An Open Access Journal

Analyzing the Efficiency of Blended Learning in Higher Education

V. Naveen Kumar¹, Assistant Professor G. Anburaj²

Master of Technology Structural Engineering, School of Civil Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India¹ Assistant Professor of English, School of Social Sciences and Languages Vellore Institute of Technology, Vellore, Tamil Nadu, India²

Abstract- This research explores the learner's preference, challenges and behavior towards the blended learning environment. This study aims at understanding how the various instructional methods and technologies impact the learning experience of the learners. Through this report it is found that the learners are more overwhelmed with the physical interaction than the online platforms. The flexibility of accessing the course materials especially the interactive course module is also highlighted and then the challenges faced such as mainly technological difficulties, navigation issues in blended learning is also discussed and also the project formats and assessments method to improve the knowledge of the learners is also discussed in this research paper. The results suggest that there is a need for the blended learning models that balance the physical and technical platform together. These findings help improve the blended learning with help of further research in fields of enhancing the online engagement with the help of virtual reality.

Keywords- Blended Learning, Learners, Instructor, Engagement, Challenges

I. INTRODUCTION

Learning is the process of acquiring knowledge with the help of someone who is called as teacher. The learning process was very tough during the olden days, the were gurukals who teach their learners. The learning process was too difficult that the student has to learn by memorizing the topic on spot as there were no notebooks to take notes. Then the teaching method evolved to using boards to teach learners and notebooks for taking notes and in this learning method learners have to go to the schools or colleges or universities to learn and this learning was called as physical learning. Then the technology came in to act and the method of learning was also evolved. Many new techniques of learning were introduced like 'Project based learning', 'Experiential Learning', etc.., When these methods evolved and came into act, COVID-19

attacked and affected the learning process of learners and then for those 2 years online learning was followed throughout the world and the physical learning was completely dropped out. After post COVID, again physical learning came into act but of a different way which is called as 'Blended Learning'. Blended Learning or Hybrid Learning is a type of learning where the online based education materials and physical presence of both student and teachers are required. Till then blended learning was adopted and is widely used throughout the world. Even though the learners are well engaged with technology, when it comes to learning with help of technology it will definitely have some flaws in it. So, the main goal of this report is to analyze the effectiveness of blended learning towards the student. This will help the future learners and teachers to efficiently use this method of learning.

© 2024 V. Naveen Kumar, This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

II. RESEARCH GAP

While there are numerous studies that have explored the general efficiency of blended learning in higher education, there is significant gap in understanding how some of the specific contextual factors like learners' engagement, technological difficulties, learners' performance. Additionally, there is only limited research on how faculty training and support influence the successful implementation of blended learning towards learners. Understanding these sorts of statements made already could provide some valuable insights in enhancing the overall effectiveness of blended learning in higher education.

III Result Analysis

1. Feedback Mechanisms in Blended Learning

In this blended learning process, the learners can learn many things with the help of technology. After learning the learners are being tested on their knowledge with help of assignments and assessment and guizzes in class. When it comes to getting feedback of their performances in the as assessment or guiz or assignments, they can either get it as live question and answer session during class or as written feedbacks in portals or with the help of automated online support (i.e., with help of Artificial Intelligence), or Group feedback during the class hours. Most of the learners prefer live question and answer session as their feedback method highlighting the importance of direct engagement with the instructors and it indicates that the learners are very keen to clarify concepts in real-time, as it gives them an immediate feedback and better understanding on their materials. The main reason why this method is most preferred is that the learners can easily address their misunderstandings on the spot which helps in enhancing their skills relating to the subjects. And most importantly, the interactive nature of this session encourages the learners to have a active participation in the classroom and keeps them more engaging helping them to get a deep understanding of the subject. When it comes to written feedbacks, it cannot be understood by many learners and it's not engaging or immediate.

In this method, the feedbacks are often given in online mode via portals. This method finds difficult to some learners who struggle to comprehend and understand it. This makes the student lack in motivation leading to score less marks or fail. In group feedback session, even though it's interactive, only some learners get their doubts clarified and some learners does not get their doubts clarified due to some hesitations. In this method, the instructor advises the learners on their common mistakes and their general improvements which may sometime lack individual concern and even if some asks doubts and gets clarified, most of the learners hesitate to ask their doubts due to fear or shyness. This method is only suitable for broad issues and it may not be used for resolving specific issues or providing personalized guidance. And with the automated online support, it is now becoming one of the most popular methods in blended learning environment. These tools can be used to provide immediate response to learners regarding their queries, assignment grading, guiz grading and feedback to it. But the issue is that it cannot be perfect all the time as it can have some errors like failing to recognize student responses and failing due to server crashes or due to network issues. The main issue is that the learners do not have any human interaction that is they cannot have a better engagement with the instructors which leads to poor performance of the learners. Better engagement with instructors gives the better results to the learners.

2. Preferred Methods for Clarifying Doubts

When it comes to clarifying doubts about the syllabus, most preferred method is face-to-face office hours in which the learners can have a oneto-one interaction with the instructors and get their doubts clarified. This method is most preferrable to get doubts clarified with clear understanding with of complex topics. In this nature of doubt clarification, learners ask their questions and get detailed answers leading to their better understanding of the subject. This allows the learners to have more interactive and dynamic exchange of ideas between instructor and the learner leading to have more questions about the topic and have a better understanding about the

topic and also leading to have a better engagement between the learner and instructor. This method will also be more helpful when it comes to more difficult subjects like mathematical problems and scientific problems which can be easily sorted out by teaching them with help of visual aids (such as diagrams and written notes) which will have a better understanding to the learners. Email communication is also most commonly used method for communication with the instructors for meeting them for one-to-one communication and sometimes when they are not available, they can solve it with help of email. It also offers some flexibility that the student can ask their doubts at any time via mail and can wait for the instructor reply. It can be more helpful when it comes to straight forward queries like doubts on assignment, deadlines, etc., When it comes to complex doubts, instructors cannot clearly write the answers of the query which may lead to incomplete explanations and misunderstandings. Another big trouble is that the learners can ask doubts at any time but they have to wait for the reply which may sometimes take longer time due to unavailability of the instructor or may be due to technical issues like network or server issues. Live online sessions are conducted through video conferencing platforms like zoom, google meet, Microsoft teams, etc., which are common in this blended learning process. In this method learners are allowed to ask their doubts through online mode but they have an interactive session with their instructors as of the face-to-face office hours methods but through online mode where they can find some difficulties like lack in communication between the instructor and the learners due to poor internet connection and video or audio lag which may lead to severe misunderstandings and incomplete explanations of the subject. online discussion boards are least effective even though they are one of the most effective ways of blended learning. In this method, learners have to join the online boards which are always monitored by the instructors. In this, there is a vast diversity of doubts and ideas which are shared by the learners which can either be solved by other learners or the instructor. This will make learners develop a collaborative learning method solving many difficult challenging topics together

improving their teamwork skills. Even though it is more interactive learners have to wait for their responses which may sometimes take longer time which may lead to pause their studies and wait for the responses and the most important thing id the technological issues faced by the learners like network issues. Although this method provides a collaborative environment, it lacks immediacy and real time one to one interaction with the instructor.

3. Scheduling and Study Preferences of Learners

When it comes to scheduling their studies, the learners have to find a way to adjust their schedule between studies and work. So, most of the learners prefer to make fixed schedules for in-person sessions as this method the dedicated time for the learning and discussion with instructors regarding their doubts. The learners do have a clear mindset like what to do and when to do the works. The learners are able to easily clarify their doubts and can always have a good engagement with their instructors and peers and it is also a very consistent way to make their scheduling as it is already predetermined and fixed. On-demand access to the course materials is also a highly valued method in which the learners can have their flexibility to study at their own pace and can have a well balance between their other responsibilities and studies. On demand learning do also provides a very diverse methods of learning which helps the students engage to their own learning methods. Some students prefer to revisit the recorded lectures for their better understanding while some of the learners choose to study throughout the day or week to enhance their knowledge which clearly explains us that this method provides learners a flexible learning process which makes them create their own study routine that suits their own needs. This method also helps in improving the selflearning ability of the students but it sometimes makes it difficult for them clarify doubts even though they do have learning materials and video lectures.In case of preset deadlines for assignments and scheduled online classes are the only things to keep the learners on track and also, they ensure that the students meet their academic destinations at a timely manner and maintain proper progress in their studies. The preset deadlines for the

assignment help the student to maintain their discipline in their academic carrier and when it comes to scheduled online classes the learners have to engage with the instructors by means of online mode without needing for any physical presence. The preset deadlines on assignment can sometime be not flexible or difficult to the learners who struggle to balance multiple responsibilities which may lead to last minute submission of the assignments and it might also happen in case of the scheduled online classes. This shows that blended learning method allows the learners to get into an environment where they can cater to diverse learning needs and schedules.

4. Challenges Faced by Learners in Blended Learning

After the learners schedule their studies, they have to study the syllabus with the help of course materials. When it comes to accessing the course materials, learners mostly prefer interactive module course materials where they can participate in the learning process through video lectures and after that they will have an interactive session with guizzes or simulations about the module or problem-solving exercises where the learners can easily grab the syllabus by allowing them to apply their knowledge immediately on quizzes and exercises. In video lectures, there will only be the teaching by the instructor and there will be no engagement of learners with the course materials. Similar to video lectures, some learners prefer reading materials like PDF's or articles where they can make understand the syllabus of their own without the help of the instructors. These learners are mostly self-learners who study the syllabus in depth. The discussion forum is the least preferred by the learners but it is a very interactive way of online platform where the learners can doubt and instructors can answer it in a threaded form and it will be useful for the student who have hesitations to speak in live sessions. This discussion forum method in blended learning must be enchanced in future to make it useful for all the learners. Even though the learners have the flexibility to adjust their schedules and have access to the course materials, there are many challenges faced by the learners using blended learning method. The most

significant stand out hurdle is the lack of motivation where the learners find themselves less engaged towards the face-to-face communication. The instructors should find solutions to make the learners stay motivated and stay engaged towards the course to keep them motivated. Apart from motivation, there is also some other important challenges faced by the learners which are time management and technical difficulties. The learners need to schedule their studies with help of flexibility provided by blended learning but it feels difficult for the learners who lack self-directed learning. When it comes to technical difficulties, the learners face issue with their devices and sometimes internet connections. These issues highlight that the learners must be given proper assistance in developing their technical and time management skills. The institutions mostly provide free internet connection to the learners to access the the course materials or lecture videos. The gadgets for accessing those things should be taken care by the learners or it might also be given in some of the institutions. The most common issue is the technical issue in which the learners often struggle with the usability of the learning platform which can spoil the learners time by most time in figuring out the system rather than the course material. Improving the user interface should be done to solve these sorts of struggles faced by the learners. And in addition to this, slow internet connection is also a problem while accessing or downloading the course material and other issue is that the instructors should also know how to sort out the issue so that the learners need not to be always dependent on the technical support team in their institutions.

5. Effective Approaches for Achieving Academic Goals

When it comes to the project work, the blended learning plays a significant role because it helps the learners easily apply their theoretical knowledge practically in the project work, they do. Most of the learners prefer group project and presentation which indicates that the collaborative learning is highly valued as it possesses some skills like communication, teamwork, and diverse thinking perspective. Working as group allow the learners to share their ideas and learn from each other and it becomes easy for them to apply their theoretical knowledge practically. In addition to this the presentation skills help the learners to develop their public speaking skill and organizational skills which are helpful for getting succeed in both academic and professional life. The Hands-on practical session and labs are also popular but it is fully of physical experiments and there will not be any diverse thinking. Individual research programs and case studies and real-world problem-solving are the other two things in which learners can apply their theoretical knowledge but not practically in case of case studies and the diverse thinking will be limited in case of individual research assignments.

Sometimes to achieve our goals we have to adopt any new ways to fulfill our dreams or goals. Like wise the learners prefer some kind of approach to achieve their academic goals with the help of blended learning. The most preferred approach is the independent study approach and regular interactions with the instructor. Out of these, the regular interactions with the instructors are most helpful for all the learners to achieve their academic goals as the regular interactions with instructor helps the learners by providing them with proper guidance and keeping them motivated and stay on track till, they reach their goal. These regular interactions can be done either by face-to-face communication or virtual meetings or by timely feedbacks on assignments. In the independent learning approach, the learners will have their own space to learn and they also have their own control of their learning process but they don't know whether they are in a right path or not. The group study sessions and mix of online and face-to-face tutorials is also a very good approach but most of the learners prefer interaction with the instructors. But the group study sessions should also be followed by the learners as it helps the learn the syllabus more easily with help of their peers than with help of instructors. For achieving the goals, there are certain approaches to achieve but the achievement can only be done by getting good grades in assessments. So, there are many assessment methodologies to evaluate a learner. Still the learners have some methodologies where they find it very easy and helpful in developing their

skills and get evaluated. The most preferred methodology is the practical, hands-on tasks conducted during the in-person sessions as it allows learners to demonstrate their skills to the real-world as the practical tasks make the learners apply their theoretical knowledge practically making their learning experience more useful towards their careers. Group projects and presentations are also most preferred as they prefer collaboration of learner's ideas and knowledge sharing. Written assignments and online guizzes are the least preferred as it limits learners' knowledge as some learners can copy the answers from others and easily submit their assignments and when it comes to the online quizzes, they can easily get answers from online platform and submit the quizzes. The practical, hands-on tasks should be followed in every blended learning institution to develop the learners in a better way.

IV. DISCUSSION ON RESULT

The above results clearly says that the today's generation learners are very keen towards using technology for learning. The learners are mostly preferring the physical presence and technologybased learning which makes them learn easily and self-assessing becomes easy for them. The learners are mostly having a fixed scheduling to have good flexibility between the work and academic career. The learners prefer interactive modules for better understanding. They also prefer regular interaction with their instructor to clarify their doubts and to easily achieve their goals and they also prefer live question and answer session to get regular guidance from the instructors which makes the learner get more interacted with the instructors and syllabus. The learners also face many challenges like technical difficulties and lack of motivation and time management which plays a major role in their academic career with motivation being the biggest hurdle which can only be sorted out by the instructors by finding new ways to keep the learners on track and keep them engaged. Technical difficulties are usually server issues and internet connectivity issues and user interface issue. The instructors should also know how to solve these technical issues as the learners can't always

depend on technical support team. The institutions also should provide a proper guidance to learners regarding the technical activities. When it comes to project format, Group project and presentation is preferred as it boosts the learner's knowledge by sharing their ideas and knowledge with each other. Practical, hands-on tasks during in person sessions are preferred as assessment method as the learners can apply their theoretical knowledge practically. The overall analysis suggest that this blended learning environment must be well balanced wit efficient technology and better flexibility towards the learners

Unexpected Findings

There are several unexpected findings that challenge the blended learning environment. One of the surprising findings is that the learners prefer face-to-face interaction with the instructor than live online sessions and discussion boards for clarifying their doubts. Even though the blended learning is blooming all over the world, learners still prefer traditional way of approach to clarify their doubts which suggest that the digital platforms might not give the same convenance as the traditional method gives. The second one is the Practical, hands-on tasks is preferred than the online guizzes and test and online assignments for evaluating themselves which suggests that despite of rising online learning, learners still give priority for the physical, real-world engagement for demonstrating their knowledge and skills to the instructors.

Scope for Further Research

The finding from the above understanding opens up many things for further research to be done in which the first one is the face-to-face 2. communication with the instructors rather than live online sessions and discussion boards which raises question about how online tools can be enhanced to get the similar benefits of face-to-face 3. communication. Further research can be enhanced by making the blended learning more effective by 4. means of using the Virtual Reality or augmented reality which stimulate the face-to-face interactions. Additionally, Further research can also be made for reducing the technological difficulties by making 5.

the navigation easier which could make blende learning more accessible to many learners.

V. CONCLUSION

In conclusion, with the help of the analysis, some valuable insights of learners towards the preferences, challenges and behavior of student in blended learning environment have been founded. The findings tell us the importance of interactive sessions incase of a live question and answer sessions, face-to-face office hours, practical, handson discussions in a digital driven environment. Even though learners are keen towards technology, they still prefer physical engagement and interactive sessions. The challenges faced by the learners like time management, lack of motivation, technical difficulties suggest that there is a primary need for the improvement in support systems and flexibility and guidance. As of now, many institutions keep on introducing many software and new blended learning models and training the instructor about the technologies in blended learning which blends the technological benefits and diverse thinking of the instructor to meet the student needs. These results suggest that future of blended learning will be so good that it will blend both the online and face-to-face communication providing a bright future for the learners.

VI. REFERENCES

- Abubakar, D. & Adetimirin, A.: Influence of computer literacy on post-graduates' use of eresources in Nigerian University Libraries: Library Philosophy and Practice, 2015.
- 2. Ahmad, N. & Al-Khanjari, Z.: Effect of Moodle on learning: An Oman perception: International Journal of Digital Information and Wireless Communications (IJDIWC), 2011.
- 3. Anderson, T.: Theory and Practice of Online Learning: AU Press, Athabasca University, 2004.
- Arbaugh, J. B.: How classroom environment and student engagement affect learning in internetbased MBA courses: Business Communication Quarterly, 2000.
- 5. Askar, P. & Altun, A.: Learner satisfaction on blended learning: E-Leader Krakow, 2008.

- Astleitner, H.: Dropout and distance education: A review of motivational and emotional strategies to reduce dropout in web-based distance education: Waxmann, 2000.
- 7. Barnard, L. et al.: Measuring self-regulation in online and blended learning environments: Internet and Higher Education, 2009.
- Beard, L. A. et al.: Online versus on-campus instruction: student attitudes & perceptions: TechTrends, 2004.
- Berenson, R. et al.: Emotional intelligence as a predictor for success in online learning: International Review of Research in Open and Distance Learning, 2008.
- Blocker, J. M. & Tucker, G.: Using constructivist principles in designing and integrating online collaborative interactions: Society for Information Technology & Teacher Education International Conference, 2001.
- 11. Cohen, K. E. et al.: Persistence of master's learners in the United States: Developing and testing of a conceptual model: New York University, 2012.
- 12. Coldwell, J. et al.: Online learners: Relationships between participation, demographics and academic performance: The Electronic Journal of e-learning, 2008.
- 13. Deci, E. L. & Ryan, R. M.: Intrinsic Motivation Inventory: selfdeterminationtheory.org, 1982.
- Delone, W. H. & McLean, E. R.: The Delone and McLean model of information systems success: A ten-year update: Journal of Management Information Systems, 2003.
- 15. Demirkol, M. & Kazu, I. Y.: Effect of blended environment model on high school learners' academic achievement: The Turkish Online Journal of Educational Technology, 2014.
- Eom, S. et al.: The determinants of learners' perceived learning outcomes and satisfaction in university online education: an empirical investigation: Decision Sciences Journal of Innovative Education, 2006.
- 17. Garrison, D. R. & Kanuka, H.: Blended learning: Uncovering its transformative potential in higher education: Internet and Higher Education, 2004.
- 18. Goyal, E. & Tambe, S.: Effectiveness of Moodleenabled blended learning in private Indian

Business School teaching NICHE programs: The Online Journal of New Horizons in Education, 2015.

- 19. Green, J. et al.: The causal ordering of selfconcept and academic motivation and its effect on academic achievement: International Education Journal, 2006.
- 20. Guskey, T. R.: Evaluating Professional Development: Corwin Press, 2000.
- 21. Hadad, W.: ICT-in-education toolkit reference handbook: InfoDev, 2007.
- 22. Anderson, T.: The Theory and Practice of Online Learning: Athabasca University Press, 2008.
- 23. Garrison, D. R.: E-Learning in the 21st Century: Routledge, 2016.
- 24. Hrastinski, S.: Asynchronous & Synchronous E-Learning: Routledge, 2008.
- 25. Bates, A.W.: Teaching in a Digital Age: BCcampus, 2015.
- 26. Graham, C.R.: Blended Learning Systems: Definition, Current Trends, and Future Directions: Wiley, 2004.
- 27. Bonk, C.J.: The Handbook of Blended Learning: Pfeiffer, 2006.
- 28. Picciano, A.G.: Blended Learning: Research Perspectives: Routledge, 2014.
- 29. Vaughan, N.: Teaching in Blended Learning Environments: Athabasca University Press, 2013.
- 30. Means, B.: Evaluation of Evidence-Based Practices in Online Learning: U.S. Department of Education, 2009.
- 31. Moore, M.G.: The Theory of Transactional Distance: Routledge, 1993.
- 32. Dziuban, C.: Blended Learning: Research Perspectives, Volume 2: Routledge, 2018.
- 33. Shea, P.: Blended Learning for Professional Development: Springer, 2013.
- 34. Allen, I.E.: Blended Learning in Higher Education: Wiley, 2010.
- 35. Garrison, D.R.: Communities of Inquiry: A Framework for Blended and Online Learning: Routledge, 2011.
- 36. Horn, M.B.: Blended: Using Disruptive Innovation to Improve Schools: Wiley, 2014.
- 37. Osguthorpe, R.T.: Blended Learning Environments: Educational Technology Publications, 2003.

- Singh, H.: Building Effective Blended Learning Programs: Wiley, 2003.
- 39. Oliver, M.: Blended Learning in Practice: Case Studies Across the Disciplines: Routledge, 2014.
- 40. Dziuban, C.D.: Blended Learning: A Framework for Institutional Adoption: Pearson, 2005.
- 41. Littlejohn, A.: Learning Technology in Transition: Routledge, 2003.
- 42. Laurillard, D.: Rethinking University Teaching: Routledge, 2002.
- 43. Salmon, G.: E-Moderating: The Key to Online 54. Lim, D. H. & Kim, H. J.: Motivation and learner Teaching and Learning: Routledge, 2011. characteristics affecting online learning and
- Khine, M. S., & Lourdusamy, A.: Blended learning approach in teacher education: combining face to face instruction, multimedia viewing and Online discussion: British Journal of Educational Technology, 2003.
- 45. Kavadella, A., Tsiklakis, K., Vougiouklakis, G., & Lionarakis: Evaluation of blended learning course for teaching oral radiology to undergraduate dental learners: European Journal of Dental Education, 2010.
- 46. Wills, S.: Strategic planning for Blended learning: University of Wollongong Research Online, 2016.
- Alonso, F., Lopez, G., Manrique, D., & Vines, J. M.: An instructional model for Web Based e learning education with a blended learning process approach: British Journal of Educational Technology, 2005.
- 48. Kintu, M. J., Zhu, C., & Kagambe, E.: Blended Learning effectiveness: the relationship between student's characteristics, design features and Outcomes: International Journal of Educational Technology in Higher Education, 2017.
- 49. Dziuban, C., & Graham, C. R.: Blended Learning: the new normal and emerging technologies: International Journal of Education Technology in Higher Education, 2018.
- 50. So, H.-J., & Brush, T. A.: Learners perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors: Computers & Education, 2008.
- 51. Barnard, L., & Lan, W. Y.: Measuring selfregulation in Online and blended learning

environments: The Internet and Higher Education, 2009.

- 52. Ginns, P., & Ellis, R.: Quality in blended learning: Exploring the relationships between on-line and face to face teaching and learning: The Internet and Higher Education, 2007.
- 53. Zhang, W., & Zhu, C.: Review on Blended learning: Identifying the key themes and categories: International Journal of Information and Education Technology, 2017.
- 54. Lim, D. H. & Kim, H. J.: Motivation and learner characteristics affecting online learning and learning application: Journal of Educational Technology Systems, 2003.
- 55. Lim, D. H. & Morris, M. L.: Learner and instructional factors influencing learner outcomes within a blended learning environment: Educational Technology & Society, 2009.
- 56. Lin, B. & Vassar, J. A.: Determinants for success in online learning communities: International Journal of Web-based Communities, 2009.
- 57. Loukis, E. et al.: A value flow model for the evaluation of an e-learning service: ECIS, 2007.
- Lynch, R. & Dembo, M.: The relationship between self-regulation and online learning in a blended learning context: The International Review of Research in Open and Distributed Learning, 2004.
- 59. Marriott, N. et al.: Accounting undergraduates' changing use of ICT and their views on using the internet in higher education: Accounting Education, 2004.
- 60. Menager-Beeley, R.: Web-based distance learning in a community college: The influence of task values on task choice, retention and commitment: University of Southern California, 2004.
- International Journal of Education Technology61. Naaj, M. A. et al.: Evaluating student satisfactionin Higher Education, 2018.with blended learning in a gender-segregatedSo, H.-J., & Brush, T. A.: Learners perceptions of
collaborative learning, social presence andenvironment: Journal of Information
Technology Education: Research, 2012.
 - 62. Nurmela, K. et al.: Developing tools for analysing CSCL process: Kluwer, 2003.
 - 63. Osgerby, J.: Learners' perceptions of the introduction of a blended learning environment: An exploratory case study: Accounting Education, 2013.

- 64. Oxford Group: Blended learning-current use, challenges and best practices: kineo.com, 2013.
- 65. Packham, G. et al.: E-learning and retention key factors influencing student withdrawal: Education and Training, 2004.: a primer for health professionals. Geneva: World Health Organization .
- 66. World Health Organization and UNICEF. (2006). Meeting the MDG drinking water and sanitation target : the urban and rural challenge of the decade. Geneva: World Health Organization.