Tracking the Trajectory of Resident Learning Through the Lens of Self-Determination Theory.

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Tracking the Trajectory of Resident Learning Through the Lens of Self-Determination Theory

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BACKGROUND

Self-Determination Theory has been proposed as a model to support the development of adult learning in medical education (Olle et al., 2011). Previous work (Nothnagle et al., 2011) has indicated that family medicine residents needed to develop confidence in their self-directed learning skills and required support and residency culture and structural changes to develop these skills.

The Lehigh Valley Family Medicine Residency Program, as part of the Preparing the Personal Physician for Practice (p4) national demonstration project of innovation in family medicine residency training, restructured its curriculum to support residents in acquiring and applying the principles of adult learning. These changes included the addition of an individualized longitudinal curriculum, active participation in a community of practice beginning in year 1, a tailored advising and assessment process (Resident Assessment Facilitation Team, or RAFT), and focus on lifelong learning skills in periodic formative and summative assessments (Baglia et al., 2011; Foster et al., 2017; Foster et al., 2012; Keister et al., 2012).

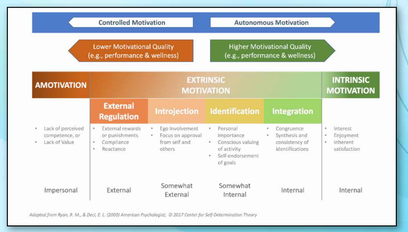
PURPOSE

This study describes the trajectory of graduate medical learners' development as internally motivated (activated) learners over a 3-year training period within a residency program designed to support the development of the autonomy, relatedness and competency.

THEORETICAL FRAMEWORK

The data analysis will be done from an adult learning (andragogy) theoretical perspective, based on the principals outlined by Malcolm Knowles (1984), focused on the development of intrinsic motivation, as described by Self-Determination Theory.

Components of Self-Determination Theory



METHODOLOGY

This retrospective mixed-methods study analyzes qualitative and quantitative data collected from 56 family medicine residents enrolled in our program in academic years 2009-2015. We seek to describe the trajectory of self-directed learning across the 3-year residency training period. Results of each data set will be compared side-by-side to determine whether the qualitative and quantitative data at specific training intervals illustrate similar patterns.

QUALITATIVE ANALYSIS

We explore the qualitative data on two levels of analysis – the aggregated cohort of residents enrolled from 2009 to 2015 and a case study of an individual learner.

- Aggregated Resident Data Set: 24 focus group transcripts from PGY-level cohorts at four intervals (after orientation in PGY1 and end of each of the 3 training years)
- Individual Learner Data Set: Transcripts of 7 RAFT sessions, 7 educational SOAP (Subjective, Objective, Assessment and Plan) notes presented at these sessions and the summary statements written by the resident for the educational community

QUANTITATIVE ANALYSIS

Radar graphs are used to track the progression of residents at each PGY level in attaining competency in lifelong learning skills (Keister et al., 2012). The study team will operationalize the assessed behaviors to the components of Self-Determination Theory. Composite radar graphs of all lifelong learning observable behavior scores for each PGY level will be analyzed to determine whether motivation levels can be assigned using only this numerical data.

- 3,695 individual scores representing the 3-year training period of 19 residents who graduated in academic years 2012-2014
- Scores assigned by clinical preceptors and other faculty who observed the residents during family medicine inpatient service, outpatient continuity site care, didactic sessions or in a RAFT meeting.
- 3 composite radar graphs depicting mean frequency of observed behaviors at each PGY level

COMPLETED STEPS

Stage 1: Adult Learning Codebook

Operationalization of Adult Learning and coding of source data to appropriate child & grandchild nodes

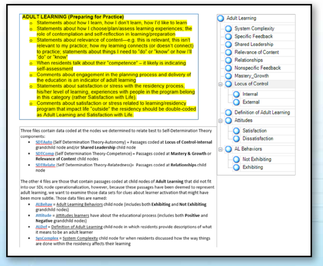
Stage 2: Operationalization of Self Determination Theory

Assignment of AL codebook to components of SDT and stratification of results by PGY level

Stage 3: Identification of emergent themes by PGY level

PI and 2 study team members per PGY level independently identify themes

Consensus by group on themes for each PGY level, by SDT component



Three files contain data coded at the nodes we determined to relate best to Self-Determination Theory components:

- Attitudes (Self Determination Theory-Autonomy) = Passages coded at **Locus of Control-Internal** grandchild node and/or **Shared Leadership** child node
- Attitudes (Self Determination Theory-Competence) = Passages coded at **Mastery & Growth** or **Relevance of Content** child nodes
- Attitudes (Self Determination Theory-Relatedness)= Passages coded at **Relationships** child node

The other 4 files are those that contain passages coded at child nodes of **Adult Learning** that did not fit into our 3SDL node operationalization, however, because these passages have been deemed to represent adult learning, we want to examine those data sets for clues about learner activation that might have been more subtle. Those data files are named:

- Activities = Adult Learning Behaviors child node (includes both **Exhibiting** and **Not Exhibiting** grandchild nodes)
- Attitudes = Attitudes learners have about the educational process (includes both **Positive** and **Negative** grandchild nodes)
- Aspect = Definition of Adult Learning child node in which residents provide descriptions of what it means to be an adult learner
- Nonconstru = System Complexity child node for when residents discussed how the way things are done within the residency affects their learning

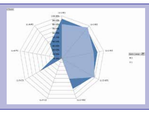
NEXT STEPS

Subgroup for aggregated resident data set analysis
- Review identified themes
- Consensus creation of PGY-level descriptor statement for each SDT component
- Identification of exemplar quotes
- Results to full team for member checking

Subgroup for individual resident data set analysis
- Review identified themes
- Consensus creation of PGY-level descriptor statement for each SDT component
- Identification of exemplar quotes
- Results to full team for member checking

Identification of motivation status at each PGY level

RESULTS

	Early PGY1	End of PGY1	End of PGY2	End of PGY3
GROUP				
Competence	Feeling overwhelmed and uncertain in their new roles, residents seek external assessment of their clinical competency. They focus on the challenges of an unfamiliar educational process as they discuss their fears about preparing for the boards and making decisions independently about patient care. Seeing the upper-year residents at work stokes their anxiety as they recognize that soon they will be expected to perform at that level. **"I don't feel comfortable with a lot of what I know, or confident in seeing someone and saying this is what's going on."**			
Autonomy	The opportunity to find their own paths attracted these learners to the residency, but they soon realize they will need help navigating the expectations and realities of their new environment. They are eager to be able to make decisions independently, both in the clinic and about their educational plans, and have high expectations for themselves. In describing their approach to learning, they express both appreciation for and frustration with the resources they can access. **"Since its learner driven, it takes a lot more initiative than we're used to."**			
Relatedness	In Progress			
Motivation Level	TBD			
INDIVIDUAL				
Competence	The resident voices areas of need and articulates ownership in a process to improve knowledge. **"I'm mostly interested in kind of trying to identify, em, rashes and different kinds of lesions and how to effectively communicate what I see because, I mean, I can't even tell you how many times I've gone over macular pap and whatever and it's just not sinking [in]."**			
Autonomy	Resident embraces opportunity to select learning opportunities experiences and discusses process for choices made. Resident initiates and develops a visit to a patient education center and makes deliberate choices to fill perceived gaps in medical knowledge. **"I think that would be a good foundation for my further interest and, em, knowledge component of diabetes."**			
Relatedness	Resident feels welcomed into the community by others and sees opportunities for forging relationships. While **"feeling some anxiety about working with specific attendings,"** resident recognizes ability to learn from them despite discomfort. Stressors include relying too much on others.			
Motivation Level	TBD			
RADAR GRAPH				
Motivation Level	TBD			

QUESTIONS FOR DISCUSSION

- How should we incorporate original quotes from the data sources?
- What do you want to know about the process for assigning levels of motivation?
- What is confusing or not clear?

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