

# **Evaluation of a blended Micro-learning Training Programme : A Case Study of Connecting@Work**

**Noor Faridah A Rahim**  
**Temasek Polytechnic, Singapore**  
**faridah@tp.edu.sg**

## **Abstract**

Micro-learning has increasingly become an integral part of workplace learning mainly due to today's highly dynamic and competitive workforce, rapid technological developments and shrinking user attention spans. This paper discusses the initiative to interactively incorporate and blend micro-learning into the training content of a face-to-face short course "*Connecting@Work: 3Cs of Successful Communication at the Workplace*" offered by Temasek SkillsFuture Academy, at Temasek Polytechnic, Singapore. This blended micro-learning training programme was evaluated using Kirkpatrick Training Evaluation Model. This case study highlights the role of micro-learning in providing the flexibility to engage and facilitate working adult learners in learning anytime and anywhere beyond what they can experience through traditional methods of classroom learning.

**Keywords:** Micro-learning; Blended learning; Workplace learning; Evaluation; Kirkpatrick Training Evaluation Model; Connecting@Work; Adult learners

## **1. Introduction**

Learning occurs when there is a transfer of knowledge informally through interactions or formally through training and certifications. Workplaces often become important places for learning and development, and knowledge creation as working tend to be interconnected with learning. Thus, workplace learning involves the continuous process of improving competence & performance of employees through training, socialisation and development within the context of an organisation. It involves the acquisition of knowledge or skills by formal or informal means that occurs in the place of work which can enhance skills that may lead to formal qualifications and informal narrowly focused skills. Workplace learning mostly occurs through work-related interactions which contributes to the learning of both the individual employee and the organisation as a whole. Institutions that offer adult and further education are also offering workplace learning in the form of flexible work-related training and as a business model. This increases the need for computer and internet technologies to support the

workplace learning designs which can take the forms of e-learning, mobile, micro-learning and blended learning. (Cacciattolo, 2015; Cheng, et.al., 2014; Georgesen & Lovstad, 2014).

Micro-learning has increasingly become an integral part of workplace learning mainly due to today's highly dynamic and competitive workforce, rapid technological developments and shrinking user attention spans. Micro-learning is a learning approach which delivers content to learners in short and bite-sized portions focused on meeting a specific learning outcome. In micro-learning, one large topic are broken down into various small nuggets of online modules which enables learners to digest information in smaller and easy-to-comprehend units and choose to learn them anytime, anywhere, as and when they need to learn. (eLearning Industry, 2011-2017; Fozdar & Kumar, 2007; Gu, Churchill & Lu, 2014; Jordan, 2017). This makes micro-learning suitable to meet the learning needs of busy working adult learners who are expected to upgrade their skills and get up to speed much faster to meet up with the highly demanding and competitive workplace in today's VUCA working world characterised by volatility, uncertainty, complexity and ambiguity. Micro-learning also increases the transfer of learning by 17% and creates 50% more engagement (Bahrami, 2015; Gutierrez, 2015). The workplace learning design used in this study is blended micro-learning. Blended learning refers to an integrated combination of traditional face-to-face classroom learning with web based online approaches. The online portion of blending learning can be delivered using synchronous and asynchronous electronic tools including discussion forums and bulletin boards or via a virtual learning environment such as 'Blackboard' (Sharma, 2010; Georgesen & Lovstad, 2014).

TemasekSkills Future Academy, Temasek Polytechnic, Singapore, offers its employees and working adults the opportunities to enhance skills via workplace learning leading to formal qualifications through customised courses for corporates and organisations, short-courses for adult learners, part-time courses at Diploma and post-Diploma levels. Face-to-face classroom interactions blended with e-learning activities are used as a common mode of teaching and learning in these courses. Micro-learning blended with face-to-face learning is beginning to be adopted in the teaching and learning of some courses as discussed in this case study of the 2-day short course "*Connecting@Work: 3Cs of Successful Communication at the Workplace*". The purpose of the micro-learning training programme '*Connecting@Work*' is to support the face-to-face short course in upgrading skills of staff in areas of connecting and communicating at the workplace. Learning during the face-to-face training is done in class

using traditional methods including short lectures, group discussions, role-play, small groups and individual sharing and reflections of lessons learnt. The micro-learning training programme complements the classroom learning by supporting participants' learning anytime and anywhere using their mobile devices. This allows participants the flexibility to virtually share reflections on lessons learnt before, during and after attending the training.

The objective of this report is to present the case study of the evaluation of the micro-learning programme '*Connecting@Work*' in supporting workplace learning of participants of the face-to-face training "*Connecting@Work: 3Cs of Successful Communication at the Workplace*".

## **2. Evaluation Model**

This case study uses *Kirkpatrick 4-level Training Evaluation Model* as the framework for evaluation of the blended micro-learning training programme. A variety of tools were used to measure the effectiveness of the 4 levels of the blended micro-learning training programme namely Level 1 which measures the reaction of participants to the training, level 2 which measures participants' learning of the training content, level 3 which measures changed behaviour of participants' after the training and level 4 measures the results gained by participants' in terms of improvements and benefits gained at the workplace as a result of the training.

## **3. Methodology**

The qualitative methodology was mainly used in this case study.

### Participants

Participants comprise 20 working adult learners, aged between mid-twenties to late-fifties, who are staff of Temasek Polytechnic and working in various departments namely finance, library, research, staff capability development, Design School and Humanities & Social Science School. Their job roles in the organisation include manager, section head, lecturer, librarian, development engineer, research scientist, learning & development officer, technical support officer, account executive, management support officer and web administration support at Temasek Polytechnic, Singapore. 16 of these adult learners are female while 4 of them are male.

## Tools

The following tools have been used in this case study:

- i) Surveys
  - a. pre-training survey administered a week before the start of the face-to-face training to get participants to rate their current skills on connecting, counselling and coaching
  - b. post- training survey administered a week after the end of the face-to-face training to get participants to rate their skills on connecting, counselling and coaching after attending the training and give feedback on overall satisfaction with the micro-learning programme
  - c. programme evaluation administered at the end of the face-to-face training
- ii) Interviews were conducted on two occasions namely one week and six weeks after the training. The aim is to get in-depth feedback on participants' learning experiences, changed behaviours and results gained from the application of training onto their jobs at the workplace
- iii) Documents in the form of participants' submissions of the various micro-learning tasks namely photos, videos, opinions, discussions and reflections

## Tools used based on Kirkpatrick Training Evaluation Model

### Methodology (Tools) : Level 1 of Kirkpatrick Training Evaluation Model: Reaction

Participants' reaction and learning experiences to the training contents, materials, activities, venue and trainer (level 1) are measured using two tools. The first tool was the Programme Evaluation which was administered at the end of the face-to-face training. This tool measured participants' reaction to various aspects of the training programme including the contents, materials, trainer and venue. The second tool was the post-training survey administered using the micro-learning platform, a week after the end of the face-to-face training. This tool measured participants' reaction to overall satisfaction of the micro-learning experience including strengths and challenges of using the micro-learning platform.

### Methodology (Tools) : Level 2 of Kirkpatrick Training Evaluation Model: Learning

Participants' positive reactions and satisfaction with the micro-learning programme (level 1) does not necessarily mean that they have learnt anything from the training. Participants' learning (level 2) can be measured in terms of net changes to the ratings of their knowledge

and skills before, during and after the training. In this case study, level 2 effectiveness of the micro-learning programme was measured using four different tools namely pre-training and post-training surveys, trainer's observations of participants' learning behaviours & presentations during training, documents in the form of participants' submissions of the various micro-learning tasks namely photos, videos, opinions, discussions and reflections and interviews after the training programme.

#### Methodology (Tools) : Level 3 of Kirkpatrick Training Evaluation Model: Behaviour

Participants' behaviour changes (level 3) are measured in terms of whether they have applied any of their learning to their jobs at the workplace, whether they are able to teach what they have learnt to others and whether they are aware that they have changed their behaviour. In this case study, level 3 behaviour changes are measured using surveys done on the last day of the training and a week after the training and interviews conducted two weeks after the training programme.

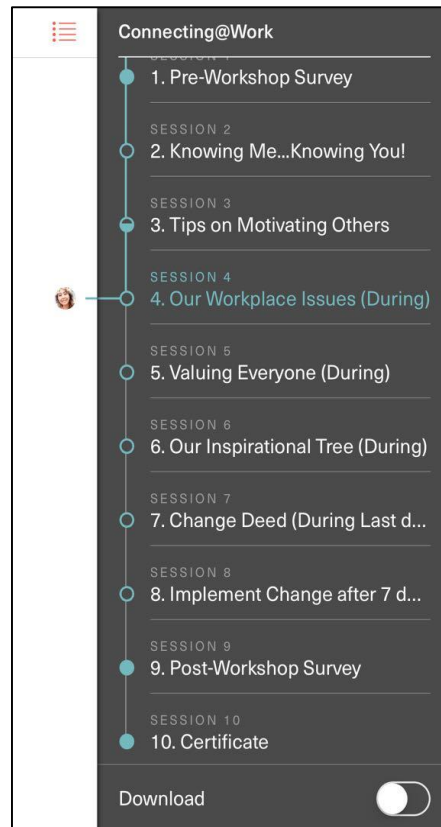
#### Methodology (Tools) : Level 4 of Kirkpatrick Training Evaluation Model: Results

The results derived from the training programme are measured in terms of improved quality of work, improved customer satisfaction, increased productivity and improved employee-employer and employee-employee engagements. For this case study, level 4 results of the training programme was measured using interviews conducted after 6 weeks of the training programme. Participants were asked the question of what results they have seen from their efforts of implementing the changed behaviour at the workplace so far, post training.

#### Micro-learning Programme : Learning Sessions (Activities)

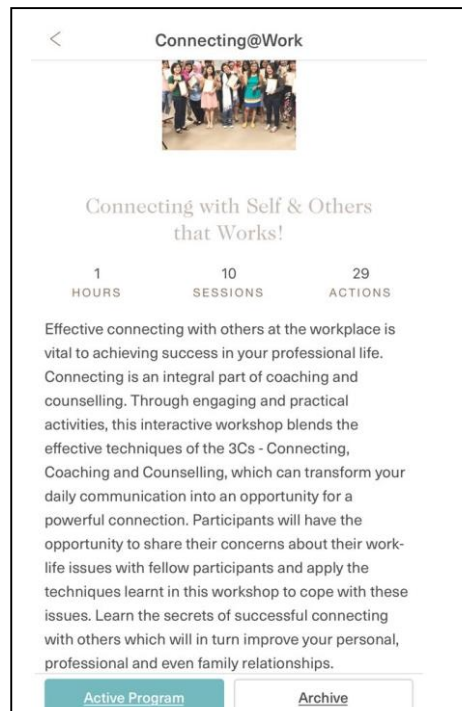
The micro-learning programme entitled "*Connecting@Work*", was developed using the *Gnowbe* micro-learning platform and delivered to participants' mobile phones or tablets. This micro-learning programme was launched as a blended learning approach to support the delivery and workplace learning of participants who attended the face-to-face training program. The aim is to help participants learn about connecting at the workplace by reading, watching and discussing bite-sized curated content related to this topic. Each 3-7 minute bite-sized course session is interactive and allows participants to engage with fellow participants in the learning community. This also helps in retention of the learning as the 3-7 minute content is more suited for humans' attention spans and the capacity of the human brain working memory (Gutierrez, 2015).

Figure 1 : Connecting@Work Micro-Learning Activities



As seen from Figure 1, participants were required to complete various micro-learning activities before, during and after the face-to-face training. To facilitate the workplace learning of participants' who are busy working adult learners, the duration of each micro-learning activity (session) is kept within 3-7 minutes, with a total time of 60 minutes to complete all the activities as seen in Figure 2 :

Figure 2 : Duration of micro-learning training programme



During the pre-training session, participants had to install the *Gnowbe* App, complete a survey to rate their connecting, counselling and coaching knowledge and skills before attending the 2-day training, share about themselves, read an article on tips to motivate employees at the workplace, reflect on the most important tip to be applied to their job roles and state their expectation of the training. During the training session, participants used the micro-learning App to share on discussions, reflections and in-class learning experiences. For example, during a social experiment activity done outside of the training venue, participants had to upload photos and/or videos on their conversations with a stranger and reflections to a question about respecting and valuing people. During the last day of the face-to-face training, participants had to document via the App, their intention to change a behaviour by writing down a Deed to change one behaviour to improve their connection with others at the workplace. A week after the face-to-face training, participants had to complete various post-training activities such as a description of behavioural change that they had implemented at the workplace, complete a survey on their reaction to the training and rating of their perception of their connecting, counselling and coaching skills after the training.

#### 4) Findings and Analysis

##### Findings and Analysis : Level 1 of Kirkpatrick Training Evaluation Model: Reaction

Participants' reaction to the effectiveness of trainer, subject content, facilities and blended learning was positive as seen from Table 1.

Table 1: Level 1 Survey on Reaction of Participants

Trainer Effectiveness		Strongly Disagree	Disagree	Agree	Strongly Agree	Overall (%)
	Overall, the trainer has been effective in facilitating participant's learning	0	4	8	8	80
Subject and Content						
	The knowledge, concepts and skills gained are practical and useful	0	3	11	6	85
	Overall the course content met its stated objectives	0	4	10	6	80
Facilities						
	The training environment is well maintained in terms of cleanliness, repairs and safety	0	1	12	7	95
Blended Learning						
	Blended learning (face-to-face + micro-learning) enhances learning of 3Cs (Connecting, Counselling & Coaching).	0	4	14	2	80

80% of participants agreed that the trainer has been effective in facilitating participant's learning and commented that the sharing of personal story by the trainer to be very touching. 85% of participants agreed that the knowledge, concepts and skills gained are practical and useful including the opportunity to interact with staff from other departments, attitude of gratitude, building relationship, self-help, mindfulness, tips on motivating others, valuing everyone, engaging with strangers and group discussions related to work issues. 80% of participants agreed that the blended learning (face-to-face + micro-learning) enhances learning of 3Cs (Connecting, Counselling & Coaching) and commented that the usage of App to be an innovative way of learning and connecting.



However for a few participants, the experience of using the App, talking to strangers, interacting with others and resolving the real-life workplace issues were difficult initially but with more practice throughout the training, they find the overall experience to be interesting and meaningful.

#### Findings and Analysis : Level 2 of Kirkpatrick Training Evaluation Model: Learning

Participants' positive reaction (level 1: 80% agreeable) to the bended micro-learning training programme has been reinforced with the positive results of their learning which was measured using the pre and post training ratings of participants' knowledge and skills of connecting, counselling and coaching. As seen in Tables 2 & 3, participants' learning of the 3 skills in connecting, counselling and coaching have increased by the end of the training.

Table 2 : Average Scores of Rating of Knowledge & Skills in Connecting, Counselling & Coaching (*Rating on scale of 1-5; n=20*)

	Connecting	Counselling	Coaching
Pre-training	2.9	2.7	3.05
Post-training	3.35	3.5	3.4
<b>net gain</b>	<b>0.45</b>	<b>0.8</b>	<b>0.35</b>

Table 3 : Total Scores of Rating of Knowledge & Skills in Connecting, Counselling & Coaching (*Rating on scale of 1-5; n=20*)

	Connecting	Counselling	Coaching
Pre-training	58	54	61
Post-training	67	70	68

Participants' learning of the 3 skills is further supported by the following highlights of qualitative feedback on reflections of lessons learnt and action they would bring back to their workplaces, in response to the following question related to an in-class activity, posted via the micro-learning App post-training survey:

1. Which part/s of the CLEAR coaching model was helpful for your team?
2. What lessons have you learnt from this team activity?
3. What ONE Action would you bring back to your workplace?

1. "1) Exploration. 2) Understand the current situation and think of possibilities to improve processes. 3) To design a seamless process."

2. *"1) Review individual progress - what decisions have been made and its impact on them. 2) Active listening with empathy. 3) Gain understanding and personal insight into problem."*
3. *"1) Listening. 2) Listen to understand situation better before exploration 3) Listening and exploring are to be executed consecutively and not simultaneously"*
4. *"Listening with empathy is helpful as we have different values but yet some similar values that make us work together by listening to different ideas."*
5. *"1) Active listening with empathy 2) It provides a good holistic view of things revolving in my life and summarised using this tree diagram 3) positive thinking and learning to manage the problem and don't allow it to consume me."*
6. *"1) Everything starts with active listening 2) So active listening is the most helpful and important. It is challenging for an organisation to put across its values to everyone as everyone is inherently different. 3) Action of listening is the most important for me in my workplace."*
7. *"Listening, active listening with empathy. I would like to bring this learning skill back to work and listen to my colleagues first before making my own judgement."*
8. *"Understanding what is the person's need not just listening with ears but also with the heart."*
9. *"Exploration phase was more useful to team as it is important to look at the current situation and think carefully through possibilities."*

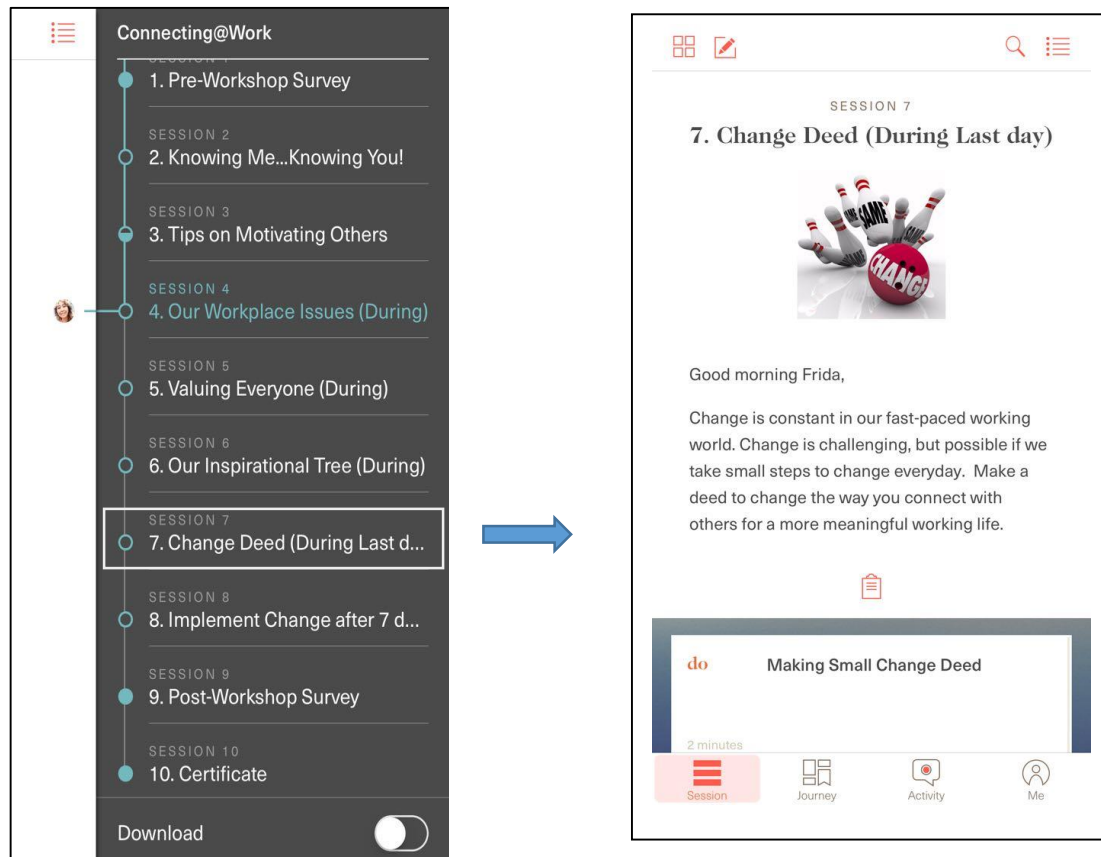
Generally, most participants agreed that they have learnt skill of active listening with empathy in connecting, counselling and coaching. Indeed the learning of this fundamental skill is vital to help participants understand others and enhance their relationship with colleagues, subordinates and bosses which increases their job performance at the workplace, as aptly reflected by the following participant during the post-training interview :

*"As a manager, I have many opportunities to discuss with my team members about their work, personal life, goals and so on. It is good to have many skills of coaching and counselling as the issues and situations are varied and evolving. I think I am good at listening but still need to improve other steps such as "Exploration", "Action" and "Review". This model helped me to see my strengths and weaknesses more objectively."*

#### Findings and Analysis : Level 3 of Kirkpatrick Training Evaluation Model: Behaviour

Participants' behavioural change as a result of the blended training programme was measured using a survey via the micro-learning App. As seen in Figure 3, during the last day of the blended training, participants are required to document their intention to change one behaviour in terms of connecting with others at the workplace.

Figure 3 : Activity to be done during training



The micro-learning activity “Change Deed” has supported the face-to-face training programme as seen from the qualitative feedback of participants in response to the following interview question done after the training :

“Was the act of writing the Deed helpful for you in ensuring that you actually take action and implement this act after the training? Why yes, why no?”

1. “Yes, because I wrote this Deed, I ensure that I carry out the task.”
2. “Yes, by writing down the deed it sort of form a promise to take action.”
3. “Yes. It acts as a reminder. It’s also a commitment and promise that I have to fulfil it. I believe in walking the talk.”
4. “Yes, as it is like a “Promise” that we will carry out what we agree to do. It’s the integrity of oneself.”
5. “The Deed acts as a reminder to me that I have made such a pact.”
6. “The Deed reminded me and helped me take an initiative with more specific purposes in my mind.”

Table 4 : Intent to Change Behaviours

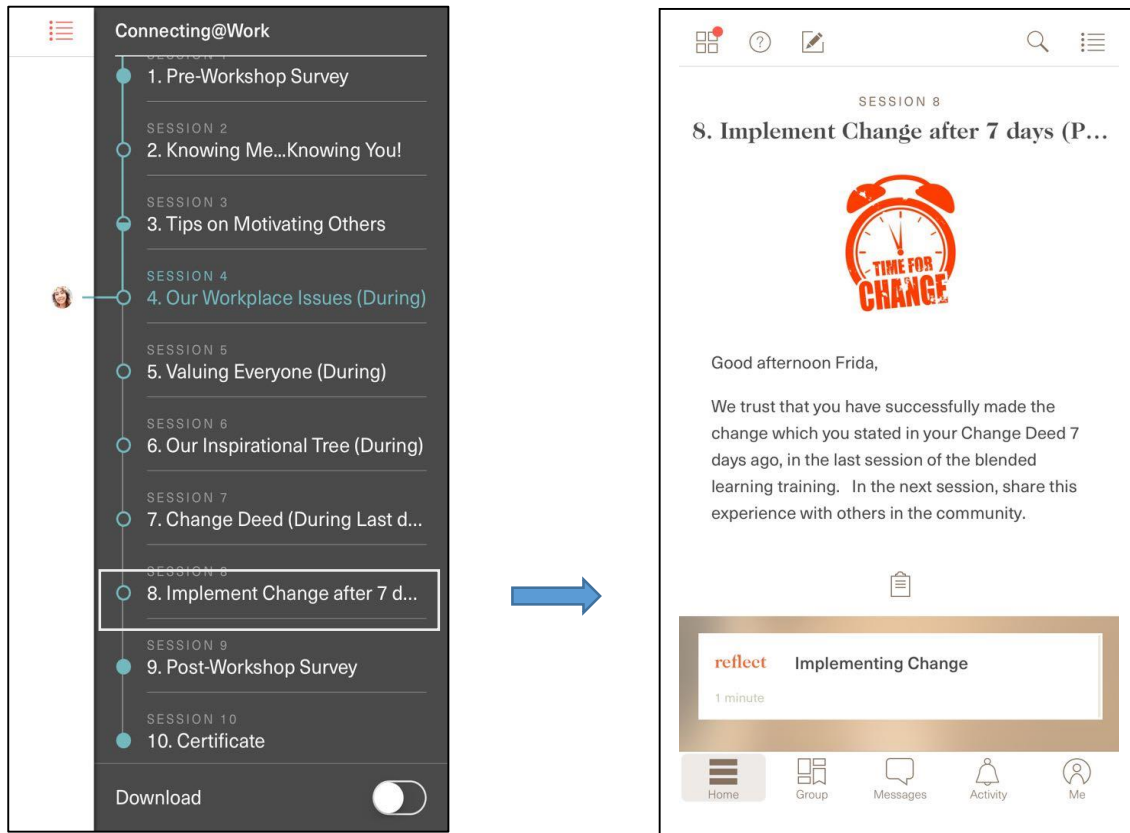
<b>Participant</b>	<b>During training (Intent to Change Behaviour)</b>
Participant 1	To go for lunch with someone I have not been out to lunch with. Connect with more people and get to know them. See how I'll fare.
Participant 2	Initiate a conversation with a colleague.
Participant 3	Lunch with at least 3 different colleagues next week.
Participant 4	Initiate contact with different colleague to know more about him/her.
Participant 5	To meet and connect with new people
Participant 6	I will share what I have learnt for this course to my colleagues.

The “Change Deed” activity has motivated participants to document practical behaviour change that they will do when they return to the workplace. As seen from participants’ responses in Table 4, the intentions of changed behaviours are related to improving their connection with others at the workplace by applying skills learnt during the face-to-face training.

The evidence of whether participants actually changed their behaviours of connecting with others, can be seen from their responses to the micro-learning activity seen in Figure 4.

After 7 days of the blended micro-learning training programme, participants are required to document via the micro-learning App how they had implemented the change they had previously documented on the “Change Deed” session.

Figure 4 : Activity to be done 7 days after training



The responses to this micro-learning activity provides evidence of participants' change behaviour as a result of the face-to-face training, blended with the micro-learning training programme as seen from the Tables 5a-5d.

The micro-learning App plays an important role of supporting and motivating participants to apply reflect and document their changed behaviours even after the face-to-face training had ended. It enables learning to continue way into the workplace when participants' return back to work. These changed behaviours demonstrated participants' efforts to apply the skills they had learnt from the micro-learning blended training programme to enhance their job performance at the workplace.

As seen from Table 5a, Participants 1 & 3 have applied the skills of asking questions, understanding, listening, networking and exchanging ideas to connect with their bosses, colleagues and friends at the workplace. The blended micro-learning training programme,

had indeed motivated both participants to acquire additional skills of embracing change and getting out of their comfort zones to enhance engagements with bosses and colleagues and even take on additional job roles.

Table 5a : Changed Behaviours

Participant	During training (Intent to Change Behaviour)	7 days after training (Implement Change Behaviour)
Participant 1	To go for lunch with someone I have not been out to lunch with. Connect with more people and get to know them. See how I'll fare.	I had dinner with one Deputy Director, and lunch with another Deputy Director. Although during both meals what we discussed was all about work, I had learnt from the workshop to <b>ask questions</b> , and I asked questions in order to <b>understand</b> their circumstances. Yes, I had extra tasks to do from both interactions, but it also gave me insights to the many whys and answers to certain assumptions.
Participant 3	Lunch with at least 3 different colleagues next week.	We tend to resist change because it's so uncomfortable, it can be inconvenient and we just want to do things our way. However, change can be beneficial if we are positive about it and go along with the flow. For example, when lunching with friends, we need to do extra effort to agree on the date, time and location. However, the advantages of lunching with friends outweighs the inconveniences. For example I can practice my <b>listening and communication skills, networking and exchanging ideas.</b>

As seen from Table 5b, Participants 2 and 5 have applied skills of initiating conversations with others that they had learnt in class when they completed the activity “Valuing Everyone” via the micro-learning App. This resulted in increased engagement with the head of department for Participant 1 and improved relationships with friends and colleagues for Participant 5.

Table 5b : Changed Behaviours

Participant	During training (Intent to Change Behaviour)	7 days after training (Implement Change Behaviour)
Participant 2	Initiate a conversation with a colleague.	I <b>initiated a conversation</b> with my Director when we were having our department training.
Participant 5	To meet and connect with new people	To connect with people, I had made conscious efforts to <b>create</b>

		<b>opportunities to meet people</b> and have a deeper conversation. My old friend from external course came to have a breakfast with me this week. She is very energetic and very different from me. I could learn a new perspective from her. I will have 3 lunch appointments next week and looking forward to having more insightful conversations.
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As seen from Table 5c, Participant 4 has applied skills of initiating conversations with others and discovered common ground with them which enhances employee-employee relationships at the workplace.

Table 5c : Changed Behaviours

<b>Participant</b>	<b>During training (Intent to Change Behaviour)</b>	<b>7 days after training (Implement Change Behaviour)</b>
Participant 4	Initiate contact with different colleague to know more about him/her.	I joined different colleagues for lunch and <b>initiate to know more</b> about them and <b>found something common between us.</b>

As seen from Table 5d, Participant 6 has not only applied skills of initiating conversations with colleagues at the workplace but also went the extra mile to influence others at the workplace to attend the training and learn the connecting skills as well. Participant 6 had truly demonstrated the ideal profile of an excellent adult learner who had consciously internalised and practiced the true essence of meaningfully connecting at work with this closing reflection “*Connecting is all about others and not ourselves.*”

Table 5d : Changed Behaviours

<b>Participant</b>	<b>During training (Intent to Change Behaviour)</b>	<b>7 days after training (Implement Change Behaviour)</b>
Participant 6	I will share what I have learnt for this course to my colleagues.	I have <b>connected with my peers</b> at work by sharing what we have done/learnt in this workshop & they were all keen to attend. <b>Connecting is all about others and not ourselves.</b>

#### Findings and Analysis : Level 4 of Kirkpatrick Training Evaluation Model: Results

The Results which participants’ have accomplished from their efforts to apply knowledge and skills learnt from the blended micro-learning training programme was measured using an interview conducted 6 weeks after the training.

During the interview, participants were asked to respond to this question :

**“What Results have you seen from your efforts of applying knowledge & skills of connecting at work and implementing the changed behaviour at the workplace so far?”**

As seen in Table 6, participants’ responses to this interview question demonstrated their ability to experience the benefits of their changed behaviour that they had been able to sustain through 6 weeks after the training.

Table 6 : Results

Participant	After 6 weeks post training (Results)
Participant 1	Results include customer satisfaction and improved relationships between myself and my boss and my fellow colleagues as I am able to empathise with them and understand their roles better. Through this process I also find more meaning in the work I do at my workplace.
Participant 2	I have experienced improved engagement with my bosses and colleagues as I am able to perform my job more effectively.
Participant 3	The results I gained include improved work relationships both with my peers, juniors and even bosses. I have become more patient especially in dealing with difficult colleagues as I practiced skills of self-care to motivate myself to be happy at work. I have also practiced setting goals to change behaviour to be nicer to my office colleagues. By end Nov 2017, I will initiate small talk with a colleague who has hurt me many times. I used to avoid contact with this colleague, but after attending this course, I learnt about the importance for us to be happy at work by being good to others and value everyone.
Participant 4	The results I gained include building a therapeutic relationship by knowing my colleagues personally. This help improve engagement amongst colleagues in my department which increases productivity as our work teams commit to work towards a common goal.
Participant 5	As a result of my changed behaviour to consciously apply skills from the training, my relationship with my staff has improved and they become more receptive to accept the changes in their job roles and become more willing to take on additional work. This makes my job as their supervisor more effective and efficient.
Participant 6	As my job requires answering of phone calls and handling counter, I am able to apply the skills of listening. With that, I get to understand the other person’s perspective and become more empathatic. Also, recently there is a staff movement and change of duties within my department which leads to an increase of workload, I have learnt to be more receptive and have positive mindset. These has helped to make my life at work more pleasing.

Participants’ positive reaction to the blended micro-learning training programme (level 1:80% agreed), have enabled them to learn the knowledge and skills taught in the training



(level 2 : net gain range 0.35-0.8). This positive reaction and learning have motivated participants to change their behaviours by applying the skills learnt and transferring them to the workplace (level 3) which subsequently enabled them to gain from the results of their changed behaviour as evident from increased quality of their work performances and improved work relationships with project team members, colleagues, subordinates and even bosses at the workplace (level 4).

### **Role of micro-learning App in the blended training programme**

The micro-learning App has played a supportive role in enhancing the face-to-face training and adding value to the participants' learning process in areas of connection, collaboration, sharing of reflections and learning, individual access and discovery of experiential mobile learning anytime and anywhere (Rossett & Marshall, 2010). The micro learning App has also supported participants' collaborative effort to work as a team to complete the out-of-class activity "Valuing Everyone" to talk to a stranger and practice the connecting skills learnt in training. The App helps the teams to interactively capture the video recording of their live-chats with the stranger, share it with the learning community and comment on one another's videos and reflections on lessons learnt from this experiential learning (Fozdar & Kumar 2007). In the process, the micro-learning App has supported these adult learners' informal learning by enabling them to socialise and connect with others at the workplace and acquire new knowledge beyond what was taught in the training (Gu, Churchill, & Lu, 2014). Examples on participants' informal learning experiences can be seen from the following sharing and reflections documented via the App :

1. *"We started by asking the uncle if he enjoy working as a cleaner and how long he has been around. His value is to be happy everyday and enjoys doing assigned tasks."*
2. *"The first person we met is a foreign worker who works from 10am to 7pm at the cafe. She is shy but allowed us to talk for a while. She has a very beautiful smile. The second person we met was more open and shared about his life here and his home country. It was very easy to connect with him as he has a heart to connect and a big smile on his face all the time."*
3. *"We connected with McDonald staff who has worked for 5 years. We observed that she takes pride in her work."*

4. *“We learn about the importance of having good eye contact, listening skills, understanding and respect.”*
5. *“It was kind of awkward to approach someone who we do not know. But after we started talking, it was nice to get to know more about the person.”*
6. *“Appreciate everyone for what they do in their job, no matter how big or small it is!”*

Participants' response on how well the App had supported their blended micro-learning experience was measured using an interview. 83% of participants interviewed agreed that the pre-training, during training and post-training activities posted via the micro-learning App were exciting, interesting and helpful in allowing them to connect with the facilitator, get motivated by reading the article before training and allowed them to learn, apply and reflect on lessons learnt during training.

83% of participants interviewed agreed that the features of the micro-learning App was generally good and user-friendly. Some of them suggested improvements including uploading more and larger images and adding images to comments. 100% of participants interviewed agreed that the Collaboration (sharing with the community) function of the micro-learning App was helpful in encouraging them in sharing when they see others in the learning community liked and commented on their post. One participant feedback that the optional function to share with the community was good for participants who preferred to give comments face-to-face.

## **5) Limitations, Further Research & Conclusion**

### **Limitations**

Several factors have contributed to the limitations of this study. Firstly the scope of study is limited by a sample size of 20 participants which is non representative of the entire working adult learner population in the Polytechnic as these participants are represented from a few departments, Schools and job roles. Secondly, the data collected, especially for evaluation levels 3 & 4 are mainly qualitative in nature which limits generalization of findings to the wider population. Thirdly, the research methodology which did not provide for a Control group, makes it difficult to isolate the impact of the training programme versus that of other variables that may have contributed to results of the evaluation.

## Further Research

There are several areas in further research that can be considered to improve the quality and robustness of this study. Firstly access to larger samples of participants from other schools and departments in the Polytechnic would allow for comparison of results that are more representative of working adult learner population in a Polytechnic. Secondly, the inclusion of a control group would improve the rigour of this study and help to effectively isolate the impact of the intervention from other variables such as semester workloads for participants who are academic staff and trainer attributes, attitudes, experiences and ways of conducting the workshop, that would have contributed to the results. Thirdly, a quantitative data collection tool with relevant questions related to the 4 levels of evaluation would give better insights into the impact of training at each of the 4 levels. Lastly, to facilitate transfer of training into the workplace during the post-training context, further research can be conducted to measure the application of learned skills on the job by getting the involvement of supervisors, staff capability development and human resource departments and linking it to the learning plans of staff. This involvement can nurture a more supportive organizational climate vital for transfer of training which include pre-training discussions with supervisors or managers, opportunities to use knowledge and skills and post-training goal-setting and feedback. For instance, supervisors or managers can demonstrate behaviors which are aligned to the training objectives and monitor staff to ensure that they apply learned skills on the job (Balwin & Ford, 1988, Subeidi, 2004 & Holton, et al, 2004 as cited in Aluko & Shonubi, 2014). This would enhance the relevance and practicality of this study to benefit the organization at large.

## Conclusion

The blended micro-learning training programme has been successful in enhancing the workplace learning of adult learners. As evident from the findings of this case study, the micro-learning App has effectively served as a technological enabler to support the adult learner's learning process and motivate them to continue learning into the workplace upon their return to work after training. Participants were able to achieve all four levels of *Kirkpatrick Training Evaluation Model* by documenting via the App, their changed behaviours as a result of applying the skills learnt to enhance their job performance at the workplace. This case study findings support the view of professional football coach, Tony Dungy, when he wrote "if you take care of executing the right behaviours (level 3), the

results tend to take care of themselves (level 4).” (Kirkpatrick & Kirkpatrick, 2007, p 110). This case study also demonstrated that micro-learning has and will continue to become an integral part of workplace learning to help busy working adult learners to be successful in today’s VUCA work environment. The overall success of this blended micro-learning training programme can be aptly summarized by the following participant’s qualitative feedback which demonstrated the application of *attitude of gratitude* skill learnt in the training :

*“Thank you, for the enlightening and awesome workshop conducted by you, recently. You have been very generous and sincere in your sharing. I have definitely benefitted from all of them, the exercises that we do in and outside of class and the follow-up sessions. Really appreciate the efforts and time that you’ve put in, to stay connected and engaged with all of us.” – Connecting@Work participant.*

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