

Editorial – Welcome to Volume 25 Number 4

Dear Readers, we are delighted to introduce a special issue of The International Journal of Innovation in Science and Mathematics Education entitled “**The Future STEAM classroom - what will we find there?**” This specific issue focusses on teacher professional development to ensure successful learning and teaching in our future classrooms, with a collection of journal articles evaluating the use of robotics, mixed-reality and virtual reality applications.

The special issue begins with an article on “**Toward Future ‘Mixed Reality’ Learning Spaces for STEAM Education**” by authors James Birt and Michael Cowling, who explore learner and academic perspectives on mixed reality (augmented reality, virtual reality, 3D printing and user supplied mobile devices) case studies in 3D spatial design (multimedia and architecture), paramedic science and information technology. The results presented in the journal article show that mixed reality can improve student engagement, critical thinking and problem solving skills but that the learning designs incorporating mixed reality still need considerable refinement.

Next, in the article “**Preparing Teachers to Teach Stem through Robotics**”, researcher Christina Chalmers discusses a robotics-based university education outreach program and professional development workshop designed to build teachers’ confidence and capacity in STEM. The key benefits reported by the teachers involved in the program include the development of robot building and programming skills and the sharing of STEM activities to engage students.

Finally, to close this edition, authors Miela Kolomaznik, Miriam Sullivan and Kate Vyvyan evaluate whether student teamwork skills in a first year science communication unit can be improved using immersive VR headsets, in the article “**Can Virtual Reality Engage Students with Teamwork?**” The study showed that while there was no improvement in students’ attitudes and motivation toward teamwork, students were able to identify teammates exhibiting dominating behaviours. The study also raised concerns over the current drawbacks of using current VR technology which include cost of equipment and occasional nausea!

These three articles illustrate some current possibilities for embedding robotics and mixed reality applications within the classroom, while providing insight into areas that need further consideration, such as the refinement of learning designs to incorporate mixed reality, the drawbacks of using immersive VR headsets, and the need for further outreach and professional development programs. In closing, we hope this special issue adds to awareness of STEAM applications that can be incorporated in the classroom, and encourages and inspires you to start exploring the possibilities.

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