Tablet game-supported speech therapy embedded in children's popular practices

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Abstract

© 2018, © 2018 Informa UK Limited, trading as Taylor & Francis Group. Modern speech-language pathology practices (SLPPs) have adopted tablet games in recent years. Research is needed to take advantage of the potential benefits tablets can offer and to explore the factors that influence its introduction. This paper discusses a survey that was conducted to investigate the factors that influence speech-language pathologists' (SLPs) beliefs and the actual use of tablets in SLPPs. The results of the survey, conducted among Slovenian SLPs, indicated that their most positive beliefs concerning tablets relate to social influence. Specifically, the beliefs relate to children's interest and practice with tablets and have a significant impact on the decision-making of SLPs concerning introducing tablets in therapy. Conversely, SLPs' most negative beliefs relate to the conditions for facilitating tablet use, particularly the lack of Slovenian applications. This paper discusses a separate case study that was conducted in which tablet game-supported therapy was introduced to a group of 44 children. The case study results indicated that the children accepted the use of tablet games for therapy purposes and the games had a positive impact on the children's motivation and satisfaction.

Keywords

References

[1] Anthony, L., Q., Brown, B., Tate, J., Nias, Robin, Brewer, and Germaine, Irwin. 2014. "Designing Smarter Touch-based Interfaces for Educational Contexts." Personal and Ubiquitous Computing 18 (6): 1471–1483. doi:10.1007/s00779-013-0749-9.

[2] Antle, A. N., 2013. "Research Opportunities: Embodied Child-Computer Interaction." International Journal of Child-Computer Interaction 1 (1): 30–36. doi:10.1016/j.ijcci.2012.08.001.

[3] Blackwell, C. K., A. R., Lauricella, E., Wartella, M., Robb, and R., Schomburg. 2013. "Adoption and Use of Technology in Early Education: The Interplay of Extrinsic Barriers and Teacher Attitudes." Computers and Education 69: 310–319. doi:10.1016/j.compedu.2013.07.024.

[4] Boyle, E., T. M., Connolly, and T., Hainey. 2011. "The Role of Psychology in Understanding the Impact of Computer Games." Entertainment Computing 2 (2): 69–74. doi:10.1016/j.entcom.2010.12.002.

[5] Cheng, M. T., H. C., She, and L. A., Annetta. 2015. "Game Immersion Experience: Its Hierarchical Structure and Impact on Game-based Science Learning." Journal of Computer Assisted Learning 31 (3): 232–253. doi:10.1111/jcal.12066.

[6] Danubianu, M., I., Tobolcea, and S. G., Pentiuc. 2009. "Advanced Technology in Speech Disorder Therapy of Romanian Language." Journal of Computing 1 (1): 61–66.

[7] DiCerbo, K. E., 2014. "Game-based Assessment of Persistence." Journal of Educational Technology & Society 17 (1): 17–28.

[8] Dunkley, C., L., Pattie, L., Wilson, and L., and McAllister. 2010. "A Comparison of Rural Speech-Language Pathologists' and Residents' Access to and Attitudes Towards the Use of Technology for Speech Pathology Service Delivery." International Journal of Speech-Language Pathology 12 (4): 333–343. doi:10.3109/17549500903456607.

[9] Eisinga, R., M., Te Grotenhuis, and B., Pelzer. 2013. "The Reliability of a Two-item Scale: Pearson, Cronbach, or Spearman-Brown?" International Journal of Public Health 58 (4): 637–642. doi:10.1007/s00038-012-0416-3.

[10] Fernandes, B., 2011. "iTherapy: The Revolution of Mobile Devices Within the Field of Speech Therapy." Perspectives on School-based Issues 12 (2): 35–40. doi:10.1044/sbi12.2.35.

[11] Furió, D., S., González-Gancedo, M. C., Juan, I., Seguí, and N., Rando. 2013. "Evaluation of Learning Outcomes Using an Educational iPhone Game vs. Traditional Game." Computers and Education 64 (November): 1–23. doi:10.1016/j.compedu.2012.12.001.

[12] Gačnik, M., A., Istenič Starčič, J., Zaletelj, and M., Zajc. 2017. "User-centred App Design for Speech Sound Disorders Interventions with Tablet Computers." Universal Access in the Information Society 119: 42–12. doi:10.1007/s10209-017-0545-9.

[13] George, J., and P., Gnanayutham. 2010. "Using Multimedia Interfaces for Speech Therapy 1." Universal Access in the Information Society 9 (2): 153–167. doi: 10.1007/s10209-009-0161-4

[14] Goffredo, M., I., Bernabucci, C., Lucarelli, S., Conforto, M., Schmid, M. M., Nera, L., Lopez, T., D'Alessio, and B., Grasselli. 2016. "Evaluation of a Motion-based Platform for Practicing Phonological Awareness of Preschool Children." Journal of Educational Computing Research 1–24. doi:10.1177/0735633115626881.

[15] Gosnell, J., 2011. "Apps: An Emerging Tool for SLPs." ASHA Leader 16: 10–13. doi:10.1044/leader.FTR1.16122011.10.

[16] Holmes, W., 2011. "Using Game-based Learning to Support Struggling Readers at Home." Learning, Media and Technology 36 (1): 5–19. doi:10.1080/17439884.2010.531023.

[17] Ifenthaler, D., and V., Schweinbenz. 2013. "The Acceptance of Tablet-PCs in Classroom Instruction: The Teachers' Perspectives." Computers in Human Behavior 29 (3): 525–534. doi:10.1016/j.chb.2012.11.004.

[18] Jennett, C., A. L., Cox, P., Cairns, S., Dhoparee, A., Epps, T., Tijs, and A., Walton. 2008. "Measuring and Defining the Experience of Immersion in Games." International Journal of Human Computer Studies 66 (9): 641–661. doi:10.1016/j.ijhcs.2008.04.004.

[19] Johnson, L., A., Levine, R., Smith, and S., Stone. 2010. The 2010 Horizon Report. New Media Consortium, Austin, USA. doi:10.1227/01.NEU.0000280154.19237.36.

[20] Madeira, R. N., P., Macedo, S., Reis, and J., Ferreira. 2014. "Super-Fon: Mobile Entertainment to Combat Phonological Disorders in Children." In Proceedings of the 11th Conference on Advances in Computer Entertainment Technology, ACM, 1–4. doi:10.13140/2.1.1704.864.

[21] Magsamen-Conrad, K., S., Upadhyaya, C. Y., Joa, and J., Dowd. 2015. "Bridging the Divide: Using UTAUT to Predict Multigenerational Tablet Adoption Practices." Computers in Human Behavior 50: 186–196. doi:10.1016/j.chb.2015.03.032.

[22] McEwen, R. N., and A. K., Dubé. 2015. "Engaging or Distracting : Children's Tablet Computer Use in Education." Journal of Educational Technology & Society 18 (4): 9–23.

[23] National Institute of Child Health and Human Development (US). 2000. 'Report of the National Reading Panel: Teaching Children to Read: An Evidence-based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction'. Reports of the Subgroups. https://www.nichd.nih.gov/publications/pubs/nrp/Documents/report.pdf.

[24] Naz, K., and H., Epps. 2004. "Relationship Between Color and Emotion: A Study of College Students." College Student J 38 (3): 396–405.

[25] Nussbaum, M., and A., Diaz. 2013. "Classroom Logistics: Integrating Digital and Non-digital Resources." Computers and Education 69: 493–495. doi:10.1016/j.compedu.2013.04.012.

[26] Okan, Z., 2003. "Edutainment: Is Learning at Risk?" British Journal of Educational Technology 34 (3): 255–264. doi:10.1111/1467-8535.00325.

[27] Oviatt, S., 2013. "Interfaces for Thinkers : Computer Input Capabilities That Support Inferential Reasoning." In Proceedings of the 15th ACM on International Conference on Multimodal Interaction, ACM: 221–28. doi:10.1145/2522848.2522849.

[28] Parnandi, A., V., Karappa, Y., Son, M., Shahin, J., McKechnie, K., Ballard, B., Ahmed, and R., Gutierrez-Osuna. 2013. "Architecture of an Automated Therapy Tool for Childhood Apraxia of Speech." In Proceedings of the 15th International ACM SIGACCESS Conference on Computers and Accessibility, ACM:1–8. doi:10.1145/2513383.2513450.

[29] Sharma, S. K., M., Sarrab, and H., Al-Shihi. 2016. "Development and Validation of Mobile Learning Acceptance Measure." Interactive Learning Environments 25 (7): 847–858. doi:10.1080/10494820.2016.1224250.

[30] Shriberg, L. D., J., Kwiatkowski, and T., Snyder. 1990. "Tabletop Versus Microcomputer-assisted Speech Management: Response Evocation Phase." Journal of Speech and Hearing Disorders 55 (4): 635–655. doi: 10.1044/jshd.5504.635

[31] Sidock, J., 2011. "Critical Review: Is the Integration of Mobile Device Apps into Speech and Language Therapy Effective Clinical Practice?" Master's thesis, University of Western Ontario, London, Ontario.

[32] Teo, T., and J., Noyes. 2014. "Explaining the Intention to Use Technology among Pre-service Teachers: A Multi-group Analysis of the Unified Theory of Acceptance and Use of Technology." Interactive Learning Environments 22 (1): 51–66. doi:10.1080/10494820.2011.641674.

[33] Toki, E. I., and J., Pange. 2010. "e-Learning Activities for Articulation in Speech Language Therapy and Learning for Preschool Children." Procedia–Social and Behavioral Sciences 2 (2): 4274–4278. doi:10.1016/j.sbspro.2010.03.678.

[34] Tosuntaş, Ş. B., E., Karadağ, and S., Orhan. 2015. "The Factors Affecting Acceptance and Use of Interactive Whiteboard Within the Scope of FATIH Project: A Structural Equation Model Based on the Unified Theory of Acceptance and Use of Technology." Computers and Education 81: 169–178. doi: 10.1016/j.compedu.2014.10.009

[35] Venkatesh, V., M. G., Morris, G. B., Davis, and F. D., Davis. 2003. "User Acceptance of Information Technology: Toward a Unified View." MIS Quarterly 27 (3): 425–478. doi: 10.2307/30036540

[36] Wakefield, L., and T., Schaber. 2012. "Use the Evidence to Choose a Treatment App." ASHA Leader 17 (July): 38–39. doi:10.1044/leader.APP.17092012.38.

[37] Williams, M. D., N. P., Rana, and Y. K., Dwivedi. 2015. "The Unified Theory of Acceptance and Use of Technology (UTAUT): A Literature Review." Journal of Enterprise Information Management 28 (3): 443–488. doi:10.1108/JEIM-09-2014-0088.

[38] Wren, Y., and S., Roulstone. 2008. "A Comparison Between Computer and Tabletop Delivery of Phonology Therapy." International Journal of Speech-Language Pathology 10 (5): 346–363. doi:10.1080/17549500701873920.