

A THEMATIC REVIEW ON THE IMPLEMENTATION OF HEUTAGOGY IN UNIVERSITIES

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ABSTRACT

Smart technology, artificial intelligence and robotics have recently become the focus of the new industrial revolution, which now influences our daily lives. The process of teaching and learning at higher education institutions needs to be updated to meet the challenges of Industry 4.0. Different types of learning spaces and pedagogies, such as heutagogy, are required. Although heutagogy has been practised for a long time, there is a deficiency in studies which review the existing literature about implementing heutagogy. In light of this fact, this article is, therefore, a systematic review of the literature on the application of heutagogical methods in universities worldwide. This study utilized publications from 2016 to 2020 from databases such as Web of Science, Scopus, ACM Library, Science Direct, Emerald Insight, Taylors & Francis Online, as well as from the alternative database Google Scholar. The search efforts resulted in a total of 23 articles that can be systematically analyzed according to the Preferred Reporting Items for the Systematic Reviews and Meta-Analysis (PRISMA). By using ATLAS.ti 8 as a tool, this review has five main themes, namely, i) ICT; ii) Blended Learning; iii) Outside Classroom Activities; iv) Distance Learning and; v) Module or Curriculum Related. The results showed that heutagogy is a suitable approach that can be applied in this era and that it is recommended that this approach be implemented during this COVID-19 season. Finally, at the end of this research, a number of recommendations for future scholars will be discussed.

Keywords: *Heutagogy, Systematic Literature Review, Online Learning, ATLAS.Ti 8, Covid-19, Thematic Analysis*

1. INTRODUCTION

Industry 4.0 has brought about rapid change; it has also brought about volatility, uncertainty, complexity and ambiguity, with manual labour being slowly replaced by robots. Yet, there are still people who have the benefit of flexibility, creativity and cognitive ability. Therefore, it is vital for education to be able to prepare learners for these challenges. Education 4.0 is the desired learning approach which is aligned with the emerging fourth industrial revolution. In addition to 21st-century skills, life skills, and innovative survival abilities, Education 4.0 also focuses on leadership, cooperation, imagination, digital literacy, efficient communication, emotional intelligence, global citizenry, entrepreneurialism, problem-solving, and teamwork [1]. These are also the skills required by employers in order to enable graduates to enter the

workplace. The question is, are our graduates well-equipped with these skills? A study by Pazil & Razak (2019) identified some critics who argue that graduates from higher education institutions are incompetent to meet the demands of employers and associated job requirements in today's ever-changing economic environment. A study thus provides some interesting findings, which state that universities should concentrate on teaching students how to learn rather than focus on developing skills ready for work, with a change in perspective. (Osmani, 2019). This style of learning is the key to heutagogy principles.

By March 2020, the world had been infected with the Covid-19 pandemic. The coronavirus pandemic (Covid-19) is an unprecedented emergency affecting all global industries, including the **education sector** [4]. As social distancing and self-isolation

procedures are extensively implemented, lecturers and students can't attend the classes or assessments that they have formerly carried out. This has contributed to an almost immediate change from higher education to distance learning instead of face-to-face teaching [5]. Nevertheless, the migration from conventional or blended learning to a fully virtual and online delivery approach will not happen instantaneously and is allied with a number of difficulties or challenges [6].

The students' problems did not come from practical operational constraints for such a large online teaching scale. Instead, the problems stemmed from a lack of a good attitude to learning. Students often encounter difficulties including lack of self-discipline, adequate learning materials or good learning atmospheres when they are quarantined at home [7]. A number of students may be unmotivated and have less interest in online learning as they prefer offline learning. Then, they will be absent by giving the excuse of having a poor internet connection. However, for students who live in rural areas, the internet coverage challenge is real. Due to this challenge, student-centred learning (SCL) is the most applicable method to be applied in teaching and learning during this COVID-19 season.

Heutagogy is defined as self-determined learning and has been introduced as an enhancement to andragogy, or self-directed learning [8]. Heutagogy is also an approach that practices student-centred learning (SCL) in teaching and learning. The SCL requires coordinated efficiencies where teachers see the advantages of the classroom project for students in terms of enhanced optimism, involvement and readiness [9]. Moreover, in SCL students take ownership of the learning and therefore increase their independence [10]. Furthermore, student-centred learning as an approach in which students create opportunities to learn and adaptively replicate skills in an open-ended learning environment. [11] Heutagogy offers a range of benefits to the learners of today, particular by giving them a learner-centred environment to help them identify their own learning path. Heutagogy can also provide learners with the skills and capabilities to help them improve their transition to the workforce. This is because self-determined studies can lead to transformational practices [12]. Blaschke (2012) suggests that the heutagogical approach can be integrated into a formal learning program through, for instance, student-driven, flexible curricula, flexible and negotiated evaluations, and cooperation [13]. The students are not regarded as passive educators, but rather as active participants who can engage in their own learning [14]. This benefit can be one of the

main reasons why heutagogy should be practised in teaching and learning at the university.

2. METHODOLOGY

2.1 Review Protocol – PRISMA

This systematic review was formulated on the basis of the relevant criteria from the checklist of Preferred Reporting Items for Systemic Reviews and Meta-Analysis (PRISMA). PRISMA is an issued protocol to conduct a systematic literature review. PRISMA was developed to help scholars analyze a wide range of systematic reviews to assess the benefits and disadvantages of intervention in healthcare. Nevertheless, PRISMA is also appropriate for other fields as well [15]. This is because there are three unique advantages that PRISMA offers, which are: 1) defining clear research issues that allow for systematic study, 2) it classifies inclusion and exclusion criteria, and 3) it tries to study the outsized scientific literature database within a defined time frame. PRISMA also studies the vast database of scientific literature at a given time, allowing for an effective analysis of words in the field of the educational learning approach.

2.2 Resources

The literature search started with leading databases such as the Web of Science, Scopus, ACM Library, Science Direct, Emerald Insight, Taylors & Francis Online. Unfortunately, the results of the search of these databases did not yield as many positive hits as expected. Undeniably, it is well understood that no database is perfect or comprehensive. Therefore, researchers are proposed to use more repositories to perform their literature searches to increase the possibility of obtaining relevant articles [16]. Hence, the current study also leads to search efforts on supporting databases such as Google Scholar, considering that it also a reliable database comprising journals related to educational study capable of producing massive results. According to Previous study had concluded that 389 million documents are available in this database [17]. Additionally, Anne-Wil Harzing recently stated that “Google Scholar is a serious alternative to Web of Science” [18]. Google Scholar's selection as an additional source is consistent and has the potential to serve as a supporting resource in the systematic review phase [19].

2.3 Systematic Searching Strategies

In the systematic literature review, there are three main stages in the searching strategies. The strategies are called identification, screening, and eligibility.

2.3.1. Identification

Identification is a process to enrich the keywords used to do article searches in a selected database. This process is to provide more opportunities for the selected database to come out with more results of the articles for review. Enrichment of the keywords is gained by referring to a reputable online thesaurus, keywords used by previous research, and keywords suggested by experts. The search string can refer to **Table 1**. Xiao and Watson mentioned that all research inquiries should be guided by research questions [20]. The reviewers must have a clear, concise research questions and define the review's audience (e.g., scholars, practitioners, policymakers, etc) purpose and end-use [21].

The keywords are obtained through a research question that has been developed earlier referring to PICO. PICO is a tool which helps authors to develop the appropriate issue of work to study. PICO is based on three concepts, which are Population OR Problem, Interest, and Context (see **Table 2**) As a result, the research question for this study is, "*What are the heutagogy strategies that have been published in the previous articles that discussed teaching and learning in universities?*".

Table 1: Keywords Used for Searching Articles from Databases

Databases	Keywords
Scopus	TITLE-ABS-KEY (("heutagogy" OR "heutagogical" OR "self-determined learning") AND (universit* OR college* OR institution*) AND NOT ("SDLMI" OR "Self-Determined Learning Model of Instruction"))
Web of Science	TS= (("heutagogy" OR "heutagogical" OR "self-determined learning") AND (universit* OR college* OR institution*) NOT ("SDLMI" OR "Self-Determined Learning Model of Instruction"))

Table 2: PICO Formulation to Develop Research Question

Population OR Problem	Interest	Context
Teaching and Learning	Heutagogy Strategies	universities

2.3.2 Screening

After obtaining the articles from the search of the database, the screening of each document should be done by the researchers in order to decide whether the articles should be included for data extraction and analysis [20]. The screening process is based on the exclusion and inclusion criteria that were decided, and it is done automatically by setting it at the databases. The exclusion and inclusion criteria that were set up are years of publication, type of documents and language. Scholars should decide on a range of time that they are able to review and ignore unpublished literature such as theses, dissertations, conference abstracts, or organizational reports [21-22]. Moreover, in order to avoid misunderstanding and confusing, the articles that need to be reviewed should be in a language that the authors understand to avoid confusion [23]. A total of 698 documents were obtained from the search of the databases. They are all screened referring to the inclusion and exclusion criteria as previously mentioned (**Table 3**). After screening, the total number of articles left is 234 articles.

Table 3: Inclusion and Exclusion Criteria

Criterion	Eligibility	Exclusion
Document Type	Indexed Journal (research articles)	Non-indexed journals, review journals, book chapters
Language	English	Non-English
Publication Year	Between 2016-2020	<2016

2.3.3. Eligibility

The next stage after the screening is known as eligibility. It is like the screening stage where the articles will be removed, but this time it is done manually by the author. The duplicate articles are the first articles to be removed. There were 228 remaining articles after the removal of the duplicate. Next, these 228 articles were examined thoroughly based on the titles, abstracts, and the main contents. After all the 228 articles were examined comprehensively, only 33 articles remained. The exclusion of the 98 articles was based on the following: there was no empirical data, some of them are review papers, and some articles did not focus on the implementation of heutagogy at university or higher education. The process used to decrease and assess the records is illustrated in the PRISMA flow diagram in **Figure 1**.

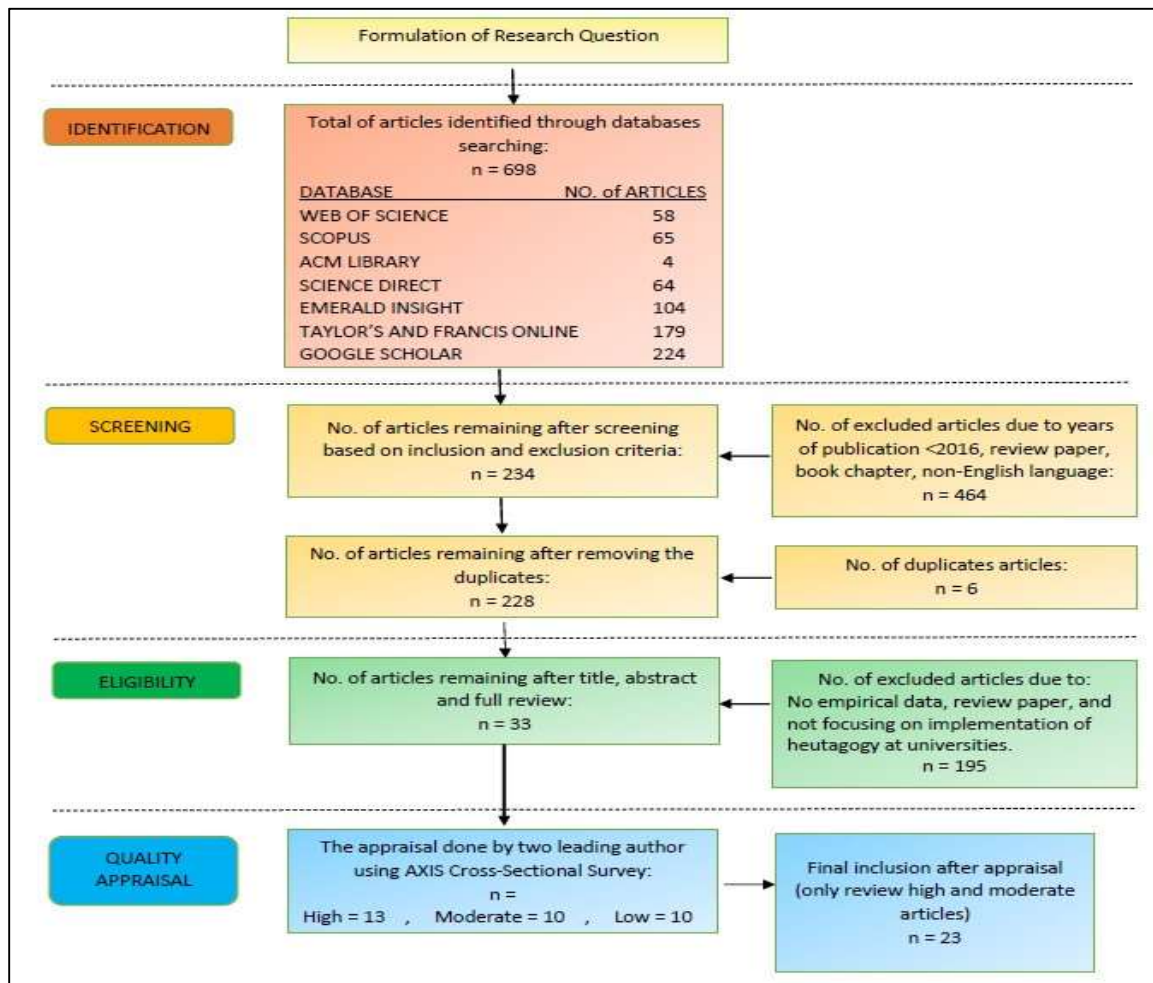


Figure 1: The Flow Diagram of PRISMA (Adapted from Mohamed Shaffril et al. (2020))

2.4 Quality Appraisal

The remaining 33 articles needed to be assessed to certify the quality of the articles' content. The assessment of the remaining articles was done qualitatively. The method used in this quality appraisal was best evidence synthesis using the assessment tools called AXIS Cross-Sectional Survey. Using a checklist or scale frequently involves formalizing the process of evaluating the study. This certifies that the same approach is used in each study whereby the core methodological issues are inspected systematically. This will prevent the possibility of biases or any unnoticed issues while reviewing the articles [20]. The two main authors read thoroughly all the articles and answered the questions in the AXIS Cross-Sectional Survey. Based on the score of the articles, they are ranked into three categories of quality: high, intermediate and low as suggested by Petticrew and Roberts, 2006. Then, the researchers concluded that only articles in the moderate and high category would be

reviewed. As a result, 23 articles were eligible for the review.

2.5 Data abstraction and thematic analysis

The data abstraction was carried out on the basis of the research questions, and any data obtained from the studies reviewed were abstracted and placed in a table. The thematic review term using ATLAS.ti 8 is applied as this study method applies thematic analysis technique in a review of the literature [25]. The thematic study analysed themes and sub-themes based on ways to develop patterns and topics, cluster, count, note similarities and connections within the complex concepts [24]. Thematic analysis as a method to recognize the trend and construct themes through detailed reading on the subject [26].

All the 23 selected papers were transferred to ATLAS.ti 8 and produced as primary documents after going through the process of evaluating the paper that needs to be reviewed. The ATLAS.ti 8

classification has made categorisation easier and more organized. 21 initial codes were created in the first round of coding, and five themes are decided to

address the questions of the study (Figure 2). The review findings will be separated into two parts; Quantitative findings and Qualitative findings.

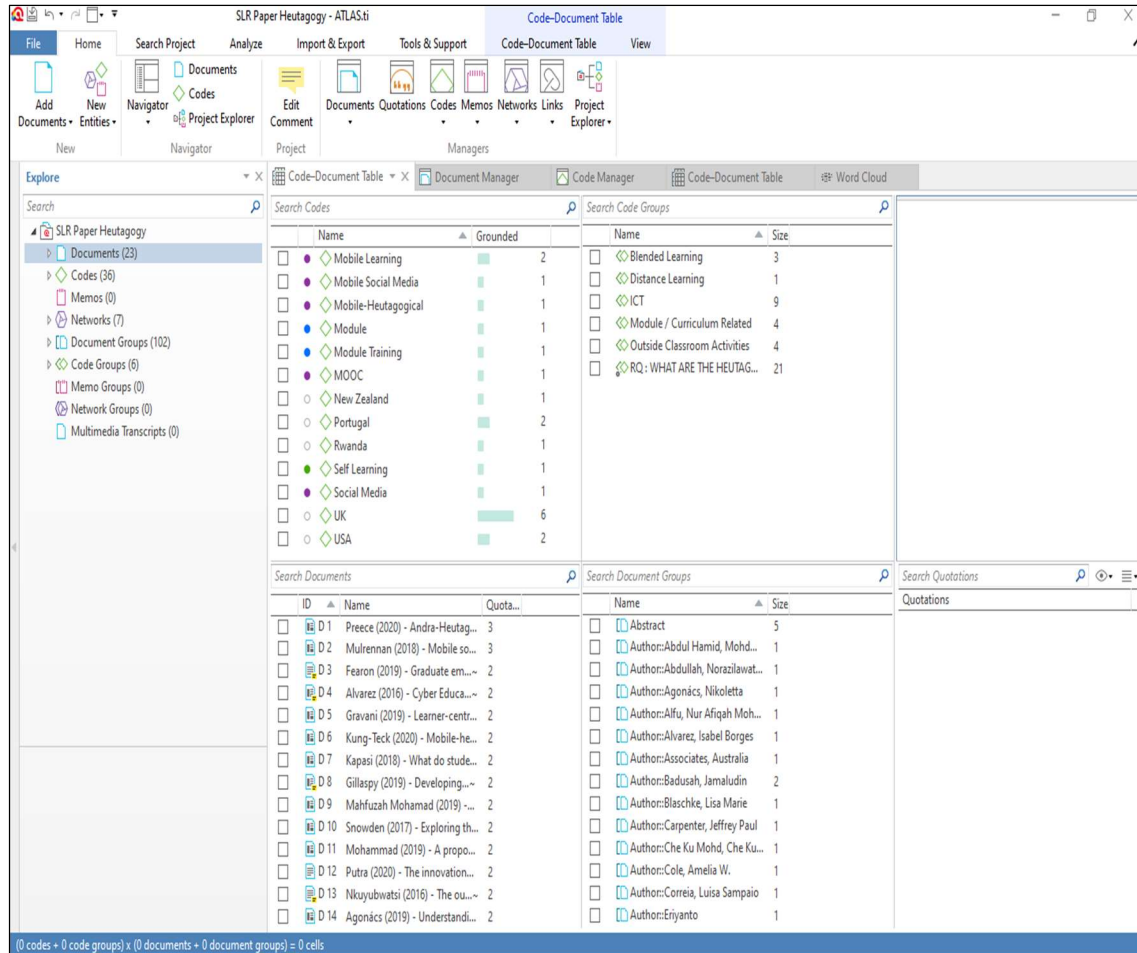


Figure 2: The code document in ATLAS.ti 8 to organize the code and themes

3.0 RESULTS AND DISCUSSIONS

The findings of this review will be divided into two parts; Quantitative findings and Qualitative findings.

3.1 QUANTITATIVE FINDINGS

The search for articles in the databases was for those published from 2016 to 2020. Since it is almost unmanageable for researchers to review all of the currently published papers, Okoli (2015) proposed

that researchers could decide the time period for the review [24]. The selection of articles dating from five years back is also to get the latest implementations related to heutagogy. Figure 3 shows that the number of papers that were reviewed was based on years. 2019 is the year with the highest number of articles and 2016 is the year with the lowest number of articles.

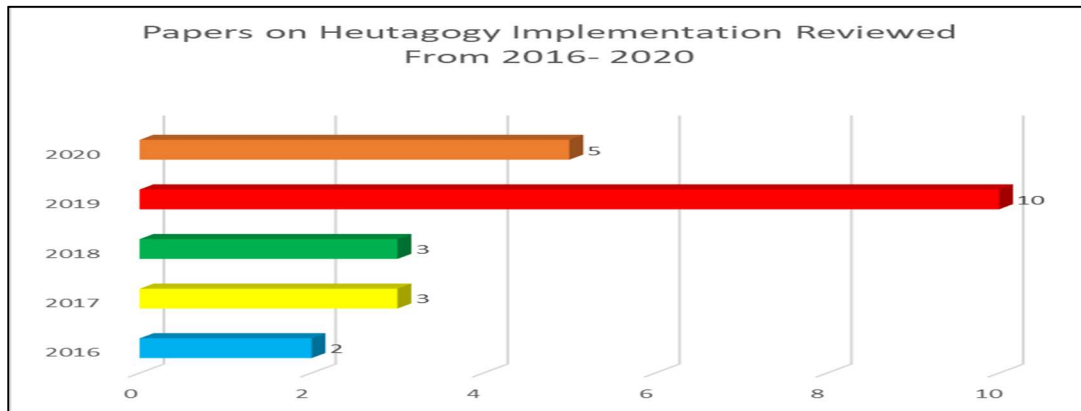


Figure 3: Number of Papers Reviewed Based on Years

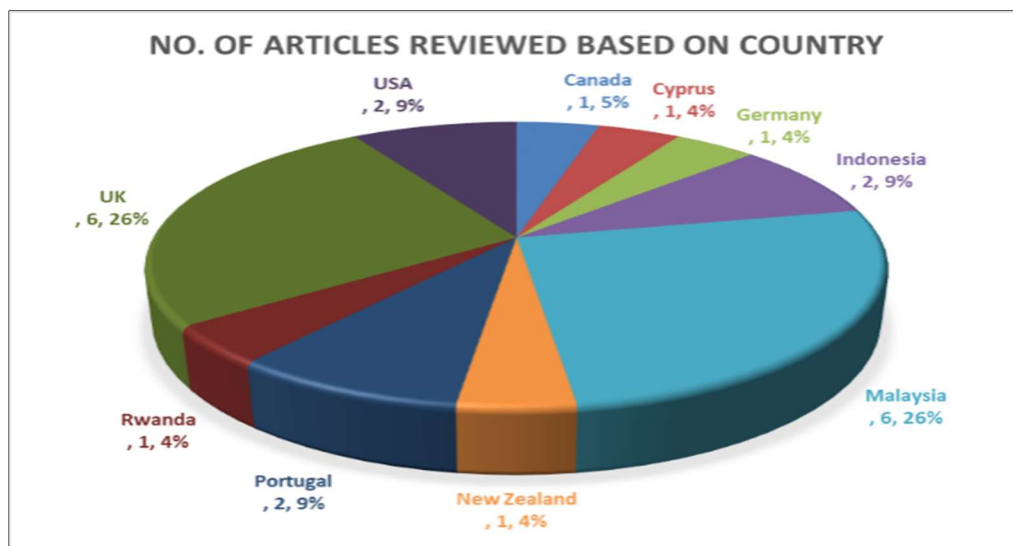


Figure 4: Number of Articles based on Country

The pie chart (**Figure 4**) above shows the number of articles reviewed by country. The UK and Malaysia are the countries with the highest-ranked articles at 26% consisting of 6 articles followed by Indonesia, the USA and Portugal with 9%. A total of 10 countries have published research on the implementation of heutagogy in the university.

The articles were searched through main and alternative databases such as Web of Science, Scopus, ACM Library, Science Direct, Emerald Insight, Taylors & Francis Online and Google Scholars. **Table 4** below shows that from 2016 to 2020, there were 20 journals that had published articles on the implementation of heutagogy, for example, Cogent Education, International Journal for Academic Development, Human Science.

Table 4: Articles Reviewed Based on Journals

	Journals	YEARS				
		2016	2017	2018	2019	2020
1.	<i>Proceedings of the 2020 Conference on Human Information Interaction and Retrieval</i>					1
2.	<i>Cogent Education</i>	1				
3.	<i>Education and Information Technologies</i>					1
4.	<i>Education and Training</i>			1		
5.	<i>Higher Education Research and Development</i>				1	
6.	<i>Indian Journal of Science and Technology</i>				1	
7.	<i>International Journal for Academic Development</i>				1	
8.	<i>International Journal of Emerging Technologies in Learning</i>				2	
9.	<i>International Journal of Innovation and Learning</i>		1			
10.	<i>International Journal of Interactive Mobile Technologies</i>					1
11.	<i>Journal of Adult and Continuing Education</i>				1	
12.	<i>Journal of Physics: Conference Series</i>					1
13.	<i>Journalism and Mass Communication Educator</i>		1			
14.	<i>Nurse Education Today</i>		1			
15.	<i>Open Praxis</i>			1		
16.	<i>Pacific Journal of Technology Enhanced Learning</i>				1	
17.	<i>Sains Humanika</i>				1	
18.	<i>SIGCAS Comput. Soc.</i>	1				
19.	<i>Studies in Higher Education</i>				1	
20.	<i>Teaching and Teacher Education</i>			1		

From the report, it can be seen that the journal is from various areas such as mass communication, science technology and education. This shows that heutagogy is suitable to be implemented in different fields with a specific purpose. From 2016, there has been an increment in publications, where 2019 had the highest number of publications with a total of 9 publications. The year 2020 shows a lower number compared to 2019 as searches for this article were made in early 2020, and the year is not over yet. It is possible that there are some articles still in progress. Therefore, the increase from year to year indicates that publication on heutagogy is gaining popularity among researchers.

The 23 research papers were reviewed in an iterative process in which evaluations were made for similarities and differences to achieve consistency in the sub-categories resulting from them. So far, the various heutagogy strategies have been identified from the reviews of previous studies. As stated earlier, in the first round of coding, 21 initial codes were created. These initial codes were further categorized into 5 main themes which are Blended Learning, Distance Learning, ICT, Curriculum or Module Related and Outside Classroom Activities. **Table 5** includes a list of researchers and their distribution to the themes. Of these five strategies, implementation of heutagogy in ICT is the most popular, followed by Curriculum or Module Related.

Table 5: List of researchers

Name of Authors	Heutagogy Implementation				
	Blended Learning	Distance Learning	ICT	Module / Curriculum	Outside Classroom
[27] Preece & Hamed, 2020	/				
[28] Mulrennan, 2018			/		
[29] Fearon, van Vuuren, McLaughlin, & Nachmias, 2019					/
[30] Alvarez, Silva, & Correia, 2016			/		
[31] Gravani, 2019		/			
[32] Kung-Teck, Muhammad, Abdullah, & Hamdan, 2020			/		

[33] Kapasi & Grekova, 2018				/
[34] Gillaspy, 2019				/
[35] Mahfuzah Mohamad, Mohd Salleh, Abdul Hamid, Mei Sui, & Che Ku Mohd, 2019			/	
[36] Snowden & Halsall, 2017			/	
[37] Mohammad et al., 2019			/	
[38] Putra et al., 2020			/	
[39] Nkuyubwatsi, 2016				/
[40] Agonács & Matos, 2019			/	
[41] Youde, 2019	/			
[42] Kamrozzaman, Badusah, & Ruzanna, 2020			/	
[43] Carpenter & Linton, 2018				/
[44] Green & Schlairet, 2017	/			
[45] Kamrozzaman, Badusah, & Wan Mohammad, 2019			/	
[46] Blaschke, Hase, & Associates, 2019			/	
[47] Ritchie, 2018				/
[48] Cole, 2020			/	
[49] Putra et al, 2019				/

where all five strategies have been implemented at the university. In 2016, heutagogy was only implemented in ICT and outside classroom activities, and in 2017, heutagogy was implemented in blended learning. Heutagogy was first implemented in modules and curriculum in 2018 and in the following years. By 2020, only three strategies had implemented heutagogy, namely blended learning, ICT and Module or Curriculum Related. Implementation of heutagogy through distance learning only took place in 2019. From the graph above, we can see that heutagogy in ICT is the most popular strategy whereby it was implemented every year from 2016 till 2020.

Table 6 below illustrates heutagogy implementation according to country. In Malaysia, there are three heutagogy strategies implemented through ICT, Blended Learning and Module or Curriculum, while in the UK, they implemented heutagogy through blended learning, ICT, modules, or curriculum-related and outside classroom activities. Cyprus is the only country that has implemented heutagogy through distance learning. New Zealand, Germany and Canada implement heutagogy using ICT, while Rwanda practices heutagogy in outside classroom activities. In Indonesia, both heutagogy strategies are implemented through their learning module or curriculum, but in Portugal, both heutagogy implementations are in ICT.

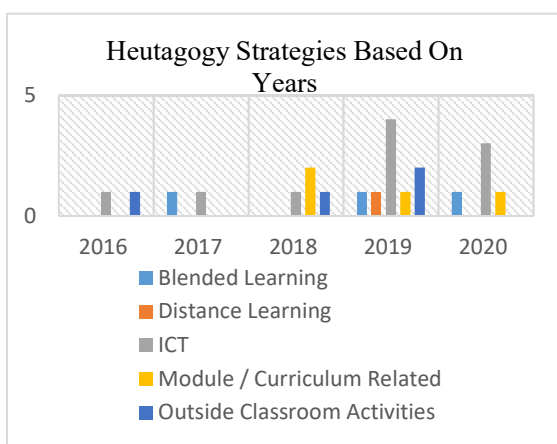


Figure 5: Graph on Heutagogy Implementation based on Years

The graph in **Figure 5** shows the implementation of heutagogy strategies based on years. The graph above shows that 2019 is the year when most heutagogy strategies are conducted at universities,

Country	Heutagogy Implementation					TOTAL
	Blended Learning	Distance Learning	ICT	Module / Curriculum Related	Outside Classroom Activities	
Malaysia	1		4	1		6
New Zealand			1			1
UK	1		1	2	2	6
Portugal			2			2
Cyprus		1				1
Indonesia				1		2
Rwanda					1	1
USA	1				1	2
Germany			1			1
Canada			1			1
TOTAL	3	1	10	5	4	23

3.1 Qualitative Findings

As previously explained, based on the publications reviewed between 2016 and 2020, 23 selected papers were transferred to ATLAS.Ti 8. Initial codes are created to facilitate analysis. Overall, this code is developed to answer the research questions (RQ). Using ATLAS.ti 8, the network is created to show the overall network about RQ, code groups and

codes. Code groups represent university heutagogy implementation categories: ICT, Module or Curriculum Related, Blended Learning, Distance Learning and Outside Classroom Activities. In each category, **Figure 6** below shows examples of heutagogy strategies that have been implemented in universities.

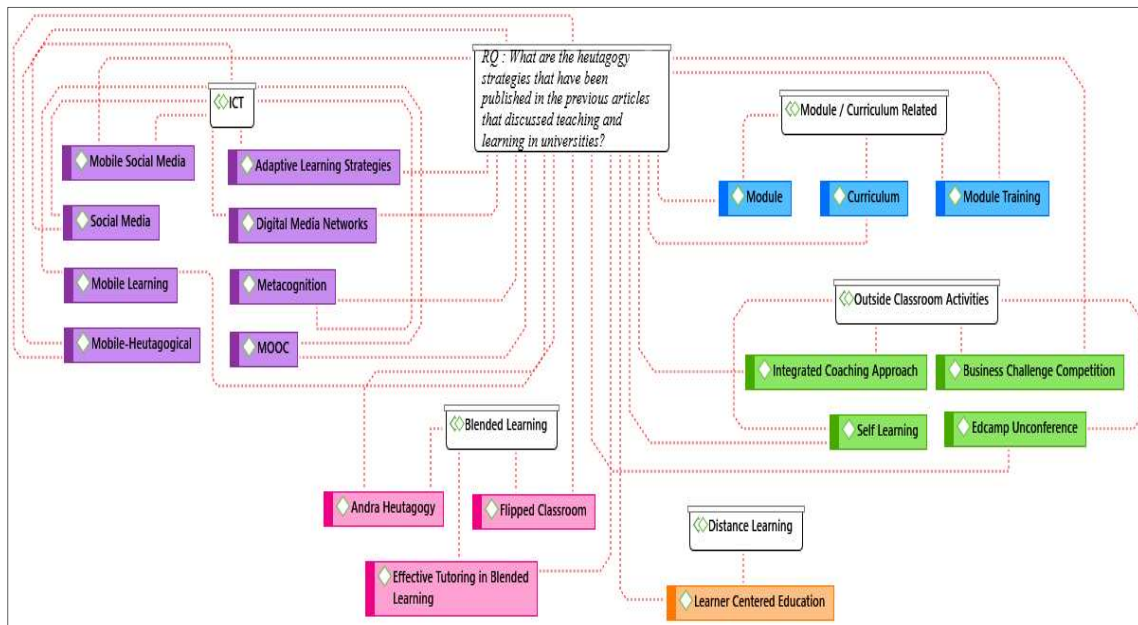


Figure 6: A Network of Thematic Analysis in Answering Research Questions

Blended Learning is one of the approaches used to implement heutagogy at the university. Blended learning represents an innovative approach in the education world [50]. It was further clarified that blended learning is an innovative concept which has the benefit of face-to-face learning in class and learning enabled by ICT, such as offline and online learning. The three strategies for blended learning are flipped classroom, andra- heutagogy and effective tutoring. The flipped classroom was conducted on students studying nursing, while heutagogy was conducted with pre-service teachers. Both of these students are full-time students at the university. In contrast, effective tutoring strategies were conducted on adult learners who study part-time. Besides effective tutoring, distance learning with a learner-centric approach to education can also be used as a tool for improving adult learning in

universities of distance learning [31]. Flipped classrooms are a group based and problem-based case study, therefore they used peers to clarify the concept [44]. Andra heutagogy by Preece & Hamed also implemented blended learning strategies by team teaching [27]. Both flipped classroom and heutagogy are contradictory to effective tutoring, where effective tutoring does individual tutoring [41]. These three blended learning strategies show that the implementation of blended learning with heutagogy can be done in groups or individually, depending on the field and target group. This is because blended learning allows the student to study at their own pace and makes the learning process more involved and self - determined with the combination of heutagogy approach. **Figure 7** below shows the blended strategies network and **Figure 8** shows the distance learning strategy network.

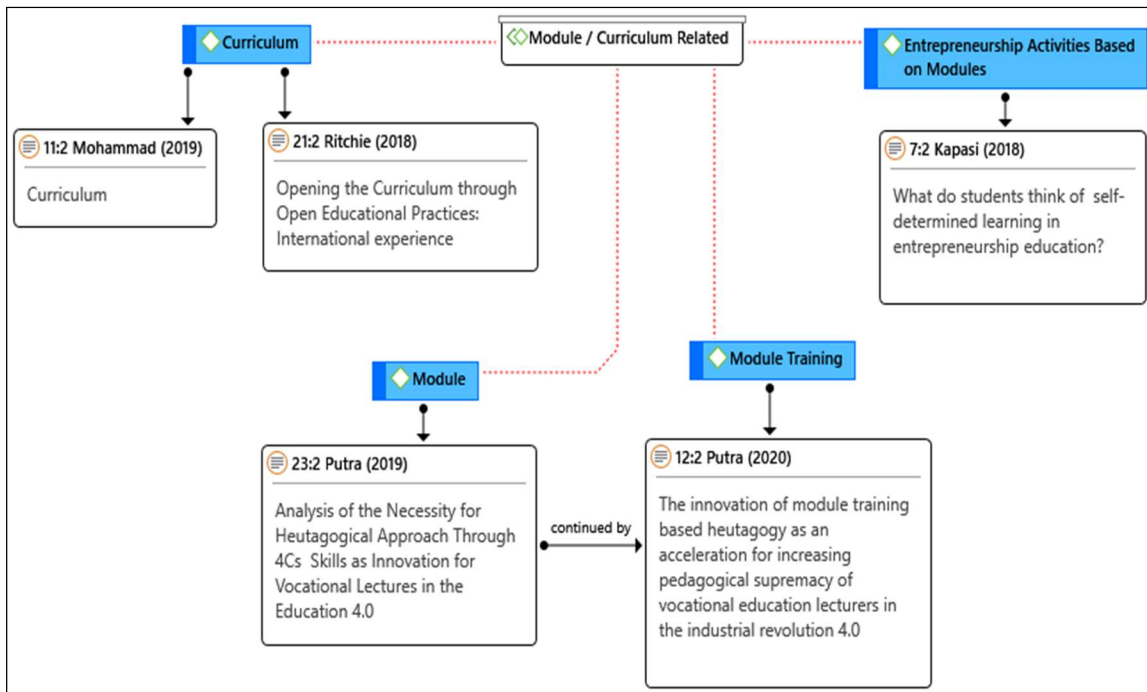


Figure 7: Blended Learning Strategies Network

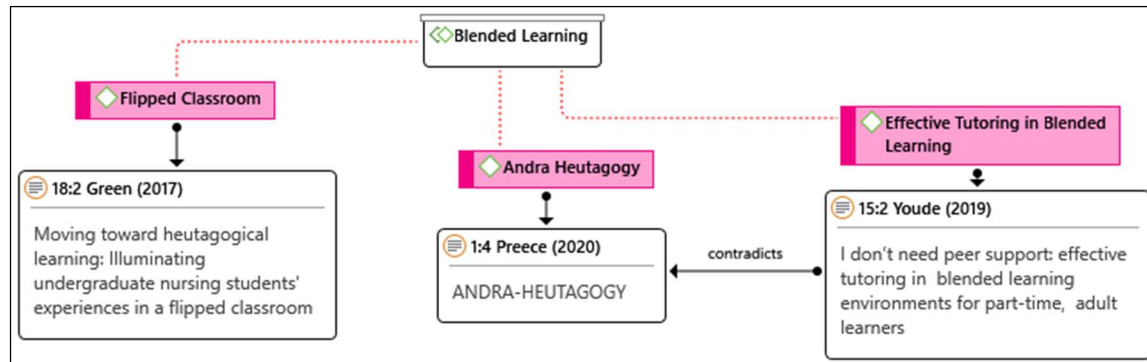


Figure 8: Distance Learning Strategies Network

Heutagogy is widely implemented through ICT strategies. **Figure 9** illustrated the ICT strategies network. These include mobile learning, social media, e-learning, and MOOC. A study conducted by [45] shows that m-learning based on heutagogy approaches to lifelong education is an effective method today. This mobile learning is not based in the classroom but needs to be everywhere and can be achieved while playing, working or at home. The launched m-learning facilities are intended to assist students in distance education, in particular, because of the time constraints between teachers and students. Besides lifelong learning, m-learning can also be applied to learning with full-time students using social media. YouTube, Facebook, Google

Docs, Twitter and LinkedIn are among the most commonly used social media with heutagogy approaches. Cyber education is another word for e-learning, as described in the article by Alvarez et al., (2016). E-learning is one of the terms used to refer to online learning (OLL), web-based training (WBT), web-based learning (WBL), distributed learning (DL), mobile learning (m-learning) and so on. Examples of online learning (OLL) are adaptive learning and MOOC. Adaptive learning incorporates elements of gamification[35]. Students learn adaptive learning based on the heutagogy design process which explores, creates, collaborates, connects, reflects, and shares.

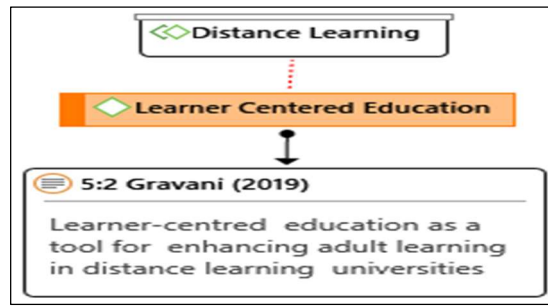


Figure 9: ICT Strategies Network

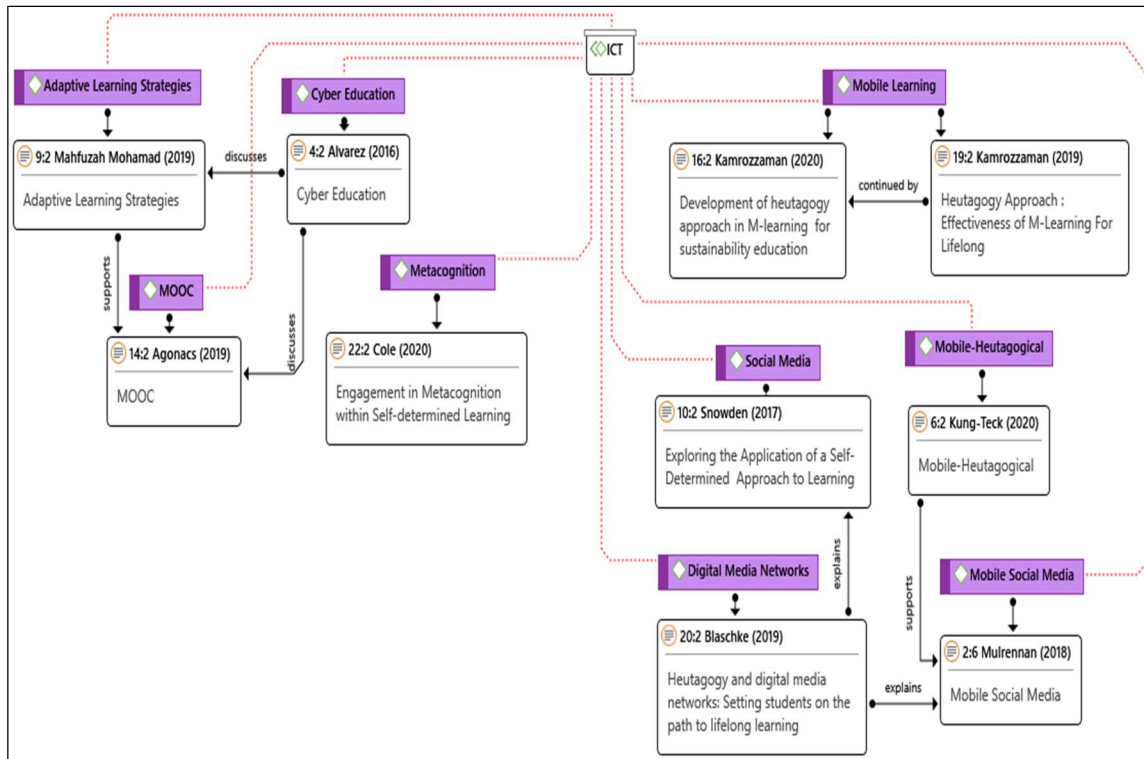


Figure 10: Module/Curriculum Related Network

Figure 10 illustrated the Module/Curriculum related strategies network. The next university-level heutagogy implementation is to integrate it into the program. This implementation is often difficult to execute because improvements to the curriculum and modules cannot be arbitrarily altered in a subject or field. It requires discussion and approval by different parties, such as curriculum makers, field experts and an organization's management. To assess the purpose and need for changes to the current curriculum and modules, an analysis of the needs of the student must, therefore, be carried out. A needs analysis study was performed before committing to a heutagogy-based training module. next, based on the analysis a heutagogy framework

for structural steel design for the curriculum in civil engineering are created and proposed. [38- 49]

There are four activities outside of the classroom which implement the approach to heutagogy. It is pictured below in Figure 11. Business Challenge Competition is one of them. It is an intervarsity simulation of business and is also known as the University Business Challenge (UBC). The UBC is the UK's longest-standing (competitive) inter-university simulation of industry, with more than 25,000 students worldwide participating since its inception in 1998. In the first stage of the competition, this activity involved solely online business simulation, based on self-managed and team-led student-centred learning [29].

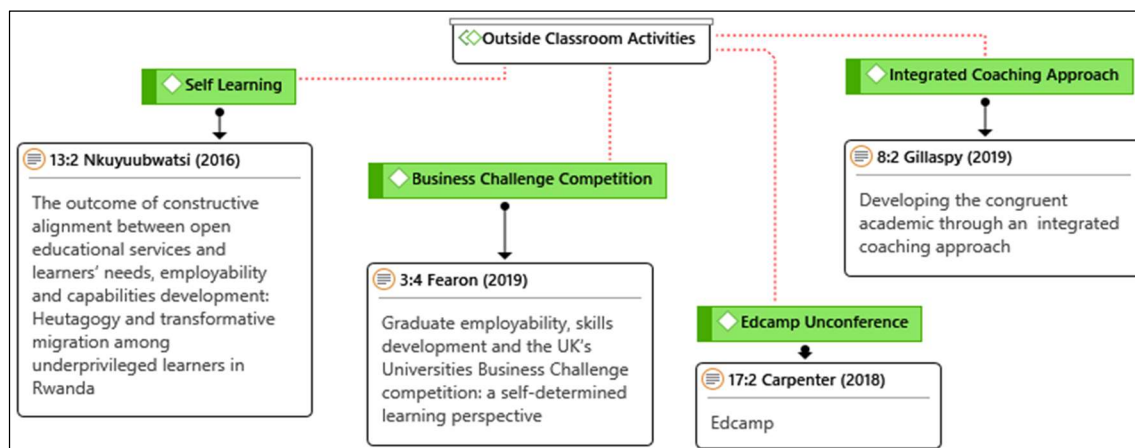


Figure 11: Outside Classroom Activities Network

Another outside classroom activity here is the Edcamp. Usually, Edcamps are free, one-day activities open to all participants and can be coordinated by any interested academicians. They are constructed on the principles of Open Space Technology (OST), a method which suggests that groups with shared focus members can self-organize, interact and solve complex issues if a suitable environment is given. There are two related theories in the perspective on Edcamps, which are andragogy and heutagogy. Edcamp's professional learning experience, which is distinguished by principles of andragogy and heutagogy, will potentially affect teaching and learning [43]. Besides being integrated into a group, the outside classroom is also conducted on a small scale of students who are self-learning with an integrated approach to coaching, for example a self-study students hunting and learning from the field of math–physics (mathematics and physics) using their own notes [39]. An inclusive strategy to coaching in educational growth could help academics make sense of their whole congruent self and how their positions in teaching, research, leadership and living work together [51]. This method is suggested because of growing pressure to improve the student experience in higher education (HE) while increasing numbers, in addition to the continuous need to publish quality research. This integrated approach to coaching contains three key features: lifelong learning, heutagogy and asset-led coaching. Based on the heutagogy approach in outside classroom activities, this strategy can be applied to any target group, either to students or to educators. It also works well in groups, individually or in peer-to-peer. Outside classroom activities can be considered as pioneers or add-on activities to incorporate heutagogy approaches in learning.

4. DISCUSSION

This section will discuss more on the findings of the reviewed paper. This review shows that heutagogy can be implemented with various methods and strategies in teaching and learning. The results of the review are discussed in the form of quantitative and qualitative findings where this technique has not yet been widely used. From the findings of the research conducted by researchers, previous studies not detailing on how heutagogy are implemented in university. However, existing studies can still serve as references to provide ideas and guidance on how heutagogy can be applied in university education. The results of this study show more clearly that heutagogy is implemented in various ways as the author has categorized the implementation in 5 categories. The categories are Blended Learning Strategies, Distance Learning Strategies, ICT Strategies, Module/Curriculum Related, and Outside Classroom Activities. Therefore, in the future, this research will help the lecturer to implement the heutagogy based on the categories that has been researched.

Even though heutagogy implementation is categorized into five categories, there are strategies that have been implemented in other strategies as well, for example, the heutagogy in ICT. After review, the ICT strategy is mostly involved in five other strategies, and one of the strategies that widely using ICT is blended learning. Blended-learning is generally known as a ground-breaking concept in the world of education. It combines traditional learning which is face-to-face, and ICT - based learning, including offline and online learning. Blended learning utilizes technology-based learning media, where all participants are sometimes separated by distance [50]. Online learning is an education that

takes place over the Internet [52]. It is often referred to as “e-learning” among other terms. There are various approaches and platforms for conducting online learning. E-learning can be used through the Learning Management System (LMS) provided by their respective universities or use an open-source such as MOOC (Massive Open Online Courses). Starting with the use of ICT in implementing heutagogy in university education, it is linked to other strategies. ICT with the implementation of heutagogy approach (ICT-heutagogy) is used in blended learning. Moreover, blended learning incorporated with ICT-heutagogy can also be adapted within the subject module or curriculum of a field. But, as previously discussed, changes in modules and curricula are difficult to implement in a short time, therefore it is better to implement ICT-heutagogy in flexible and diverse strategies, for example in outside business activities such as university business challenge competitions or conferences

Generally, a comprehensive online course needs elaborate design of lesson plans, lecturing materials such as audio, video and support teams for technology. However, with the unexpected arrival of COVID-19, most faculty members faced the challenge of lacking experience in online teaching, early planning or help from educational technology teams. In addition, with a work from home environment, teaching will be disrupted for lecturers who have children in the home as nurseries and schools are also closed for operation.

Given the problems faced by all parties, online learning which incorporates the heutagogical approach is highly recommended for implementation. Heutagogy is self-determined learning that focuses on the emergence of a learner-centred environment to help students define their own paths. The student and teacher work together as the student negotiates what he or she will learn and how it will be learned [8]. For example, from the discussion, lecturers provide a study topic from the curriculum, and students may be expected to draw up plans based on defined learning goals, but they have the freedom to decide what and how they are learning. Students also formulate their own evaluations rather than standard tests according to the provision of the syllabus with the guidance of the lecturers. This learning style provides a less stressful environment for both students and lecturers and can encourage deeper learning.

5. RECOMMENDATION

This study suggests a number of recommendations for future scholars. First, more studies are needed to review the implementation of the heutagogical approach as this study is focused mainly on universities. It is thus recommended for the implementation of heutagogy in primary or secondary schools to be reviewed. Future scholars may also review or study the implementation of heutagogy in courses or training held by various organizations for both employers and employees. This is to look at the differences of heutagogy implementation based on age, environment and level of thinking. All brains are different. People come to learn their encounters with different experiences, interests and motivations, even small children, where a single approach is not suited to all [14]. It is also for a review to be conducted on the impacts and implications of heutagogy implementation in learning and teaching. Studies on the impact and implications of heutagogy implementations are important to see the effectiveness of heutagogy in teaching and learning in the present, where further improvements in each implementation can be made in the future.

6. CONCLUSION

The main objective of this study is to systematically examine the most common implementation of heutagogy in universities. The review highlights the application of heutagogy in ICT, blended learning, outside classroom activities, module or curriculum and distance learning. The study offers several important contributions to practice and knowledge. The results showed that heutagogy is a suitable approach that can be used in this era and that this approach should be applied during the COVID -19 season. Despite the implementation of heutagogy approaches in universities, several issues have been raised. Some of the elements of heutagogy; exploring, connecting, collaborating, creating, reflecting and sharing that are rarely discussed in all strategies, therefore, create a gap in the implementation of heutagogy in teaching and learning. Furthermore, there is a lack of heutagogy in the current strategies in terms of structured frameworks and very few articles mention how strategies are implemented and implemented in classrooms or projects. The researcher, therefore, suggests developing a structured theoretical heutagogy framework to adapt heutagogy elements that are compatible with the strategies to be implemented in the classroom or activities. As a final point, it is recommended to conduct a review of

heutagogy implementation in schools, courses or training held by the organization, and also the impacts and implications of heutagogy implementation in learning and teaching.

DECLARATION OF COMPETING INTEREST

The authors claim that they do not know of any conflicting financial interests or personal relationships that could affect the paper's research.

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