

# Are Grades and Counseling Skills Related to Hierarchical Complexity Problem Performance?

Patrice Marie Miller  
Salem State University

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# Introduction - 1

- The field of education seems to be constantly re-evaluating the question of what developmental competencies are needed now and in the future
- In general, and especially for undergraduate students, such discussions might focus on such specific skills as writing or critical thinking.
- In training graduate students who are preparing to become counselors, we face a particular set of questions.
  - One is to what extent are higher level competencies necessary to be an effective counselor
  - to what extent are such competences being acquired?
- One way to think of “higher level competencies’ is in terms of their hierarchical complexity
- Because of these questions, we have been studying the stage of reasoning in both graduate student essays and in structured problems.

# Introduction - 2

- This proposed research study is a follow up to a study that was begun in Spring, 2011
  - In the earlier study, we scored admissions essays from graduate students in the M.S. Program in Counseling and Psychological Services using the Model of Hierarchical Complexity.
- Results from that study were that participants' responses were scored at a Mean Stage: 9.76 (.27), with a Median of 10 (Formal stage).
- The main issue with this earlier study is that we were able to score only 14 essays over the course of one semester.
- Examining student outcomes, such as grades, in such a small sample was problematic
- In the research to be presented here, we instead used a previously studied instrument, called the counselor-patient instrument, to assess the order of reasoning complexity of graduate students.

- Participants filled out the Counselor-Patient Survey online. This instrument consists of seven vignettes
  - In each vignette, a different counselor informs their patient about a treatment and how they obtain consent for the treatment
  - Each vignette is designed to reflect a different order of hierarchical complexity, ranging from preoperational to metacognitive

# Example: Concrete Order Vignette

- Counselor Mason offers the Patient a treatment preferred by colleagues.
- Mason says that others who are friends use this treatment. A colleague is called in to tell the Patient again about the treatment.
- With great concern, Mason asks if the Patient would like to hear a third person explain the treatment.
- Mason's Patient is told that these people had good results with that treatment.
- Mason instructs the Patient to support the treatment. Mason's Patient thinks seriously about what Mason has said.
- Feeling that Mason knows best, Mason's Patient prepares to undergo the treatment.

# Example: Systematic Order Vignette

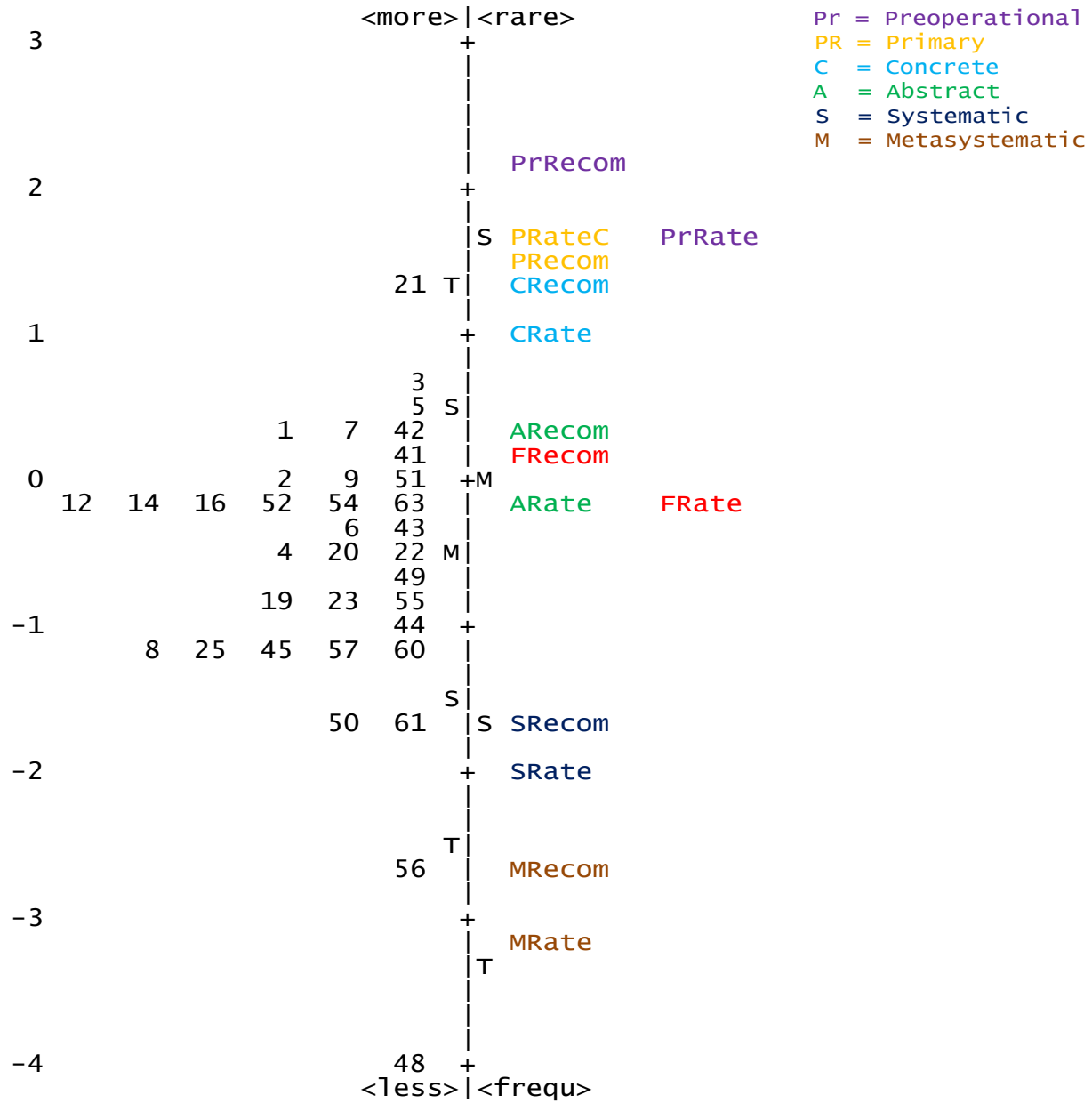
- Counselor Ellis offers a treatment which performs relatively better than others.
- Ellis relates the effects and side effects of each treatment including taking no action.
- Then Ellis asks the Patient questions about the treatments making sure the Patient understands.
- Ellis asks if the Patient feels comfortable making a decision with the present information.
- Since the Patient is satisfied, Ellis asks the Patient to think carefully before choosing a treatment.
- Ellis asks the Patient to think about what they have both said about the alternatives and then think about choosing.
- Feeling that Ellis knows best, Ellis's Patient prepares to undergo the treatment.

- After reading each Vignette, participants were asked to rate the methods of informing and obtaining consent in terms of seven dimensions or aspects of the informing and consenting
- Two of the rating questions are included here
  - Rate Counselor Ellis' method of offering the plan
  - Rate how strongly you would recommend Counselor Ellis' argument
- Two other open-ended questions were asked and scored:
  - What is your idea of a good counselor-patient relationship?
  - Give the best reasons why that is a good relationship.

- There were 35 participants who completed the entire survey
- These participants were all enrolled in a Masters in Counseling program
  - They varied in terms of number of credits taken
- The responses of 35 participants were first Rasch analyzed
- The Rasch Map is shown next.



# Rasch Map



- The mean item score was at the level where the abstract and formal items are clustered together
  - We therefore assign the mean item stage to be 9.5 ( $SD = 1.67$ )
- Participant scores ranged from 1.39 to -3.95, with  $M = -.55$  and  $SD = .97$
- The Order of Hierarchical Complexity was found to predict the item scores with  $r(N) = .949$  ( $R^2 = .901$ ).
  
- These results are shown mainly to establish that these data are similar with other counselor-patient data we have collected

# Coding of Open-Ended Questions

- The open-ended question, “Give the best reasons why that is a good [Counselor-patient] relationship” was coded using the MHC coding scheme
- The mean stage was 10.38 (SD = .74) (Median was 10.5)
- This mean is somewhat higher but not that different from the mean obtained on the vignettes
- The correlation between the Rasch Person Scores and the Why Scores” was essentially zero,  $r(29) = -.029$ .
- The main interest of this study was to see whether the *Rasch Person Scores* OR the *Why Scores* were predicted by the participants’ grades or the participants’ ratings on clinical skills.

# Clinical Ratings

- Ratings of a student's ethical skills and understanding that a student's supervisor made
- This was done during their first clinical experience
  - called a Practicum
  - These were on a 1 to 5 scale (1 = Far Below Expectations to 5 = Far Above Expectations)
- They were rated on:
  - 1) Knowledge of general ethical guidelines;
  - 2) Knowledge of ethical guidelines of Practicum placement
  - 3) Demonstrates awareness and sensitivity to ethical issues
  - 4) Personal behavior is consistent with ethical behavior
  - 5) Consults with others about ethical issues if necessary.

# Other Measures

- GPA in “Hard” Courses:
  - Two courses, Research Methods and Differential Diagnosis are found to be particularly hard by students
  - The Average Grade on these two courses was calculated for every student who took them
- Number of credits a student has completed

# Overall Student Grade Point Average And Rasch Person Scores

- We hypothesized that students with “higher stage” person scores would also have higher Grade Point Averages
- We hypothesized that students with higher stage scores on the Why Score would also have higher Grade Point Averages
- We also hypothesized that students’ clinical skills would be related to these stage-related measures
- In general, when we predict participant performance on a task using the Order of Hierarchical Complexity, very high predictability is expected and usually found
- Here we are looking at predicting behavior that may be more distantly related to the Order of Hierarchical Complexity, with other variables contributing as well.

# Descriptive Statistics

	Mean	Std. Deviation <sup>a</sup>	Analysis N <sup>a</sup>	Missing N
Rasch person score	-.51788	1.006320	33	0
GPA in hard courses	3.70417	.249661	33	9
Overall Grade Point Avg	3.77813	.311341	33	3
Num of credits taken	40.84	15.564	33	8
Clinical ratings	4.0286	.10522	33	26
Scoring of Why Question	10.3828	.69330	33	4

# Correlation Matrix

		Rasch person score	GPA in hard courses	Overall Grade Point Average
Correlation	Rasch person score	1.000	-.056	-.113
	GPA in hard courses	-.056	1.000	.349
	Overall Grade Point Avg	-.113	.349	1.000
	Num of credits taken	.155	-.182	.304*
	Clinical ratings	-.234	-.308	-.141
	Scoring of Why Question	-.022	.165	.366*
Significance	Rasch person score		.379	.266
	GPA in hard courses	.379		.048
	Overall Grade Point Avg	.266	.048	
	Num of credits taken	.195	.198	.051
	Clinical ratings	.095	.072	.229
	Scoring of Why Question	.451	.221	.023



# Correlation Matrix

	Num of credits taken	Clinical ratings	Scoring of Why Question
Correlation	Rasch person score	.155	-.234
	GPA in hard courses	-.182	-.308
	Overall Grade Point Avg	.304	-.141
	Num of credits taken	1.000	-.049
	Clinical ratings	-.049	1.000
	Scoring of Why Question	-.086	-.269
Significance	Rasch person score	.195	.095
	GPA in hard courses	.198	.072
	Overall Grade Point Avg	.051	.229
	Num of credits taken		.408
	Clinical ratings	.408	
	Scoring of Why Question	.342	.280

# Total Variance Explained

Com- ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulati ve %	Total	% of Variance	Cumulative %
1	1.805	30.082	30.082	1.805	30.082	30.082
2	1.280	21.332	51.414	1.280	21.332	51.414
3	1.163	19.379	70.794	1.163	19.379	70.794
4	.827	13.781	84.574			
5	.603	10.053	94.627			
6	.322	5.373	100.000			

# Component Matrix<sup>a</sup>

	Component		
	1	2	3
Overall Grade Point Avg	.730	.095	.541
GPA in Hard Courses	.663	-.343	-.172
Scoring of Why Question	.663	-.139	.006
Clinical ratings	-.619	-.241	.511
Number of credits taken	.100	.786	.507
Rasch Person Score	.033	.677	-.568

# Results Summary

- There was a relationship between doing well academically, and the Why Score
- The Rasch Person Score was related to the # of credits taken,
  - This suggests that as individuals move through the program, their stage on that measure is increasing
- The Rasch person score was significantly related to the Clinical Ratings
- The overall stage scores, whether measured using Rasch Person Score OR the Why Score, seem low for individuals at the graduate level
- The correlation between the Rasch Person Scores and the Why Scores was essentially 0