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## Industry 4.0: Teaching Preferences, Perceptions, and Challenges among Tourism and Hospitality Academicians

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### Abstract

Industry 4.0 is the recent topic of interest among the academicians and the society at large since it is considered as the latest era of digitalization. This era demands changes in the contents of education in general. Across disciplines, new emphasis is required on certain skills and new contents have to be added to meet changing demands. However, research on the alignment of pedagogy institutions, Industrial Revolution 4.0 is still scarce. Therefore, to fulfil this gap, this study was conducted specifically to explore teaching preferences and perceptions, as well as perceived challenges among academicians in a specific discipline, which is Tourism and Hospitality in the face of Industry 4.0. Twelve respondents were interviewed and guided by in-depth semi-structured interview questions. The transcription of the interview was analysed using a thematic analysis. Six themes surfaced through the analysis. The findings disclose that the academicians prefer conventional and hands-on methods of teaching. Apart from that, the challenges faced by the academicians in teaching the Tourism and Hospitality students towards Industry 4.0 include the lack of facilities and limited Internet accessibility. In addition, the study found that those teaching the Tourism and Hospitality courses perceive that in implementing Higher Education 4.0 in the era of Industrial Revolution 4.0, the use of e-Learning and Immersive Learning is crucial. Findings from this study are beneficial for the policy-makers in the higher institutions since the teaching preferences are highlighted by the Tourism and Hospitality academicians, as well as issues related to the challenges towards Industry 4.0 that they are facing.

**Keywords:** Industrial Revolution 4.0, Teaching, Learning, Hospitality, Tourism

## Introduction

What is Industry 4.0? This is a question that creates muddled perceptions among industry experts and academicians. The term 'Industry 4.0' becomes trendy after its introduction at the world renown Hannover Messe, Germany in 2011 (Messe, 2018) since the German government has taken adoptive policies to shape and encourage the implementation of Industry 4.0 among their industry players (German Federal Ministry for Economic Affairs and Energy, 2018). The German experts repeatedly utilised the term 'smart' and 'Cyber-Physical System' in describing Industry 4.0 (Acatech, 2013). In essence, Industry 4.0 is the fourth industrial revolution that is shifting the landscape of manufacturing industries, as well as our working orders. The first three industrial revolutions happened as the result of mechanisation, mass production (electrification), and computerisation (Acatech, 2013).

In Malaysia, the government's official approach towards Industry 4.0 is still in its infancy. The authority has prepared the basic framework for Industry 4.0 and defines it as follows:

“... production or manufacturing based industries digitalisation transformation, driven by connected technologies. Industry 4.0 introduces what is referred to as “smart factory” in which cyber physical systems monitor real time physical progress of the factory and are able to make decentralized decisions. Other terminology includes Smart Manufacturing”  
(Ministry of International Trade and Industry, 2018)

The government sees the importance of Industry 4.0 as Malaysia is one of the main industrial hubs in the South East Asian region. The efforts towards embracing Industry 4.0 have been given further attention when the nation was given the recognition as the 23<sup>rd</sup> most competitive countries in the world (World Economic Forum, 2017). The positive outlook continues in the right Industry 4.0 direction when The World Economic Forum (WEF) 'Readiness for the Future of Production Report 2018' categorised Malaysia as one of the top 25 leading countries in future manufacturing; making Malaysia and China as the only two developing nations in the group.

However, a survey conducted by Solidiance (2017) shows that Malaysian industries are not prepared for Industry 4.0 as they lack awareness. Thus, are yet to be equipped with the knowledge to employ Industry 4.0. As the government is alert of the weak state of awareness within the industries, the Ministry of Higher Education realised the need to shape and produce graduates that will eventually be capable to materialise the fourth industry revolution in Malaysia. In early 2018, the ministry devised a programme called Higher Education 4.0 to serve this purpose. The Secretary General of the ministry said “the 4IR agenda can contribute to the society by humanising the innovation and technology through Higher Education 4.0”.

Under the framework of the Ministry of International Trade and Industry (2018), Industry 4.0 consists of nine pillars: i) Autonomous Robots, ii) Big Data Analytics, iii) Cloud Computing, iv) Internet of Things (IoT), v) Additive Manufacturing (3D Printing) vi) System Integration, vii) Cyber Security, viii) Augmented Reality, and ix) Simulation. The pillars have several differences and similarities with the

key features of the 4IR discussed in Germany (Messe, 2018) and by several experts and academicians of the field (Gilchrist, 2016; Lee, Bagheri & Kao, 2014). However, it is arguable that even “those who coined the term Industries 4.0 are astonishingly vague about the technical details of the big, visionary picture they paint” (Pfeiffer, 2017). As a newly coined phenomenon, 4IR surely stirs a debate between many academicians and industry professionals, though they can agree that this revolution requires socio materiality of technology, interconnected globalised system, and highly efficient human capital and technology (Pfeiffer, 2017).

The Higher Education 4.0 programme comes at the right time as it would fill the gap between the pillars defined by the Ministry of International Trade and Industry and by other experts across the world. The Ministry of Higher Education demands Malaysian universities to shift their focus to the 10 qualities below to ensure the success of the Higher Education 4.0 implementation:

- i. Holistic, Entrepreneurial, and Balanced Graduates
- ii. Talent Excellence
- iii. Nation of Lifelong Learners
- iv. Quality Technical and Vocational Training Graduates
- v. Financial Sustainability
- vi. Empowered Governance
- vii. Innovation Ecosystem
- viii. Global Prominence
- ix. Globalised Online Learning
- x. Transformed Higher Education Delivery

The ministry argues that conventional teaching and learning, which is the main deliverance of information and facts does not provide sufficient environment for the fourth industry revolution. Industry 4.0 in many ways linked to robotisation and artificial intelligence (AI) while many human aspects have been less discussed or forgotten. The ministry studied the challenges of fourth industry revolution and its impact on human factors. Therefore, apart from the technical know-how, Higher Education 4.0 urges to include principles and ethical elements that would produce inclusive global citizens.

This study believes that although Higher Education 4.0 is vital for the country to prepare for the fourth industry revolution, the success of Higher Education 4.0 requires understanding of the issues related to Higher Education 4.0 as perceived by the academicians. This paper investigates a few fundamental issues related to Higher Education 4.0 as perceived by them.

Three research questions were developed to guide this research:

- 1) What are the current teaching preferences among academicians concerning Higher Education 4.0 implementation?
- 2) What are the perceptions held by the academicians who are teaching in the Tourism and Hospitality field towards Industry 4.0?

- 3) What are some of the challenges faced by the academicians in the implementation of Higher Education 4.0?

### ***The Nature of Higher Learning Institutions in Malaysia***

In Malaysia, there are two types of institutions of higher learning, namely public universities and private universities or colleges. Examples of the public universities are Universiti Teknologi MARA (UiTM), National University of Malaysia (Universiti Kebangsaan Malaysia), Science University Malaysia (Universiti Sains Malaysia), Northern University Malaysia (Universiti Utara Malaysia), and many more. Whereas the examples for private universities and colleges are Sunway University College, Taylor's University, Asia Brickfield College, Infrastructure University, and much more to name. Together, both public and private universities and colleges are taking the role in giving opportunities for learners to increase their knowledge, skills, and experience (Da, 2007) in order to be part of the human resources needed by the industries.

The higher education sector is under the jurisdiction of the Ministry of Higher Education (MoHE). MoHE acts as the governing authority for the Malaysian Higher Education sector. The duty is to monitor and oversee both the public and private higher institutions. Other higher institutions that fall under their observation are the polytechnics, community colleges, and other government agencies that are also part of the higher education division such as the Malaysian Qualifications Agency, the National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional), and the Tunku Abdul Rahman Foundation (Yayasan Tunku Abdul Rahman).

The specific functions of MoHE include establishing policies and direction of the higher education sector in order to build an outstanding nation that is rich in knowledge, culture, and civilisation. MoHE also acts as a catalyst to develop the sector that enables the nation to compete in the era of the globalisation (MoHE, 2017). Lastly, MoHE functions in dealing with the challenges of the present global economic scene, which goes in line with the governments' aspirations to produce adequate human resources with knowledge and high moral values (National Higher Education Strategic Plan and Vision of year 2020, 2017).

### ***Tourism and Hospitality in the Era of Industrial Revolution 4.0***

The tourism and hospitality sector, which is categorised under the service sector, is one of the main contributors to Malaysian economy. However, the service sector faces several challenges in their effort towards mass customisation, digital enhancement, supply chain efficiency, and smart work environment required by Industry 4.0. This requires a full and continuous innovation and learning since service sector is dependent on people as the labour force and the people to run the businesses.

An appropriate management approach plays an important role in the development of dynamic capabilities and an effective learning and innovation environment. In this scenario, the concept of Industrial Revolution 4.0 is considered useful for the tourism and hospitality sector, as personalised service, supply chain efficiency, agility, smart working environment, big data usage for

an up-to-date customer and service information, as well as digital enhancement, have impact on customer's satisfaction, hence attaining their loyalty and their perceived service quality.

Industry 4.0 requires training, innovation capability, and learning environment. Thus, in moving forward towards Industry 4.0, strategies must be devised in order to produce future employees to work at targeted place. Pedagogy institutions especially the higher learning institution that offers Tourism and Hospitality courses needs to develop and facilitate adequate training programs by emphasising on the importance of value towards Industrial Revolution 4.0.

In the education field, the exposure towards Industrial Revolution 4.0 is still low since it is quite a recent phenomenon. Industrial Revolution 4.0 involves the usage of technologies in teaching. Most instructors use various ways of teaching, which include giving lectures and having hands-on activities in kitchen classes. These ways of learning tend to work differently for different students. Thus, it is important to understand and acknowledge the teaching style of an academician in order to understand the recent method of delivering knowledge. The ones who are responsible to successfully deliver the knowledge are the educators themselves.

Living in the era of digitalisation, the correct teaching methods are essential to ensure that students get the knowledge conveyed by the instructors effectively. Thus, this study aims to explore the teaching preferences by the current Tourism and Hospitality academicians in teaching their courses. Additionally, this study examined these academicians' perceptions and investigated the challenges faced by these academicians in teaching the Tourism and Hospitality students in order to implement Higher Education 4.0 through a qualitative inquiry. A detailed information about the methodology is explained next.

### **Methodology**

According to Creswell (2009), qualitative research has been proven as an ideal method in exploring individuals' feelings, thoughts, emotions, and perceptions; hence, this study employed an exploratory qualitative approach, whereby the data were collected through in-depth personal semi-structured interviews. A purposive sampling was utilized and only current academicians working at higher institutions in Malaysia, teaching Tourism and Hospitality courses were recruited as respondents. All interviews were conducted in the respondents' office for convenience purposes. Informed consents were distributed and collected during the interview sessions. Each consent was signed upon their agreement to be interviewed. The respondents were notified that the interview will be audio recorded for data collection purposes. To ensure confidentiality, pseudonyms were used (e.g., respondents' name is coded as R1 which refers to Respondent One). The interviews ended when the researcher felt that the respondents' answers have reached the saturation point, i.e. no new information is given.

Interviews were conducted in English. Hence, transcription is used in this research by converting audio recordings to text. The written transcripts were then analysed using thematic analysis. Thematic analysis is a versatile information analysis used by the qualitative researchers to generate subject matters from interview data. This method is flexible in that there is no precise

research layout associated with thematic analysis. It could be utilised for case research, phenomenology, general qualitative, and narrative inquiry to name some. This facts evaluation plan is ideal for newbies and professional qualitative researchers because the steps are smooth to comply with, however rigorous enough to generate significant findings from the facts (Braun & Clarke, 2013). After analysing the data using thematic analysis, triangulation and disconfirming evidence procedures were used to ensure the validity and reliability of the instrument used and the data collected. Results of the analysis and discussions are presented next.

## Result and Discussion

### *Respondents' Profile*

This study sampled 12 Tourism and Hospitality academicians who are currently teaching at higher institutions in Malaysia. A balance between males and females respondents is reported. Most of the respondents were between 31 to 40 years old. These respondents mostly have experienced working as academicians for five years or less (58.4%), while the remaining have been working for more than five years (i.e., 6 to 10 years, 25%; 11 to 15 years, 16.6%). The details of the respondents are listed in Table 1.

Table 1: Respondents' Profile

Demographic		No of Respondents	Percentage (%)
Gender	Male	6	50
	Female	6	50
Age	20-30	4	33.3
	31-40	6	50
	41-50	2	16.7
Years of Teaching	1-5 years	7	58.4
	6-10 years	3	25
	11-15 years	2	16.6

In addition, all of these respondents were teaching both diploma and degree students. During the interviews, each respondent shared their beliefs and perceptions about teaching and the challenges faced by them in teaching the students in the Fourth Industrial Revolution. Detailed results pertaining to the respondents' beliefs about their teaching preferences are presented in the later sections.

### *Teaching preferences among the current academicians*

The respondents were asked about their preferred teaching methods when teaching Tourism and Hospitality students. The two most important themes gathered from the analysis are: (a) conventional and (b) hands-on.

**Conventional**

This section refers to the first research objective, which seeks to answer the teaching preferences among the current academicians in teaching Tourism and Hospitality courses. Five out of the 12 respondents agreed that the conventional method is one of the successful ways of teaching during classes. Conventional method refers to a teaching technique involving an instructor and the students that interact in a face-to-face manner in the classroom. This type of teaching method focuses on the instructor role to initiate discussions in the classroom, to give lectures, and to focus solemnly on conveying the knowledge in textbooks and notes to their students. Conventional method is also said to be a lecture-based method of teaching (Fariborz, 2014). The conventional method is better known as ‘the chalk and talk’ method as the instructor commonly delivers speech and lectures while writing them on the board. Conventional method may be effective for students who favour in jotting down notes and paying attention during class time. Nonetheless, conventional teaching has rooms for the students to boost their critical and creative thinking skills, albeit it somewhat depends on the individual student’s preferences. Some of the direct quotes from the respondents regarding conventional teaching practices are as follows:

*“I go for face-to-face method. I gave lecture and then we have discussion, and then presentation. Normally, my practice I will start with lecture first and then I will ask students to go into groups and I will give them discussion questions, they discuss in group and then they will present, it is much more on what you called a sharing session and then a very rigid presentation”. (R2)*

*“I use slides, projecting power point slides and still maintaining the chalk and talk plus with that, I found that this method suits the subject I am teaching”. (R3)*

*“Using whiteboard, just like the majority and of course giving lectures and showing examples”. (R5)*

*“My method of teaching mostly does not include any technologies, so I just use speech, lecture, and whiteboard”. (R8)*

*“I conducted a demonstration and I showed my student how to do the task on my own. It’s a show-and-tell kind of learning”. (R12)*

In short, the five direct quotes given above reflect that these respondents prefer lecture-based method when teaching Tourism and Hospitality students. Nevertheless, there might be other factors influencing some respondents’ decisions for not using technologies in their classroom, such as lack of resources. It seems reasonable to say so since the respondents might have used the same teaching techniques since they started their career as academicians. The respondents are too comfortable or complacent with their usual practice since they have been teaching in the institution for years. It is important to note that the ministry has commented that conventional lecture-based teaching, which is mostly about delivering information and facts, is not helpful in the Fourth Industrial Revolution. Nonetheless, with regards to the 10 qualities developed by the Ministry of Higher Education, academicians who prefer conventional teaching method could still produce quality



lifelong learners and balanced graduates. Such responses also highlight the role of higher institutions in providing enough resources to encourage academicians to use technologies in their classrooms in realising the Higher Education 4.0 and the Industrial Revolution 4.0.

### **Hands-On**

The second theme derived from the data is that the respondents prefer hands-on activities when teaching Tourism and Hospitality students. The phrase hands-on itself involves active participations among students, compared to conventional classes. Hands-on learning means students are able, and expected to experience or carry out physical activities, rather than merely listening to lectures or watching demonstrations virtually. Hands-on learning helps increase student engagement (Chen, 2017) through direct practical experience. It involves the physical touch towards certain objects in order to see the results. Most Tourism and Hospitality courses offered in higher institutions in Malaysia incorporate hands-on activities in their practical lab classes, such as in the kitchen, front office, and housekeeping classes. At least four respondents shared the same view about using hands-on method during the class time. A study of brain scan showed that students who use a hands-on approach in learning had positive activation in their sensory and motor related parts that integrates their mind and body connection (Chen, 2017). Some direct quotes from the respondents' related to hands-on as their preferred teaching method are presented below:

*"Since culinary is more to practical skills. In other words, how we produce our work. So, the class is based on the practical. Because practical is more important than their own imagination."* (R6)

*"My class is more towards practical, we do it together and understand them. It can be through watching videos and applying the practical skills."* (R5)

*"I go for teaching them one hour of theory and the rest five to six hours is practical or hands on practice. I think it is the correct practice in for the courses".* (R4)

*"I basically give activities, not only teach and explain. I give them quizzes, I give mind map, asked them to do crosswords and puzzles because I want them to involve themselves in their learning. I want them to be active in class".* (R1)

*"Just giving example is not the correct way, so we need to give lecture and at the same time we show them the videos, to make them understand more about the subject"*(R11)

Based on these direct quotes, it can be shown that several respondents mix their teaching techniques (e.g., lecture and hands-on) innovatively to enhance students understanding about the content of the courses. Despite the fact that these respondents limit the usage of technology in their teaching and learning, hands-on is also an effective teaching method that allows students to develop their talent (or Talent Excellence). The academicians can still further equip students to become balanced graduates and lifelong learners by using hands-on teaching method.

### ***The perceptions towards Industrial Revolution 4.0***

The respondents were asked about their perceptions in teaching and implementing Higher Education 4.0 in the era of Industrial Revolution 4.0. Interestingly, a mixed of responses were gathered from these respondents. However, the two most frequent themes found from the analysis are: (a) e-learning and (b) immersive learning.

#### ***E-learning***

E-learning is a method of learning which utilises the electronic technologies to assist student academic performance. Normally, the program is delivered completely via online. E-learning has blurred the traditional relationships and has become the primary form of distance education and transforming information disseminating in a campus. E-learning is an evolvement from enhancements to earlier generations of face to face teaching and the enhancement to earlier generations of distance education. Five direct quotes from the respondents that were related to e-learning are as follows:

*“Industry Revolution 4.0 occurs when the technologies play the major part in the system especially in our education system and all tests and assignments conducted will be based on the internet. The lecturers just post the questions online and after that it is all about the student and the system”.* (R5)

*“In my opinion, if the students are aware on the usage of internet and all these computer worlds there should be possible that they tend to use it the right way. The Industry Revolution 4.0 will all about the internet and learn through online, students does not even have to come to class”.* (R8)

*“As for me, if the Industry Revolution takes over, it will all be about the digitalization, involving the use of computers and software, no human contact, just the internet connectivity and learn via website and online”.* (R2)

*“If only our university will starts applying the Industry Revolution, then the lecturer tasks will be much lighter since everything is computer-based and any updates and progress of the student will be depending on the student portal and lecturers just monitor”.* (R3)

*“As my subject is more towards theory, I don’t think it is wrong to apply the new system of teaching that goes align with Industry Revolution 4.0. This is because it may work and gives positive impacts on student performance in class and in examinations later on”.* (R9)

These direct quotes show that the respondents understand the importance of technology in realising Industrial Revolution 4.0 and Higher Education 4.0 when they resonated Industrial Revolution 4.0 with technologies (e.g., online, the Internet, digitalisation). Besides the role of higher institutions to create awareness and provide enough resources to all academicians, the academicians themselves should improve the way they teach Tourism and Hospitality students. Not to mention, most of the current students are millennials who are technology literate. Therefore, incorporating

technology effectively in the classrooms helps develop quality graduates that can successfully contribute to the country.

### ***Immersive Learning***

Immersive learning is when an individual is placed in an interactive learning environment, be it physically or virtually in order to replicate the possible scenarios or to inculcate the new skills or techniques. Immersive learning usually utilises simulations, virtual learning environment, and role playing. Immersion is made to display graphics and acts as an interactive and innovative learning that projects images clearly. Some students have problems when it comes to creative and critical thinking as well as the way they see things and problem-solving skills. Thus, an immersive learning environment enables the learners to participate in a complex situation to trigger their minds (Marsh, 2015). For instance, some academicians use interactive platforms such as “Kahoot” and “Socrative” to effectively engage students while conducting assessments.

Kahoot is a game-based learning program that is interactive because of the layout of the games is attractive and attentive to the student, despite having the catchy background music and colourful layout. Meanwhile, Socrative is a cloud-based student’s application that was developed in 2010 by Boston-based graduate school students. It is one of the platforms for the academicians to conduct quizzes and assessments to the students. The students can simply take the quizzes using the laptops and their own smartphones.

An immersive learning is not only beneficial for the students, but also to the instructors. Immersive learning involves instructors. They participate and act as a supplement to the lesson, rather than just using the traditional learning method. Immersive learning does not eliminate the needs of physical instructors. Instead, it helps to develop their teaching skills that are considered efficient with the involvement of the students. Some direct quotes received from the respondents with regards to immersive learning are as follows:

*“In this university, we have learning portal and student portal. And these portal is being used for the instructors to the students to participate in any tests and assignments”. (R10)*

*“I think that Industry Revolution 4.0 is going to be better. For example, they can simply use the technology and not depending on to the traditional method of learning and it actually helps to stimulate and play with their imagination”. (R1)*

*“The tests will be using this new modern way rather than traditional way. These days also lecturers are teaching using the slides and display the subject using projector so that the students can see more clearly on the knowledge we want to share”. (R3)*

*“I know it is about using technologies in teaching and learning. I somehow apply it in my teaching in classes. Because the current generation, Generations Z they prefer to use the technology than traditional learning method. So, I use that kind of technology in my teaching as well. I conduct tests using Apps, like Socrative, Kahoot and many more”. (R12)*

*“As for me, I think the technologies will be taking the role of teaching but in a good way to improve the student performance and since the generation of tech savvy these days, it will be much easier and understandable for them to learn new things”. (R5)*

### ***The challenges faced by the academicians in teaching Tourism and Hospitality students towards Industrial Revolution 4.0***

From the interviews conducted, most of the challenges faced by the respondents include the following: (a) facilities and (b) Internet accessibility. Industrial Revolution 4.0 is brought upon the digitalisation and the use of technologies in education system. In order to use the technologies, reliable Internet connection and enough facilities are required to aid and ease the information seeking process.

#### ***Facilities***

Facilities are an important component in any institution. This is because the process of learning takes place with the facilities provided. Classes and labs are also considered as part of facilities. The facilities provided should be adequate to allow teaching and learning to take place. In some higher institutions, they have problems with labs and classrooms. Some classrooms are still not fully equipped with computers, LCD projectors, or televisions. In some cases, even the computers, projectors, or televisions are not functioning properly, which then influence instructors’ decision not to use technology in teaching and learning. From the interviews, the respondents often mentioned about the challenges that they faced when it comes to using technology in their classrooms. The respondents said that because the LCD projectors are not working in the classrooms, some of the instructors had to purchase the projector using their own pocket money and carry their own projector each time they have class. The five direct quotes gathered from the interviews related to facilities issue are as follows:

*“If only our facilities and internet is performing well, and we don’t have problem in accessing the learning management system, and all those apps that are been introduced is well functioning and accessed, it would be easier and convenient for both instructors and students itself. So now, the only thing we can do is just say and talk on certain things. However, the students cannot imagine. We, the instructors can only talk but no proper images can be shown. If we have the good facilities, and easily accessible we can just put them in the internet and linked everything in that apps. So, those students can view the thing easily either the slides, information or the knowledge that we the instructors wanted to share in the internet with no limitation and free access”. (R9)*

*“First case is that, our infrastructure that should help us with this. I mean in classes we do not have Wi-Fi connections and we do not have computers and what not. How are we going to teach them? That is why we are still using the old method. We cannot ask the students to have their own data sometimes they will complaint. The facilities are not enough. Maybe if the*

*facilities are conducive, then the instructors and the students can get towards the industrialization 4.0". (R4)*

*"We have problems with the facilities sometimes. In labs, not all computer can be used and sometimes I use my own projector to show any information regarding to the subject I am teaching. And even the students sometimes have problem in understanding the subject when they cannot use the computers like their friends in the lab". (R1)*

*"Sometimes the technology stops us. For example, if the LCD projector is not working during lesson in class, how we supposed to show to the students and then they will become least attracted to the subject". (R5)*

*"It is a challenge. For example, LCD is not provided in the class, thus we need to put on our own effort. I buy my own LCD and I asked each of the students to bring their own laptop and I will bring the LCD, all the remotes, the laser, the pointer I will bring. We cannot depend on the facilities. If we depend to it, I am afraid nothing will ever happen. So, we need to one step ahead and sacrifice for this". (R11)*

### **Internet Accessibility**

In order to browse for information on the website, the Internet is highly needed. However, this information cannot be presented to the learners if the connectivity is not strong enough and/or not reliable. This is especially true these days, when everything is online. The need for Internet accessibility is prominent and everyone needs it. Most of the higher institutions nowadays provide a portal specifically for students, where students can get on the portal to access information related to their program. Oftentimes, tests or assignments are conducted online using the student portal. However, it is argued that sometimes the students cannot get good Internet coverage to allow them to do their tests or assignments online. When students cannot complete their tests or assignments online, their scores will be affected. This will then influence the students' satisfaction towards the course. Some direct quotes from the respondents pertaining to the Internet accessibility are as follows:

*"This university is famous for its student portal but sometimes the students did not know how to use it properly, maybe because of the internet problem or the students itself doesn't have an enough amount of data to browse through the internet. The challenge may come from the students itself, or from the facilities". (R7)*

*"I encourage them to use these technologies, for example I encourage them to communicate through online, but then students reluctant to use it because of the internet connectivity again, they said internet connection is very weak and so they cannot make it. The major problem is the facilities in using the technology itself. Maybe because our internet is not good; but it is not an excuse actually". (R6)*

*“The internet connection in our department sometimes is the reason why students cannot access to certain web browsing. The connection and coverage are too slow, most of the times just use their own internet data to get high speed connection of internet”. (R5)*

*“I supposed technology placed the major part in there and that people will become dependent on technology which I dislike that is why I don’t use technologies so much in my class. Sometimes using technologies stops us. for example, when your devices does not work, when you need maintenance and Wi-Fi or you can see most in our classroom all of the projectors are not working you know, so that’s stop us. So that is why I think technologies going to be a major part in that 4.0 thing and that people will be dependent on it”. (R8)*

*“Sometimes we have problems with the coverage during classes. So, I think there should be the main focus of the university in providing students with enough internet access. The other challenges for me would be the security. Sometimes when the lecturers wanted to share information regarding subjects, without realizing they shared something else that considered private for the students”. (R10)*

## **Conclusion**

This study explored on teaching preferences, the challenges faced by the academicians of Faculty of Tourism and Hospitality Management in teaching the students in the era of Industrial Revolution 4.0, and their perceptions in teaching the students towards Industrial Revolution 4.0. It is crucial for academicians to be ready in preparing the students for future prospects towards producing a success and well-taught individual. The academicians are responsible in producing students who are equipped with enhanced soft skills and decision making ability. Thus, this way, the hospitality sector will improve through incremental innovation and technological advancement. By adopting active learning style, students will be able to have a good career in the future since they were exposed to try out during lessons or learning process.

Moreover, this study enlightens the knowledge on the teaching preferences among academicians of the Faculty of Tourism and Hospitality Management. Every academician came up with their own different teaching perception and it all depends on the subject they are teaching. There are also challenges found from the studies that were faced by the academicians in order to teach the students towards Industry 4.0. This study also helps to explore the academicians’ perceptions with regards to Industrial Revolution 4.0. Future research is needed to discover more on ways to enhance the teaching styles and to overcome challenges. The ideas on perceptions towards Industrial Revolution 4.0 can also be more vividly realised by every academician as their teaching preferences are still connected to the Industrial Revolution 4.0 and this may assist in the implementation of the Industrial Revolution. Nonetheless, the perception of the academicians towards the Industrial Revolution 4.0 is also quite minimal to reach the actual standard of understanding among the lecturers themselves. Thus, in order to overcome this matter, there should be changes made to accomplish the mission in applying the Industrial Revolution 4.0 in higher learning institutions.

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