

Recommendations for implementing VR and AR in Education, Art, and Museums

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How to cite:

G. Singh and S. Atta, "Recommendations for implementing VR and AR in Education, Art, and Museums," *Res. Rev. Sci. Technol.*, vol. 1, no. 1, pp. 16–40, 2021.



Received: 2021/08/19

Available online: 2021/10/23

Abstract

Artificial intelligence technologies are becoming more common, and schools, museums, and art exhibitions will need to alter their old methods of working and thinking processes to fully realize their potential. In an increasingly digital environment, incorporating VR and AR technology as well as wearable gadgets into various areas may help to increase participation. The strategic role and usage of VR and AR in influencing tourist experience at art galleries and museums, as well as its potential to improve education, needs to be explored in VR and AR in Education, Art, and Museums. This research provides some recommendations for museum supervisors, tour designers, academic software developers because it covers a wide range of topics such as digital training, digital heritage, and gaming.

Keywords: *AR, Art, Education, Museum, VR*



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Book: \$0.50

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References

- [1] V. S. Pantelidis, “Reasons to use virtual reality in education and training courses and a model to determine when to use virtual reality,” *Themes Sci. Technol. Educ.*, vol. 2, no. 1–2, pp. 59–70, 2010.
- [2] S. Helsel, “Virtual reality and education,” *Educ. Technol.*, vol. 32, no. 5, pp. 38–42, 1992.
- [3] M. Y. Shaheen, “Adoption of machine learning for medical diagnosis,” 2021.
- [4] L. Freina and M. Ott, “A literature review on immersive virtual reality in education: state of the art and perspectives,” in *The international scientific conference elearning and software for education*, 2015, vol. 1, no. 133, pp. 10–1007.
- [5] M. Y. Shaheen, “Applications of Artificial Intelligence (AI) in healthcare: A review,” 2021.
- [6] C. D. Wickens, “Virtual reality and education,” in *[Proceedings] 1992 IEEE International Conference on Systems, Man, and Cybernetics*, 1992, pp. 842–847.
- [7] M. Y. Shaheen, “AI in Healthcare: medical and socio-economic benefits and challenges,” 2021.
- [8] A. T. Atieh, “Assuring the Optimum Security Level for Network, Physical and Cloud Infrastructure,” *Researchb. Rev. Sci. Technol.*, vol. 1, no. 1, pp. 15–30, 2021, [Online]. Available: <https://researchberg.com/>.
- [9] M. C. tom Dieck, T. H. Jung, and D. tom Dieck, “Enhancing art gallery visitors’ learning experience using wearable augmented reality: generic learning outcomes perspective,” *Curr. Issues Tour.*, vol. 21, no. 17, pp. 2014–2034, 2018.
- [10] X. Chen, “The VR Gallery-Using Virtual Reality to enhance current art gallery experience and encourage purchases,” 2019.
- [11] A. T. Atieh, “Establishing Efficient IT Operations Management through Efficient Monitoring, Process Optimization, and Effective IT Policies,” *Empir. Quests Manag. Essences*, vol. 1, no. 1, pp. 1–13, 2021, [Online]. Available: <https://researchberg.com/>.
- [12] P. M. Semião and M. B. Carmo, “Virtual Art Gallery Tool,” in *GRAPP*, 2008, pp. 471–476.
- [13] S. Panayiotou and A. Lanitis, “Paintings alive: A virtual reality-based approach for enhancing the user experience of art gallery visitors,” in *Euro-Mediterranean Conference*, 2016, pp. 240–247.
- [14] S. Hrk, “Virtual art gallery,” in *Proceedings of the 5th Central European Seminar on Computer Graphics*, 2001, pp. 185–194.
- [15] A. T. Atieh, “The Next Generation Cloud technologies: A Review On Distributed Cloud, Fog And Edge Computing and Their Opportunities and Challenges,” *Res. Rev. Sci. Technol.*, vol. 1, no. 1, pp. 1–15, 2021, [Online]. Available: <https://researchberg.com/>.
- [16] E. Nurovic and M. Poturak, “Online transformation of higher education due to COVID19: impact, perception, and recommendation,” 2021.

- [17] B. Srivastay, "The novel Artificial Neural Network assisted models: A review," 2021.
- [18] A. Kollár, "Betting models using AI: A review on ANN, SVM, and Markov Chain," 2021.
- [19] W. Weinlich, "Glasbeni simboli: Podobnost med simboli iz pradavnine in med risbami v zgodnjem otroštvu," *Rev. za Elem. Izobr.*, vol. 10, no. 2/3, p. 275, 2017.
- [20] M. Ding, "Augmented reality in museums," *Museums Augment. reality—A Collect. essays from arts Manag. Technol. Lab.*, pp. 1–15, 2017.
- [21] P. Coulton, E. Murphy, K. Č. Pucihar, R. Smith, and M. Lochrie, "User curated augmented reality art exhibitions," in *Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational*, 2014, pp. 907–910.
- [22] W. Weinlich, *Artistic Birdsaving—SERVICE LEARNING THROUGH ARTS: SPREADING IDEAS FROM STUDENTS FOR BIODIVERSITY ISSUES RURAL 3.0-BIRDSAVING PROJECT IDEAS*. tredition, 2021.
- [23] J. Al Rabbaa, A. Morris, and S. Somanath, "MRsive: An augmented reality tool for enhancing wayfinding and engagement with art in museums," in *International Conference on Human-Computer Interaction*, 2019, pp. 535–542.
- [24] C. Shin, H. Kim, C. Kang, Y. Jang, A. Choi, and W. Woo, "Unified context-aware augmented reality application framework for user-driven tour guides," in *2010 International Symposium on Ubiquitous Virtual Reality*, 2010, pp. 52–55.
- [25] W. Weinlich, "Was kann die Was kann die Kunstpädagogik für die Inklusion leisten? Ein Impuls für die Primarstufe und darüber hinaus," *Re&E-SOURCE*, 2018.
- [26] B. Massis, "Using virtual and augmented reality in the library," *New Libr. World*, 2015.
- [27] P. Coulton, R. Smith, E. Murphy, K. Č. Pucihar, and M. Lochrie, "Designing mobile augmented reality art applications: addressing the views of the galleries and the artists," in *Proceedings of the 18th International Academic MindTrek Conference: Media Business, Management, Content & Services*, 2014, pp. 177–182.
- [28] W. Weinlich, "Populärkultur und hegemoniale Ästhetik."
- [29] K. Lee, "Augmented reality in education and training," *TechTrends*, vol. 56, no. 2, pp. 13–21, 2012.
- [30] M. Kesim and Y. Ozarslan, "Augmented reality in education: current technologies and the potential for education," *Procedia-social Behav. Sci.*, vol. 47, pp. 297–302, 2012.
- [31] W. Weinlich, "Zur Bedeutung der Hattie-Studie für die Kunsterziehung," 2018.
- [32] V. Geroimenko, "Augmented reality art," *Plymouth: Springer*, 2014.
- [33] M. Billingham, "Augmented reality in education," *New horizons Learn.*, vol. 12, no. 5, pp. 1–5, 2002.
- [34] W. Weinlich and W. Im Unterricht Warenverpackungen, "Fast Track Graphic Novel."
- [35] G. Chang, P. Morreale, and P. Medicherla, "Applications of augmented reality systems in education," in *Society for Information Technology & Teacher Education International Conference*, 2010, pp. 1380–1385.
- [36] D. Nincarean, M. B. Alia, N. D. A. Halim, and M. H. A. Rahman, "Mobile Augmented Reality: the potential for education," *Procedia-social Behav. Sci.*, vol. 103, pp. 657–664, 2013.

- [37] W. Weinlich, "Blinde Flecken in der Kunstdidaktik Unbeachtete Bereiche des Lehrplans," *Re&E-SOURCE*, 2020.
- [38] H. Kaufmann, "Collaborative augmented reality in education," *Inst. Softw. Technol. Interact. Syst. Vienna Univ. Technol.*, 2003.
- [39] M. Bower, C. Howe, N. McCredie, A. Robinson, and D. Grover, "Augmented Reality in education—cases, places and potentials," *EMI. Educ. Media Int.*, vol. 51, no. 1, pp. 1–15, 2014.
- [40] W. Weinlich, "The Contribution of Art Education to Educational Transitions," *J. Elem. Educ.*, vol. 11, no. 3, pp. 251–268, 2018.
- [41] S. C.-Y. Yuen, G. Yaoyuneyong, and E. Johnson, "Augmented reality: An overview and five directions for AR in education," *J. Educ. Technol. Dev. Exch.*, vol. 4, no. 1, p. 11, 2011.
- [42] P. Chen, X. Liu, W. Cheng, and R. Huang, "A review of using Augmented Reality in Education from 2011 to 2016," *Innov. smart Learn.*, pp. 13–18, 2017.
- [43] M. C. Leue, T. Jung, and D. tom Dieck, "Google glass augmented reality: Generic learning outcomes for art galleries," in *Information and communication technologies in tourism 2015*, Springer, 2015, pp. 463–476.
- [44] W. Weinlich and R. Laven, "Service-Learning with the Power of Art for Biodiversity in Rural Areas." BO, 2020.
- [45] C. R. Saylor, "Reflection and professional education: art, science, and competency.," *Nurse Educ.*, vol. 15, no. 2, pp. 8–11, 1990.
- [46] F. G. Chalmers, *Celebrating pluralism: Art, education, and cultural diversity*, vol. 5. Getty Publications, 1996.
- [47] K. Freedman, "Social perspectives on art education in the US: Teaching visual culture in a democracy," *Stud. art Educ.*, vol. 41, no. 4, pp. 314–329, 2000.
- [48] E. W. Eisner and M. D. Day, *Handbook of research and policy in art education*. Routledge, 2004.
- [49] D. Atkinson, P. Dash, and M. K. Dash, *Social and critical practice in art education*. Trentham Books, 2005.
- [50] O. Gude, "Postmodern principles: In search of a 21st century art education," *Art Educ.*, vol. 57, no. 1, pp. 6–14, 2004.
- [51] F. G. Chalmers, "Art education as ethnology," *Stud. art Educ.*, vol. 22, no. 3, pp. 6–15, 1981.
- [52] T. Anderson, "Why and How We Make Art, with Implications for Art Education.," *Arts Educ. Policy Rev.*, vol. 105, no. 5, p. 31, 2004.
- [53] P. Duncum, "Visual culture: Developments, definitions, and directions for art education," *Stud. art Educ.*, vol. 42, no. 2, pp. 101–112, 2001.
- [54] W. D. Greer, "Discipline-based art education: Approaching art as a subject of study," *Stud. art Educ.*, vol. 25, no. 4, pp. 212–218, 1984.
- [55] L. H. Chapman, "Status of elementary art education: 1997–2004," *Stud. Art Educ.*, vol. 46, no. 2, pp. 118–137, 2005.
- [56] D. Blandy and E. Hoffman, "Toward an art education of place," *Stud. art Educ.*, vol. 35,

no. 1, pp. 22–33, 1993.

- [57] S. Macdonald, *The history and philosophy of art education*. James Clarke & Co., 2004.
- [58] D. K. Beattie, *Assessment in Art Education. Art Education in Practice Series*. ERIC, 1997.
- [59] G. A. Clark, “Discipline-based art education: Becoming students of art.,” *J. aesthetic Educ.*, vol. 21, no. 2, pp. 130–193, 1987.
- [60] H. Read, “Education through art.,” 1948.
- [61] A. D. Efland, *A history of art education*. Teachers College Press, 1990.
- [62] E. W. Eisner, “Should we create new aims for art education?,” *Art Educ.*, vol. 54, no. 5, pp. 6–10, 2001.
- [63] E. Garber, “Social justice and art education,” *Vis. arts Res.*, vol. 30, no. 2, pp. 4–22, 2004.
- [64] W. Weinlich, “Visuelle Rhetorik,” 2017.
- [65] K. Bond, “The human nature of dance: Towards a theory of aesthetic community,” *Commun. Music. Explor. basis Hum. Companionsh.*, pp. 401–422, 2008.
- [66] M. J. Hatch, “The pragmatics of branding: an application of Dewey’s theory of aesthetic expression,” *Eur. J. Mark.*, 2012.
- [67] W. Weinlich, “Musikalische Symbole,” *J. Elem. Educ.*, vol. 10, no. 2/3, pp. 275–288, 2017.
- [68] K. DeSantis and A. Housen, *A brief guide to developmental theory and aesthetic development*. Visual Understanding in Education New York, NY, 2001.
- [69] A. Strati, *Organizational theory and aesthetic philosophies*. Routledge, 2018.
- [70] K. L. Walton, “How marvelous! Toward a theory of aesthetic value,” *J. Aesthet. art Crit.*, vol. 51, no. 3, pp. 499–510, 1993.
- [71] W. Weinlich, “Stereotypes in Popular Feature Films and their Importance for Adolescents: How Can or Should Art Education Respond?,” 2020.
- [72] V. S. Ramachandran and W. Hirstein, “The science of art: A neurological theory of aesthetic experience,” *J. Conscious. Stud.*, vol. 6, no. 6–7, pp. 15–51, 1999.
- [73] V. Bergeron and D. M. Lopes, “Aesthetic theory and aesthetic science,” *Aesthetic Sci. Connect. minds, brains, Exp.*, vol. 63, 2012.
- [74] P. J. Silvia, “Cognitive appraisals and interest in visual art: Exploring an appraisal theory of aesthetic emotions,” *Empir. Stud. arts*, vol. 23, no. 2, pp. 119–133, 2005.
- [75] M. C. tom Dieck, T. Jung, and D.-I. Han, “Mapping requirements for the wearable smart glasses augmented reality museum application,” *J. Hosp. Tour. Technol.*, 2016.
- [76] K. Č. Pucihar and M. Kljun, “ART for art: augmented reality taxonomy for art and cultural heritage,” in *Augmented reality art*, Springer, 2018, pp. 73–94.