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Article

The Information and Communication Technology (ICT) Literacy of Local Community in Tourism Village of Karo Regency, Indonesia

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Abstract: The Digital revolution is rapidly growing today and has provided the conditions for modernisation in exchanging information, data, and knowledge at every level of world society. Technology is often depicted as the engine of modernisation processes and as one of the principal icons of modernity. This research was motivated by an indication of low Information and Communication Technology (ICT) literacy in rural communities. A rural area has great tourism potential; however, it is difficult for villagers to be part of the information society and use information and communication technology as one tool to promote tourism in the region. This study was designed to determine the ICT literacy levels by measuring computer, internet, information, and digital literacy. The study was conducted by survey method with a quantitative approach. The result showed that computer literacy, the internet, information and digital literacy of the local community in Tongging Village are mostly in level. Therefore, the ICT-Literacy level of people in Tongging village was also at level 3. Most individuals have a standard ICT knowledge that they need and consistently use it as a reference in everyday activities. In computer literacy, the ability of Tongging villager is distinguished between a desktop personal computer and a laptop. Most were good, ability to turn the computer and monitor on and off, ability to choose and run the computer program as needed mostly at level 3

Keywords: literacy; information; communication; technology; rural tourism.

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1. Introduction

The Digital revolution that is rapidly growing today has provided the conditions for modernisation in the exchange of information, data, and knowledge at every level of world society. Technology is often depicted as the engine of modernisation processes and as one of the principal icons of modernity. The role of technology, especially the use of internet technology, encourages mass interaction worldwide due to its public openness and nonproprietary nature (Shapiro, 1999). Therefore, Information and Communication Technology (ICT) positively supported efforts to create an information society. Knowing its importance, UNESCO by World Summit on the Information Society (WSIS) Forum encouraged many countries to immediately commit to creating an information society (Selian, 2004). WSIS implements the *Geneva Plan of Action* and *Tunis Commitment* to expand ICT to half of the world population in 2025 (WSIS, 2014). Building ICT infrastructures, especially in rural and remote areas, is one main concern in the 10 commitments of the *WSIS Plan of Action*. The rapid growth of internet and smartphone usage has affected all sectors, including tourism. Digital transformation in travel and tourism nowadays is no longer an optional strategy but gradually becoming an indispensable practice that must be taken to be competitive and respond to the nonstop growth in customers' demands and needs. Further, the use of digital technology is considered to be four times more effective than conventional media.

The Ministry of Tourism and Creative Economy recorded that 70% of tourists have been able to search and research their desired destinations online (Kemenparekraf, 2020). The online travel agency market share increased to IDR 3 trillion in 2015 and is projected to grow 28 percent to IDR 10 trillion in 2020. Digital technology in tourism is used to facilitate tourists seamless customer experience in searching for the book and paying for tour services. The team leader of "10 New Balis" project, which focuses on developing 10 destinations in Indonesia that are assigned to be "the next Bali", stated that 50% of foreign tourists that will come to Indonesia would be familiar with the digital world and technology. As for domestic tourists, Indonesia is one of the countries with the youngest average age, which is 28 years old. Therefore, the millennial generation is the largest market for Indonesian tourism. Responding to that information, The Ministry of Tourism has designated *Go Digital* or *Digital Tourism* as the *Top 1 Program* in The Tourism Ministry. Digital has become an inevitable necessity, and the facts show that everything can be done quickly through digital mechanisms. 50% to 70% of tourism marketing and promotion programs have used digital mechanisms.

In addition, the Ministry of Communication And Information Technology in The Strategic Blue Print of Planning and Developing The ICT – Literate Human Resources in Indonesia in 2006 described being ICT literate. Theoretically, one should follow several steps: information literacy, computer literacy, digital literacy, and internet literacy (Saleh, 2015). Computer literacy could be defined as an understanding of what computer hardware and software can do. At the same time, Internet literacy is described as being beyond computer literacy, which is the ability to use theoretical and practical knowledge about the internet as a medium of communication and information retrieval (Doyle, 1996). Information literacy is accessing, evaluating, and using information from various forms – books, newspapers, videos, CD-ROMs, or the web. Computer literacy is the ability to use computers to meet personal needs (Rhodes, 1986). Information literacy is also defined as the skills, knowledge, understanding, values, and kinship relationships that allow a person to function as a productive citizen in a computer-oriented society (Watt, 1980). Digital literacy is the ability to understand and use information from various sources when presented through digital tools (Gilster, 1997). Therefore, ICT literacy combines intellectual capabilities, fundamental concepts, and contemporary skills that a person should possess to navigate and use information and communication technology effectively (Welker et al., 2005). ICT literacy is also described as using digital technology, communications tools, and networks to access, manage, integrate, evaluate, and create information to function in a knowledge society (Panel, 2002). ICT literacy is a bridge between information and communication literacy (Rockman & Smith, 2005).

Karo Regency is one of the regencies located around Toba Lake, one of the destinations "10 New Balis". The tourism industry has a big share in this area because it is the main local revenue. Currently, tourist villages in Karo Regency have become attractive destinations because they directly interact with the local community. Establishing a tourism village has many purposes, such as improving the position and role of the community as an important subject or actor in tourism development, collaborating with stakeholders to improve the quality of tourism development in the region, building and fostering positive attitudes and support from the community as hosts through the embodiment of Sapta Pesona values for the growth and development of tourism in the region and preserving and utilising the potential of existing tourist attractions in each region and introducing tourist villages, one of which is by utilising information and communication technology. One of the famous tourist villages in Karo Regency is Tongging Village. It is near Lake Toba, located specifically in Merek District and was developed as a culinary and shopping tourism destination. Tongging Village is about 1 hour from Brastagi, and Lake Toba can be seen directly with the background of Sipiso-Piso Mountain. Sipiso-Piso Waterfall can also be found here. Its position is 800 meters above sea level and 120 meters in height. It also provides trekking activity in the viewing post area. This area is very interesting, with a winding route. Based on the description above, the authors consider it necessary to discuss the Information and Communication Technology (ICT) Literacy of the local community in the Tourism Village of Karo Regency, especially in Tongging Village. This study aims to identify the information and communication technology literacy of the local community in the tourism village of Karo Regency, especially in Tongging Village.

2. Materials and Methods

The descriptive and quantitative approaches were used to analyse the ICT literacy of the local community in the tourist village. A survey related to ICT literacy was conducted in the local community of Tongging Village by using a questionnaire. Indicators used to determine ICT literacy were information literacy, computer literacy, digital literacy, and internet literacy. The results are grouped into five levels according to People-Capability Maturity Model (P-CMM) (Table 1).

Table 1. Literacy Level Category of Information and Communication Technology

Level category	Description
Level 0	If an individual totally ignores the importance of ICT for everyday life
Level 1	If an individual has ever had one or two experiences in which information is an essential component of achieving desire and solving problems and has involved ICT to look for it.
Level 2	If ICT has repeatedly used by individual to assist his daily activities and has had a pattern of recurrence in its use.
Level 3	If an individual has a standard knowledge of ICT they needed and consistently use that standard as a reference in their everyday activities.
Level 4	If an individual has been able to significantly improve the performance of individual daily life activities through the utilisation of ICT.
Level 5	If an individual has regarded ICT as an integral part of everyday activities and directly or indirectly has colored the behavior and cultured his life.

Source: (Curtis et al., 2009)

Using the Karo Regency Central Bureau of Statistics in 2017, the population of people in Tongging Village was 1,034 people, 512 were male, 522 were female, and 3 hamlets contained 310 households. Tongging Village is a self-sufficient village where the community has been able to utilise and develop natural resources and their potential following regional development activities. In this study, we surveyed 35 people of Tongging Village with an age range from 25 to 55 years old. The result of survey data analyses descriptively.

3. Results

3.1. Computer Literacy

Five Indicators were surveyed to determine the computer literacy of the local community in Tongging Village (Figure 1). The first indicator showed the ability to distinguish between a desktop personal computer and a laptop, in which 14% of people surveyed were in level 5.40% were in level 4.29% were in level 3.11% were in level 2, and 6% were in level 1. The second indicator showed the ability to turn the computer and monitor on and off, which 9% of people surveyed were in level 5.20% were in level 4.40% were in level 3.17% were in level 2, and 14% were in level 1. The third indicator showed the ability to choose and run the computer program as needed, showed 6% of people surveyed were in level 5.14% were in level 4.43% were in level 3.20% were in level 2, and 17% were in level 1. The fourth indicator showed the ability to connect computers to the internet, showed 3% of people surveyed were on level 5.8% on level 4.40% were on level 3.26% were on level 2, and 23% were on level 1. The fifth indicator showed the ability to understand computer hardware, showed 6% of people surveyed were in level 5.20% were in level 4.34% were in level 3.23% were in level 2, and 17% were in level 1.

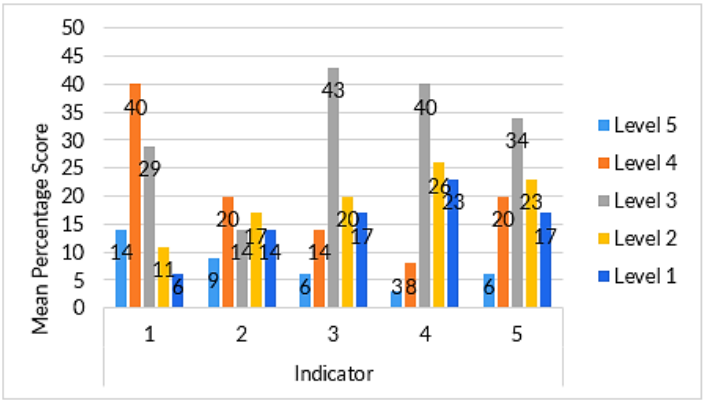

Figure 1. Computer literacy of local community in Tongging village

3.2. Internet Literacy

Internet literacy of the local community in Togging village was measured using 5 indicators (Figure 2). The result of the first indicator, which was the ability to use the internet, including the World Wide Web (www) in finding information, showed 9% of people surveyed were in level 5.29% were in level 4.31% were in level 3.17% were in level 2, and 14% were in level 1. The second indicator showed the ability to use email (writing, reading, sending), showed 6% of people surveyed were in level 5.26% were in level 4.37% were in level 3.17% were in level 2, and 14% were in level 1. The third indicator showed the ability to use a web browser such as Google Chrome, Mozilla Firefox, and Internet Explorer (searching and downloading), which 6% of people surveyed were in level 5.29% were in level 4.40% were in level 3, 17% were in level 2, and 8% were in level 1. The fourth indicator showed the ability to use search engines broadly (Yahoo, Google), showed 9% of people surveyed were in level 5.37% were in level 4.40% were in level 3.8% were in level 2, and 6% were in level 1. The fifth indicator showed the ability to take advantage of safe internet usage, showed 9% of people surveyed were in level 5.23% were in level 4.43% were in level 3.14% were in level 2, and 11% were in level 1.

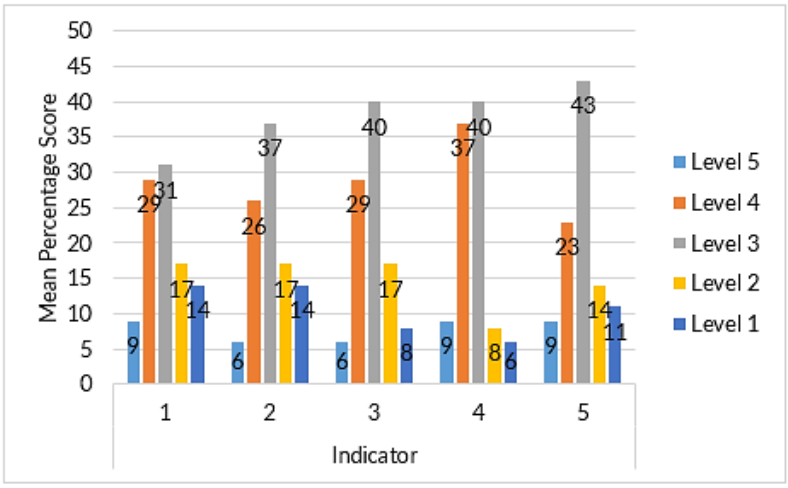

Figure 1. Internet literacy of local community in Tongging village

3.3. Information Literacy

Information literacy of the local community in Togging village was measured with 3 indicators (Figure 3). The result of the first indicator, which was the ability to seek information in advance and determine which sources to use, showed that 14% of people surveyed were in level 5.29% were in level 4.34% were in level 3.14% were in level 2, and 9% were in level 1. The second indicator showed the ability to identify information needs before seeking information, 9% of people surveyed were in level 5.29% were in level 4.37% were in level 3.17% were in level 2, and 8% were in level 1. The third indicator showed the ability to access various sources of electronic information, where 6% of people surveyed were in level 5.23% were in level 4.37% were in level 3.20% were in level 2, and 14% were in level 1.

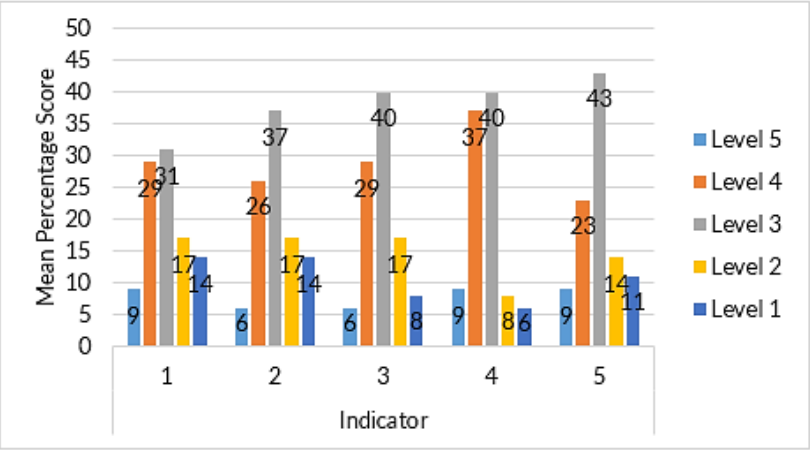

Figure 3. Information literacy of local community in Tongging village

3.4. Digital Literacy

The digital literacy of the local community in Togging village was measured using 3 indicators (Figure 4). The first indicator was about the ability to create communication through social media, for example, in the form of forum discussion. The result showed that 14% of villagers were in level 5.34% were in level 4.32% were in level 3.14% were in level 2, and 6% were in level 1. The second indicator showed the ability to create communication using media such as images, video, and sound. The result showed 9% of villagers were in level 5.37% were in level 4.40% were in level 3.11% were in level 2, and 3% were in level 1. The third indicator showed the ability to create communication using blog or vlog. The result showed that 11% of villagers were in level 5.34% were in level 4.37% were in level 3.12% were in level 2, and 6% were in level 1.

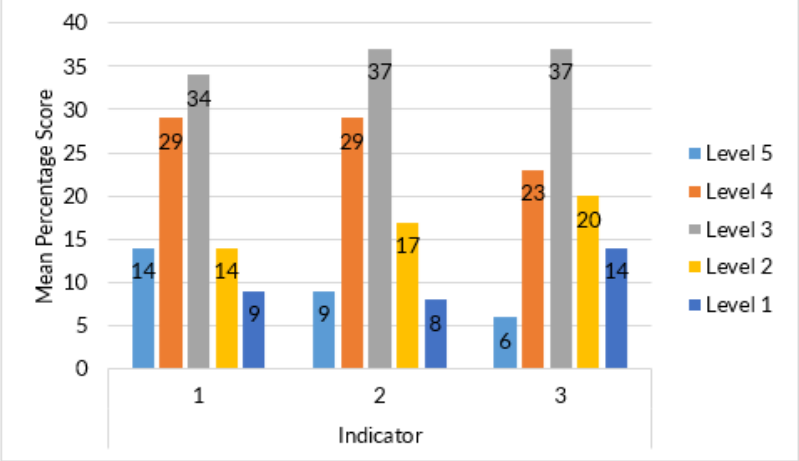

Figure 4. Digital literacy of local community in Tongging village

3.5. Information and Communication Technology Literacy

ICT literacy of the local community in Togging village in level 5 was 8.75%, level 4 was 27%, level 3 was 35.5%, level 2 was 16.13%, and level 1 was 11%. Most people in Tongging village were identified to be in level 3 of ICT literacy.

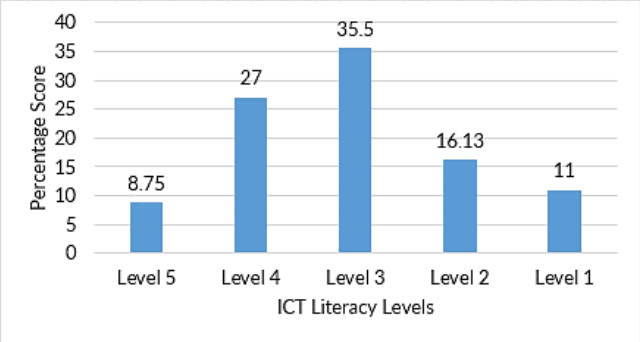

Figure 2. ICT literacy of local community in Tongging village

4. Discussion

The computer literacy survey showed that Tongging Villagers of Karo Regency could mostly distinguish between a desktop computer and a laptop, despite mostly known work as a farmer and fish farmers. The total percentage of people who can turn the computer on and off, choose and run the computer program as needed, connect the computer to the internet and understand computer hardware, from level 3 to level 5 also higher compared to the total percentage of people who have skill below level 3. Most Tongging Villagers were identified to be in level 3 of computer literacy. According to the survey, Internet literacy level Tongging Villagers of Karo Regency results were mostly on level 3 (31%-43%). Many are also known to be in level 4 or have good ability in using the internet to search and download information via web browsers (23%-29%). Despite that, the total percentage of people with internet ability literacy below level 3 was still quite high (14%-31%). Compared to villages in the border area of North Sulawesi, the Internet literacy people community in Tongging village was quite good. The barriers are predominantly a lack of knowledge of internet usage. Therefore it causes community internet literacy at level 0 (Wahab, 2016). According to the survey, information literacy level Tongging Villagers of Karo Regency results mainly were in level 3 (34%-37%). The percentage of Tongging villagers who can seek information in advance and determine which sources to use and identify information needs before seeking information seems to be higher above level 3 or below level 3. However, the percentage of Tongging villagers accessing various electronic information sources below level 3 was higher than above level 3.

Digital literacy levels of the local community in Togging village are mostly at level 2 and level 3. The total percentage of people who can create communication through social media, create communication using media such as images, video, and sound, and create communication using blog or vlog above average level was higher than below level 3 or average level. In simply, it could be concluded that more than 80% of people in Togging village have good digital literacy, despite having low internet literacy. In order to determine The ICT literacy level of the Tongging village community, one should pass the four steps of ICT literacy. Therefore, data analysis was performed on the data of villager information literacy, computer literacy, digital literacy, and internet literacy. The results are grouped into five levels according to People-Capability Maturity Model (P-CMM) (Curtis et al., 2009). The analysis showed that, in general, most people in Tongging Village, Karo Regency were in level 3 of ICT literacy. Most individuals have a standard knowledge, can master the ICT they need, and use that standard consistently in everyday activities. The result showed that, which such knowledge, the people of Tongging village should be able to use information and communication technology in promoting their area using ICT. Massive marketing via digital marketing could promote Tongging Village better and make it well known, not only in Indonesia but also in other countries. Better promotion results could only be achieved if people in Tongging village were willing to improve their ICT level. Because the digital promotion sector also can provide benefits for the people of Tongging. The community can live from the sector by providing goods and services in the tourism sector, such as hotel entrepreneurs, beach managers, tire renters, boat renters, water bike renters, selling food, souvenir sellers and others.

Many efforts have been made to improve ICT literacy in remote and tourist areas. Women empowerment training program has been done in Bejiharjo tourist village (Santi, 2019). Women in Bejiharjo Village were taught to use websites and Instagram applications to promote their culinary products. Another effort was the farmer's Empowerment that has been done by the ICT community in 4 (four) cities/regencies in West Java (Ciamis, Garut, Majalengka, Indramayu Regency, and Sukabumi City). The program goal was to assist farmers in using ICT, develop ICT-based services for agriculture, socialise the benefit of ICT in developing agriculture, encourage the productivity of agricultural products, promote the village potency and agricultural product, and cooperate with the village in assisting the use of ICT (Praditya, 2016). Despite the efforts, failures and difficulties might still occur because ICT literacy's global objective is a complex process. It is exacerbated by many factors, including educational inequalities, income and access to health care, class, gender, race differences, access for individuals with disabilities, and geography. The example could be seen in Mamminasata, South Sulawesi. Although it has been designated a metropolitan city, the ICT literacy level of the

community in Mamminasata city was still relatively low (Saleh, 2015). Therefore, when making decisions regarding community ICT literacy, government or stakeholders need to take these matters into consideration.

5. Conclusions

In computer literacy, the ability of Tongging villager is distinguished between a desktop personal computer and a laptop. Most were good, ability to turn the computer and monitor on and off, ability to choose and run the computer program as needed mostly at level 3, ability to connect the computer to the internet mostly on level 3, and ability to understand computer hardware mostly at level 3. The Internet literacy level of the local community in Togging village is mostly at level 3. They use the internet to find information, use email (writing, reading, sending), use a web browser, use search engines broadly and take advantage of safe internet usage. Information literacy of the local community in Togging village was mostly on level 3 when it came to seeking information in advance and determining which sources to use, identifying information needs before seeking information, and accessing various electronic information sources. Digital literacy in Tongging village's local community can create communication through social media, mostly at level 2. However, most of the ability to create communication using media such as images, video, and sound and to create communication using blogs or vlogs were on level 3. Further, referring to the People-Capability Maturity Model (P-CMM) theory, an individual's ICT literacy can be categorised into five levels. ICT literacy of the tourism village community in Tongging Village, Karo Regency, was mostly on level 3, where most individuals have a standard of knowledge and can master the information or technology they need and use it consistently.

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