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Curriculum Redesign in the Computer Science to Enhance the Psychology and Rehabilitation Awareness of the Blind Special Education Student

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Abstract

The expansion of the internet has culminated in the revolutionization of any and all elements of society, and this transformation has also been implemented as the Industrialization Revolution. Industrialization will serve as a bridge seen between the digital and physical worlds. With innovative advances in mind, a combination of physical and online technologies will be transformational. Institutions must equip coursework, academics, and learners equally to advance beyond their current status. Hence, academics must assess their capacities, bringing in an endeavor to provide our generation with more up-to-date knowledge and expertise to face future Reality. Institutions must improve their educational approaches and processes. Learners must be exposed to cutting-edge innovations like Big Data Analytics, Artificial Intelligence, Augmented Reality, Wireless Sensor Networks, Cloud Computing, and other breakthroughs to understand how to use them. This study used a descriptive and logical methodology to revamp learning and instruction procedures to align with techniques. The study is centered on a variety of developing difficulties relating to essential principles and goals in academics institution. Construct on equalization investigation, a program matrix its created, which would allow institutions to improve their social curricula to meet the technical skills necessary in the forthcoming industrial period.

Keywords: Computer Education, Industry Revolutionary, Artificial Intelligent; Blind Student; Augmented Realism, Special Education, psychology and rehabilitation awareness

Introduction

The Industrious Revolution has significantly influenced many facets of human existence. It is undoubtedly a big revolution that impacts human pursuits and affects all parts of their existence. Furthermore, institution and academics should assess their understanding and skills in updating and progressing individuals to the present generations. Based on computer mechanisms, both academics and educators must be adaptable to changing trends, new understanding, and knowledge and experience as a part of everyday life (Alaloul et al., 2020)

The Industry Revolutionary has had a significant influence on many facets of human existence. It is undeniably a big revolution that impacts human actions, affecting all areas of their life. Furthermore, higher education institutions and academia could perhaps weigh their understanding and skills to upgrade and move ahead individuals to the present and future generation. Predicated on computer crime structures, scientists, academics, and trainees must be willing to adjust to changing trends, new understanding, and skills as part of today's day and age (Alaloul et al., 2020). The government developed the phrase "Industries 4.0," which is a complex idea by Manufacturing Science and Research Association in collaboration with Acatech. This new program has positioned as a forerunner in industry internet technology techniques (Ahuett et al., 2018). During the Industry Revolutions, the development of steam locomotives, electronic parts, and informatics led to mechanizations, mass manufacturing, and digitalization.

Furthermore, IR4.0 has culminated in a merger of the real and virtual worlds with the development of technology like the Internet of Things is a Network of Commerce. Using Networked Embedded Systems would allow material entities to communicate with one other infrastructure for cyberspace. As a result, information and knowledge may be accessed at various points simultaneously (Lins & Oliveira. 2020). As a result, combining physical and virtual systems will be transformative.

Controller of cellphones, vehicles, and other equipment is currently challenging. Signals can be transmitted to the heat exchanger, for illustration, to turn on before arriving home or although we are sleeping. The coffee

maker can make a cup of coffee based on our estimated remember waking time. As a consequence of adopting these CPS and IR4.0 activities, people will be able to communicate effectively and autonomously analyze data given by systems, resulting in constitution and inspections. Moreover, these networked embedded systems collect diagnostic data that allows for the identifier of the right solution, replacement parts, or instrument. The supplier may instantly request the desired solution, equipment, or spare component through current communications technologies. Networked Embedded Systems have a wide range of applications that touch practically every element of life (Lins & Oliveira, 2020).

Literature of Problem Research

As just a new problem, IR4.0 has caused IT technologies to take precedence over humankind and become a priority. There will be a severe shortage of required information and skills if institutions do not adapt their academic programs to reflect these improvements. Academic institutions and learners alike must be prepared and organized by universities; both academics and learners must be adaptable to adapt to changing trends (Alaloul et al., 2020)

Combining physical, technological, and biological components with industry would be transformative in light of these changes. To ensure employment prospects, colleges must adjust and improve their curricula techniques. Integrating physiological, technological, and biomedical fields with industry would be innovative with these advancements in mind. Institutions must change and tweak their curricula techniques to ensure graduate employment.

Questionnaires of Research

This study will answer the dilemma:

• What upcoming capabilities will be necessary to integrate human capital with industrial revolution 4.0 activities?

Data Objectives

The following are the study's goals:

• To determine the significant technology advancements and necessary competency for the future Fourth Industries Revolutionary. (Theoretical contribution)

• The present Role Education Pyramid as a route map for institutions to adopt and integrate Industry Technology within their curricula.

They've included international movement in their syllabus. (Practical contributions)

Methodology

The qualitative approach was used to identify the significant technical advancements and essential competencies for the forthcoming revolutions. A methodology for examining textual, conversational, and visual interactions is known as literature review (Arici et al., 2019). It entails making repeatable and valuable associations and ties between facts and statistics and their context and surroundings (Sousa & Rocha 2019). In addition to focusing on the substance or background of communication, qualitative research also stresses the components of learning (6 Pan et al., 2018). Qualitative methodology evaluates not just words themselves but also the entire conversation, guaranteeing correct categorization of large data sets into groupings that reflect related contexts (Bouwmeester et al., 2019).

This type of assessment aims to obtain information and meaning from the subjects being studied (Gaur & Kumar 2018). From the existing research, it was needed to ascertain specific technical advances, skills, and capacities. As a result, in this scenario, the qualitative approach is by far the most suitable and important technique.

Writings relevant to IR4.0 from 2013 to 2018 were chosen for a systematic review to detect specific aspects of the approaching revolutionary. In particular, to verify the quality and reliability of the information, the following methods were taken to apply the research approach properly:

• A total of 72 articles were chosen for the literature review. It should be emphasized that the articles were selected for systematic review assessment concentrate on the information shared by IR4.0 instead of being specialized to specific IR4.0 capabilities like (Big data, Cloud Computing, etc.).

• Filtering was used to select 72 articles for frequency distribution and identify categories mirrored in journals connected to IR4.0. Only manuscripts from domains with at least five published were chosen. Four primary domains resulted in the emergence of this action.

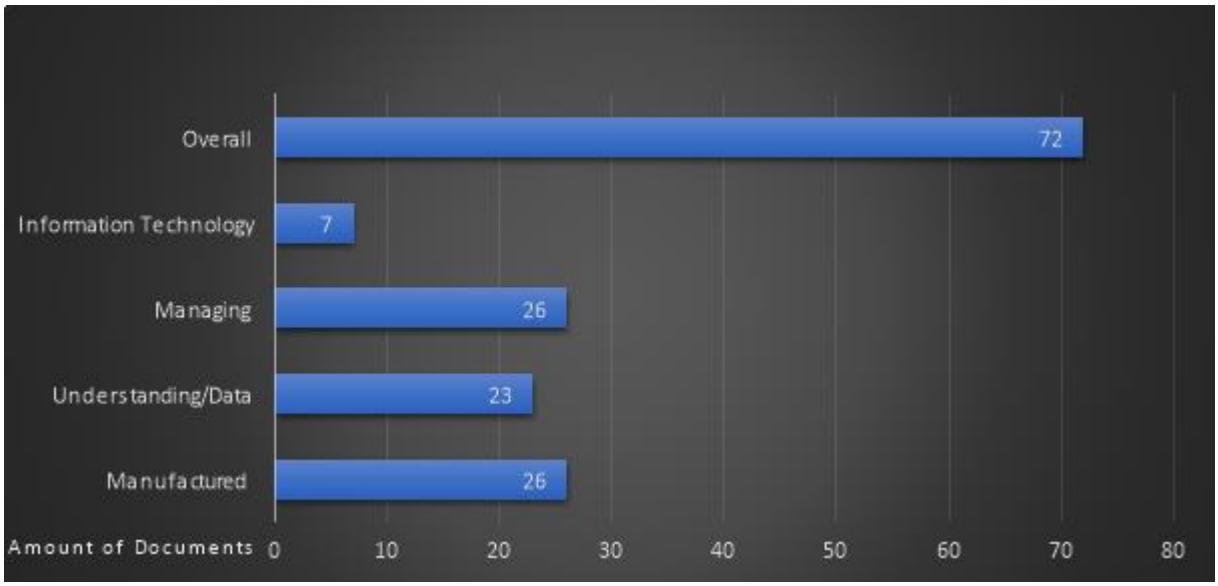

Figure 1. The prevalence of domain across various groups is depicted

- The utterance recurrence function in software was used to measure the incidence of prepositional phrases. To determine the frequent words, phrase probabilities are measured, and one of those top 1000 phrases was examined in terms of the scope in which they had been used. Following that, the five skills and technical breakthroughs related to IR4.0 were identified.
- Predefined terms were regularly employed in conjunction with several other words, resulting in the formation of empowering terminology since these phrases created multiple significance when combined. As a result, the relationships between the prepositional phrases were established using the Word-Tree-Map-tool.
- Figure 1 depicts the dispersion of the 72 requests contained across diverse spheres, whereas table 1 depicts the topics of all 72-example publications.
- Table 3 shows count assessment; have been eminent that the discovered phrase would be further examined in connection to its circumstances in Table 3 by analyzing various meanings of recognized words in the material.
- Figure 1 shows a model displaying the Education Pyramid for revising the curriculum in accordance with IR4.0.

Table 1. Concepts from all 72 of the chosen Scientific Articles are depicted.

Themes
1. Industrial: The Good practices scheme of the locomotive industries.
2. Proposal for the execution of the strategical initiatives Industry
3. liable on the horizon
4. Collaborative mechanics to increase production in the contextualized of Industry
5. Computerized maintenance management systematization in the framework of Industry sectors
6. Origins, aspirations, and R&D problems of cyber-physical productive networks.
7. How-Virtual is the centralized and-Network-Building-Changes-the-Manufacture of Landscape
8. Industry is progressing in developing smart goods and smart performance.
9. industries: Hype and Hit
10 Industries Cyber-physical models solve the agencies conundrum in power systems Industries?

11. Industries is the fourth industrial revolution. The technology of Enterprise and Technology Infrastructure
12. The state of the art in software development for the factories of the future, as well as the necessity for actions
13. Industry in terms Smart Factory: A discussion of the concepts and method to electricity management in manufacturing internet-based of Everything paradigms.
14. Industrialization is expected to strengthen the relationship between IT and business.
15. A CPPS architectural approach for Industries 4.0.
16. In Industrial 4.0, a look at the application of experience and understanding and confirmation.
17. Why the "Industrial Internet" necessitates a new approach to development, according to business transformation for Manufacturing 4.0.
18. In Industry 4.0, the development and control of cooperative company operations are essential.
19. A new tale associated with the Internet of Information and Industrial internet takes us from an autonomous household to a sustainable, healthful, and manufacturing house.
20. Industry 4.0: Enabling technology
21. Industry 4.0: Invited document for a keepsake.
22. Style and manufacturing perspectives on Industry 4.0 with cyber-physical interconnection.
23. Industry 4.0 is a term used to describe a technological revolution in the industrial industry the prospects of productivity improvement.
24. Getting a Glimpse of the Fourth Industrial Revolution
25. Systems Smart factory
26. Strategical factors analytic for Industries 4.0.
27. Toward that "Industry 4.0" culture and economy, we are transitioning to a hyper-connected community and government.
28. Visualization computation as a crucial enabler for Industry 4.0 and the Industrial Internet
29. A comprehensive manufactured architecture for Smart manufacturing or beyond.
30. A complex view of Industry 4.0.
31. management is an approach for evaluating improve the mechanical properties' preparation for Industrial 4.0.
32. A look at Industry 4.0 from a manufacturing system's standpoint, from difficulties to prospects.
33. Principles Design for Industry 4.0 scenarios.
34. Digital industrially Arbeit: End Perspective
35. Editorial: New possibilities for manufacturing and production engineering with mechanism intelligence
36. Manufactured paradigmatic adjustments for the impending Industrialization are on the horizon.
37. Smart Factory Engineering
38. An Overview of Industry 4.0's Smart Manufacturing Implementation
39. From the standpoint of fundamental research, Industries 4.0 is a big deal.
40. Sector and long-term consequences: A critical examination of long-term consequences with a particular emphasis.
41. Intelligent production creation and implementation as part of Industrial 4.0.
42. A overview of commercial automatization in Industrial 4.0.
43. Industries 4.0: Is it science fiction, technology, or both? How can you persuade today's executives to put money towards the future?
44. Techniques for Industries 4.0 and manufactured Internet Technology
45 Industry 4.0: Understanding this New era for the Development of Enterprise
46 A personnel management viewpoint on monitoring systems for industries

47. In the early stages of an Industry 4.0 project, a methodology for establishing the framework of priorities is followed.
48. Applications of Modeling Process Industry
49. Smart factory for industry 4.0? A review.
50. Strategical Instruction with regards Industry 4.0 - A three-level processing role
51. The Industries 4.0 appropriately equipped focuses on production, innovation, and advancement driven by industries.
52. The effect of Industries 4.0 A theoretical and qualitative investigation of purchasing and supply organization
53. Adoption of digital and the advancement of manufacturing operating technology.
54. The information's of internet and technologies data directed in Industrial Revolutions
55. The industrial sector's change and modernization.
56. Managerial strategies are being examined in the context of Manufacturing 4.0.
57. Science and technology causes, effects, and defense mechanisms for the 4th Industries Revolution.
58. Systems of Industrial Cyber-Physical
59. The present state of Industry 4.0 and its implications for logistical.
60. Industry 4.0 Lean Production System effect.
61. Industry 4.0's past, present, and future - a comprehensive literature analysis and centrally planned recommendation
62. Enabling technologies, use cases, and difficulties of Industrial 4.0's Intelligent Factory.
63. Industry 4.0: The Industries Revolutionary
64. Industries 4.0 The making of Vision
65. Industry 4.0: In towards lean production
66. Adoption of digital manufacturing value chains: a survey and assessment of actual industries 4.0 implementation cases.
67. Considering the obstacles to Industry 4.0 activities in developing nations for the sustainable supply chain management.
68. Industry 4.0 A review. A review framework for managing and operations
69. Industry 4.0: The Perspectives of Technology
70. Industry 4.0: Future trends and Institution of the art
71. Industry 4.0 technology's predicted impact on company's efficiency.
72. In the age of Industries 4.0, how should SMEs conduct their production systems?

Discussion of Analysis

Table 2. Content and Analytical concept of Method/Big Data

The phrase "Big Data" has been identified and evaluated.	
Word-by-word identification of a basic word frequency: Method	
Result number of documents samples	72
Number of Documents consist of Data references	72
1000 Word of Frequency	3rd
Number of times Data Quoted References	2405
Condition Generate connecting with other Word: Big Data	
No. of documents consist of words quoted references	52
No. of word	384
Percentage of Quotation	16 Percent
Percentage of documents consist of Big Data against the overall number of Documents	70.27 Percent

The term statistics have been cited 2405 occasions in the accessible literature, making it the third most frequently used adjective. It's also worth noting that the word statistics appear in all 72 sample articles.

The term "Big Data" was originally used in the mid-1990s at a Silicon Graphics Inc. lunch table discussion (SGI). Moreover, the most often used term in association with statistics was discovered as "Big" following an analysis using the Word-Tree-Map-tool. As a result, the new phrase "Big Data" has been coined. The presence of the term "Big Data" has been documented. It can be validated by the fact that the discovered word has been referenced 384 instances in 52 documents, implying that the term appears in more than 70% of the study material origin of the word "Big Data" is still a mystery.

"Big Data"

concepts have developed significantly due to the dramatic differences in data properties. Therefore, some qualities might be related to the phrase "Big Data" after researching and evaluating published papers. Big Data is defined by three Vs. (Volumes, Variation, and Acceleration), as per (Laney, 2011). These three elements may be connected to describe big data (Shamim et al., 2019). Gartner, Inc. also defines "BIG DATA" as knowledge with an overwhelming volume, variations, or acceleration and analyzes it in a cost-effective approach in line with the current cognitive processing, resulting in improved judgments (Lakshmanaprabu et al., 2019). According to technology, "Big Data" entails large volumes, complicated variations, and velocities, necessitating current approaches and advanced IT infrastructure to capture, preserve, distribute, manage, and assess these statistics (Saidali et al., 2019). Companies are gathering large amounts of data since this newest data gathering, and analysis architectures have enabled them to leverage this material in novel ways. For example, detecting faces in the context of a supermarket may assess data about consumers like age shop traffic, ages, sex structure, and customer's purchasing behaviors. The data may also be utilized to develop placements, marketing, procuring, and personnel plans. Acceleration refers to the rate at which data is generated and the speed with which it may be processed to evaluate it. Monitors and cellphones, among other advanced technology, have increased the volume of data, necessitating more analytical and preparation. SMBs and retailers create a significant amount of data that may be utilized for additional analysis, processes around 1 million purchases every hour (Gibert et al., 2018).

As shown in a poll conducted, data is used by 97 percent of companies with turnover surpassing $hundreds of millions of dollars. Big Data Analytics is becoming increasingly popular, making it a crucial feature of the future IR4.0.

Table 3: Analytic Content of the term “Internet of Things”

Identity and evolution of terms 'INTERNET."	
Basic word identification through frequency Internet	
Overall no. of using the example	72
No. times consist of word Internet as a reference	71
Frequency Word count ranking out of 1000 words	18th
No. 0f times internet quoted as a reference	1191
Condition Generate in Connecting with words; Things of internet	
No. of documents consist of words Things of Internet quoted as a reference	66
No. times words Thing of the Internet against references	71
Percentage of quotations consist of things on the internet against Internet	18th
Percentage of documents consist of things on the internet against total no. of documents	89.19%

The term "internet" has indeed been cited 1191 times, making it the 18th most often used phrase in the literature. It's also worth noting that "Internet" appears in 71 of the 72 example publications. Moreover, the most used term in relation to the internet was discovered as "Things" following an analysis using the Word-Tree-Map-tool. As a result, the phrase "Things of the Internet" has been coined. The presence of the recognized word "things of internet" may also be substantiated either by the fact that perhaps the phrase has been referenced 530 occasions in 66 articles out of the overall 72 articles examined, which equates to the term being present in almost 89 percent of the sample articles.

The term "Thing of the Internet" has a number of different meanings. Every interpretation is different; however, one thing that all of them have in common is that the early stage of the internet only included data supplied by people, while phase 2 began to include data collected by gadgets as well. As a result, the best explanation of the web of things would really be.

The IoT technology, also known as IoT technology, has been one of the foremost expected trends in the IT industry for years. IoTs acquired popularity by picturing an expansion in the worldwide network through the connectivity of everything around us, allowing these material things to link for any function (Chahal et al., 2020). Consequently, IoTs form a global system that allows individuals, living creatures, and objects to communicate with others and non-living things to communicate with the other non-living things. As a result, IoTs create a massive network that allows humans, life forms, and objects to interact with one another and non-living things to connect with other non-living things. It would give those around us a distinct identity (Li et al., 2018). This means that the making of Things will re-define the world in terms where everybody is connected to all the others, culminating in information and telecommunication architectures. IoT should not only link electronic devices but will also interconnect various objects, such as roads and implantable cardiac, across systems. This developed communication will also allow for collecting and analyzing large volumes of data. Because everything around us can sense and interact, the growth of IoTs will result in better environmental sustainability because all these items can be utilized as ways to monitor, evaluate, and adapt to inconsistencies and complexity. IoTs' development would undoubtedly be a transformation for humanity (Montori et al., 2018).

Table 4: Contextualized Analytical of the term “Cloud Computing”

Identifying and evaluating the words "Cloud Computing" and "Cloud Platforms."	
Cloud is a basic term that may be distinguished by its frequent.	
Overall No. of used examples	72
No. of documents consist of words cloud quote as references	58
1000 words frequency rank	54th
No. of times Cloud references	55
Condition Generate in Connecting with another Words Computation Cloud	
No. of documents consist of words cloud computing references	42
No. of times, word cloud computing references	216
Percentage of quotation consisting of cloud computing references	39 Percent
The proportion of papers that are cloud-based vs. the overall quantity of docs	56.76 Percent

The phrase "cloud" has been cited 552 times, making it the 54th most often used phrase in the corpus. It's also worth noting that "Cloud" appears in 58 of the 72 sample articles. Interestingly, the most often used word in association with cloud was discovered as "Computer science" following an analysis using the Word-Tree-Map-tool. As a result, the new phrase "Cloud Technology" has been coined. The presence of the detected word "Cloud Computing" may also be justified by the fact that it was used on 216 occasions in 42 of the overall 72 publications examined. This means that the phrase appeared in more than 56 percent of the sample publications.

The computed cloud has evolved as a cutting-edge paradigm for information technology organizations, and its potential has attracted a lot of attention in previous decades. According to AMR Analysis, Cloud technology is an application for upcoming generations. The consumer could now modify its Internet technology architecture more effectively. There will be less of a headache than there is no need to include in data processing centers, thanks to the usage of cloud technology IT infrastructure that telecom operators hire at affordable rates. Information technology capabilities may now be quickly adjusted to meet changing demands. Although work quantity is moved democratically across the web, Public Cloud has been classified as a subscription model by Strategic organizations. Users are charged based on their usage, and enterprises are not required to purchase gear or servers. According to Forrester Assessment, the cloud is a type of framework that enables businesses to obtain programs hosted based on their use. Thinking techniques, a solutions provider, defines Cloud Computing as a set of services that enables customers to get Information Technology and computational capabilities on a pay-as-you-go basis to build or maintain their projects (Senyo et al., 2018).

Cloud Technology has established itself as a prominent paradigm in the world of information technology. Its introduction has increased the price of technology and altered the structure and purchase of IT equipment and companies. This would permit information to be encrypted on other systems, and solutions would be paid based on usage, allowing IT companies to rent out their computer power. It will also offer data transportation and storage.

Table 5: Analytical Content of the terms “Artificial Intelligence”

Distinguish and assessment of the terms "Artificial Intelligence."	
Total number of papers chosen as a sample	72
The term "intelligent" is used in a number of publications as a reference.	48
1000 words of frequency rank	261st
A couple of times, "Intellectual ability" has been cited as a source	194
Term generated in connection with other words: Artificial Intelligence	
The phrase "Artificial" is used as a reference in a large number of texts.	23
The number of times the term "artificial intelligence" has been used as a comparison	54
The proportion of quotations that contain the phrase "Intelligent Machines" vs. quotations that contain the phrase "Intellectual capacity."	28 Percentage
Compared to the overall number of papers, the number of records including "Artificial Intelligence" is rather low.	31.08 Percentage

The keyword "intelligence" has been mentioned on 194 occasions in the literature, making it the 261st most frequently used keyword. It's also worth noting that "Intelligence" appears in 48 of the 72 requests contained.

Interestingly, the most often used word in relation to intellect was discovered as "Artificial" following an analysis using the Word-Tree-Map-tool. As a result, the new term "Artificial Consciousness" has been coined. The occurrence of the detected word "Machine Intelligence" may also be substantiated by the fact that the term has already been mentioned on 54 occasions in 23 publications out of the total 72 documents examined, which equates to the phrase being present in more about 31% of the user will know.

Due to the sheer debates around the phrase "Superintelligence," comprehension of the concept has become rather complicated. In a particular vocabulary, there are about four main interpretations of "Artificial Intelligence’ such us:

• AI is a computer science academic discipline concerned with advancing computer technology designed to process information in the same way as humans do.

• It's the concept of computers with capabilities that lead to different results like humankind. Educating, personality, and adaptation are only a few examples.

• It boosts general intelligence, similar to how mechanical instruments boost physical prowess.

• It is the scientific that allows for greater computers effectiveness with performance will be evaluated. (The New York Times)

Exhaustively researched Version of the Global Webster's Extensive Dictionary of the English Language)

Table 6: Evaluation and Assessment Content of the term’s “Artificial Intelligence”

Assessment of the terms "Augmented Reality."	
Identification of word frequency: Reality	
Result of documentation used as an example	72
No. of documentation consist of a word as a reference	45
Out of a total of one thousand words, a word of	336th

frequent counts rating was assigned.	
No. of Times Reality as a reference	161
Terms Generate in Connecting in another word; Augmented Reality	
No of the documents consist of words Augmented as references	15
No. of times word Augmented Reality as a reference	39
Percentage of quotation consists of Augmentation Reality against quotation consist of Reality	37%
Compared to the overall number of papers, what proportion of publications is Augmented Reality?	20.27%

The phrase "realism" has been mentioned on 194 occasions in the literature and research, making it the 336th most common term. It's also worth noting that the word "real" appeared in 45 of the 72 sample publications. In addition, the most often used word in relation to realism was discovered as "Augmented" following an analysis using the Word-Tree-Map-tool. As a result, the term "Augmented Reality" has been coined. The presence of the detected word "Augmented Reality" may also be based on the argument that these have been quoted 59 occasions in 15 publications out of the total 72 articles examined, accounting for further than 20% of the request contains.

The behavior and patterns of the phrase "Augmented Reality" have increased to the point that they can now be seen in smartphones and other gadgets (Ibáez et al., 2018). Augmented Reality permits the converging of cyber and mobile items, culminating in the concomitant administration of virtual and actual objects (Huang et al., 2018). Augmented Reality has a far broader use than vision since it can be used to enhance other modalities, such as feeling, hearing, and smelling items (Huang et al., 2018). Augmented Reality essentially allows the material to merge with Reality (Mota et al., 2018). Its unique character distinguishes it from users who are entirely impacted by virtual environments since Augmented Reality encourages truth rather than fiction and replaces Reality (de Souza Cardoso et al., 2020).

This case was planned to evaluate the primary characteristics of IR4.0 and outline the main topics that institutions should examine as they update and modify their curricula to reflect the approaching revolution. A curricular matrix has been provided as Figure 2 due to the preceding substance analysis of the confirmability of terminologies.

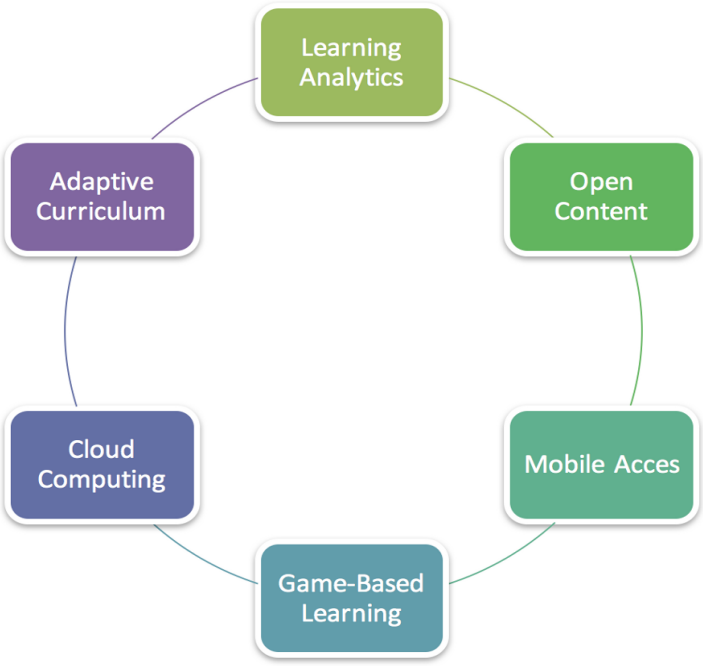

Figure 2. Matrix Curriculum for Industry Revolutions

Conclusion

The suggested Curriculum Matric is essentially a blueprint that institutions may use to implement and adapt New And emerging technologies into their curricula. The five compound determinants of Industry Revolution 4.0 found through the qualitative research are depicted in the curricular matrix below. It's also worth mentioning that the suggested curricular matrices aren't a curriculum in itself. On the other hand, the suggested curricular matrices may be used to identify essential abilities and a blueprint for curricular creation. University professors can continue to work and study on the major areas depicted in the suggested matrices to fill the gap between present and desired scholastic procedures. Since the discipline is still in its initial stages, little effort has been made to bridge the gap between academia and IR4.0. The absence of previous research was one of the major limitations. Some other valid problem appears to be the absence of in-depth analysis. It was impossible to conduct an in-depth investigation of every component of IR4.0 since the investigation was centered on a broader range of IR4.0. It's also worth noting that the matrix's focused zones aren't the only features of IR4.0.

Additional study and technological advancements may lead to an increase in these highlighted fields. Based on the results of this study, an expanded domain-specific specific model for institutions may be developed to connect present academicians with activities better. It also should be stated, derived from the literature analysis, that all of the domains highlighted via this study are somewhat connected to making connections and digitalization, either through Internet Technology infrastructures or through connecting with this IT infrastructure. As a result, institutions must be more committed to providing subsequent generations with the capabilities necessary to acquire, analyze, and visualize information using this emerging Internet technology infrastructure. To sum up, the suggested curricular matrices are not a program in and of itself. Its goal, meanwhile, is to serve as a jumping-off place for academics to connect with the approaching upheaval. We feel that developing and implementing a new curriculum all at once is a difficult endeavor. As a result, gradual progress is recommended. University professors can gain a broad understanding by reading this research article, and the recommended curricular matrices can be used as a starting place for curriculum in keeping with Industrialization.

References

1. Ahuett-Garza, H., & Kurfess, T. (2018). A brief discussion on the trends of habilitating technologies for Industry 4.0 and Smart manufacturing. Manufacturing Letters, 15, 60-63. https://doi.org/10.1016/j.mfglet.2018.02.011

2. Alaloul, W. S., Liew, M. S., Zawawi, N. A. W. A., & Kennedy, I. B. (2020). Industrial Revolution 4.0 in the construction industry: Challenges and opportunities for stakeholders. Ain shams engineering journal, 11(1), 225-230. https://doi.org/10.1016/j.asej.2019.08.010

3. Arici, F., Yildirim, P., Caliklar, Ş., & Yilmaz, R. M. (2019). Research trends in the use of augmented Reality in science education: Content and bibliometric mapping analysis. Computers & Education, 142, 103647. https://doi.org/10.1016/j.compedu.2019.103647

4. Bouwmeester, R. A., de Kleijn, R. A., van den Berg, I. E., ten Cate, O. T. J., van Rijen, H. V., & Westerveld, H. E. (2019). Flipping the medical classroom: Effect on workload, interactivity, motivation and retention of knowledge. Computers & Education, 139, 118-128. https://doi.org/10.1016/j.compedu.2019.05.002

5. Chahal, R. K., Kumar, N., & Batra, S. (2020). Trust management in social Internet of Things: A taxonomy, open issues, and challenges. Computer Communications, 150, 13-46. https://doi.org/10.1016/j.comcom.2019.10.034

6. de Souza Cardoso, L. F., Mariano, F. C. M. Q., & Zorzal, E. R. (2020). A survey of industrial augmented Reality. Computers & Industrial Engineering, 139, 106159. https://doi.org/10.1016/j.cie.2019.106159

7. Gaur, A., & Kumar, M. (2018). A systematic approach to conducting review studies: An assessment of content analysis in 25 years of IB research. Journal of World Business, 53(2), 280-289. https://doi.org/10.1016/j.jwb.2017.11.003

8. Gibert, K., Horsburgh, J. S., Athanasiadis, I. N., & Holmes, G. (2018). Environmental data science. Environmental Modelling & Software, 106, 4-12. https://doi.org/10.1016/j.envsoft.2018.04.005

9. Huang, T. K., Yang, C. H., Hsieh, Y. H., Wang, J. C., & Hung, C. C. (2018). Augmented Reality (AR) and virtual Reality (VR) applied in dentistry. The Kaohsiung journal of medical sciences, 34(4), 243-248. https://doi.org/10.1016/j.kjms.2018.01.009

10. Ibáñez, M. B., & Delgado-Kloos, C. (2018). Augmented Reality for STEM learning: A systematic review. Computers & Education, 123, 109-123. https://doi.org/10.1016/j.compedu.2018.05.002

11. Lakshmanaprabu, S. K., Shankar, K., Rani, S. S., Abdulhay, E., Arunkumar, N., Ramirez, G., & Uthayakumar, J. (2019). An effect of big data technology with ant colony optimization based routing in vehicular ad hoc networks: Towards smart cities. Journal of cleaner production, 217, 584-593. https://doi.org/10.1016/j.jclepro.2019.01.115

12. Li, S., Da Xu, L., & Zhao, S. (2018). 5G Internet of Things: A survey. Journal of Industrial Information Integration, 10, 1-9. https://doi.org/10.1016/j.jii.2018.01.005

13. Lins, T., & Oliveira, R. A. R. (2020). Cyber-physical production systems retrofitting in context of industry 4.0. Computers & industrial engineering, 139, 106193. https://doi.org/10.1016/j.cie.2019.106193

14. Montori, F., Bedogni, L., Di Felice, M., & Bononi, L. (2018). Machine-to-machine wireless communication technologies for the Internet of Things: Taxonomy, comparison and open issues. Pervasive and Mobile Computing, 50, 56-81. https://doi.org/10.1016/j.pmcj.2018.08.002

15. Mota, J. M., Ruiz-Rube, I., Dodero, J. M., & Arnedillo-Sánchez, I. (2018). Augmented reality mobile app development for all. Computers & Electrical Engineering, 65, 250-260. https://doi.org/10.1016/j.compeleceng.2017.08.025

16. Pan, X., Yan, E., Cui, M., & Hua, W. (2018). Examining the usage, citation, and diffusion patterns of bibliometric mapping software: A comparative study of three tools. Journal of informetrics, 12(2), 481-493. https://doi.org/10.1016/j.joi.2018.03.005

17. Saidali, J., Rahich, H., Tabaa, Y., & Medouri, A. (2019). The combination between big data and marketing strategies to gain valuable business insights for better production success. Procedia Manufacturing, 32, 1017-1023. https://doi.org/10.1016/j.promfg.2019.02.316

18. Senyo, P. K., Addae, E., & Boateng, R. (2018). Cloud computing research: A review of research themes, frameworks, methods and future research directions. International Journal of Information Management, 38(1), 128-139. https://doi.org/10.1016/j.ijinfomgt.2017.07.007

19. Shamim, S., Zeng, J., Shariq, S. M., & Khan, Z. (2019). Role of big data management in enhancing big data decision-making capability and quality among Chinese firms: A dynamic capabilities view. Information & Management, 56(6), 103135. https://doi.org/10.1016/j.im.2018.12.003

20. Sousa, M. J., & Rocha, Á. (2019). Leadership styles and skills developed through game-based learning. Journal of Business Research, 94, 360-366. https://doi.org/10.1016/j.jbusres.2018.01.057