Exploring the Role of Vocational Education in Enhancing Student Engagement and Motivation

Apurba Kumar Biswas, Research Scholar of Education, Department of Education, Arunodaya University, Naharlagun, Arunachal Pradesh, India.
Dr. Poonam Lata Middha (Assistant Professor), Research Guide, Department of Education, Arunodaya University, Naharlagun, Arunachal Pradesh, India.

Abstract

In higher education, researchers often analyse student engagement to improve student engagement and experience. Many said there was nothing else interesting to study and wanted their field to become more exciting. Student motivation is crucial to technology-mediated learning environment design, development, and implementation. Engagement learning tactics are used to help students in constructivist mixed learning environments. This study examines how student motivation affects their engagement learning strategies. Schooling, particularly professional advanced education, has understudy contribution issues. Computer generated reality allows instructors to integrate certifiable occasions into the homeroom, empowering dynamic learning and understudy interest. The venture included designing understudies and utilized VR to connect with them in learning. VR innovation seems to be clear to utilize, and understudies say it helps understanding and commitment, as indicated by studies.This early research found that virtual reality environments improve student engagement and motivation. Other studies agree with these findings.

Keywords: Vocational Education, Enhancing, Student Engagement, Motivation, Virtual-Reality.

1. INTRODUCTOIN

Student engagement promotes personality development and lifetime learning, making it a success indicator. It may influence employment and schooling choices later in life. Student participation in vocational education and training (VET) social situations is rarely studied, despite the plethora of contemporary studies. Few studies have examined how students' employment confidence influences VET participation.

Vocational education helps youth develop job-related skills and life skills. It should also equip students for further study and personal growth. VET is gaining popularity in India. In 2016, 42% of comprehensive school graduates pursued vocational training. Think of Finnish VET as school-based. This suggests that vocational school teachers and students provide a vital social environment. Apprentices must actively and consciously participate in appropriation activities, while teachers lead learning. However, the Finnish VET model emphasises work-based learning and several on-the-job training periods, generating different social settings. Due to this closeness to the workplace, first-year students learn about their job prospects early on.

Research on student motivation and participation in real learning tasks is crucial in higher education. Constructivist-based blended learning environments, innovative instructional technologies, and curricular change require high student involvement in meaningful, protracted learning experiences. CBLE should highlight cognitively challenging learning activities since they encourage active learning in the learning environment, according to Duffy and Jonassen. Using collaborative learning tools and engagement approaches to reflect on their education is more useful than following a limited and conventional model of instruction.

Notwithstanding broad concentrate on commitment learning procedures and spurring angles in different learning settings, two regions need more consideration. Prior persuasive element research zeroed in on school, subject level, orientation, and learning demeanour qualities. Second, most exploration on commitment strategies and spurring factors has zeroed in on scholastic results, educational plan, and mechanical reception. We will gauge self-adequacy, outward, inborn, and task esteem, as well as three commitment learning procedures — catching, supporting, and captivating — to beat these cut off points. We may then concentrate on understudy inspiration and commitment strategies in constructivist-based mixed learning. In affluent countries, advanced advances and constructivist teaching methods empower

variety and understudy commitment. Nonetheless, extreme learning settings like India stand out enough to be noticed.

1.1 Students Engagement and Motivation

Student engagement remains interesting because it is more susceptible to environmental change than student background. But no teaching method increases student involvement by itself. Payne claims that different approaches impact different people. For instance, group work may encourage some pupils but hinder others. Bender advises teachers to replace differentiated instruction for lectures, trust their students to learn from each other, and allow them organise their own courses if possible. Boulton et al. found that drew in understudies take part in many learning exercises. Strong and top-notch instructor understudy connections support understudy commitment and fulfil youths' interest for relatedness. Great instructor understudy connections increment questions and input, diminishing responsibility and expanding understudy association. Hegarty and Thompson Diary of Professional Instruction and Preparing states that an educator's dynamic presence is fundamental for understudy commitment, including offering drawing in learning open doors and making associations.

2 LITERATURE REVIEW

Goldspink and Crick (2014)portrayed the mental energy and exertion set forth to appreciate the movement that the student is pushed to do is alluded to as commitment. The nature of understudies' support and practices in scholastic work is the means by which we operationalize understudy commitment learning techniques in this review. Research shows that the complexity of human advancement spaces —, for example, physical, mental, and mental — that direct understudies' viable cooperation in the homeroom is enveloped by understudy commitment. As per Cramp and Goldspink, understudy commitment happens when students show interest in the task being finished, in any event, when it incites thought.

R.B. King (2016)gotten that the inspiration free from understudies to learn in PC interceded learning settings has been the subject of before research. The persuasive components that lead understudies to take on, seek after, and participate in legitimate learning are operationalized in this concentrate as objectives.It still requires a lot of research to find effective strategies for encouraging students to participate in real learning in settings with limited resources. This study attempts to identify the motivating variables impacting student involvement in such a setting. While there are many motivational elements, the majority of research debate is dominated by intrinsic and extrinsic aspects.

Makovec and Radovan (2015)explored the association among inspiration and commitment, most of studies don't explicitly look at the connection between persuasive components and commitment strategies. In any case, scholarly achievement and qualities of contribution with true learning have been the essential focal point of most of exploration on understudies' inspiration and commitment. As per the hypothesis, understudies would have the option to partake in genuine discovering that might bring about exercises that are useful for their schooling assuming there was an unmistakable connection between their inspirational components and commitment strategies. To fill this vacuum in the examination, our review looks at the association between different understudy persuasive qualities and commitment learning strategies.

Gedera& associates (2015)studied sees four persuading components that influence understudies: natural, extraneous, self-adequacy, and assignment esteem. Natural inspiration, from one viewpoint, alludes to an individual's most profound mental interest for skill and independence, which is associated with their energy and joy while taking part in instructive exercises.Extrinsic motivation, on the other hand, describes individual, external, identifiable behaviours towards a task or activity, such as high payment, grading schemes, instructional tactics, learning environments, and educational technologies. Furthermore, Wingfield and Eccles contend that constructivist students' expectations, beliefs, and motivations for success—such as persistence and task selection—are predetermined.

Seki (2014)considered, understudy commitment learning methodologies are characterized as the procedures and plans that understudies make, present, and execute to meet their learning goals in an organized and dynamic learning climate. It is vital to appropriately update these

commitment learning procedures to work with certifiable cooperation. As per studies, an understudy's degree of inclusion mirrors the time and exertion they put into their schooling, which amounts to their scholarly achievement. Trowler proceeds to express that to boost understudy commitment, opportunities for growth, and the achievement of their ideal learning goals, a blend of time, exertion, and other relevant assets should be contributed.

Stephen, (2015)explained the kinds of assignments hasten a deeper understanding of the material. Moreover, no matter what the realizing setting, Bandura's exploration shows that instructive viability and self-adequacy goodly affect understudy learning.For instance, self-sufficient and self-assured kids exhibit the capacity to handle difficult academic assignments and are more inclined to participate in meaningful learning. Research in this area has demonstrated that the synergistic benefits of flexibility and individualised instruction improve student accomplishment, motivation, and task value going forward, leading to deeper learning.

3 RESEARCH METHODOLOGY

This drive investigated computer generated experience in professional schooling. The idea was for understudies to have vivid instructive VR encounters and afterward think about learning targets.The study pilot followed the curriculum and was pedagogically sound. Students assessed the value of their experiences. This study examined whether immersive virtual reality improved student engagement and performance. We also addressed user experience fundamentals. Experimental and questionnaire methods were utilised.

3.1 Participants

35 teaching group students—12 electrical and 23 electronic—participated in the survey. Every participant was a student. All participants completed consent forms and got study information after ethics consent. Three trials were divided into electrical and electronics engineering and electronics engineering groups. Mixed-gender pupils were 18–20. Electronic designing understudies investigated robot augmented reality while electrical designing understudies analysed power plants. An itemized clarification of the class and gatherings follows.

3.2 Methods

This study focused on using VR to achieve goals. Thus, electrical and electronics engineering course goals were created. VR user-friendliness questions and learning objectives were assessed on a Likert scale. Each student received a five- to ten-minute introduction. This helped create the setting and clarify the study's goal. After the clarification, members finished a survey, remarked on the instructor's learning goals, and saw a computer-generated experience reproduction of each gathering's exercises. The two tests involved one Oculus Break headset for electrical and electronic designing. This study inspected how clients utilized and saw the instrument as an instructing device.

Three tests with three replications were finished. Each analysis expected understudies to peruse learning objectives. Then, we inquired as to whether they naturally suspected computer-generated simulation (VR) could assist them with figuring out the meeting's three learning targets. In the wake of being doled out a number somewhere in the range of two and four, every preliminary was assessed sequentially. First test yielded numbers. Quantitative information from every preliminary was assessed to decide whether vivid VR innovation could help understudies figure out learning objectives and assuming understudy inspiration expanded participation, mental handling, and information. The gathering's tests and exercises are in Table 1.

Table 1. Group Experiments and Activities

Experiment Group	Activities
Group 1 Electronics engineering students observe a working VR robotic simulator.	Students engaged in a virtual reality robotics simulation with the following objectives: • Gain an understanding of robots and their function in industrial automation; • Grow in their grasp of robotics as it relates to the curriculum; and

	• Expand their visual comprehension of robotics.
Group 2 Students studying electrical engineering model a power plant.	The educational objective of this course was to make a virtual reality re-enactment power plant that would recognize, assess, and address profound engagement in tangible discernment as a peculiarity and wellspring of examination thoughts for VR.
Group 3 Students concentrating on electrical and electronic designing partake in a three-day testing of VR headgear.	Genuine virtual reality items could be seen with an Oculus Fracture S VR. Google Earth VR, Home - A VR Spacewalk, Worldwide Space Station Visit VR, Educator's Focal point Beta, Pollinator Park, and Space Dreams are a couple of the free VR education applications accessible. Students were given admittance to VR encounters through these applications.

4 DATA ANALYSIS AND RESULTS

The test poll requests that students evaluate every assertion on a Likert scale from firmly settle on a truce. The tests and questions zeroed in on the client experience and its pertinence to the three exercises and learning goals. Members composed or composed their VR encounters internet during the survey. Genuine inquiries were utilized to create a more point by point reaction, which was then contrasted with the asker's information. This study utilized inquiries without a right or wrong answer to survey students' virtual reality innovation use, effect, and experience. In the eight Likert scale items, answers were assigned numbers. They were used with open-ended questions to analyse qualitative and quantitative data. Citations were clear, spelling errors were corrected, and explanatory phrases were in parentheses.

An eight-item questionnaire was presented to 35 students to assess how VR affected their perspectives on learning about robotic materials, steam power, and Oculus Rift S's free programmes in polytechnic education. Totalling the open-ended replies revealed important themes including visual experiences and virtual reality's instructional benefits. Virtual reality's educational benefits were also examined utilising the questionnaire. Figure 1 shows the results of three studies on immersive virtual reality equipment user-friendliness. The tool's effectiveness was calculated using student ease-of-use scores. Students also discovered how easy and effective virtual reality can be in education. Although the poll was voluntary, 29 respondents (82%), 4 (12%), and 2 (6%) said adopting virtual reality in the classroom is simple.

Table 2: The percentage of students response about VR tool usability questions.

Student Response	Percentage
Strongly Agree	82%
Agree	12%
Neutral	6%

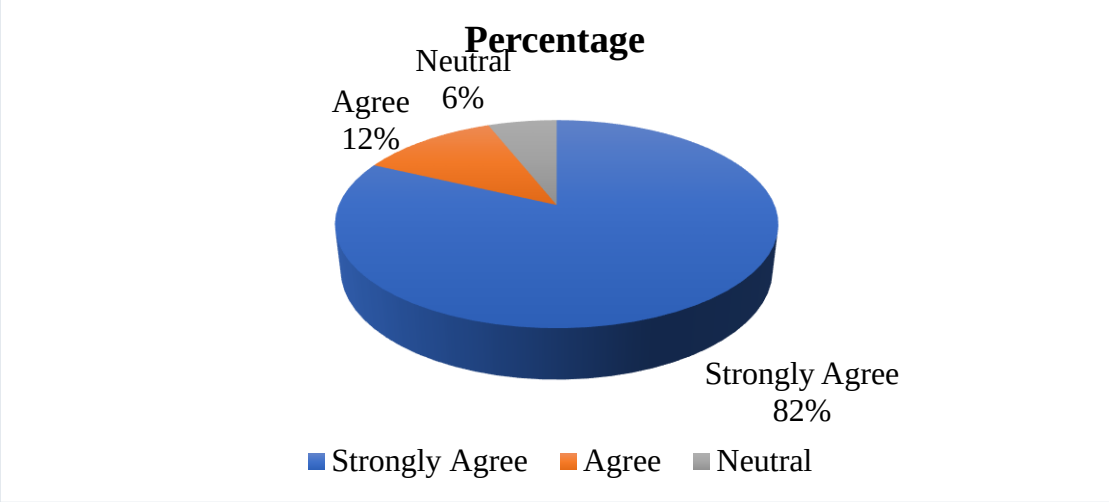

Figure 1: The percentage of students response about VR tool usability questions.

Students voluntarily answered the survey, and 96% of them felt that integrating VR with new learning materials may enhance student engagement and the educational process. Just 4% of respondents said it wouldn't. Students were more engaged in the learning process, the material was presented in a highly interesting way, and they enjoyed the learning process since it was fun to play games. With VR, kids may use technology to learn in new ways. Students can interact with objects to convey their ideas depending on their viewpoints and engage with what they see in virtual reality. This is predictable with research showing that VR will acquire prevalence as a method for working on students' dynamic learning and empower them to fulfil the needs of advanced education straightforwardly. The consequences of this study propose that encountering the experience of being in the present in a virtual reality climate advances more careful mental handling of the educational material (Fig. 2).

Table3: Students' evaluations of VR's potential support their understanding of a certain learning percentage.

Student Responses	**Percentage**		
It can aid in my comprehension of the industrial automation notion of robots.	80%	70%	50%
It can aid in my comprehension of the idea of a power plant.	39%	60%	52%
It offers a virtual reality user experience.	47%	40%	30%

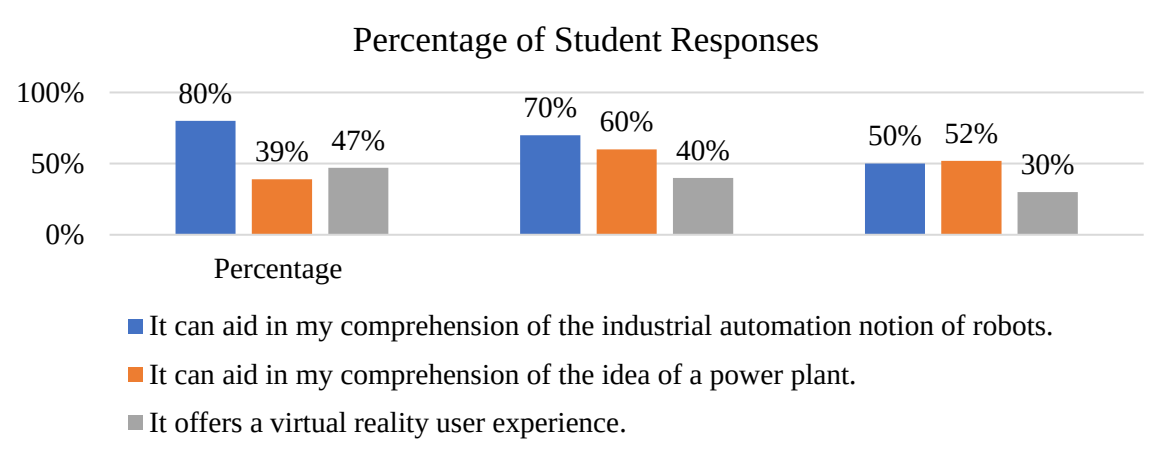

Figure 2: Students' evaluations of VR's potential support their understanding of a certain learning percentage.

Frameworks utilize virtual reality (VR) innovation to draw in students' mental responses to being available or in a fabricated climate, as per computer-based intelligence. The 3D world has a feeling of presence as a result of its particular elements, serious level of human inclusion or control, and portrayal. There is an undeniable association among interest and cooperation with the review discoveries, and virtual reality offers clear, helpful occasions of broadening and growing work into this present reality. The aftereffects of this study are not generalizable, accordingly despite the fact that vivid VR advances have been exhibited to increment student engagement, they can't be applied to different callings.

Table 4:Students' responses on the tool's impact on learning objectives.

Student Responses	**Percentage**		
I am aware that VR can offer engaging experiences.	40%	60%	20%
I recognise the interactions that happen when utilising VR	28%	70%	50%
I know how it might influence students' perspectives.	40%	65%	5%

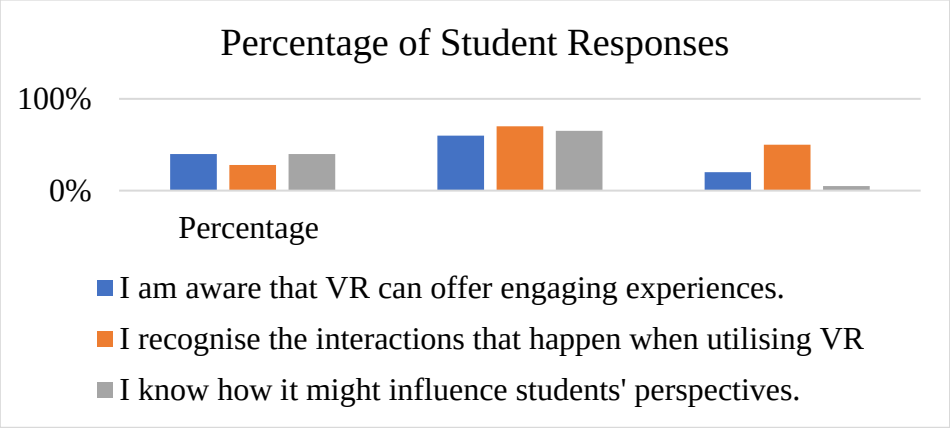

Figure 3:Students' responses on the tool's impact on learning objectives.

VR could increase vocational education student engagement, according to students (Figures 2 & 3). Students' multiple VR uses in Figures 2 and 3 show their interest in robotic materials and power plants. The findings suggest immersive VR technology may increase student participation in specific situations. This study suggests that immersive VR tools can boost student engagement. The disclosure that presence as a mental sensation is like being in a regular habitat, then again, actually the VR framework makes the space, upholds the utilization of virtual reality to evaluate student engagement, motivation, and mental handling. The ability to learn via virtual media (n=30 replies) and increased work knowledge and understanding (n=28 responses) corroborate the influence of greater interest and engagement (n=30 responses). Figure 4 shows student VR opinions.

Table 5: The Opinions Of Students About VR

	Students' perceptions of VR.
Recognise VRtechnology	11
Students have played games in VR	5
Recognise the advantages of VR for education	27
Boost students' enthusiasm and involvement in the classroom	33
A feeling of being there in the actual world	35
Feel at ease using virtual reality to learn	23
Communication freedom	25
Chance to work together	17
Enhance abilities	33
Boost your knowledge of the work	31

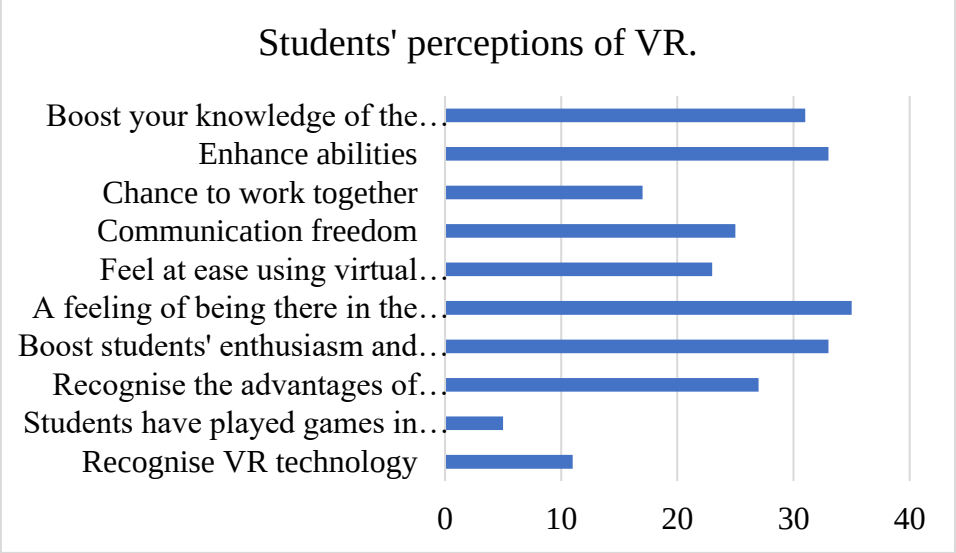

Figure 4: The Opinions Of Students About VR

When using VR technology, interactive instructional settings where students may wander around are essential. Students understood power plants and industrial robotics better after using VR systems. Students learned how robotics and power plants work and used VR to help them perform various tasks. Double tangible criticism from VR visual drenching and body movements assisted students with understanding mechanical and power plant working cycles and handling conditions.

VR training systems for vocational education are currently accessible. Student knowledge transfer and communication are improved by storytelling. VR is being used more in vocational education to improve training and learning. However, narrative skills and a complete training system are underutilised. To boost a nation's skills, cost-effective vocational training has become more popular. Other review utilizes VR to re-enact certifiable occasions and intelligent exercises in the homeroom to assist students with grasping authentic situations. Because of the ascent of computerized mechanical things, vocational furniture preparing ought to be refreshed to address work deficiencies and what's in store.

If instructors, especially vocational educators, want to use virtual learning environments, they must build dynamic activities that engage students. Well-designed VR interactions improve student engagement. Virtual tours employing video clips and map locations could be used for such learning. Gaming features and video viewing may work better to grab kids' interest. One study found that immersive VR can boost student engagement but not knowledge. VR users may be distracted from learning objectives by the novel surroundings.

5 CONCLUSION

As was mentioned, there are many distinct techniques to teaching adults, and each has its own set of benefits and drawbacks. Due to the complexity of students' lives and the numerous distractions that exacerbate the issue, it can be challenging to keep pupils interested and prevent disengagement. But you may make a big difference by selecting the best teaching strategy for the material you are teaching and the circumstances you find yourself in. This paper offered one approach to enhance a teaching session: adding examples from real-world work settings to make the lesson more applicable to the workplace. In order to engage adult learners, this makes use of a range of learning theories, most notably social learning theory, as well as an andragogical approach. Since adults are typically career-focused and like to see the relevance of the material they are learning, the session catered to their preferences and learning styles. This study investigated how polytechnic students saw the application of virtual reality (VR) in vocational higher education. The field of view of a user in a virtual environment can be significantly affected by the VR technology employed. Immersion virtual reality is simple to use and improves student understanding and engagement. Through the exhibit of a careful cognizance of their examination point and the achievement of the many learning targets over different classes, students can show a more grounded obligation to a specific area of review.

REFERENCES

1. Achuthan, K., Nedungadi, P., Kolil, V. K., Diwakar, S., & Raman, R. (2020). Innovation adoption and diffusion of virtual laboratories. International Journal of Online and Biomedical Engineering,
2. Artun, H., Durukan, A., &Temur, A. (2020). Effects of virtual reality enriched science laboratory activities on pre-service science teachers' science process skills. Education and Information Technologies,
3. Crick, R.D. & Goldspink, C. (2014). Learner dispositions, self-theories and student engagement. British Journal of Educational Studies, 62(1), 19-35.
4. Gedera, D., Williams, J., & Wright, N. (2015). Identifying factors influencing students' motivation and engagement in online courses. In C. Koh (Ed.), Motivation, Leadership and Curriculum design: Engaging the Net Generation and 21st-century learners (pp. 13-22). Singapore: Springer Science+Business Media.
5. King, R.B. (2016). Gender differences in motivation, engagement and achievement are related to students' perceptions of peer-but not of parent or teacher-attitudes toward school. Learning and Individual Differences, 52, 60-71.

6. Oh, H., & Son, W. (2021). Cybersickness and its severity arising from virtual reality content: A comprehensive study.
7. Papanastasiou, G., Drigas, A., Skianis, C., Lytras, M., &Papanastasiou, E. (2019). Virtual and augmented reality effects on K-12, higher and tertiary education students' twenty-first century skills. Virtual Reality, 2
8. Radovan, M., &Makovec, D. (2015). Relations between students' motivation, and perceptions of the learning environment. C.E.P.S. Journal, 5(2), 115-138.
9. Rosegard, E., & Wilson, J. (2013). Capturing students' attention: An empirical study. Journal of the Scholarship of Teaching and Learning, 13(5), 1-20.
10. Seki, G.K. (2014). The relationship between motivational factors and engagement in an urb
11. Stephen, T.L. (2015). Encouraging positive student engagement and motivation: Tips for teachers.
12. Turi, D.M. (2012). The relationship between student engagement and the development of character in Mission driven faith-based Colleges and Universities as measured by the national survey of student engagement (Doctoral dissertation). Seton Hall University, South Orange, NJ.
13. Umemoto, T., & Tanaka, K. (2017). Relationships between motivational regulation strategies, motivational factors and learning behaviors outside the classroom. The Japanese Journal of Psychology, 88(1) 86-92.
14. Vaughan, N. (2014). Student engagement and blended learning: Making the assessment connection. Education Science, 4(4), 247–264. doi:10.3390/educsci4040247.
15. Yoon, H. J., Kim, J., Park, S. W., &Heo, H. (2020). Influence of virtual reality on visual parameters: Immersive versus non-immersive mode. BMC Ophthalmology,