



## A Novel Virtual Pharmacy Examination Format and Student Self-Perceptions in Making Nonprescription Product Recommendations

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### ABSTRACT

Determine the impact of the virtual pharmacy examination on student perceptions of confidence, competence, and comfort when recommending nonprescription products. **METHODS:** A pre-test post-test survey of student perceptions of their own confidence, competence and comfort following exposure to a "virtual pharmacy" examination was administered. Paired sample t-tests and independent samples t-tests were used for pre-post comparisons where appropriate. **RESULTS:** Analysis showed a pre-post mean increase of 1.25 on a 5-point scale ( $p < 0.001$ ) for the 3-item subscale measuring perceived confidence in making nonprescription product recommendations. A single item for a pre-post comparison of perceived competence showed a mean increase of 1.45 on a 5-point scale ( $p < 0.001$ ). Pre-post comparisons of self-reported comfort in making nonprescription recommendations showed a mean increase of 0.49 on a 5-point scale ( $p < 0.01$ ). **CONCLUSIONS:** The virtual examination format improved student perceptions of their own confidence, competence and comfort in making nonprescription product recommendations.

### KEYWORDS

Virtual Simulation; Practice Simulation; Computer-Based Examination; Therapeutic Recommendations; Nonprescription Products; OTC Products; Pharmacy Work Experience

### Cite this paper

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### References

- [1] Accreditation Council for Pharmacy Education (2007). Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. Standard 14. , v. adopted: effective 1 July 2007.
- [2] Alexiou, A., Bouras, C., Giannaka, E., et al. (2004). The virtual radiopharmacy laboratory: A 3-D simulation for distance Learning. *Journal of Educational Multimedia Hypermedia*, 13, 307-322.
- [3] Bambini, D., Washburn, J., & Perkins, R. (2009). Outcomes of clinical simulation for novice nursing students: Communication, confidence, clinical judgement. *Nursing Education Perspectives*, 30, 79-82.
- [4] Boje, K., Sauciunac, C., & Piper, T. (2005). A pharmaceutical biotechnology virtual laboratory. *American Journal of Pharmaceutical Education*, 69, 157-168. HUdoi:10.5688/aj690224UH
- [5] Brands, M. W., & Schumacher, L. (2009). Active learning strategies to teach renal-cardiovascular integration with high student-to-teacher ratios. *Advances Physiology Education*, 33, 282-285. HUdoi: 10.1152/advan.00055.2009UH
- [6] Consumer Healthcare Products Association (2012). The value of OTC medicine to the United States. URL (last checked 30 April 2012). [http://www.yourhealthathand.org/images/uploads/The\\_Value\\_of\\_OTC\\_Medicine\\_to\\_the\\_United\\_States\\_BoozCo.pdf](http://www.yourhealthathand.org/images/uploads/The_Value_of_OTC_Medicine_to_the_United_States_BoozCo.pdf)
- [7] Fuhrman, L. C., Buff, W. E., Eaddy, M., et al. (2001). Utilization of an integrated interactive virtual patient database in a web-based environment for teaching continuity of care. *American Journal of Pharmaceutical Education*, 65, 271-

- [8] Haworth, I. S., Bolger, M. B., & Eriksen, S. P. (1997). Use of computer-based case studies in a problem-solving curriculum. *American Journal of Pharmaceutical Education*, 61, 97-102.
- [9] Hedaya, M. A. (1998). Development and evaluation of an interactive Internet-based pharmacokinetic teaching module. *American Journal of Pharmaceutical Education*, 62, 12-16.
- [10] Kameg, K., Howard, V. M., Clochesy, J., et al. (2010). The impact of high fidelity human simulation on self-efficacy of communication skills. *Issues in Mental Health Nursing*, 31, 315-323. HUdoi: 10.3109/01612840903420331UH
- [11] Kiegaldie, D. (2006). "The virtual patient"—Development, implementation and evaluation of an innovative computer simulation for postgraduate nursing students. *Journal of Educational Multimedia and Hypermedia*, 15, 31-47.
- [12] Kinkade, R. E., Mathews, C. T., Draugalis, J. R., et al. (1995). Evaluation of a computer simulation in a therapeutics case discussion. *American Journal of Pharmaceutical Education*, 59, 147-150.
- [13] Kluge, M. A., Glick, L. K., & Engleman, L. L. (2007). Teaching nursing and allied health care students how to "communicate care" to older adults. *Educational Gerontology*, 33, 187-207. HUdoi: 10.1080/03601270600864082UH
- [14] Li, R. C., Wong, S. L., & Chan, K. H. (1995). Microcomputer-based programs for pharmacokinetic simulations. *American Journal of Pharmaceutical Education*, 59, 143-147.
- [15] Liaw, S. Y., Chen, F. G., Klainin, P., et al. (2010). Developing clinical competency in crisis event management: An integrated simulation problem-based learning activity. *Advances in Health Sciences Education*, 15, 403-413. HUdoi: 10.1007/s10459-009-9208-9U
- [16] Orr, K. K. (2007). Integrating virtual patients into a self-care course. *American Journal of Pharmaceutical Education*, 71, 1-9. HUdoi: 10.5688/aj710230UH
- [17] Paige, J. T., Kozmenko, V., Yang, T., et al. (2009). Attitudinal changes resulting from repetitive training of operating room personnel using high-fidelity simulation at the point of care. *The American Surgeon*, 75, 584.
- [18] Schlicht, J. R., Livengood, B., & Shepard, J. (1997). Development of multimedia computer applications for clinical pharmacy training. *American Journal of Pharmaceutical Education*, 61, 287-292.
- [19] Sewell, R. D. E., Stevens, R. G., & Lewis, D. J. (1996). A pharmacology experimental benefits from the use of computer-assisted learning. *American Journal of Pharmaceutical Education*, 60, 303-307.
- [20] Sibbald, D. (2003). Virtual interactive case tool for asynchronous learning and other self-directed learning formats. *American Journal of Pharmaceutical Education*, 67, 144-152.
- [21] Sibbald, D. (2004). A student assessment of virtual interactive case tool for asynchronous learning: Develop online resources for non-prescription drugs. *American Journal of Pharmaceutical Education*, 68, 1-7. HUdoi: 10.5688/aj680111UH
- [22] Srinivasan, M., Hwang, J. C., West, D., et al. (2006). Assessment of clinical skills using simulator technologies. *Academic Psychiatry*, 30, 505-515. HUdoi: 10.1176/appi.ap.30.6.505U
- [23] Tompson, G. H., & Dass, P. (2000). Improving students' self-efficacy in strategic management: The relative impact of cases and simulations. *Simulation Gaming*, 31, 21-44. HUdoi: 10.1177/104687810003100102UH
- [24] Tsai, S., Chai, S., Hsieh, L., et al. (2008). The use of virtual reality computer simulation in learning port—A cath injection. *Advances in Health Sciences Education*, 13, 71-87. HUdoi: 10.1007/s10459-006-9025-3U

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