Teacher-Training in Radiology: Importance of Faculty and Resident Development

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Disclosures

The authors have no disclosures.
Recent paradigm shifts in radiology have resulted in a variety of practice environments ultimately effecting the types of radiology residency programs. As radiologists become hospital employees as opposed to private contractors, responsibilities as educators have emerged. However the implications on faculty and on actual resident education are unclear.

Most medical educators, including radiologists, have little or no formal background in education and have learned how to teach largely from watching other educators in action. (Williamson)

Donovan showed that fewer than 20% of residency programs had instituted resident teacher training curricula and fewer than half received feedback on their teaching. These numbers are likely even lower for physicians of decades past.
Medical education can be a very solitary process and expectations of effective self-directed learning increase throughout the course of a career.

However, Houle and Brookfield explain that “There is a consistent overestimation of the adult learner’s readiness to be self-directing.”

The more common reaction is one of confusion, anxiety and often anger. Students will say, ‘We paid a high price to come here and we want your expertise.”

Expertise however, cannot always be translated to effective teaching. Roelf found that adult learners older than 30 were more likely to prefer pedagogical-based instruction.
It is known that clinical teachers and medical residents benefit from training in teaching skills. Some argue medical residents in particular, benefit from participating in the teaching process itself.

Similar to learning radiology, teaching is a skill similarly which requires structure and feedback.

We suggest that quality improvement should not only be on the front end of radiology but also on the back end where education occurs. By introducing small faculty and resident development programs we believe the overall involvement and quality of education will improve.

By understanding the skills required in order to teach effectively and the basis of educational theory, educators can begin to understand how to address the needs of different residents.
Teaching is a fundamental principal of being a competent physician, whether it involves educating your patient, your junior mentor or even a colleague in a different specialty.

Despite this life long role that physicians have taken on as educators, hardly any understand the various teaching methodologies, components and their implications in radiology education.

Though some academic programs may have faculty development programs, many do not provide these educational programs to residents and furthermore, most smaller programs lack the resources.

We suggest a teacher-training curriculum of discussions based on desired learning objectives including:

1) Effective teaching
2) Self-knowledge and teaching ability
3) Feedback skills
4) Assessing prior knowledge
5) Trouble shooting
6) Time management
Similar workshops have been used for resident teacher-training with excellent outcomes. We suggest that both faculty and attendings conduct these discussions to optimize understanding and teaching amongst one another.

By adapting these learning objectives to radiology teaching and having an active discussion or workshop faculty can begin to understand and develop their own teaching abilities.
Topics of Discussion

1. Effective teaching - Meant to acquaint faculty with principles of effective teaching. Important concepts of learning should be discussed such as various skills required to teach effectively, learning in context, how to promote student participation, andragogy various settings of teaching in radiology such as radiology or interdisciplinary conferences or at the workstation.

2. Self-Knowledge and teaching ability - Involves faculty outlining what they consider factors of good teaching ability. This would be followed by assessing their own perceived strengths and weaknesses including clinical ability, pedagogical ability, and personal qualities.

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<thead>
<tr>
<th>Clinical Abilities</th>
<th>Pedagogical abilities</th>
<th>Personal qualities</th>
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<tr>
<td>Good clinician</td>
<td>Active participant in teaching</td>
<td>Enthusiasm for work</td>
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<tr>
<td>Up to date theoretical knowledge</td>
<td>Individualises teaching approach</td>
<td>Able to assess own strengths and weaknesses</td>
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<tr>
<td>Up to date clinical knowledge</td>
<td>Identifies strengths and weaknesses</td>
<td>Self improvement</td>
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<tr>
<td>Holistic approach</td>
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<td>Warm and respectful</td>
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<td>Flexible</td>
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<td>Listens</td>
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<td>Integration of preventive and curative aspects</td>
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<td>Expresses own emotions appropriately</td>
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<td>Critical and analytical</td>
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<td>Interacts with others</td>
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<td>Manages stressful situations</td>
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<td>Gets support when necessary</td>
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<td>Balances personal and professional life</td>
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Modified from Cote, 1993\(^{17}\)
Topics of Discussion

3. **Feedback** - A discussion on the value of frequent and specific positive and negative feedback; The importance of honesty in providing feedback, and how it can create an atmosphere for open communication and facilitate learning for radiology residents.

4. **Troubleshooting** - Faculty must evaluate problems that arise in the clinical setting with residents and how to classify them. Problem acknowledgement - Problems can be professional or personal and behavioral and/or educational in nature. Acknowledging a problem entails identifying the nature of the problem and accepting it with the aim of finding a solution by first identifying the cause.

5. **Assessing prior knowledge** - Faculty must evaluate the importance of a resident’s prior knowledge and how to use it to help acquire and build new knowledge.

6. **Time management** - Faculty must outline the negative effects of time shortage, such as work pressure and poor teaching. They must then generate suggestions for effective use of time for teaching.

By discussing and developing each of these learning objectives in a workshop environment, both faculty and residents can improve basic teaching abilities and the quality of education in radiology.
Thank you for your attention.

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