Role of Yemen higher education institutes in rebuilding the post-war Yemen

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Abstract: Higher education institutes (HEIs) have exerted a significant influence on the rebuilding of countries affected by conflicts. These institutes operate as catalysts of healing in conflict-affected societies. The ongoing war in Yemen has resulted in negative economic and social consequences. This study aims to examine the role of Yemen HEIs (YHEIs) in the reconstruction of post-war Yemen. The study discusses how HEIs can contribute in rebuilding Yemen by addressing concerns regarding peace-building, social fabric healing, and economic rebuilding. A qualitative method of data collection involving the use of in-depth interview was employed in gathering information from Malaysian and Yemeni academics. The results of the interview indicated that YHEIs can play a crucial and major role in rebuilding the country in terms of peace-building, social fabric healing, and economic growth. Peace-building and social fabric can be accomplished through various ways related to teaching and learning, applied research, societal engagement, and civic programs. Economic growth also can be achieved through different aspects such as focusing on capacity building, collaborating with various sectors, gaining-brain, producing skilful workers and international partners.

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1   Introduction

Yemen, a developing country, is geographically located in the Arabian Peninsula between two neighbouring countries (i.e., Saudi Arabia to the north, and Oman to the East). Yemen has access to the Red Sea to the west, and to the Gulf of Aden to the south. Yemen has a population of 26.83 million, and the area is about 555,000 square kilometres. United Nations (UN) estimated that out of the total population of Yemen, 24.3 million people are at risk of hunger and diseases and roughly 14.4 million in a dire need of assistance (World Bank, 2020). Yemen is considered one of the poorest countries in its region, and it highly depends on human capital rather than its natural resources (Al-Haimi et al., 2018). The ongoing war has significantly affected and damaged the country in many aspects. Once the war is over, rebuilding the economy and social fabric is much needed with the aid of national sectors and institutes. Higher education institutes (HEIs) can play a pivotal role in rebuilding the country in many aspects. The role played by higher institutions has been proven to be paramount in the recovery of several war-stricken and conflict-affected countries (Barakat and Milton, 2014). For instance, the role of higher education reforms in Southern Sudan (Babyesiza, 2012) and the donor-government competition over higher education in Rwanda (Hayman, 2007) are empirical evidence. Thus, the same institutes can be utilised to create strategies for growth and recovery in Yemen.

According to Barakat and Milton (Milton and Barakat, 2016), higher education can be a source of benefit for peace-building in several ways, such as promoting positive rebuilding and anti-violence, and addressing issues of inequality and identity in politics. HEIs also play an important role in achieving tolerance, confronting extremism, and fighting violence, and terrorism by spreading proper knowledge and combating misinformation. The youth (particularly those in tertiary education) are often the most affected group of society who are indoctrinated into joining terrorist and extremist groups (Milton and Barakat, 2016). In this context, higher education has a decisive role in protecting, maintaining and educating the youth by ensuring positive mental and social growth. For instance, Lebanon has created a national strategy for preventing violent extremism; interestingly, education and higher education were among the strategic pillars. Among the policies pertaining to the role of higher education are to:

1   utilise of civic education

2   create training programs for schools, universities and governmental bodies.

However, in post-war Yemen, highly professional managers and skilful employers may not be available due to many deaths and injuries that have affected the population, thereby causing numerous others to flee in search of better opportunities abroad (see Muthanna and Sang, 2018). Once the war is over, the demand will be high for professionals and highly skilled human capital in many fields, including engineering, medicine, law and technology. Lebanon faced a similar situation after the war in July 2006; between three and four thousand volunteers were mobilised in response to the demand for rebuilding the affected and destroyed homes (Barakat et al., 2008). Currently, the situation in Yemen is regarded as the worst in its category worldwide, leading to negative economic and social consequences (World Bank Group, 2017). Investing on professionals, experts, and highly skilled human capitals can aid Yemen to rebuild at a relatively low cost through HEIs.

Another contribution of HEIs in Yemen can be the setting of policies and strategies that can elevate and direct the country towards growth. To achieve this goal, based on the grounded theory assumption, a problem statement alongside a research question is defined and elaborated to serve as a guide for this study. This paper is organised into six sections. Section 2 is a discussion of the problem statement and the research question with a view to clarifying the research goals. Section 3 focuses on higher education and its effect on economic growth and peace-building. Section 4 describes the adopted methodology in this research. Section 5 is the analysis of data while Section 6 is the findings of the research. The final section discusses the results and their implications.

2   Problem statement

According to Barakat and Milton (Milton and Barakat, 2016), 'Higher education, properly supported, is able to act as a catalyst for the recovery of war-torn countries in the Arab world, not only by supplying the skills and knowledge needed to reconstruct shattered economic and physical infrastructure but also by supporting the restoration of collapsed governance'. Yemen falls into such category, as it is an Arab country that is experiencing an ongoing war as well as its negative consequences. Since 2015, the war has led to one of the worst and sophisticated humanitarian tragedies in this present century. Not less than 10000 Yemeni have been killed, over 3.1 million have been displaced, and a large number of people have died as a result of food shortage, poverty, and collapse of health system in the current war (Deek et al., 2018).

Furthermore, the negative consequences are not limited to economic and social matters. The academic scene, especially the research aspect, has been seriously affected (Muthanna, 2015) due to the existing conflict. The effect of such situation is reflected in the lack of proper educational systems which has high tendency of negatively affecting the social fabric as well as the economic growth of the country. It also hinders attempts at peace-building because the level of the chaotic situation has brought about great limitation on how citizens can be properly educated so as to have the required knowledge for the growth of the country. This study aims to create such value for the government and allow policy makers to make decisions with more resources in terms of knowledge and planning. It will also help academic leaders and managers to realise the importance of the HEIs in the rebuilding of Yemen, thus focusing on its significance. In addition, efforts by many nations, agencies and organisations to resolve the current war in Yemen are ongoing, thus emphasising the significant role of HEIs in achieving this noble task of nation-building.

Thus, to perfectly address these problems and to better understand the role of Yemen HEIs in paving the way for rebuilding the country, the following research questions are put forward:

1   How can YHEIs contribute to economic growth?

2   How can the social fabric of Yemen be improved via HEIs?

3   What are the attributes or goals that are required for YHEIs to contribute in peace-building?

3   Literature and related work

3.1   *HEIs and economic growth*

Most existing research have focused on the effect of higher education on economic growth and social elevation on a national and regional development (Bridges et al., 2006; Pinheiro and Pillay, 2016). Table 1 shows many observations and findings about HEIs and their links to the development and economic growth.

Table 1   Examples of existing literatures on HEIs and development

Authors	*Key findings*
Findler et al. (2019)	"HEIs direct or indirect influence on sustainable development via economic, societal challenges, natural environment, policies, culture, and demographics".
Power et al. (2015)	The following are the non-market advantages of HEIs: positive effectiveness on political stability and democratisation, positive support on developmental leadership and good governance, impact on attitude and practices, promotion of greater social capital, and positive influence health.
Oketch et al. (2014)	Contributions of HEIs to economic development include the following: increase in productivity, technological transfer, improved capabilities, and improved institutions.
Kimenyi (2011)	Overall result revealed that higher education is vital to the development of the societies.
Oppong (2013)	"Higher education is one of the key drivers for national development".
Addo (2010)	Higher education can be leveraged to enhance capacity-building, human capital development, economic growth, and other opportunities.
OCDE (2008)	Higher education contributes to social and economic growth through the following four major missions: "human capital (primarily through teaching), building knowledge based (primarily through research and knowledge development), knowledge dissemination (primarily through interactions with knowledge users), and maintenance of knowledge (inter-generational storage and transmission of knowledge)".

The above key findings from various studies have shown clearly that higher education has impact on the development and economic growth of any country. Thus, governments or leaders are aware that higher education systems are one of the most important economic assets (Association, 2013). For this reason, HEIs have increased over the last few decades, becoming one of the essential institutes that can raise a country's capacity for academic, social and technological growth (Kimenyi, 2011).

HEIs have made other contributions directly and indirectly with regard to employment. It has been able to boost the nation's economy by creating an influx of employment within the institutes or by enabling new employment opportunities through higher education degrees (Kimenyi, 2011).

Research universities are considered to be main suppliers of knowledge, skills, and ideas that can strengthen urban economies (Florida, 2017). Today, these institutes have become catalysts for advancement of national and urban economics (Milton and Barakat, 2016). A direct relationship is noted between the economic advancement of countries and their university standings. A recent report by an American academic (American Academy

of Arts & Sciences, 2015) highlighted several advantages that American public research universities have provided.

- The first contribution revolves around the concept of advancing the national interest. Such contribution is enabled through the universities' and institutes' new discoveries and advancements in knowledge as well as economic development on a regional and national scale.

- The second contribution is the advancement in innovation economy. Over 13,323 patent applications and 522 start-ups took place between 2012 and 2013 alone. Such large number of patents signifies the importance of these institutes with regard to innovation and novelty.

- The third contribution is that quality educational programs were provided at an efficient cost through innovative and novel teaching and learning processes (e.g., hybrid or flipped classrooms). These programs allow for new income opportunities to be presented on a national and regional scale.

- The fourth contribution is the affordability and improved access provided by various strategies and systems.

- The final contribution is the responsible spending culture that was instilled from a national standpoint. For instance, the tuition is expected to cover one-third of the real cost of students' education. Systems have been put in place to provide loans for undergraduate students so as to help them to complete their degrees. The system also places high value on graduate students as their education feeds in the research mission and the higher education system by increasing the volume of research and innovation mentioned above.

Furthermore, the economic contribution of the League of European Research Universities has been assessed on the basis of gross value added (GVA) and jobs provided by these universities. The findings of this assessment revealed a total economic value of €71.2 billion in GVA and 900,065 jobs across Europe (Biggar Economics, 2015). Similarly, in Finland, a recent report revealed that in 2016, Finnish universities contributed an estimated €14.2 billion GVA and 136,000 jobs in Finland (Economics, 2017). These facts illustrate the importance of HEIs towards economic growth of the residing countries. In view of these, it is very imperative for Yemeni decision makers to emphasise the role of higher education in rebuilding the country after the war.

3.2   HEIs, peace-building and social fabric rebuilding

Over the last few decades, peace-building has become one of the main approaches to intervention in conflict-affected societies (Milton, 2017). The word 'peace' has been shaped in various forms such as making peace, peace formation. and peace-building. In Islam, the root of the word Islam is 'Silm' which refers to 'making peace, being in a mutually peaceful environment, greetings, rescue, safety, being secure, finding peace, reaching salvation and well-being' (Huseyin, 2016). In addition, peace can be described as ''happiness', 'justice', 'health' and other human ideals, something every person or culture desires to achieve at least on an enduring basis' (Webel and Galtung, 2007).

  In Yemen, where war is underway, the peace and social fabric of the nation are affected, and the social unity has continued to be in fragments (Deek et al., 2018). HEIs

can play a major role in recovering the damages caused by war. These institutes can contribute to the peace-building of the country's social fabric through teaching, research, and social services (Etzkowitz, 2004). In this context, researchers have discussed and elaborated several methods on how higher education can contribute to peace-building using the university's three missions (Milton, 2017). Table 2 lists the methods in which university missions can support peace-building in the country.

As reported in Table 2, HEIs can play a sensitive and important role in rebuilding the country through its three common missions: teaching and learning, research and development, and community services.

Table 2 Ways through which universities can support peace-building in conflict-affected countries

University missions	Ways to support peace-building
Teaching and learning	Through a transformative pedagogical instructional method rather than didactic method.
	Through higher education systems that provide space for inter-cultural dialogue and communication rather than systems which are insular and closed.
	Through offering special fields related to peace and conflict.
	Through the integration of new programs/disciplines in social science and humanities.
Research community services	Through applied and problem-solving research.
	Through the core university mission or vision and public pronouncement.
	Through civic education programs by academics.
	Through playing a role at the national level by leading the voice of peace-building through various conferences similar to that of South Thailand case where academic specialists and civil society representatives were brought to Prince of Songkla University for discussion.

Source: Milton and Barakat (2016)

4 Methodology

To understand and gain additional insight into how YHEIs contribute to the rebuilding of the country, a qualitative method of data collection was employed, specifically in-depth interviews with both Yemeni and Malaysian academics. The qualitative method which involved the use of in-depth interviews was employed in this study because it allows the target audience to give an in-depth description of the processes and outcomes of the research focus (Slauenwhite and Simpson, 1998). This study is mainly tended to explore thoughts, insights and perceptions about how HEIs can contribute to the building of any country affected by conflict. Thus, purposive sampling technique was employed. This sampling technique is the most appropriate because the researchers are able to find the key informants who have the relevant information regarding the focus of the study (Schutt, 2018 cited in Iqbal and Bhatti, 2020).

Since the primary goal of this study was to gain relevant information pertaining to the current phenomena under investigation, sample size was not an issue. According to

Lincoln and Guba (Lincoln and Inquiry, 1985; cited in Vasileiou et al., 2018) that sample size can be determined based on criterion of information redundancy, whereby sampling can be terminated when no new information is generated. In this study, information power was the most appropriate consideration (Malterud et al., 2016). A similar study conducted by Hennink et al.'s (2017) showed that the analysis of the data collected through interview reached the saturation at the ninth interview. In line with this, saturation of themes was achieved by the twelfth interview in a study conducted by Guest et al. (2006). Thus, in the current study, we decided to gain insights from Yemeni and Malaysian academics to enrich this study with information power and experiences.

The interviews with Malaysian experts were meant to address a framework for higher education, alongside strategies and best practices used in Malaysia to elevate the level of HEIs. Utilising the qualitative method allowed for detailed explanation and discussion of the opinions, suggestions, and thoughts of the participants.

Table 3 lists the participants of the interview as well as the information related to their character, such as country of origin, institute in which they operate, gender, academic rank and the method in which the interview was conducted ranging from in-person interviews to over-the-phone sessions. Out of the seven people interviewed, two were Malaysians and the other five were Yemeni. In-person interviews took place at the participants' offices in their institutes' main campuses while phone interviews with the other participants were conducted through programs such as IMO (Instant messaging App) and WhatsApp.

Table 3   List of participants

Participant code	Country	Institution	Gender	Academic rank	Interview method
P01	Malaysia	USM	Male	Associate professor	In-person
P02	Malaysia	UTM	Male	Professor	In-person
P03	Yemen	Taiz	Male	Senior lecturer	Phone
P04	Yemen	Hadramout	Male	Associate professor	Phone
P05	Yemen	Hodidah	Male	Senior lecturer	Phone
P06	Yemen	Sana'a	Male	Senior lecturer	Phone
P07	Yemen	IBB	Male	Senior lecturer	In-person

Notes: Notes: USM = University Science Malaysia; UTM = University Technology Malaysia.

Noticeably, one of the limitations in this study was the inability to find a female participant from Yemen. Furthermore, to allow the interviewees to express themselves comfortably and conveniently, they were allowed to choose the language in which the interview was conducted. The Malaysian participants opted to use English as the language of the interview, and some of the Yemeni participants used Arabic. The non-English interviews were later translated into English. The duration of the interviews was between 30 minutes and one hour, the interviews were recorded, and then transcribed digitally. Data analysis is discussed in the following section.

5   Data analysis

In this study, the results collected from the interviews were examined using cross-sectional analysis. Data were synthesised to clarify the results. The findings of the literature were used as a comparison to validate and support the arguments and results obtained from the analysis. The emerging patterns from the transcriptions were listed as free nodes (main themes) and child nodes (sub nodes). The cognitive mapping diagram was used to present the final results of the analysis. Five data analysis strategies were employed for content analysis, namely, data display, code identification, information reduction, frequency of code and category of relations, and pattern matching. To analyse the data, NVivo12 Plus was used. The five data analysis strategies mentioned were used for content analysis. The important statements, ideas and information were filtered and captured deductively from the previous literature and inductively from the interview results.

5.1   Cognitive mapping using Nvivo12 plus

A cognitive/mind-mapping diagram was drawn (see Figures 1 and 2), and the details were derived from the content analysis. This type of diagram is used as a form of brainstorming, which is useful for grouping and categorising ideas and information regarding a certain problem. Particularly, this type of diagram aids in combining different ideas from various groups of people to form a coherent solution for the given problem. Considering how the problem at hand concerns peace-building, social fabric rebuilding, and economic rebuilding, then using this form of visualisation was logical. The problem was being brainstormed in certain aspects, and various ideas put forward by different participants were combined to form a coherent solution which simplified the identification of the solution.

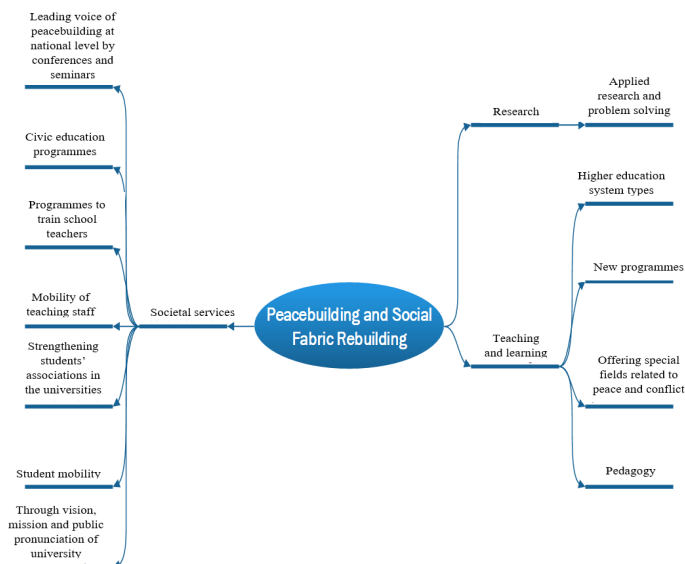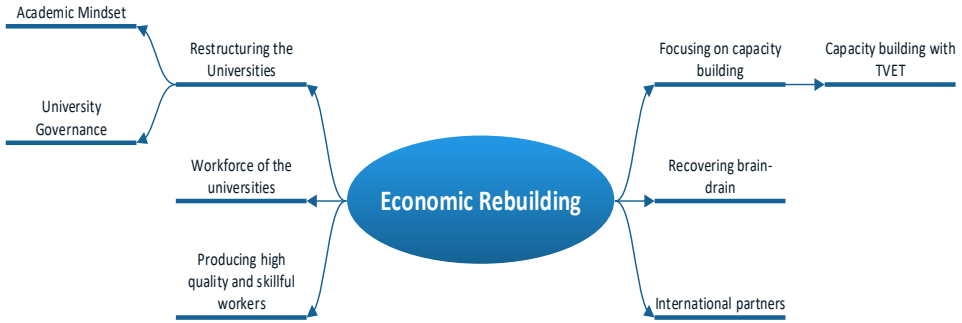**Figure 1**   Cognitive mapping developed using NVivo 12 plus (Theme 1) (see online version for colours)

Figure 2 Cognitive mapping developed using NVivo 12 plus (Theme 2) (see online version for colours)

6 Findings

The interviewed participants offered relevant information and insights into the role of YHEIs in rebuilding the country after war. This study highlighted and took into consideration three major concerns of rebuilding the country: peace-building, social fabric rebuilding, and economic rebuilding. One of the interviewed participants who was a Malaysian (P01) said, 'These three concerns (peace-building, social fabric rebuilding, and economic rebuilding) are interconnected, and YHEIs must work together and engage with various sectors outside the institutions in order to achieve these three concerns'.

To grasp a better understanding of the methods in which YHEIs can contribute to the rebuilding process, the main insights, suggestions and recommendations of the interviewed participants were summarised and discussed (see Tables 4 and 5). The results were summarised from cross-sectional content analysis. These results were grouped under two main related themes, namely, peace-building and social fabric rebuilding, and economic rebuilding. Noticeably, peace-building and social fabric rebuilding were merged as a single theme because both aspects had many common elements which can be addressed together.

Table 4 Generated matrix of content analysis (Theme 1)

Theme 1 – Peace-building and social fabric rebuilding		
Teaching and learning	Element	How to be addressed
	Pedagogy	Transformative rather than dedicated instruction methods
	Higher education system type	Open and inter-cultural systems rather than insular and closed ones
	Offer new programs	Programmes to be embedded in social science and humanity departments
	Offer special fields related to peace and conflicts	Teach courses related to peace and conflicts
Research	Applied and problem-solving research	Research that discovers the root of the problems and its solutions with regard to Yemeni nation's perspectives

Table 4   Generated matrix of content analysis (Theme 1) (continued)

Theme 1 – Peace-building and social fabric rebuilding

Societal services	Through universities mission, vision and public pronouncement	The core of the university's mission and vision
	Students' mobility (locally)	Send students from north to study in southern regions and vice versa
	Strengthening student associations at universities	They should be away from political disputes. Supporting and adopting the programs that call for a culture of tolerance and rejection of violence and extremism.
	Exchanging teaching staff	Increase the exchange of teaching staff from different regions.
	Civic education programs	By academics
	Leading voice of peace-building at the national level	Through conferences and workshops

Table 5   Generated matrix of content analysis (Theme2)

Theme 2 – Economic rebuilding

Focusing on capacity building	Teaching staff Students	The diverse amount of expertise can contribute to the development of the country.
	Capacity building with Technical and Vocational Education and Training (TVET)	Students must be trained to be independent. They have to be job creators rather than job seekers. In doing this, the TVET must be involved. (P01)
Collaboration with various sectors	HEIs, government and community (Leydesdorff, 2012).	Industries can support higher education projects and programs which the government can approve.
Restructure the universities	University governance	Create new policies and new dedicated bodies/units that contribute to societal development. For example, Malaysian universities recently created a new position named Vice Chancellor for Community and Industry Engagement. (P01, P02)
	Academic mind-set	Extensive leadership and academic development programs that make staff to engage more with the society should be established. Academic promotion should be based on the contribution to the community.
Return of Yemeni brain-drain	Domestic capacity	Yemeni professionals living abroad are up to six million . Their return will be a great input to the country's development.

Table 5   Generated matrix of content analysis (Theme2) (continued)

Theme 2 – Economic rebuilding

Workforce of the universities	Work responsibly and professionally with dedication	Working responsibly means working with sincerity, integrity and accountability. Working with dedication means working beyond what is expected as the country is in crisis, not like other countries that are safe and secure. (P01)
International partners	Collaboration and Networking	Universities must have a mechanism or a task force that looks for partners, funds and agencies that are keen to help Yemen. Create a dedicated unit that looks out for these possibilities and try to engage with them. (P01, P02, P04)
Producing high quality and skilful workers	Competence development	Universities have to produce graduates who are ready and able to work anywhere; this can be achieved by supporting students' knowledge, skills, attributes, reflective disposition and identity needed by the graduates (Kinash, 2015).

7   Discussion and practical implications

The findings reinforce the importance of HEIs in rebuilding a nation that is affected by conflict or war. This study presents two main themes, and each theme presents a problem with several solutions offered from the perspective of HEIs.

7.1   Theme 1: peace-building and rebuilding of the social fabric

Based on the literature and the opinion of the interviewed participants, the contribution of HEIs towards peace-building and rebuilding of the social fabric in Yemen was addressed through three prominent university missions.

- Teaching and learning: This mission can be achieved through the use of transformative rather than traditional pedagogy. This is due to the fact that a transformative method motivates students to critically test their thoughts as well as contend with social issues so as to be involved in social activities (Meyers, 2008). In addition, a researcher has recently stated that 'transformative peace pedagogy fosters the development of a self-reflective praxis and nurtures a holistic, inclusive relationship between the inner (personal) and outer (political, action-oriented) dimensions of peace-building' (Jenkins, 2016).

- Transformative pedagogy is important in teaching and learning practices in Yemen as it will foster the culture of tolerance and minimise the culture of conflict and violence. Transformative pedagogy empowers both students and lecturers. For instance, it will motivate students to be contemplative and critical thinkers so as to be able to play significant roles within the local and global communities. In addition, it enables the teaching staff to become facilitators with more knowledge, skills, and adherence to encourage students towards peace-building. Another method is via

higher education system type which requires the culture to practice openness. Finally, another method is by offering fields and programs related to peace and conflicts. This can be achieved by embedding new programs and courses that are related to peace and resolution of conflicts.

- Research and development: This particular mission can contribute greatly to the rebuilding of the social fabric as well as peace-building through increasing and fortifying knowledge bases, and through disseminating knowledge practices. Through research, the cause of problems is identified, and thus proffering solutions to the problems becomes easy. Furthermore, a study entitled 'How can research contribute to peace-building?' conducted by Bush and Duggan (2014) discovered several strategies through which peace-building is being influenced by research. Analysis of the complexities of conflict and peace, problem-solving, problematisation, program development and input, policy development and input, capacity building and creation, and protection of neutral intellectual space are the seven identified modalities on how research can have impact on peace-building.

- Community services: Through this mission, YHEIs can contribute in a multitude of ways to peace-building and the rebuilding of social fabric. Based on the findings of this study as well as the literature reviewed, six main pathways that can improve or proffer solution were identified. These pathways include the vision and mission of the universities, alongside their aims and strategies, the student's mobility (where students from the north are rarely seen studying in the south, and vice versa). One of the Yemeni participants said (P04) that "The percentage of the students from the north and middle areas of Yemen studying in Hadramout University, for instance, is roughly 3% of the total enrolment while the percentage of teaching staff from the north and middle areas is 1% from the total teaching staff". In addition, another element of how community services contribute to peace-building is through strengthening of the students' association condition, becoming a leading voice in the region with regard to social fabric rebuilding and peace-building. According to P02, P03 and P04, students can do a lot of works pertaining to peace-building on the condition that they have to be away from political disputes so as to support and adopt their programs. Also, conducting seminars and workshops that focus on highlighting the solutions on a national level was suggested.

7.2   Theme 2: economic rebuilding

Education is one of the main factors in economic growth and development worldwide. Scholars and researchers have provided evidence that education has a strong relationship with economic development (Hanushek, 2010, 2013). Many developed and developing countries have demonstrated that higher education has a significant and fundamental impact on economic growth. For instance, in the UK, £10.7 billion was generated from the higher education sectors between 2011 and 2012 (Kelly et al., 2014). A country such as Yemen, which is suffering greatly from an economic crisis due to war, can benefit greatly from education in general, specifically from higher education. These tools can be used as important methods in which the country can grow its economy greatly. Several aspects are identified and illustrated based on the results of this study, which can be used for YHEIs to effectively contribute in rebuilding the economy of the country. The

suggested aspects and ways on how YHEIs can achieve this goal are presented in the following sub-themes:

7.2.1   Focusing on capacity building

Capacity building in HEIs is among one of the most valuable assets. Students and teaching staff play a major role towards rebuilding the economy. One of the Malaysian participant's said that "capacity building with TVET is a very useful strategy to foster the economic growth in any country especially in the current global economic challenges". The students have to learn how to be job creators and not job seekers'. The thought of the participant is consistent with other scholars and previous researches that revealed the importance of the TVET on economic growth and social development (Mouzakitis, 2010; Pavlova, 2014).

7.2.2   Collaboration with various sectors

According to several existing studies, cooperation and consensus are key factors in policy-making and implementation in higher education (Gornitzka et al., 2005; Pinheiro and Kyvik, 2009; Pinheiro and Pillay, 2016). One of the participants (P01) highlighted the triple helix model (Etzkowitz and Leydesdorff, 1995) and quadruple helix model (Carayannis and Campbell, 2010) as important factors that can be applied by YHEIs so as to significantly contribute to economic rebuilding where industries can support higher education projects and programs which the government can approve. The nature of these two models is the interactions between industries, governments, universities, and communities. The role of the universities is to create programs and enable industries to provide funding assistance, which will be approved and facilitated by the government.

7.2.3   Restructure the universities

Restructuring universities is one of the critical and impactful steps that can make YHEIs to effectively contribute to the nation's growth in economy. One of the Malaysian participants (P01) stated that 'Restructuring universities can be achieved through two main aspects which are university governance and academic mind-set'. Governance ensures that universities are fully independent to govern themselves with a strong and visionary leadership as well as creating new policies that may work in an effective and agile way. Hence, governance in Yemen higher education is still done by the government finically (Al-Haimi et al., 2018, 2017). One of the Malaysian participants (P02) commented that 'In this sense, the current practices in Malaysia is that a new dedicated unit for community engagement has been created and a signed deputy vice chancellor to handle such unit in the government universities'. Another method for restructuring university is by changing the academic mind-set. Changing mind-set here means adjusting the way of assessing and evaluating the staff; they should be promoted based on certain merits such as publications, teaching, and learning as well as engaging more in serving the society. According to some participants (P01, P04, P05), 'Achieving this is by involving the teaching staff in community engagement and rewarding them based on their services towards the community'.

7.2.4 *Recovering from Yemeni brain-drain*

While human capital is an essential factor to move the engine of growth in any developing country, brain-drain is considered a major factor that damages those countries. So, reversing the brain-drain is an important step for economic development growth (Hussain, 2015). Yemen has suffered from brain-drain for many years, particularly between 2011 and 2014 when the war started to escalate (Muthanna, 2015). Recovering the lost scholars, experts, businessmen, and other human capital will be a chance to foster the development of the country in many aspects, particularly in higher education sector. This can be achieved as businessmen invest in many sectors in the country and the scholars and academics return to develop the universities, especially the research-oriented ones. Additionally, professionals and highly skilled workforce should contribute significantly to the industries by starting their own set-ups.

7.2.5 *Workforce of the universities*

The interviewed participants state that the university workforce has to operate beyond expectation because the country is currently passing through a difficult situation. Beyond expectation means doubling the work and efforts of university workforce more than the usual. Yemen also requires dedication and responsibility to contribute towards the rebuilding of the country after the war. One of the Yemeni participants said that: "workforce of the universities must work with sincerity, integrity and accountability in order to help the country".

7.2.6 *International partners*

International aids to countries affected by conflict and disaster exert a significant effect on the recovery process. Although there is a serious criticism on how foreign aids operate in the developing countries (Niyonkuru, 2016), there are also many success stories. For instance, 50 years ago South Korea was the poorest country in the world and it used to be a recipient of international aids. But currently it ranked as the 13th largest economy in the world (Kimenyi, 2011). Thus, several capable foreign entities are keen on helping countries affected by war, and some of these entities are wealthy countries, associations, agencies and governments.

Researchers have previously highlighted several actors involved in post-conflict reconstruction, such as the World Bank Group, the International Bank for Reconstruction and Development, the International Development Association, the International Finance Corporation, the Multilateral Investment Guarantee Agency, and the International Centre for the Settlement of Investment Disputes (Anderlini and El-Bushra, 2004). In addition, China, the USA, Germany, the UK, Japan and French are among the 30 countries who are currently contributing to and assisting the poorest countries (Lancaster, 2008). However, creating a dedicated unit to look after those keen in helping Yemen on its path to recovering and growing its economy is important. Universities in Yemen also need to develop partnership with other universities for better learning and research outcomes (Al-Haimi et al., 2019).

7.2.7   *Producing high quality and skilful workers*

This sub-theme refers to developing and producing a competent group of workers who can affect and contribute greatly to the nation's growth. This is particularly the case for YHEIs, which require changes and movements involving a shift towards a student-oriented activity rather than a teacher-oriented lecture, which can greatly contribute to learning through motivation (Baaken et al., 2015; Kennedy et al., 2001). YHEIs are expected to carry the responsibility of preparing skilful workers who can work anywhere and under any circumstance.

8   Conclusions

This study aimed to investigate the role YHEIs can play in rebuilding the country after war. The three perspectives from which the research objectives have been achieved are peace-building, rebuilding of the social fabric, and economic rebuilding. The three research questions were clearly defined as each focused on one aspect. To identify the problems and solutions related to each of these themes or aspects, a qualitative method was used. This qualitative method involved interviewing seven participants, two were from Malaysia and the remaining five were from Yemen. The gathered information was synthesised into cognitive and mental diagrams that narrow down the root of the problem so as to offer solutions to the problems. Through this method, two of the existing aspects were merged as a single theme. Peace-building and rebuilding of the social fabric had many common elements; this demonstrated that they belong to the same category and must be addressed together.

The synthesised results from the interview also provided several solutions and pathways to reviving the country. They are recommended for the government and policy makers to consider them as most of the suggestions require them to take actions against certain obstacles. Many thoughts and valuable insights which emerged from this study will contribute significantly in rebuilding Yemen after the war. The generated thoughts and insights were grouped under two main themes namely, peace-building along with the rebuilding of social fabric and economic rebuilding.

Peace-building and rebuilding of the social fabric can be achieved through several ways under three main themes: teaching and learning, research, and community services. Firstly, teaching and learning can be achieved through various ways such as considering new effective pedagogy, offer new programs and fields of studies related to peace and conflict. Secondly, applied research and problem-solving culture has to take place to tackle issues and disseminate knowledge. Thirdly, societal services which can be achieved through many different ways such as through universities' mission, vision and public pronouncement of student's mobility (locally), strengthening students' associations at universities, exchanging teaching staff civic education programs and taking the lead voice in peace-building at the national and community levels by the students.

Concerning the economic rebuilding, the findings demonstrated seven potential elements that can be used by YHEIs in rebuilding the country's economy. Focusing on capacity building, collaboration with various sectors, restructuring the universities, returning of Yemeni brain-drain, workforce of the universities, and international partners, and producing high quality and skilful workers were the main elements identified.

The authors therefore believe that if Yemen higher education institutions can implement those suggested ways and methods, the task of rebuilding Yemen after the war would not be a daunting one. The findings of this study are relevant to researchers and practitioners intending to improve the current state of art and practices if properly adhered to by YHIs in the rebuilding process. Furthermore, because previous studies have neglected the role of HEIs in the rebuilding processes of countries affected by conflicts and wars, this study will add a very significant contribution to the body of knowledge and open the doors for academics and researchers to play a greater role in doing more research in this direction and the dissemination of knowledge.

In addition, this study has great practical implication. The major practical implication is that it will help the universities' leadership, policy makers, academics, and students to redirect their thoughts regarding the importance and the significance of their roles in the rebuilding process of Yemen. These identified ideas, thoughts, and recommendations will be springboards for the different steps to be taken towards the rebuilding processes. Finally, with the support of internal organisations, such as the government as well as other countries setting the model and pathway towards growth, Yemen is expected to recover from the chaotic and conflict-driven war through academic growth and evolution of YHEIs.

8.1   *Limitation of the study*

Some possible limitations of this study are as follows: The first limitation is about the limited number of participants from both Yemeni and Malaysian academics. Only two Malaysians and five Yemenis academics participated in this study. The second limitation of the study is the difficulty in reaching more participants from the south of Yemen such as academics from Aden, Shaboh and other regions in south Yemen. Other participants from other northern regions of Yemen were also needed to come out with many different opinions and suggestions. There were no female participants in this study as expected.

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