# Using Video-Guided Training as a Faculty Development Tool for Creating a Shared Mental Model of Safety for Resident Assessment: A Pilot Study

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## Background

The literature suggests that faculty independently call upon multiple frames of reference (1).

There is a need to ensure that faculty and staff approach assessment with a shared standard or mental model (1). Frame of Reference (FOR) has been proposed as a method of training faculty.

Faculty with a common frame of reference is better able to use rating scales and behavior anchors as a reliable system to evaluate residents (2).

This study utilized a novel short film as a training tool drawing upon a common non clinical scenario involving public safety (driving a car) to teach frame of reference to faculty.

## Methods

- Multi-institution study developed for faculty members in the Department of Medicine responsible for the assessment of physicians in-training at both institutions.
- Instructional video depicting the concept of frame of reference as applied to learning to drive, a common non-clinical scenario, was developed.
- An intervention, which included instructional video, was developed to teach frame of reference.
- Participants completed the following:
  - Pre-assessment regarding overall satisfaction using milestones (n=20) and traditional Likert-scale evaluative instruments to assess resident performance.
  - Independent rating of standardized patient care scenario video, capturing elements of Internal medicine Patient-Care sub-competencies, using:
    - Modified-Mini-clinical evaluations (Mini CEX) using Likert scale
    - Patient Care 3 (PC-3) Milestone
  - Didactic presentation incorporating instructional video discussing developmental anchors, milestones and evaluation forms.
  - Repeat rating of same standardized patient care scenario video using same tools.
  - Completion of post-self assessment (n=20).
- Participant evaluations of the clinical skill scenarios using the Likert and milestone assessments from before and after the educational intervention were compared.
- Intra-class correlation coefficient and paired sample t-tests procedures were used to analyze the data.

## Results

**Pre-Self Assessment:**
- Length of time participants identified having been evaluating residents:
  - 50% less than 6 years
  - 50% greater than 11 years
- Identified frame of reference used when assessing resident performance:
  - 50% progression to independence
  - 23 % comparison to their same level PGY level peers
- Statistically significant difference was identified between the two institutions regarding time taken to complete/return evaluation forms (p=0.03).

**Post-Self Assessment:**
- 100% felt that this training "somewhat" or "yes" improved their understanding of behavioral anchors for assessing residents readiness to train independently.
- 100% felt that this training "somewhat" or "yes" improved their understanding of a frame of reference/shared mental model.

**Pre/Post Assessment Comparison:**
- Trend toward improvement in self-reported comfort using behavioral milestones from pre to post with no statistically significant increase (pre mean 2.7, post mean 2.9).

**Pre/Post Milestone & Likert Assessments:**
- Upon analysis, no statistically significant change from pre to post was identified for the PC-3 milestone or mini CEX assessments.
- There was a trend toward improved comfort with milestones from pre to post with a high degree of inter-rater reliability.
- High inter-rater reliability was identified for both the Likert evaluation (Cronbachs alpha - .726) instrument and PC-3 milestone (Cronbachs alpha - .872).
- There were positive associations when looking at several inter item correlations.

**Reported Confidence using Behavioral Milestones (Pre vs. Post self-assessment)**

| | Pre: How comfortable are you using behavioral anchors/milestones to assess resident performance? | Post: After this training, how comfortable are you in using behavioral anchors to assess resident performance? |
|---|---|---|
| Very uncomfortable | 0% | 5% |
| Somewhat comfortable | 45% | 27% |
| Comfortable | 36% | 50% |
| Very comfortable | 9% | 18% |
| I don't know what they are | 9% | 0% |
| Mean | 2.7 | 2.9 |
| | | p=NS |

**Clinical Scenario Video Rating: Patient Care 3 Milestone (Pre vs. Post)**

| Item | Pretest | | Posttest | | P-value | |
|---|---|---|---|---|---|---|
| | Mean | StDev | Mean | StDev | (Paired T-Test) | Correlation |
| Manages patient with progressive responsibility & independence | 3.38 | 1.20 | 3.48 | 1.08 | NS | .778 (.000) |

**Clinical Scenario Video Rating: Mini CEX (Pre vs. Post)**

| Item | Pretest | | Posttest | | P-value | |
|---|---|---|---|---|---|---|
| | Mean | StDev | Mean | StDev | (Paired T-Test) | Correlation |
| Medical Interviewing | 3.35 | 1.46 | 3.48 | 1.44 | NS | .585 (.003) |
| Physical Exam Skills | | | | | | |
| Humanistic Qualities/Professionalism | 4.09 | 1.35 | 4.13 | 1.36 | NS | .590 (.003) |
| Clinical Judgment | 4.00 | 1.41 | 3.64 | 1.15 | NS | .425 (.129) |
| Counseling Skills | 2.91 | 1.31 | 3.83 | 1.02 | NS | -0.79 (.808) |
| Organization/Efficiency | 3.86 | 1.39 | 3.91 | 1.44 | NS | .634 (.002) |
| Overall Clinical Competence | 3.45 | 1.23 | 3.55 | 1.28 | NS | .937 (.000) |

## Discussion

Our workshop was intended to enhance faculty understanding and commitment to a common frame of reference in regards to resident assessment. The video-guided faculty development session helped to better calibrate faculty with one another, thus increasing their inter-rater agreement of appropriate levels of competence in the non-clinical and clinical scenarios. Given our findings, we think it is important to explore potential reasons why our intervention did not impact evaluation ratings and explore further comparisons between the faculty at both institutions.

## References

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