



FINAL REPORT

Learning Styles in Radiology: Informing curriculum changes and mentorship

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Abbreviated title: Learning Styles in Radiology

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In the past several decades there have been significant shifts in the field of medical education. One of the most important developments has come as a result of our improved understanding of the learning process. Dr. David Kolb describes an experiential learning process that involves creative tension between four learning modes that are responsive to contextual demands: concrete experience, abstract conceptualization, active experimentation, and reflective observation. Different learning styles arise from an individual's preference for each mode.

The importance of understanding the learning process and learning styles has become increasingly important in the field of diagnostic radiology. As the body of knowledge required to be a competent radiologist continues to grow, no changes to the length of residency programs have been made. Therefore, it is crucial to emphasize not only content but also teaching strategies to ensure that academic time is used most efficiently. The purpose of this study is to determine the preferred learning styles of diagnostic radiology residents and faculty using the validated Kolb Learning Style Inventory (LSI, Version 3.1). This information will be used to inform curriculum changes to deliver content in the most useful way, and to create optimal mentorship pairing between residents and faculty with similar styles.

The Kolb LSI was administered to diagnostic radiology residents (n=95) and faculty (n=225) from two academic teaching institutions. Demographic data was also collected from participants, including age, gender, research involvement, resident postgraduate year and faculty subspecialty.

The Kolb LSI response rate among residents was 76% (n=72) and the response rate among faculty was 23% (n=52). All learning styles were represented by residents and faculty; however, residents were significantly more likely to have a preference for the converging learning style, and faculty were significantly more likely to have a preference for the accommodating learning style.

Resident preference for the converging learning style continued independent of age, gender, research experience, and postgraduate year. Faculty preference for the accommodating learning style continued independent of gender and research experience. Interestingly, faculty in the youngest age cohort preferred the converging learning style over the accommodating learning style. As well, there was no definitive trend for faculty learning style by subspecialty, although chest radiologists were significantly more likely to exhibit a preference for the converging learning style.

Our findings indicate that residents and faculty learn in all modes of the learning cycle, and therefore can transcend different styles depending on contextual demands. Converging and accommodating learning styles share a preference for the active experimentation learning mode, which suggests that our curriculums should incorporate hands-on learning experiences, such as simulation. There is also evidence that radiologists shift from the converging learning style to the accommodating learning style over time, perhaps as a result of taking on a more educational role, which is linked to the accommodating learning style. In the future, it would be interesting to assess learning style preferences of residents as they transition into an educational role as faculty.