Computer Enhanced Visual Learning: A New Tool for Surgical Education and Assessment of Surgical Competency

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Abstract

Introduction: CEVL, Computer Enhanced Visual Learning, is an online tool that combines multiple educational modalities for specific surgical procedures. It also allows for immediate both global and procedure-specific measurement of competency and effectiveness for surgical procedures.^{1–8} Since its inception, the tool has become a prominent educational tool for many well-known institutions, primarily in the field of urology.⁵

Materials and Methods: A standard approach to teach a hemithyroidectomy surgical procedure is utilizing the CEVL method, an Internet-accessed platform. The content was developed through collaboration of the authors' clinical and computer expertise.

Results: The video walkthrough of the CEVL educational platform exemplifies its utility to the education of residents in performing specific surgical procedures, in this case a hemithyroidectomy.

Conclusions: The CEVL platform provides education, examination, and procedure skill documentation by utilizing online text, pictures, and surgical videos. The development of a multimodal

and standardized educational and assessment tool will allow for improved procedural performance and earlier identification and documentation of struggling trainees.

No competing financial interests exist.

Runtime of video: 8 mins

Keywords: CEVL, Computer Enhanced Visual Learning, learning tool, surgical education, thyroidectomy

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References

1. Kim RH, Gilbert T, Ristig K, Chu QD. Surgical resident learning styles: Faculty and resident accuracy at identification of preferences and impact on ABSITE scores. *J Surg Res* 2013;184:31–36.
2. Varela DA, Malik MU, Laeeq K, Pandian V, Brown DJ, Weatherly RA, Cummings CW, Bhatti NI. Learning styles in otolaryngology fellowships. *Laryngoscope* 2011;121:2548–2552.
3. Laeeq K, Weatherly RA, Carrott A, Pandian V, Cummings CW, Bhatti NI. Learning styles in two otolaryngology residency programs. *Laryngoscope* 2009;119:2360–2365.
4. Marple BF. Competency-based resident education. *Otolaryngol Clin N Am* 2007;40:1215–1225.
5. Brown DJ, Thompson RE, Bhatti NI. Assessment of operative competency in otolaryngology residency: Survey of US Program Directors. *Laryngoscope* 2008;118:1761–1764.
6. Cooney CM, Cooney DS, Bello RJ, Bojovic B, Redett RJ, Lifchez SD. Comprehensive observations of resident evolution: A novel method for assessing procedure-based residency training. *Plast Reconstr Surg* 2016;137:673–678.
7. Chadwick KA, Dodson KM, Wan W, Reiter ER. Attainment of surgical competence in otolaryngology training. *Laryngoscope* 2015;125:331–336.
8. Laeeq K, Bhatti NI, Carey JP, Della Santina CC, Limb CJ, Niparko JK, Minor LB, Francis HW. Pilot testing of an assessment tool for competency in mastoidectomy. *Laryngoscope* 2009;119:2402–2410.

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