European Journal of Humanities and Educational Advancements (EJHEA)
Available Online at: https://www.scholarzest.com
Vol. 2 No. 12, December 2021
ISSN: 2660-5589

THE TREND ON 21ST-CENTURY 'OUTCOME-BASED EDUCATION' IN 1982-2021: BIBLIOMETRICS REVIEW

Elihami
Muhammadiyah University of Enrekang
elihamid72@gmail.com

Article history:
Received: October 7th 2021
Accepted: November 7th 2021
Published: December 18th 2021

Abstract:
This study looks at the 'Outcome-Based Education' trend in the twenty-first century from 1982 to 2021. The study aimed to determine the trend in 21st-century 'Outcome-Based Education' from 1982 to 2021. The received bibliographic citation data is analyzed using the VOSviewer tool. The most productive authors, journals, keywords, and citation references are all investigated. We computed the rate of relative growth and the time it takes to double between 1982 and 2021. The study's findings revealed how to behave so that the trend of 'Outcome-Based Education' in the twenty-first century can acclimate education 4.0 with compressed steps to attain society 5.0. Using bibliometric analysis, the research novelty revealed that there was new literature about Just the trend on 21st-Century 'Outcome-Based Education' but that there was variation.

Keywords: Education 4.0; outcome-based education

INTRODUCTION

The ideas underpin outcomes-based education (OBE) and try to clarify some of the ambiguity and misunderstanding. Clarity of focus, designing back, high expectations, and expanded opportunities are four essential principles of OBE, which are underpinned by the understanding that all students can learn and succeed, but not all at the same time or in the same way; effective learning promotes even more successful learning, and schools (as well as teachers) control the conditions that determine whether or not students succeed in school learning. The transformational method has been chosen while traditional, transitional, and transformational aims can all have outcomes. Greater accountability for educational achievements to equip pupils to be effective future citizens (Norman, 2006). A report (Rao 2020) proposes that learning outcomes are the things we can perform as a result of learning. In the 1990s, William Spady proposed outcome-based education (OBE) to refocus formal education on students' learning rather than what they are taught. OBE is a method of education that prioritizes goals, objectives, successes, and outcomes. The exit learning outcomes that students should demonstrate at the end of a program or course influence all curriculum, assessment, and instruction decisions. This work aims to propose a way for developing program outcomes for general higher education programs. Program outcomes (POs), program-specific outcomes (PSOs), and course outcomes are the three levels of results for a higher education program (COs). The most fundamental feature of a result is that it must be observable and quantifiable. These are best developed within a well-defined learning taxonomy framework. Bloom's learning taxonomy divides learning into three categories: cognitive, emotional, and psychomotor. The Bloom taxonomy of cognitive domain contains two dimensions: cognitive levels and knowledge categories, according to the revised Bloom taxonomy. CO statements should follow a well-defined structure, including action, knowledge elements, conditions, and criteria. COs can be related to POs, PSOs, cognitive levels, and the number of classroom hours to make COs, POs, and PSOs easier.

Evaluation is a crucial step in determining how much a student has changed due to a teaching-learning process (Tshai et al., 2014). In recent years, outcome-based education (OBE) has become a widely acknowledged ideology in academia, particularly in engineering (Baihaqi, 2018). The OBE approach differs from the usual evaluation of pupils based solely on grades and ranks (Lin, 2019). The traditional measurement criterion in the field of education has been output, which does not address the level of transformation in the learner. In contrast, the outcome is the measurement of the level of achievement that demonstrates transformation. The measurement of outcomes necessitates the use of assessment tools. These tools could be either direct or indirect instruments for direct or indirect assessment. A formative or summative evaluation is one type of assessment. Only when all three important qualities of attitude, skill, and knowledge have changed is learning complete. All of these factors can be quantified in OBE, according to popular belief. Evaluation Drives Education: Assessment Practices in Outcome-Based Education (C et al., 2020). As in a recent study (Parra, 2019), significant learning occurs when all six types of learning are encouraged. These activities are designed to activate students' prior knowledge, increase motivation, develop basic skills, apply and integrate what they learn in

real-world situations, develop an appreciation for and enhance their ability to work independently and with others, and continue learning about the subject matter beyond the course.

METHOD

The researcher conducted the current study to learn about lecturers' attitudes toward utilizing outcome-based education models in their classrooms(Merriam, 1998a), based on the research problem of employing traditional teaching and learning methods in the Indonesian environment for a long period (Merriam, 1998b). As a result, the researcher undertook a mixed-method study to delve deeper into the subject. First, the researcher gathered quantitative data by sending a Google Form to 100 lecturers from various Indonesian public universities. The researcher then interviewed ten teachers and OBE experts to obtain clear answers about this method in Indonesian tertiary education. Following data collection, the researcher reviewed quantitative and qualitative data to completely investigate the chosen research topic and discover an appropriate solution to the research problem.

RESULTS AND DISCUSSION

Result

The research outcomes remain presented by writing the processed data of the publication trend in 1982-2021.

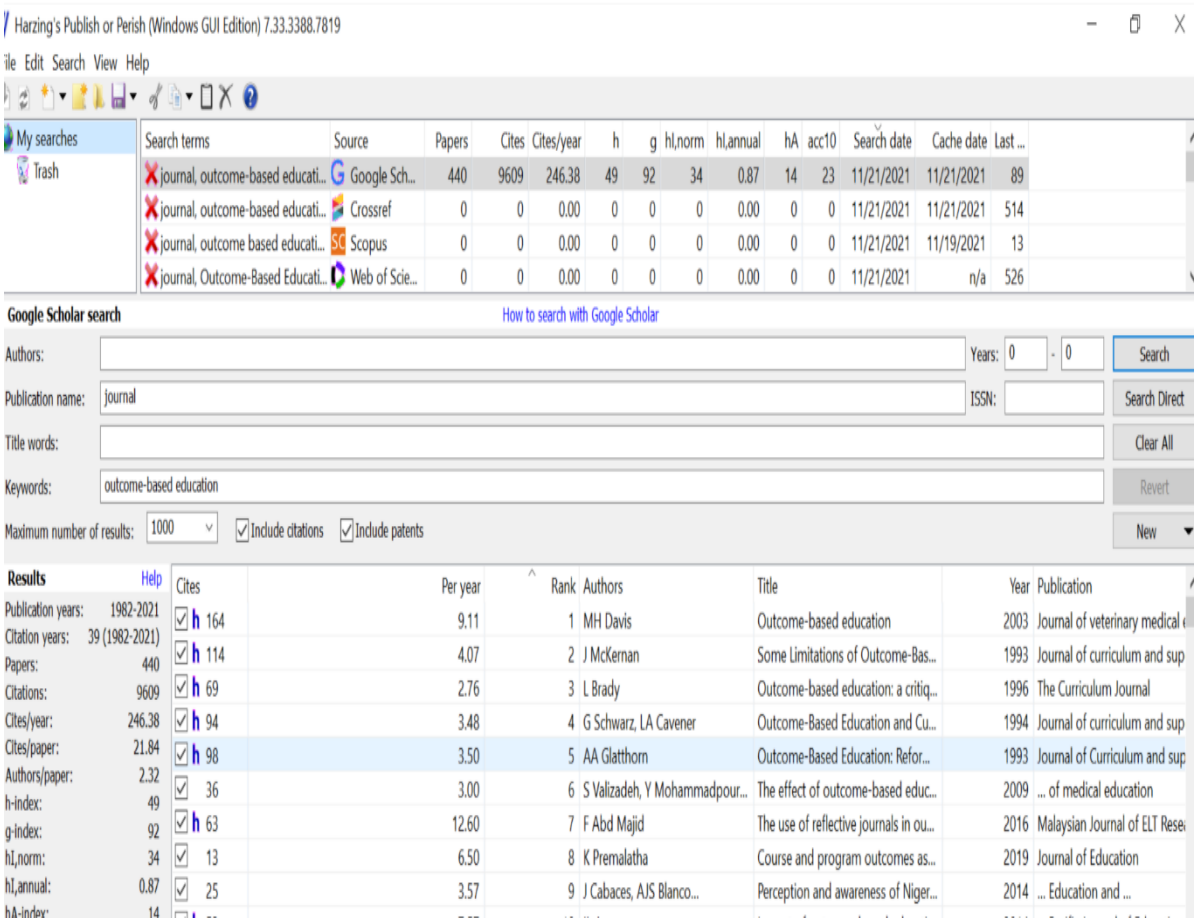


Figure 1 offers the total number of bibliographies from each year subsequent from explorations concluded the PoP application.

The preliminary search results using the PoP claim resulted from the term "Outcome-Based Education", appendices sorted into parts designated appendices into publication name as journal and Google Scholar database. There is one keyword ("Outcome-Based Education are 440 papers).

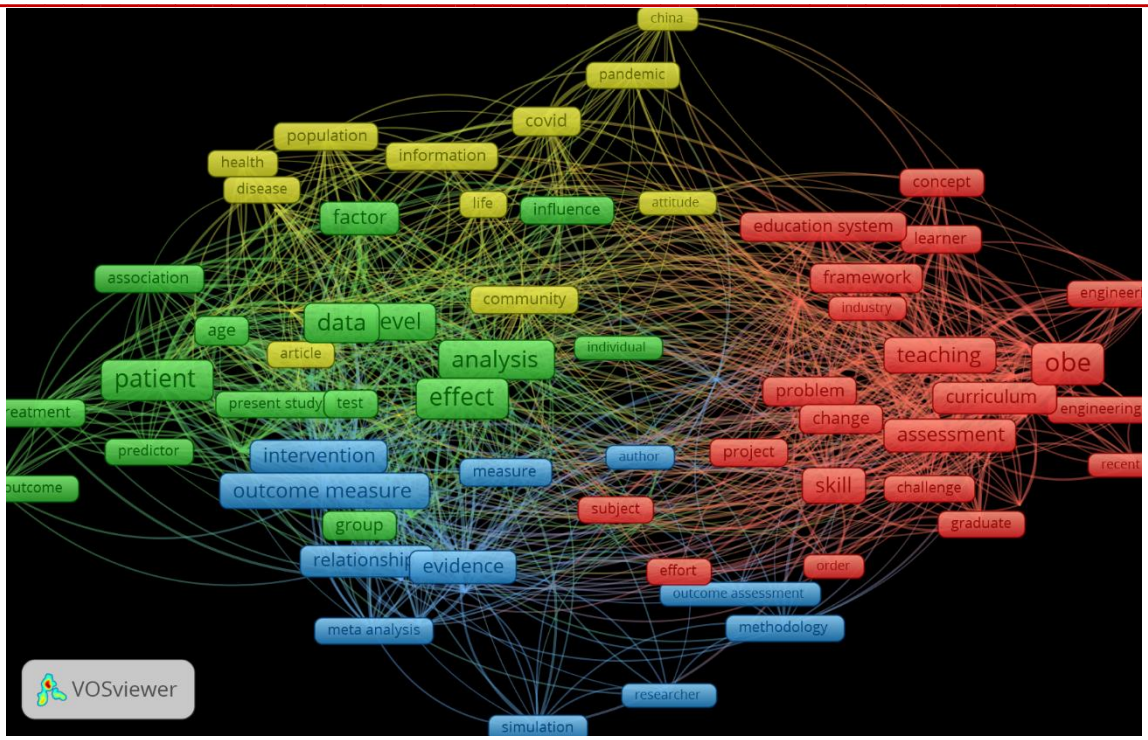


Figure 2. Network Visualization about the trend of publication "OBE" in 1982-2021 (Outcome-Based Education)

The initial exploration results utilizing the PoP application resulted in 420 bibliographies. Figure 2 presents the 84 items of 4 clusters, 3171 total link strength, and 1549 links resulting from searches through the PoP application. The first cluster (red) are assessment, case study, challenge, change, competency, concept, curriculum, education system, effort, engineering, engineering education, framework, graduate, industry, instruction, OBE, technology, teaching, skill and learners. The second cluster (green) are addition, effect, functional outcome, influence, level, patient, treatment, prediction and present study. The three clusters (blue) are child, evidence, intervention, measure, medical education, meta-analysis, methodology, outcome measure, participant, relationship, researcher, systematic review and type. The four clusters (yellow) are attitude, community, disease, health, life, outcome education, pandemic, person, population, relation, and risk.

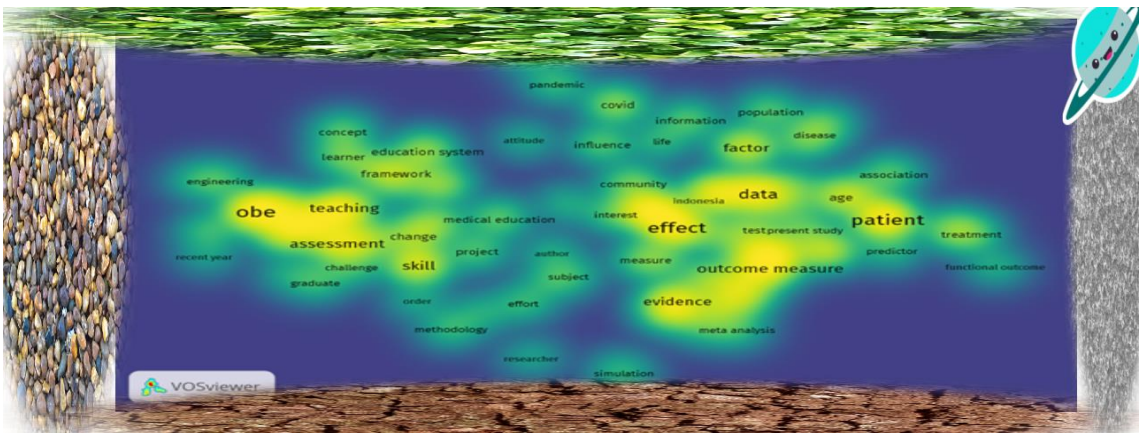
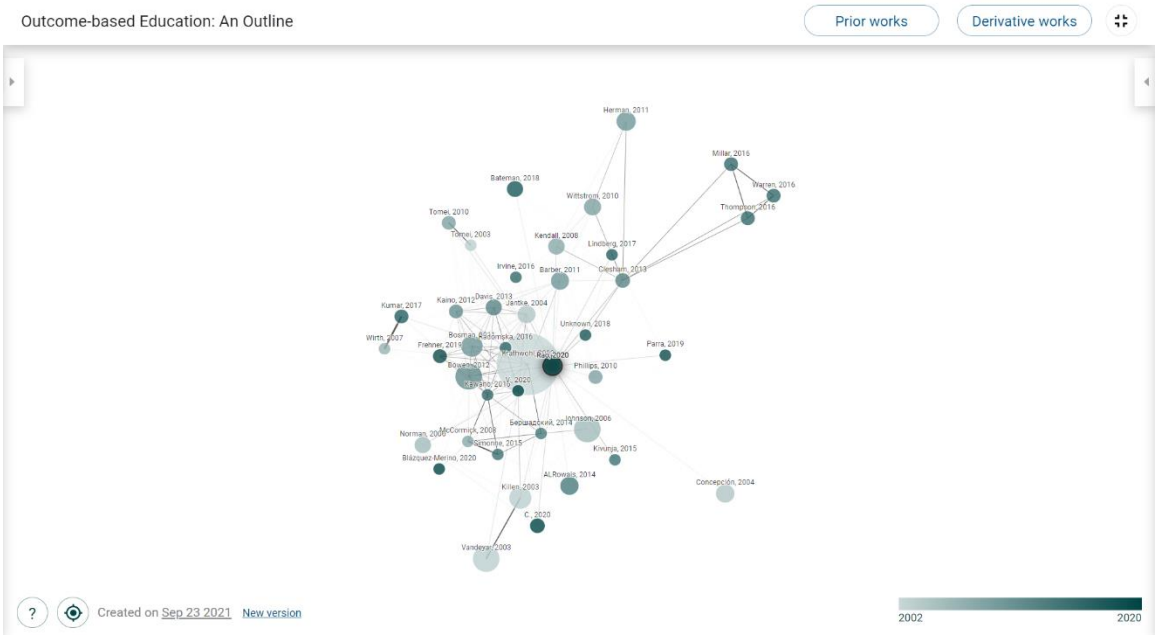


Figure 3 Density Visualization about Outcome-Based Education

The opening search grades using the VOSviewer 1.6.17 application. Figure 3 presents the 84 items of 4 clusters, 3171 total link strength, and 1549 links resulting from searches through the VOSviewer 1.6.17 application. The first cluster is 30 items. The second cluster is 23 items. The three clusters are 16 items. The four clusters are 16 items.



e.

Figure 4. Connected papers about Outcome-Based Education

The actual search results by the Connected papers resulted in 2002-2020 authors created on September 23, 2021. 3.974.308 appendices were selected link https://www.connectedpapers.com/search?q=Outcome-based%20Education. The recognized criteria. Figure 4 presents 43 items of 7 clusters resulting from searches through the PoP application. The first cluster namely case, creativity, equation, hand, lesson, number and term.

Title	Last author	Year	Citations	Graph citations
Taxonomy of Educational Objectives: The Classification of Educational Goals.	B., Bloom	1957	11400	25
A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives	B., Bloom	2000	10480	23
Evaluating the Quality of Learning: The SOLO Taxonomy	J., Biggs	1977	1872	13
Outcome-based education: critical issues and answers	W., Spady	1995	552	13
Book Review: Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain	D., Bolton	1957	1512	8
The New Taxonomy of Educational Objectives.	J., Kendall	2006	381	8
Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses	L., Fink	2003	1464	6

Title	Last author	Year	Citations	Graph citations
OUTCOMES-BASED EDUCATION: PRINCIPLES AND POSSIBILITIES	R., Killen	2000	160	5
Taxonomy of educational objectives	B., Bloom	1956	6332	4
Teaching for quality learning at university	G., Boulton-Lewis	2008	5395	3

Figure 6. Prior Work about Outcome-Based Education

These are the papers that were most frequently cited by the graph's papers. It signifies they are essential seminal works in this discipline, and familiarizing yourself with them is a smart idea. Picking a prior work will bring up all graph papers that reference it, and selecting a graph paper will bring up all prior work that has been referenced.

DISCUSSION

Outcome-Based Education (OBE)

Outcome-Based Education (OBE) is an educational system that all engineering programmers must follow. The current higher learning education development, an accredited regulatory framework, is the main force behind this transformation. Before moving further with this new practice, any higher learning (IHL) provider institution should first recognize the concept and delivery of OBE for accrediting purposes. OBE, as well as the OBE approach used in the case study degree program. It also discusses problems and the way forward, and the lessons for teacher-educators that may be learned from the successful adoption and implementation of the OBE strategy in this degree program(Spady, 1995). Education is a critical enabler for a society's economic advancement. Academic institutions must provide high-quality education to provide students with the skills to succeed in their professional professions. Quality assurance systems for outcome-based education necessitate meticulous preparation and active engagement among stakeholders. However, many academic institutions rely on ad hoc techniques, resulting in a trial and error approach due to a lack of information about quality processes in outcome-based education. Outcomes-based education (OBE) is a divisive educational restructuring approach that defines learning as what students can show they know. "Enable all students to learn necessary skills, acquire the knowledge, and develop the attitudes necessary for them to attain their full potential as citizens who can confront the challenges of a changing global community," our mission states. (Fitzpatrick, 1991).

There is a model of outcome-based education, (Glatthorn, 1993) stated that

1. Relevance—Outcome-based education fosters practice fitness and capability development.
2. Controversy—The process of identifying the outcomes within an institution encourages basic questions to be discussed.
3. Acceptability—Most health professions teachers, find the three-circle model of outcome-based education acceptable and intuitive appeal.
4. Clarity—An explicit declaration of the educational process's goals explains the program for teachers and students and focuses on learning and teaching.
5. The provision of a Structure education establishes a solid foundation for curriculum design.
6. Outcome-based education stresses responsibility by offering an explicit explanation of what the curriculum is aiming to achieve. The objectives provide specifics against which the curriculum's graduates can be measured, making the performance process easier.
7. Self-Directed Learning—Students can take more responsibility for their learning if they are clear about what they want to accomplish. As a result, outcome-based education encourages a student-centred approach to learning and instruction.
8. Flexibility—Outcome-based education does not mandate specific educational methodologies or methods of instruction. What matters is that the pupils attain the desired results, not how they arrive there. This technique allows for and encourages teaching innovation, and varied learning styles can be accommodated.
9. Exam Planning Guide—Because the outcomes are being assessed, the exam planning is explained. The outcomes serve as a foundation for student examinations.
10. Contribution to Curriculum Planning—Specification of phase learning outcomes is made possible by identifying exit learning outcomes. Course or module results are identified as a result of the phase learning outcomes. Individual lesson results are identified as a result of the course outcomes. As a result, outcome-based education is a top-down approach to curriculum creation that promotes student learning coherence and cohesiveness.
11. Makes Curriculum Evaluation Easier—The outcomes serve as benchmarks against which the curriculum can be evaluated.

12. Education Continuum—The outcomes show how individuals can proceed through basic, undergraduate, postgraduate, and continuing education.

Outcome-Based Education (OBE) is a system of education that has been mandated for all educators. The present higher learning education development, and accreditation regulations, is the main factor behind this transformation. Before moving further with this new practice, any institution of sequence (IHL) provider should first recognize the concept and delivery of OBE for accrediting purposes. This study focuses on the driving factor of OBE practices and a paradigm for their implementation (Alias & Bhkari, 2007). And then, the application of outcome-based learning (OBE) is one of the conditions for engineering quality assurance (Basir et al., 2019). Therefore, the evolution of Vocational Schools' learning and teaching techniques to Outcome-based Education (OBE) has helped Vocational Academic educators execute curricula (Damit et al., 2021).

At teaching and learning, outcome-based education (OBE) is now being adopted at all levels of education, particularly in higher education institutions. The design of the curriculum and courses for implementing OBE should be based on specific outcomes. As a result, the evaluation must be capable of determining whether or not the desired results have been accomplished (Hassan et al., 2016). The neurophysiological mechanisms of social behaviour perception are the subject of this report. The notion of the brain's mirror system is explained and its links to social adaption rhythm. We designed and evaluated a novel three-block strategy for presenting stimulus material for electroencephalographic studies of the brain's mirror system in simple, purposeful, and emotionally coloured motor.

Acts (Lebedeva et al., 2019).

Student achievement is important in educational institutions since it is frequently used to measure the institution's performance. Early discovery of at-risk kids and preventative interventions can greatly boost their chances of success. Machine learning techniques have been widely used for prediction in recent years. While there are numerous success stories in the literature, these techniques are primarily available to educators who are "computer science" or "artificial intelligence" literate. Indeed, the effective and efficient application of data mining methods necessitates several decisions, ranging from defining student success to which student attributes to emphasizing which machine learning method is best suited to the problem at hand. This research aims to provide educators with step-by-step instructions for using data mining to predict student success. The literature has been reviewed, and the condition has been gathered into a systematic process, with all possible decisions and parameters covered and explained in detail, along with arguments. This research will make data mining techniques more accessible to educators, allowing them to fully exploit their potential in the field of education (Alyahyan & Düştegör, 2020). For example, Introduction to the Authors 1. The Need for a Bloom's Taxonomy Revision 2. Knowledge Domains 3. The Three Thinking Systems 4. The Three Knowledge Domains and the New Taxonomy 5. A Framework for Objectives, Assessments, and State Standards Based on the New Taxonomy 6. The New Taxonomy as a Curriculum and Thinking Skills Framework Index of References Epilogue (Marzano & Kendall, 2006). And then, Handbook, Classification of Educational Objectives, and Division of Education Goals (Michael et al., 1957).

CONCLUSION

Quality education is expected in the Industry 4.0 era towards society 5.0. Indonesia is expected to reach its peak of glory in the 2045 target of becoming Indonesia Gold. The Indonesian people and government's main agenda is the Indonesian nation's ideals that require full support from the next generation of teenagers today. Therefore, a mature concept is needed in education 4.0 towards society 5.0. For that, it is necessary to prepare so that the demographic bonus provides benefits. If the productive age is not prepared, it will add to the burden on the state, for example, the fact that currently, many young people of productive age are still unemployed, even among undergraduates. Young people are expected to have productive activities towards society 5.0. One of the steps needed is to link non-formal education and Islamic education to spur the quality of life with Islamic character and knowledge in activities outside of school.

REFERENCES

1. Alias, A., & Bhkari, N. M. (2007). *A Model of Outcome-Based Education (OBE) for Engineering Education*. https://www.semanticscholar.org/paper/ecb5375fe7f2e39af3104f5080812cb25cc8f8ed
2. Alyahyan, E., & Düştegör, D. (2020). Predicting academic success in higher education: Literature review and best practices. *International Journal of Educational Technology in Higher Education*, *17*, 1–21. https://doi.org/10.1186/s41239-020-0177-7
3. Baihaqi, M. (2018). *Building Character Education in Basic School by Positive Virtues Universal*. https://www.semanticscholar.org/paper/7b29bcd569ca59e81bff4137375d83e593db644f
4. Basir, N., Lian, O. C., Salmizi, J. M., & Shaharin, H. (2019). Assessment of outcome-based integrated design project. *Journal of Technology and Science Education*. https://doi.org/10.3926/JOTSE.541
5. C, L., Murthy, J. N., & Kosaraju, S. (2020). *Assessment Practices in Outcome-Based Education*. https://doi.org/10.4018/978-1-7998-2245-5.ch004
6. Damit, M. A. A., Omar, M. K., & Puad, M. (2021). Issues and Challenges of Outcome-based Education (OBE) Implementation among Malaysian Vocational College Teachers. *The International Journal of Academic Research in Business and Social Sciences*, *11*, 197–211. https://doi.org/10.6007/IJARBSS/V11-I3/8624

7. Fitzpatrick, K. (1991). Restructuring to Achieve Outcomes of Significance for All Students. *Educational Leadership*, *48*, 18–22. https://www.semanticscholar.org/paper/ad1936ddfbe46ef8b2127acef52abf0368f5ebc4
8. Glatthorn, A. A. (1993). Outcome-Based Education: Reform and the Curriculum Process. *Journal of Curriculum and Supervision*, *8*. https://www.semanticscholar.org/paper/aa4f4eb69bb197fedb19800a17ce4380dc46a1e3
9. Hassan, S., Admodisastro, N., Kamaruddin, A., Baharom, S., & Pa, N. C. (2016). Developing a learning outcome-based question examination paper tool for Universiti Putra Malaysia. *International Education Studies*, *9*, 132–140. https://doi.org/10.5539/IES.V9N2P132
10. Lebedeva, N., Karimova, E., Karpichev, V. V., & Maltsev, V. (2019). The Mirror System of the Brain on Observation, Performance, and Imagination of Motor Tasks – Neurophysiological Reflection of the Perception of Another Person's Consciousness. *Neuroscience and Behavioral Physiology*, *49*, 714–722. https://doi.org/10.1007/s11055-019-00791-3
11. Lin, M.-L. (2019). Challenges and Opportunities for Technical and Vocational Education and Training in the local communities: Education and Labour Market for Young People. *International Journal of Social Science Studies*, *7*, 1–15. https://doi.org/10.11114/IJSSS.V7I3.4136
12. Marzano, R., & Kendall, J. (2006). *The New Taxonomy of Educational Objectives.* https://doi.org/10.14507/ER.V0.959
13. Merriam, S. (1998a). *Qualitative research and case study applications in education*. https://semanticscholar.org/paper/9170bba8e5b6df351843e4381899959e4d9e19a5
14. Merriam, S. (1998b). *Qualitative Research and Case Study Applications in Education: Revised and Expanded from Case Study Research in Education*. https://semanticscholar.org/paper/964218c326729506dca1c56f20bf2f90c1e6fc7e
15. Michael, W., Stanley, J., & Bolton, D. (1957). Book Review: Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain. *Educational and Psychological Measurement*, *17*, 631–634. https://doi.org/10.1177/001316445701700420
16. Norman, P. (2006). *Outcomes-Based Education: A PNG Perspective*. https://www.semanticscholar.org/paper/0a9731571019396c97c46fd42a1112636864cb20
17. Parra, R. (2019). *Promoting Significant Learning: A Case Study in Computational Chemistry*. https://www.semanticscholar.org/paper/d3f0bfe428df8d7d06c61147b928e703233da8f4
18. Rao, N. J. (2020). Outcome-based Education: An Outline. *Higher Education for the Future*, *7*, 21–25. https://doi.org/10.1177/2347631119886418
19. Spady, W. (1995). *Outcome-based education: Critical issues and answers*. https://www.semanticscholar.org/paper/01f1d6340e508a417868bb0969508cdc5a32138a
20. Thai, K., Ho, J.-H., Yap, E., & Ng, H. K. (2014). Outcome-based Education – The Assessment of Programme Educational Objectives for an Engineering Undergraduate Degree. *Engineering Education*, *9*, 74–85. https://doi.org/10.11120/ened.2014.00020