 4.38, SD = 0.80) was in the “highest” demand category, followed by laptop computer (M = 4.17, SD = 0.88) and desktop computer (M = 4.00, SD = 0.90) and lastly, tablet (M = 3.90, SD = 1.05), were in the “high” demand category.

Discussion

The researchers survey to explore opinions on how to transform the learning process using online lifelong learning to develop the essential skills for Industrial Workers, to find a way to develop oneself and this will help drive the development of the work and organization had to focus on 1) workers’ opinions about skills needed for industrial workers; 2) professional development opportunities currently provided by employers; and 3) industrial workers’demand for online lifelong learning as follows.

1) Opinions about skills for industrial workers – Workers Strongly agree that skills were necessary, not just skills directly related to work, such as the desired professional competencies, core competencies, general competencies and desired work attributes, but also desired skills that support work in the 21st century. This shows that Thailand's industrial workers are aware of the importance of having work skills needed for the digital era. That is related with one of the TPQI digital standards (Thailand Professional Qualification Institute: TPQI, 2019) Digital literacy: level 1 Digital awareness and digital access, level 2 Digital for workplace and level, and 3 Digital collaboration. All levels are used to develop the capacity of manpower to support the digital economy.

2) Professional development opportunities provided by employers

– Most employers provided support to allow their employees to develop skills needed for their work and had agencies responsible for human resources knowledge and skill development. Employers can support a culture of lifelong learning (Mcloughlin, 2021) and have developed skills through formal education such as continuing education to increase their previous qualifications, non-formal education such as training courses, online courses, and informal education (independent study). While many workers may be particularly open to learning opportunities for workers without a good experience of formal education. New technology leaves gaps in employee skills and they call for the provision of appropriate skills and lifelong learning. The perfect combination of skills for future jobs. However, employers can narrow that gap. Employers must create a learning and development offering that balances skills development while fostering a learning environment for workers. (Mcloughlin, 2021). Employees were supported and allowed to use work time to learn. The enterprises make sure to provide online space for learning. They should promote participation in learning by the owners of the enterprise and the workers. (Bersin & Zao, 2019). Any employers that do not yet provide tangible support for professional skill development for their employees should make a policy of promoting knowledge development so that their employees can keep up with technological advances. It will be beneficial for their agency, their work results, and their industry.

3) Demand for online lifelong learning

This finding showed in figure 1: about half of the survey respondents had taken online learning courses before, but about half had not. That shows there is a need for greater access to and promotion of online learning resources. The workers surveyed expressed a high level of demand for lifelong online skill development opportunities and had a high level of demand for every alternative in the aspects surveyed (channel and medium, subject area, learning management and support system, method of interaction, and device). The smartphone is the highest device for learning, the result tends to be likely due to Thai people using smartphones 98.9% (everydaymarketing.co., 2021). Thai people have a habit of using smartphones as part of their daily lives. If we can provide learning channels, it will make it easier for workers to access knowledge resources. It can be seen from the survey that workers have the desire to develop essential skills in the industry. Online lifelong learning systems should also be accessible through a wide range of ICT devices and should be user friendly, categorized to make it easy to find/search and usable on all devices. In the age of digital disruption, continuous employee training and development is a top priority. So, stop considering learning as a training activity only for new hires, and start creating lifelong workforce opportunities today (Papageorgiou, 2019)

Suggestion and Future research

- A compilation of online lifelong learning resources for industrial workers to personal development. Lifelong learning refers to the process of gaining knowledge and learning new skills throughout your life (CIF) and it is important for skill development in the knowledge-driven digital era. Lifelong learning is essential for workers and helps individuals achieve self-actualization (Nichols, 2020).

- Skills for today's industrial workers can easily be delivered via online learning, which can be interactive and allow them to share and solve problems, including upskilling what they have learned with others.

- Transferring knowledge, from worker and supervisor or worker and colleague is reliable information from direct work experience to online lifelong learning. The knowledge that is easily shared and transmitted through writing or speaking is "Explicit knowledge". The information is easily picked up by talking to someone, reading a book, or researching information online (Meetmaestro, 2020). Therefore, transferring knowledge between

people to information online formats: websites or social media will make it easy to access knowledge, leading to benefits for all workers that is one of the learning ways for informal education.

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