

A Systematic Literature Review on The Fishermen's Knowledge of Integrating Fishing and Tourism Activities

Faros Fadzira Roslan¹, Rosilawati Zainol^{2*}, Nur Aulia Rosni³

^{1,2,3} Department of Urban and Regional Planning, Centre for Sustainable Urban Planning and Real Estate (SUPRE), Faculty of Built Environment, Universiti Malaya

*Email: *rosilawatizai@um.edu.my*

Abstract

Education for the future requires everyone to consider the pillars of sustainability in carrying out their daily activities. It is crucial to note that education is an essential ingredient in achieving sustainable development. Fishermen, for example, live in poverty due to a lack of proper knowledge and learning exposure. Having greater insight into this research area would yield helpful information about the impact of education on the fishermen's community's well-being. The integration of fishing and tourism disciplines is ongoing and has produced positive results. An in-depth examination at how fishing and tourism might work together is presented here for the first time. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) publication standard has been employed as a key research design approach. Web of Science and Scopus are the two key databases used in this study. A total of eleven (11) articles are eligible for review and analysis. Three (3) themes emerged from the thematic analysis, namely, 1) fishing and tourism, 2) knowledge, and 3) rural economies. This study proposes two (2) recommendations. To begin, there is a dire need for additional qualitative research because it is the only method to deliver comprehensive and precise knowledge. Second, authors can report reviews on any study in a systematic manner when they use the PRISMA method.

Keywords: Community, Education, Fishermen, Knowledge, Systematic Review, Tourism

1.0 INTRODUCTION

Education and knowledge for the future require everyone to consider the sustainability pillars in their daily activities. Recognising that knowledge is a necessary component for achieving sustainable development is critical. Education is critical to achieving all of the 2030 Agenda goals because it provides individuals with the knowledge, skills, and values they need to live with dignity, build their lives, and contribute to the societies in which they live (UNESCO, 2020). The 2030 Agenda for Sustainable Development Goal 4 (SDG 4) aims to "provide inclusive and equitable equity education and promote lifelong learning opportunities for all" by 2030. This goal effectively encapsulates the knowledge aspirations that have been set. Fishermen, for example, are often impoverished because they need access to information and learning opportunities. A better understanding of this field of study would lead to the discovery of important information about the impact of education on the prosperity of the fishing community. Fishing and tourism are currently being integrated, and the process has yielded positive results. For businesses to be competitive with one another in the tourism industry, they must have the necessary level of competence (Thomas & Wood, 2015). Businesses have a higher chance of aligning themselves with the ever-evolving requirements of the tourism industry if they base their decisions on accurate information. By making the right and accurate decisions based on their expertise, tourism businesses may succeed in constantly shifting environments as they can adapt to new conditions.

Previous scholars discovered that the fishermen have a low level of knowledge and limited educational opportunities (Hasanuddin et al., 2013; Kasuma et al., 2019; Möller, P., 2016; Pham, 2020; Sankharat, 2013; Neo et al., 2018). They may have only completed primary school, leaving them with limited skills and information. As a result, when severe weather prevents fishermen from working, they are left without work since they lack the skills needed to engage in other occupations.

Low-income families, particularly those in the fishing community, are most affected by these situations. According to earlier research, fishermen struggle with poverty and lack access to essential amenities (Janet et al., 2014; Meneghello, 2016). For this reason, many women (especially fishermen's wives) work outside the home. When the family's breadwinner (a fisherman) is away at sea for an extended period of time, an earned income can help cover the family's basic expenses. As a result, the lack of human resources is also an issue in the study field

(Hasanuddin et al., 2013). Apart from a lack of skills in the fishing industry, there was also a lack of business knowledge, management experience, human capital, and illiteracy in the sector (Kasuma, et al., 2019; Pham, 2020; Neo et al., 2018; Stoop, 2016). Stoop et al. (2016) discovered that education diversification is one of the important factors that leads to higher income. According to Kasuma et al. (2019), Malay SME entrepreneurs have major weaknesses in knowledge and entrepreneurial management skills. The education system must be improved by establishing skill-based training for the fishing community in order to improve their livelihood level (Neo et al., 2018).

In addition to having an effort on the low economic level, in particular, on the families of fishermen, the lack of educational opportunities has an effect on the diversification of fishing activities, which is problematic given that the vast majority of fishermen rely solely on fishing as their primary source of income (Janet et al., 2014). One of their difficulties may be that they have not diversified their fishing activity into other market industries. Fishing-related tourism is emerging as a product response in several European coastal regions. By developing innovative tourism products, the community can generate additional income and encourage more sustainable fisheries (Meneghello, 2016). As fisheries decline, fishing villages turn to part-time tourism or nature-based tourism (Burks, 2006; Cheong, 2005; Fabinyi, 2010; Lukas and Krit, 2009). While fishing and tourism operations in rural areas frequently overlap at the household level, there are significant differences in habitat use, industry nature, and culture. The use of coastal services by fishermen and tourists differs. According to Sarr et al. (2008), fishing and tourism do not always use the same ecosystem aspect as a production factor. Increasing biomass, for example, may not attract visitors, but it does boost the productivity of a fishery. The appearance of emblematic species and fish groupings are important factors for the tourism industry but are not as crucial for the fishing industry (Sarr et al., 2008).

The primary research topic that will be discussed throughout this review is as follows: "What is the level of the fishermen's knowledge of the fishing activities that can be integrated with tourism?" The purpose of this study was to fill a void by methodically analysing prior studies to understand better and explain the knowledge level of fishermen in the fishing and tourism business.

2.0 SYSTEMATIC LITERATURE REVIEW FRAMEWORK ON THE FISHERMEN'S KNOWLEDGE OF INTEGRATING FISHING AND TOURISM ACTIVITIES

The review of literature is an essential part of the study. A systematic literature review (SLR) is a research methodology that entails the comprehensive gathering, identification, and critical analysis of all existing research studies pertaining to a specific subject matter. The process is executed methodologically and impartially, adhering to a predetermined set of guidelines. The systematic review aims to gather all relevant empirical evidence matching pre-specified criteria. The rationale for employing systematic literature review as a means of examining research lies in its ability to provide several benefits in comparison to alternative methods of research synthesis, such as narrative reviews. One notable feature of SLR is its inherent comprehensiveness, surpassing narrative reviews. Narrative reviews frequently exhibit a bias towards incorporating research that aligns with the author's perspective, whereas systematic literature review encompasses and incorporates all pertinent studies, irrespective of their outcomes. Systematic literature review employs a systematic approach in the identification of relevant studies, which involves scanning different databases and using particular inclusion and exclusion criteria (Antman 1992, Oxman 1993).

Another advantage of systematic literature reviews is that they are more objective than narrative reviews. Narrative reviews may exhibit bias due to the author's subjective interpretation of study findings, whereas a systematic literature review employs defined criteria to evaluate the quality of evidence. This practice aids in mitigating prejudice within the evaluation process. According to the Cochrane Handbook (2011), the authors argue that a systematic literature review is the "gold standard" for research synthesis because they are more comprehensive, objective, and transparent than other methods. Based on the article "The Methodology of Systematic Reviews," this article presents a comprehensive examination of the methodologies employed in systematic reviews, encompassing the process of study identification, selection, and evaluation. The authors propose that systematic literature review is considered to be the most rigorous method of research synthesis, as it offers the highest level of evidence (Moher et al., 2009).

Completing various literature reviews can be achieved by adhering to a standardised set of eight procedures. The process of conducting a systematic literature review involves many vital steps. These steps include: (1) formulating a research question; (2) developing and validating the review protocol; (3) scanning the literature; (4) selecting relevant articles for inclusion; (5) screening the quality of the selected articles; (6) extracting relevant data from the chosen articles; (7) synthesising the collected data; and (8) coherently publishing the findings (Xiao & Watson, 2019).

Despite several publications and studies on the fishermen's community within the tourist industry, there remains a dearth of comprehensive systematic evaluations that specifically examine the knowledge level of fishermen. The existing body of literature mainly concentrates on certain aspects of fishermen, neglecting to adequately address their level of expertise, particularly within the context of tourism. Consequently, the utilisation of a rigorous systematic review methodology in this study has the potential to effectively produce optimal guidelines, effectively addressing the existing gaps in the research.

3.0 METHODOLOGY

This part detailed the research design utilised to recover the articles about fishermen's knowledge level of integrating fishing and tourism activities. The systematic literature review was carried out using PRISMA as a methodology. Databases from the Web of Science (WoS) and Scopus are consulted as part of this comprehensive analysis. Eligibility criteria and exclusions are also presented in this part. Data extraction is also covered.

i. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

The PRISMA is a set of guidelines and a checklist that aims to enhance the transparency and overall quality of reporting in the context of systematic reviews and meta-analyses. Developing these guidelines ensures that researchers furnish explicit and thorough details regarding the methodologies employed in their systematic reviews and meta-analyses. This step facilitates the evaluation of the research's validity and reliability by readers. Conducting a systematic literature review on "fishermen's knowledge level of integrating fishing and tourism activities" necessitates employing a systematic and all-encompassing methodology to identify, select, analyse, and synthesise relevant research studies. Using the PRISMA principles is crucial in directing the data analysis procedure for this subject matter, as they offer a structured framework for ensuring transparency, consistency, and rigour in the review process. This process, in turn, contributes to the overall reliability and usefulness of the researcher's review findings.

The PRISMA statement has three advantages: 1) it provides a consistent understanding of the study issue, 2) it defines reporting requirements for inclusion and exclusion, and 3) it synthesises the results.

(i) Resources

Web of Science (WoS) and Scopus are the primary databases for analysis. The former is a comprehensive archive of more than 34,623 journals covering more than 171 million social sciences, arts and humanities, and development planning documents. Clarivate Analytics has accumulated more than 200 years of detailed backfile and citation records, rated by citations, papers, and citations per publication. Scopus is the source that the researchers considered to be the second most important overall. This database is one of the main peer-reviewed research abstracts and citation repositories, with more than 23,452 journals and 5,500 fully open-access journals. It encompasses various academic disciplines, including the arts and humanities, medicine, the social sciences, and technological advances.

(ii) Eligibility and exclusion criteria

This analysis points out multiple inclusion and exclusion requirements. Table 1 shows the selected criterion. It begins to form text, and only articles will be selected and not selected to research for the review paper, book, chapter in a book, and conference book. Next, regarding the chronological period of publishing, five years were chosen (between 20016 – 2020), meaning publications that are more than six years (2015 and before) are omitted from the review. The five (5) years timeline period is relevant to the study because of the updated data provided in the articles. Subsequently, to avoid the interpretation of the meaning of the review, only English and Malay language articles are selected. The review focuses on the education level within the tourism industry context in the fishermen community; the focus areas included are social sciences, economics, businesses, and arts and humanities. All the articles are not related to the education level of the fishermen community, and the tourism industry will be excluded from this step.

(iii) Conducting systematic literature reviews

Systematic literature reviews are purposefully conducted to encompass comprehensive and focused database searches. This study has developed comprehensive protocols to establish a structured approach for conducting systematic literature reviews. Furthermore, any pertinent papers pertaining to the specified search parameters will be given and thoroughly scrutinised. This systematic literature review is grounded in the guidelines established by Beelmann (2014), Deutsches Cochrane Zentrum (2013), Griffith, Wolfeld, Armon, Rios, and Liu (2016), Higgins and Green (2008), Kitchenham (2004), Lazer, Sonntag, Drazek, Jaeschke, and Hogreve (2010), Pant

(2014), Petticrew and Roberts (2006), and Uman (2011). The fundamental framework that permeates and maintains consistency throughout this body of material can be succinctly outlined in four sequential stages.

The systematic literature review is broken down into four stages: 1) identification, 2) screening, 3) eligibility, and 4) inclusion of articles for qualitative analysis in this section. The systematic literature review is depicted in **Figure 1**. As part of the study's first round of research, keywords, and related terms were identified based on one of the study's questions. Education, tourism, and fisherman were among the terms that were used. There are two databases whose search strings appear in **Table 2**. At this stage, it was identified that there was zero number of duplicated publications.

The screening was the second stage of the systematic literature review. As a result of the systematic review articles, book series, book, chapter in a book, conference proceeding, non-English and non-Malay published before 2015, and not focused on subjects such as social sciences, economics, companies, and arts and humanities, 1020 records were removed.

The eligibility stage was the subsequent stage. A total of twenty two (22) full-text articles were eliminated from consideration due to the fact that they did not pertain specifically to fisherman knowledge. It has also neglected the tourism sector. A total of eleven (11) articles were used for qualitative analysis in the final stage of the evaluation.

Table 1. Criteria for inclusion and exclusion

Criteria	Inclusion	Exclusion
Timeline	2016-2020	2015 and before
Document type	Article	Review paper, book, chapter in book, conference paper
Source type	Journal	Book, Book Series
Publication stage	Final	Article in press
Language	English, Malay	Non-English, Non-Malay

Table 2. Two databases' search terms

Database	Search String/Query String
Scopus	TITLE-ABS-KEY ((educ* OR learn* OR knowledge* OR school* OR train* OR read* OR tutor* OR liter*) AND (tour* OR travel*) AND (fish* OR trawl* OR folk*) AND (commun*))
WoS	TS=((educ* OR learn* OR knowledge* OR school* OR train* OR read* OR tutor* OR liter*) AND (tour* OR travel*) AND (fish* OR trawl* OR folk*) AND (commun*))

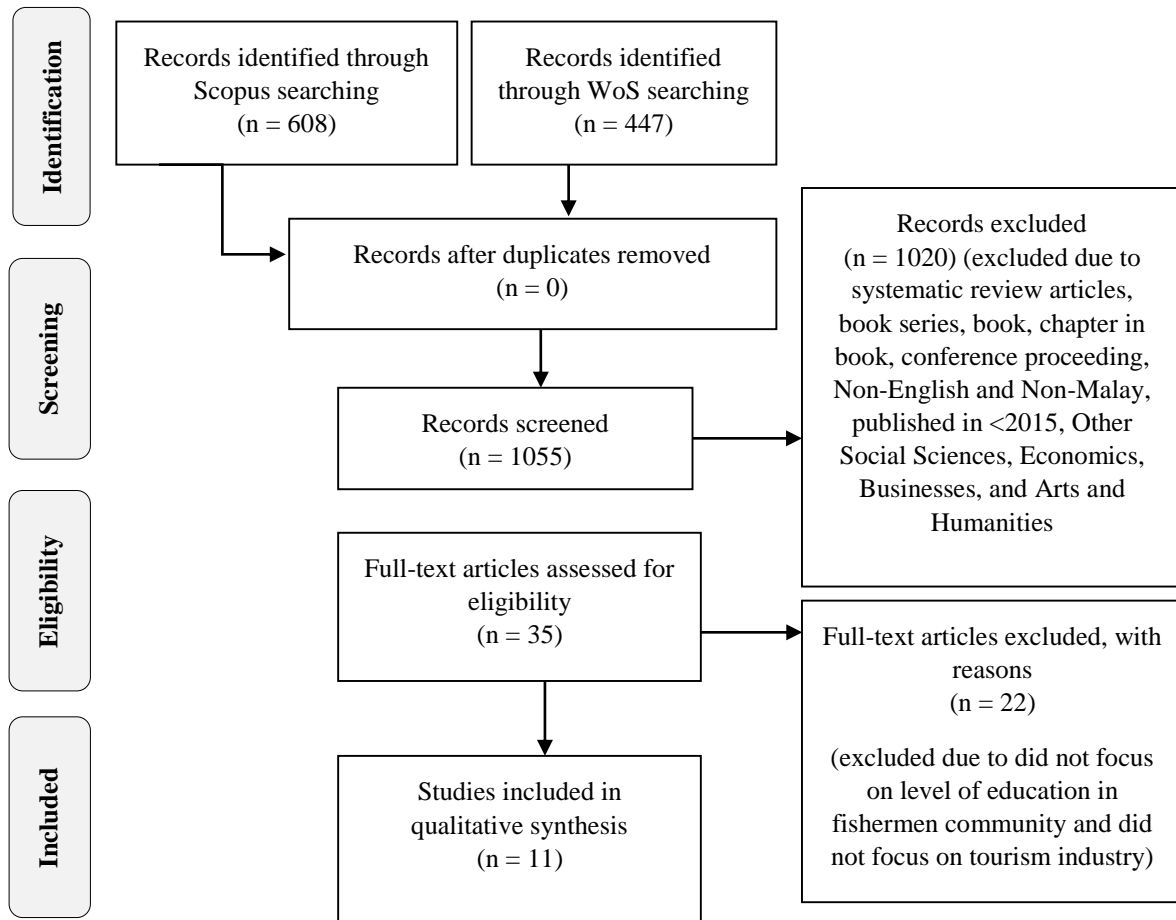


Figure 1. The overall process of the study

(iv) Abstracting and analysing data

The review was evaluated and analysed based on the final articles included for qualitative analysis. The data and ideas from the remaining articles were extracted by reading through the abstract, results, and discussion. However, reading through the full article also categorises the relevant themes related to the knowledge level of the fishermen's community. The themes were then determined through a process known as thematic analysis. Many qualitative researchers employ the thematic analysis method (Braun & Clarke, 2006), which helps the researchers to analyse. The process of thematic analysis starts with creating the concept ideas or themes based on the abstracted data. The abstracted data was created by analysing all the examined publications. Thematically relevant data and concepts were grouped in a single category. The next step is to check the themes' quality to ensure they are useful and accurately represent the data. After that, each group's topics were given names. By virtue of the theoretical flexibility of this technique, it was put to good use. As a result of its flexibility and adaptability, it can be used for a wide range of research and produce data accounts that are both extensive and complicated (Braun & Clarke, 2006; King, 2004). Methodologically speaking, theme analysis is more accessible than other qualitative approaches because it doesn't necessitate the expansion of theoretical and technological knowledge that other qualitative approaches do (Braun & Clarke, 2006). Another benefit of using this method is that it allows the researcher to take a systematic approach to data processing, resulting in a final report that is both cogent and well-structured (King, 2004). Finally, the identified themes were encoded to generate the primary themes. The study initially identified three (3) primary themes: fishing and tourism, knowledge, and rural economies. Then, this study generated twelve (12) associated sub-themes from the three overarching themes. These primary and sub-themes were then designed and are presented in **Table 3**.

4.0 RESULTS

4.1. Background of Selected Studies

This study examined eleven (11) selected articles. Based on the thematic analysis, three (3) main themes were built: *fishing and tourism*, *knowledge*, and *rural economies*. Then the themes were analysed to produce twelve (12) sub-themes: *entrepreneur*, *activities*, *products*, *promotion*, *business*, *skills*, *experience*, *new sources*, *communication*, *economic growth*, *jobs*, and *income*. Examination of the articles showed that seven (7) studies used qualitative, two (2) used quantitative, and two (2) used mixed methods. Four (4) studies were carried out in Malaysia, while seven (7) were carried out in eight (8) locations: Africa, Italy, Sweden, Vietnam, Thailand, China, and Benin. Of the eleven (11) articles, one (1) was published in 2013, four (4) in 2016, one (1) in 2017, one (1) in 2018, two (2) in 2019, and two (2) in 2020.

4.2. Themes and Sub-Themes

Fishing and Tourism. A global trend has shown the transformation of fisheries into tourism. This is mainly due to the decrease in income produced by conventional fisheries activities, which in turn led the fishermen to find alternatives by engaging in marine tourism (Chen et al., 2017). Some countries have transformed the fisheries into tourism. For instance, in Ecuador, fishermen find alternatives in the more lucrative tourism sector by bringing visitors out on their boats to experience an authentic day at sea (Schuhbauer et al., 2013). At Jeju Island, South Korea, the fishermen open their fishing grounds to visitors and take them fishing and diving. The fishermen also turn their homes into homestays due to decreased income from declining fishing resources and consequent resident migration (Cheong, 2003; Cheong, 2005). Traditional fishing has also been transformed in Taiwan by allowing fishing vessels to carry tourists to sea for fun. These cases indicate that conventional fisheries have adopted tourism to produce alternative incomes that have become part of the socioeconomic structure of fishing villages (Chen et al., 2017).

In several European coastal regions, fisheries-related tourism is developing as a product response. Developing innovative tourism products can create the community's other side income and encourage more sustainable fisheries (Meneghello, 2016). Fishermen and their families will gain additional income by diversifying their activities to tap into the tourist market. For example, offering fishing boat trips abroad, lodging in fishermen's homes, and the opportunity to eat fish caught locally. This additional revenue will help reduce the reliance of fishing families on unpredictable fishing income. Additionally, new skills learned in tourism will help offer a competitive edge to fishing families in the labour market (European Union, 2014). The situation is also similar in Malaysia, where in Sarawak, one of the key contributors to tourism activities is the Sarawak Malay *terbuk ikan masin* entrepreneur. The idea of diversifying fishing activities into the tourism industry will enhance the economic development in an area. For example, knowing transforming traditional fishing activities into a recreational fishery will generate income for the fishing industry as well as contribute to the local business and recreational opportunities, improve quality of life, and increase the standard of living (Moller;2016, Yu;2016, Samah;2019). Fishing tourism is expected to support local cash income from formal jobs, earnings from the sale of goods, services, or casual labour (e.g., food, crafts, construction materials, and guidance services), revenues from local businesses, community-run business profits, and others. As fishermen are also partners in recreational fisheries, the business is expected to establish job opportunities for fishermen in various aspects of the value chain (Gurung & Thing, 2016).

In some research, it mentions that local community behaviour is important. This is illustrated in the case study of Pangandaran Village in which the village is a developed tourism area (Wibisono & Rosyidie, 2012). The local fishermen have turned into a community that supports tourism. They realise that the sustainability of tourism activities depends on their behavior towards tourists (Moscardo, 2008). In some cases, tourism activities were disturbed by local community behaviour who dislike tourists (Armenski & Lukic, 2011). In the context of integration between fisheries and tourism, the local community, especially local fishermen, openness towards tourists will make them feel very welcome.

Table 3. Table of findings

No.	Studies	Years	Region	Fishing and Tourism				Knowledge					Rural Economies		
				EN	AC	PR	PT	BS	SK	EX	NS	CM	EC	JB	IN
1	Sankharat	2013	Thailand						/		/		/		
2	Meneghello et al.	2016	Italy			/	/				/		/		
3	Möller	2016	Sweden					/					/	/	
4	Yu, S.-L et al.	2016	China		/								/		
5	Stoop et al.	2016	Benin		/	/			/	/					/
6	Sa'at, N. H., et al.	2017	Malaysia							/		/			/
7	Stella Ho Siew Neo et al.	2018	Malaysia						/						/
8	Kasuma et al.	2019	Malaysia	/	/			/	/						
9	Abu Samah et al.	2019	Malaysia	/	/				/	/					
10	Madzivhandila et al.	2020	Africa		/								/		
11	Pham et al.	2020	Vietnam		/							/	/	/	/

Note. **Fishing and Tourism:** EN=Entrepreneur; AC=Activities; PR=Products; PT=Promote, **Knowledge:** BS=Business; SK=Skills; EX=Experience; NS=New sources; CM=Communication, **Rural Economies:** EC=Economic; JB=Jobs; IN=Income.

It is anticipated that some tourists want to participate in their traditional fishing activity on the condition that tourists are ready to take all the risks incredibly seasick (tourist seasickness is the main barrier to the movement of tourism using traditional fishing boats over a relatively long period). However, despite their openness towards tourists, local knowledge about the integration between fisheries and tourism is only about fish products consumed by tourists, whereas there is a potential for fishing activities to be transformed into a tourist attraction in line with the statement from the European Commission (2013) that mentioned fishing activities have many assets to be developed as a cultural tourist attraction.

If regional development theories are examined, fisheries and tourism sectors are important elements of local economic development. Local economic development is a theory proposed by Blakely (1989). He stated that local economic development is a process of economic development in which the government and local community participate actively in managing endogenous potential through a pattern of cooperation. This concept aims to increase employment opportunities for the local community in the sectors that can improve their welfare by involving all available resources (natural, human, and institutional) (Wibisono & Rosyidie, 2012).

Knowledge. Levels of education and knowledge amongst the population are highly correlated with levels of economic development (Oxaal, 1997). Malaysia has made striking economic development achievements, especially in rural economic areas, resulting in greater economic growth for its people and a more significant eradication of poverty. In its search for greater prosperity, Malaysia claims that investments in skills and technology are vital to achieving competitiveness. Empowering people through education and skills upgrading would give them access to better jobs and higher wages, leading to a better quality of life and well-being (Economic Planning Unit, 2017).

Rouhmah (2016) stated fishermen in Malaysia still have a high incidence of poverty, including absolute and hardcore poverty. Fishermen communities have low knowledge and limited educational opportunities, which could be one of their challenges (Kasuma et al., 2019; Möller, P., 2016; Pham, 2020; Sankharat, 2013; Neo et al., 2018). Apart from having a lack of skills in the fishing industry, the lack of business knowledge, lack of management experience, lack human capital, and illiterate on the importance of the fishing sector (Kasuma, et al., 2019; Pham, 2020; Neo et al., 2018; Stoop, 2016). Stoop et al. (2016) found the diversification of education is one of the important elements that can lead to higher income. Kasuma et al. (2019) reported that Malay SME entrepreneurs have major weaknesses: knowledge and entrepreneurial management skills. The education system needs to improve by setting up a skill-based system for the fishing community to improve their livelihood levels (Neo et al., 2018). Occupational opportunities for fishermen's households should be offered so that fishermen's wives and children can contribute to increasing their household income, apart from introducing modern fishing utilities to enhance catches and production of fish.

Based on Zain, Kamarudin & Saad (2018), among the major factors that cause fishermen's quality of life to be low are educational factors (Laily & Lokman, 2005). The lack of education is the main reason for fishermen's quality of life is low (Sudarso, 2008). The study entitled 'Structural Poverty Stress' states that fishermen, particularly traditional fishermen, generally have the same characteristic of being uneducated. The main factor among them for not continuing education is due to family economic factors. In addition, parents are forced to use their children to help increase family income and reduce family burden. Thus, since their educational background is low, it will prevent them from getting better jobs.

A study on the quality and well-being of fishermen's lives by Edwin et al. (2018) portrays the need analysis of coastal fisherman empowerment based on economics education and potential coastal in Minahasa Regency of North Sulawesi. The method for this study is interview method, observation, and focus group discussion. About forty (40) respondents consisting of coastal fishermen in Minahasa, were asked about their work and the cost of living that they should bear every month. The average fisherman is merely a fisherman and not knowledgeable in business or fishery. They also do not know about the current type of equipment suitable for large fishing quantities, although only on the coast. The absence of other knowledge and skills to advance will cause the fishermen to survive in disadvantageous ways. It has shown that education or basic learning is important to improve the knowledge level of fishermen as well as their quality of life.

Rural Economies. In today's global economy, a nation's success depends fundamentally on its people's knowledge, skills, and competencies. Unsurprisingly, countries with higher education and knowledge levels enjoy greater economic prosperity. Education and knowledge are also fundamental to nation-building and unity. It allows individuals to improve their lives, become successful community members, and actively contribute to national development.

Nevertheless, millions of people worldwide still have disparities in educational opportunities, especially those living in rural areas. UNESCO (2002) has also mentioned that education is critical to ensuring economic growth, especially for rural areas. Most people living in rural areas have low school achievement, unemployment, and malnutrition. There is a plurality of over 70% of the world's underprivileged. Education also enables upward socioeconomic mobility and is a key to escaping poverty (United Nations, 2019). Filmer (2000) argued in most developing countries, deprivation is often associated with a low level of education. Health, employment, and quality assessment issues have been described as prerequisites for meeting development goals in many developing countries. Education alleviates poverty by emphasising labour development and other social benefit pathways. This is, therefore, a crucial goal of growth. (Flor et al., 2006).

Overpopulation, poor housing quality, a lack of resources (such as schools, hospitals, and grocery stores), and a lack of knowledge all too often define fishing settlements. The safety of fishing grounds is uncertain, and there are few other viable work options (Béné and Friend, 2009, 2011). Another issue is that many fishermen do not have secure property titles in the area in which they live. Many studies have suggested that other variables, such as health and education and access to basic amenities, constitute important dimensions of investigation for a comprehensive analysis of this community (Lawson et al., 2012; Béné and Friend, 2009); in addition to income, which plays a significant role in the poverty level of fishermen and other population groups.

Many studies have pointed out that low wages and high unemployment are to blame for the widespread poverty in fishing communities despite their abundant natural resources (Lawson et al., 2012). Because of the resource's inherent biological constraints and the undeniably detrimental impact that deterioration or depletion has on the livelihood of the fisherman, Bene (2003) found that poverty among fishermen might be explained by these factors (through income and food supply). Researchers have proposed a wide range of solutions to the problem of poverty in fishing communities. Islam and Chuenpagdee (2013) argued that reducing poverty in Bangladesh's small-scale fishing communities necessitated interventions that sought to reduce exposure to risk

and provided fishermen with the socioeconomic resources necessary to weather unexpected events. Several reports have found that co-management has helped fishermen make a better living and escape poverty by increasing output and raising the value of fishermen's and other stakeholders' goods (Khan et al., 2012; Njifonjou et al., 2006).

5.0 DISCUSSION

The thematic analysis has formed three (3) themes. This section includes more information on the thematic development. Fishing and tourism are one of the vital elements in the fishing industry. Fishing can also be considered a sort of tourism, as individuals go across state lines to engage in the activity (Ditton et al., 2002). April (2011) and Cordell (1999) mentioned fishing tourism had been recognised as contributing to the local, national, and regional economies worldwide. It has been an international and worldwide concern (Cowx et al., 2010; Travis et al., 2014). Fishing and tourism use coastal resources in different ways. Tourism and fisheries do not always employ the same part of the ecosystem as a determinant in development (Sarr et al., 2008). Biomass cultivation, for example, does not draw tourists even though it frequently enhances fisheries' yield. The appearance of emblematic species and fish groupings are essential aspects of tourism, although these are not as crucial to the fishing industry (Sarr et al., 2008). While a fisherman uses the environment's resources directly, tourism uses the ecosystem indirectly for activities like fishing, birdwatching, diving, and sailing. (Angulo-Valde'sa and Hatcher 2010).

Malaysia has made striking economic development achievements, especially in rural areas, resulting in more incredible economic growth for its people and a more significant eradication of poverty. In its search for greater prosperity, investments in human capital and cutting-edge technology, according to Malaysia, are essential to achieving competitiveness. Educating and enhancing people's abilities would allow them to get better employment, earn more money, and improve their quality of life and well-being (Economic Planning Unit, 2017). There is a strong correlation between educational attainment and economic growth rates (Oxaal, 1997). Education is linked to trust and social participation, according to Helliwell and Putnam (1999). Only recently, however, have researchers attempted to assess whether or not education has a direct connection to decreased poverty (Riddell, 2006). Education has helped mobilise and distribute human capital by creating chances for people, according to Abrisham (2009). For most low-income countries, ensuring everyone has access to quality education is a top priority. Therefore, a more comprehensive approach to education and knowledge is needed.

6.0 CONCLUSION

The primary research topic that was discussed throughout this review is as follows: "What is the level of the fishermen's knowledge of the fishing activities that can be integrated with tourism?". The purpose of this review was to systematically fill the gap by analysing similar studies to understand better and explain the level of education within the tourism sector's framework in the fishermen's community. The authors have identified three (3) themes from the reviewed articles: fishing and tourism, knowledge, and rural economies. The recommendations from the review would be that more qualitative studies be carried out as they provide a clear understanding of the topic and can be more specific through in-depth analysis. In addition, it is recommended for the use of the PRISMA method in studies to help the authors report the systematic reviews and meta-analyses.

7.0 ACKNOWLEDGEMENT

The authors wish to thank Universiti Malaya for the grant no. IIRG007A-19SAH that enabled this study to take place.

8.0 REFERENCES

1. Abrisham, A., 2011. Perceived Impact of Education on Poverty Reduction in Rural Areas of Iran. *Life Science Journal*, 8(2). doi: 1097-8135
2. Abu Samah, A., Shaffril, H.A.M., Hamzah, A., Abu Samah, B., 2019. Factors Affecting Small-Scale Fishermen's Adaptation Toward the Impacts of Climate Change: Reflections From Malaysian Fishers. *SAGE Open*. doi:10.1177/2158244019864204
3. April J, Mayden R L, Hanner R. H., and Bernatchez L., 2011. Genetic calibration of species diversity among North America's freshwater fishes. *PNAS*, 108, 26: 10602–10607.

4. Antman, E. M., Lau, J., Kupelnick, B., Mosteller, F., & Chalmers, T. C. (1992). A comparison of results of meta-analyses of randomized control trials and recommendations of clinical experts: treatments for myocardial infarction. *Jama*, 268(2), 240-248.
5. Burks, M.R., 2006. Linking Livelihoods and Sustainable Tourism for Parks and People in Belize. Falls Church, Virginia: Virginia Polytechnic Institute and State University, Master's thesis, 70p.
6. Cheong, S., 2005. Korean fishing communities in transition: limitations of community-based resource management. *Environment and Planning A*, 37(7), 1277–1290.
7. Cordell H K, B L McDonald, R J Teasley., 1999. Outdoor recreation participation trends. In: Cordell HK, editor. Outdoor recreation in American life: a national assessment of demand and supply trends. *Champaign IL: Sagamore Publishing*; p. 219–322.
8. Cowx I G, R Arlinghaus and S J Cooke., 2010. Harmonizing recreational fisheries and conservation objectives for aquatic biodiversity in inland waters. *J. Fish Biol.* 76, 2194–2215. (doi:10.1111/j.1095-8649.2010.02686.x)
9. Denzin, N. K., & Lincoln, Y. S., 2011. *The SAGE Handbook of Qualitative Research: SAGE Publications.*
10. Ditton, R. B., Holland, S. M., & Anderson, D. K., 2002. Recreational fishing as tourism. *Fisheries*, 27(3), 17-24.
11. Economic Planning Unit (EPU)., 2017. Malaysia Sustainable Development Goals Voluntary National Review 2017. Putrajaya, Malaysia.
12. Fabinyi, M., 2010. The intensification of fishing and the rise of tourism: competing coastal livelihoods in the Calamianes Islands, Philippines. *Human Ecology*, 38(3), 415–427.
13. Flor, A. G., Hazelman, M., & McLean, S., 2006. ODL for agricultural development and rural poverty reduction: A comparative analysis of innovation and best practice in Asia and the Pacific. Retrieved 12, November, 2010, from <http://www.upou.edu.ph/research/povertyreduction.pdf>
14. Filmer, D., 2000. The structure of social disparities in education. World Bank policy research Working Paper No. 2268. *Washington, DC: World Bank.*
15. Helliwell, J. F., & Putnam, R. D., 1999. Education and social capital: NBER working paper no.7121.
16. Higgins J, Green S, eds. *Cochrane handbook for systematic reviews of interventions*. Version 5.1.0 [updated March 2011]. ed: The Cochrane Collaboration 2011.
17. Kasuma, J., Farhana, N.N., Kamaruddin, H.M., Rusuli, M.S.C., Yacob, Y., 2019. Identifying the Challenges of the Sarawak Malay Terubok Ikan Masin (Salted Fish) Entrepreneur: Qualitative Study. *Research in World Economy*, doi:10.5430/rwe.v10n2p30
18. Lucas, E. and Kirit, R., 2009. Fisheries–Marine Protected Area– Tourism Interactions in Moalboal, Cebu, Philippines. *Coastal Management*, 37(5), 480–490.
19. Lindkvist, K.B. and Antelo, A.P., 2007. Restructuring a peripheral coastal community: the case of a Galician fishing town. *International Journal of Urban and Regional Research*, 31(2), 368–383.
20. Madzivhandila, T.S., Niyimbanira, F., 2020. Rural Economies and Livelihood Activities in Developing Countries: Exploring Prospects of the Emerging Climate Change Crisis. *International Journal of Economics and Finance Studies*, doi:10.34109/ijefs.202012115
21. Meneghello, S., Mingotto, E., 2016. Promoting sustainable development through fisheries-related tourism experiences. Benefits from the integration between fisheries and tourism in venetian coastal areas. *International Journal of Sustainable Development and Planning*, doi:10.2495/sdp-v11-n3-447-457

22. Möller, P., 2016. Young adults' perceptions of and affective bonds to a rural tourism community. *Fennia - International Journal of Geography*, doi:10.11143/46308
23. Neo, S. H. S., Mohamad, J., & Satar, N. B. M., 2018. The Use of Sustainable Livelihoods Framework in Evaluating Fishery Policies in Pangkor Island, Malaysia. *Jati-Journal of Southeast Asian Studies*, 23(2), 107-127. doi:10.22452/jati.vol23no2.6
24. Oxaal, Z., 1997. Education and poverty: A gender analysis. *UK: Institute of Development Studies*
25. Oxman, A. D., & Guyatt, G. H. (1993). The science of reviewing research a. *Annals of the New York Academy of Sciences*, 703(1), 125-134.
26. Pham, T.T.T., 2020. Tourism in marine protected areas: Can it be considered as an alternative livelihood for local communities?. *Marine Policy*.. doi:10.1016/j.marpol.2020.103891
27. Riddell, W. C., 2006. The impact of education on economic and social outcomes: An overview of recent advances in economics. from <http://www.terry.uga.edu/~selgin/documents/impactofeducation.pdf>
28. Sakurai, R., Uehara, T., & Yoshioka, T., 2019. Students' perceptions of a marine education program at a junior high school in Japan with a specific focus on Satoumi. *Environmental Education Research*, 25(2), 222-237. doi:10.1080/13504622.2018.1436698
29. Sankharat, U., 2013. Cambodian Child Migrant Workers in the Rong Kluea Market Area in Thailand. *Asian Social Science*.. doi:10.5539/ass.v9n11p24
30. Sarr, O.; Boncoeur, J.; Travers, M., and Cormier-Salem, M.-C., 2008. Can ecotourism be an alternative to traditional fishing? An analysis with reference to the case of the Saloum Delta (Senegal). In: Dellink, R.B. and Rujis, A. (eds.), *Economics of Poverty, Environment and Natural-Resource Use*. New York: Springer, pp. 87–100.
31. Sa'at, N. H., Mamat, I., & Nawang, W. M. Z. W., 2017. Sociocultural Change and Social Mobility among Estuarial Communities in the East Coast of Peninsular Malaysia. *Akademika*, 87(3), 163-176. doi:10.17576/akad-2017-8703-12
32. Stoop, N., Houssa, R., & Verpoorten, M., 2016. To fish or not to fish? Resource degradation and income diversification in Benin. *Environment and Development Economics*, 21(5), 669-689. doi:10.1017/S1355770x16000012
33. Travis J, F. C. Coleman, P. J. Auster, P. M. Cury, J. A. Estes, J. Orensanz, C. H. Peterson, M. E. Power, R. S. Steneck and J. T. Wootton., 2014. Integrating the invisible fabric of nature into fisheries management, *Proceedings of National Academy of Sciences*, 111: 2: 581-584
34. UNESCO., 2002. Education for rural development in Asia: Experiences and policy lessons. Paper presented at the FAO/UNESCO Seminar Bangkok, Thailand, 5-7 November 2002.
35. United Nations., 2019. The Sustainable Development Goals report 2019 (p. 30). New York.
36. Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1), 93-112.
37. Yu, S.-L., Chu, Y.-C., Tsai, H.-M., 2016. Environmental changes and building resilient community in Penghu Islands. *Journal of Marine and Island Cultures*.. doi:10.1016/j.imic.2016.09.003