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# Improvement of Data Communication and Computer Networks Skills through Computer Network and Cyber Security Training at TCK Learning Center Hong Kong

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**Abstract.** Data communication and computer networking training at TCK Learning Centre Hong Kong is organized to address the need for increased technology literacy among Indonesian migrant workers in the face of digital globalization challenges. This activity is designed in a hybrid format (online and offline) with an approach that integrates theory and practical applications. The goal of this event is to enhance participants' understanding of basic networking concepts, technical skills in configuration and troubleshooting, as well as their analytical abilities in addressing data communication challenges. The implementation method includes material presentation, case studies, interactive discussions, and evaluation through questionnaires. The results of the activity show that the participants' understanding level is very good, with the majority stating that the material presented is easy to understand and of high quality. This activity is also in line with the targets of Sustainable Development Goals (SDG), namely quality education and decent work. This training not only empowers participants individually but also strengthens the image of TCK Learning Centre as a strategic partner in the development of a skilled ICT-based workforce.

**Keywords**: Communication Data, Community Services, Computer Networks, ICT SDGs.

## 1. Introduction

The development of Information and Communication Technology (ICT) in order to enhance awareness of digitalization (Okusi, 2024; Wagola et al., 2023) and practical skills poses the biggest challenge for Indonesian professional practitioners working in Hong Kong (Chan et al., 2024; Yee Wah Wong, 1996) , as although the location is an international technology and business hub, some practitioners are still unprepared to face these challenges. The challenges faced include the complexity of network configurations (Vankayalapati, 2025), cybersecurity threats (Aslan et al., 2023; Tsochev et al., 2020), and misunderstandings of communication protocols (Gundogan et al., 2021; Khuntia et al., 2021). Therefore, this training on data communication and computer networks is designed to meet the knowledge and skills required for practitioners in the TCK Learning Centre environment.

The training conducted greatly assists participants through an understanding of theory and improvement of relevant practical skills (Budiyanto, Silalahi, et al., 2024; Budiyanto, Tomohardjo, et al., 2024; Silalahi et al., 2023). Through demonstrations of tools for identification, participants are expected to enhance their analytical and technical abilities. This training will contribute to the professional development of participants, increased data

security, and enhanced competitiveness of organizations in the digital era through knowledge of data communication and computer networking for Indonesian practitioners in Hong Kong (Budiyanto & Silalahi, 2023; Lukman Medriavin Silalahi et al., 2023; Šarūnienė et al., 2024).

The purpose of this activity are: Enhance deep understanding of the fundamental principles of data communication and computer networks, including topology, protocols, and the OSI model. Master practical skills through training participants in the configuration and troubleshooting of devices, enabling them to apply these skills in real situations. Develop problem-solving based analytical skills, enabling them to identify and address challenges arising in network management.

## 2. Methods

Figure 1 shows the block diagram of the method applied in this activity, which is to conduct data communication and computer networking training at the TCK Learning Centre using a practice-based and theory-based approach as explained through the following stages: Preparation of materials by preparing relevant materials, conducting presentations and interactive discussions, applying knowledge in real situations through case study analysis, collecting feedback from participants for program evaluation studies.

This training program supports the Sustainable Development Goals (SDGs), are: SDG 4 (Quality Education) supports the improvement of education quality through practical training on data communication and computer networks, SDG 8 (Decent Work and Economic Growth) supports the enhancement of inclusive skills for participants.

The next impact obtained by the partners are: Participants acquire relevant knowledge, skills, and competencies. Partners: TCK Learning Centre helps reduce the skills gap through workforce development, enhances reputation as a provider of quality education, and attracts more participants and collaboration with companies.
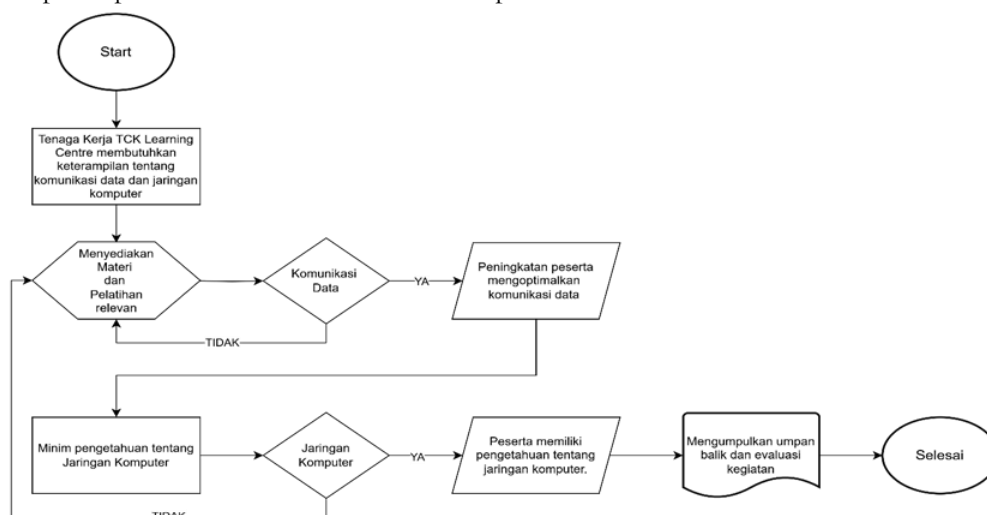


**Figure 1.** Flowchart activity



**Figure 2.** Hybrid training activities Indonesia – Hong Kong

### 3. Result

The results of this activity show that the online and offline training at the TCK Learning Centre in Hong Kong has been successfully conducted with the following outcomes: The training took place at the TCK Learning Centre, Hong Kong, the materials from the speakers have been delivered and documented, participant evaluation through questionnaires and discussions.

The results of this activity's development show a significant positive impact on the participating participants, including: The speakers providing the training materials have relevant competencies, the training held at the TCK Learning Centre, Hong Kong, used a hybrid method (onsite and online) to reach participants in different locations (Indonesia - Hong Kong), as shown in figure 2, publication on news media portals: Instagram of Universitas Siber Asia, Facebook of TCK Learning Centre Hong Kong, as shown in figure 3.



**Figure 3.** Publication of activity results

Table 1 shows the results of the questionnaire data collection with participants regarding their understanding of the material presented as follows.

**Tabel 1. Evaluation of the questionnaire**

| Participant | Jobs/Institutions | How well do you understand the training material that was delivered? | What do you think of the quality of the material presentation by the speaker? |
|---|---|---|---|
| Participant-1 | Univesitas Siber Asia | Very Understanding | Very High Quality |
| Participant-2 | Indonesian Migrant Workers | Very Understanding | Very High Quality |
| Participant-3 | Female Foreign Workers (FWAs) | Very Understanding | Very High Quality |
| Participant-4 | Private Sector Worker | Very Understanding | Very High Quality |
| Participant-5 | Indonesian Migrant Workers | Understanding | High Quality |
| Participant-6 | Domestic Workers Hong Kong | Very Understanding | Very High Quality |
| Participant-7 | ART | Neutral | High Quality |
| Participant-8 | PMI | Understanding | Very High Quality |
| Participant-9 | DH | Very Understanding | Very High Quality |
| Participant-10 | Households | Neutral | Very High Quality |

### 4. Conclusion

The data communication and computer networking training program held at the TCK Learning Centre in Hong Kong has proven to have a positive impact on Indonesian migrant workers by enhancing the participants' understanding and technical skills in the field of computer networks through a hybrid approach of theory and practice. Evaluation results show that the majority of participants understood the material well and assessed the delivery by the speakers as very adequate, reflecting the effectiveness of the training methods used. In addition, this activity successfully expanded visibility through publications on social media and is in line with support for SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth). This program not only empowers participants personally and professionally but also serves as a model for empowerment activities that should be replicated on a larger scale.

### 5. Acknowledgement

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