Assessing Critical Thinking, Written Communication, and Quantitative Reasoning in Child Development Majors: Evidence from Before and During the Pandemic

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Assessed Program Learning Outcomes

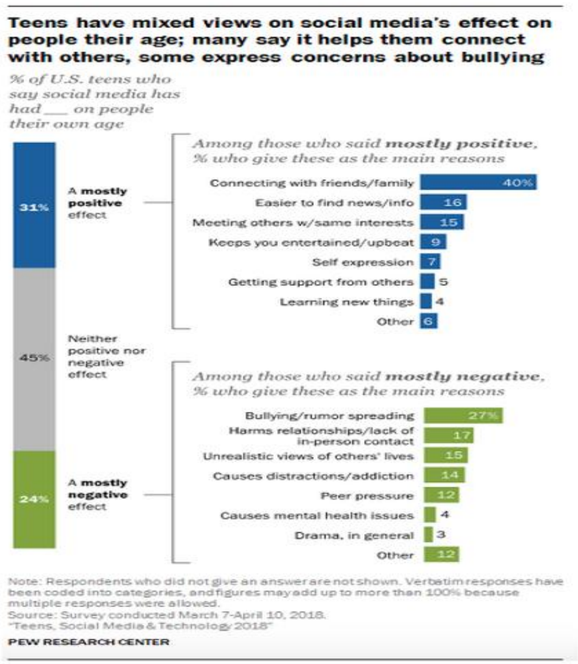
- **PLO2: *S****tudents will use critical thinking, problem solving, and reasoning to interpret and contribute to the field of human family studies*
- **PLO4:** *Students will demonstrate competence in writing, oral, and interpersonal communication skills, exemplifying professional behavior promotes the development of children and families*
- These two PLOs address 3 of the five core competencies: critical written communication, and quantitative reasoning
- Assessed in Fall 2018 (N = 103, before the pandemic) & End of Fall Spring 2021 (N = 100, during the pandemic/remote instruction)

Method

- Signature written assignment administered to students
  - At the beginning: CHDV2000
  - Middle: CHDV3430
  - End of the program: CHDV4960

"In a five-paragraph essay, please state and defend a position about whether internet usage has an overall positive or negative influence on adolescents' mental health. Use evidence to support your point and cite at least one scholarly source.
Your response should be in essay format, with an introduction, body paragraphs, and a conclusion. In your introduction, please remark on whether adolescents themselves view social media as mostly positive or mostly negative and why. To find this information, refer to the bar graph pictured below.

The final product should be approximately two double-spaced pages (and no more than two pages and a half) in length."



Method

- Assignments were scored for critical thinking/quantitative reasoning and communication with a rubric adapted from the AAC&U VALUE rubrics

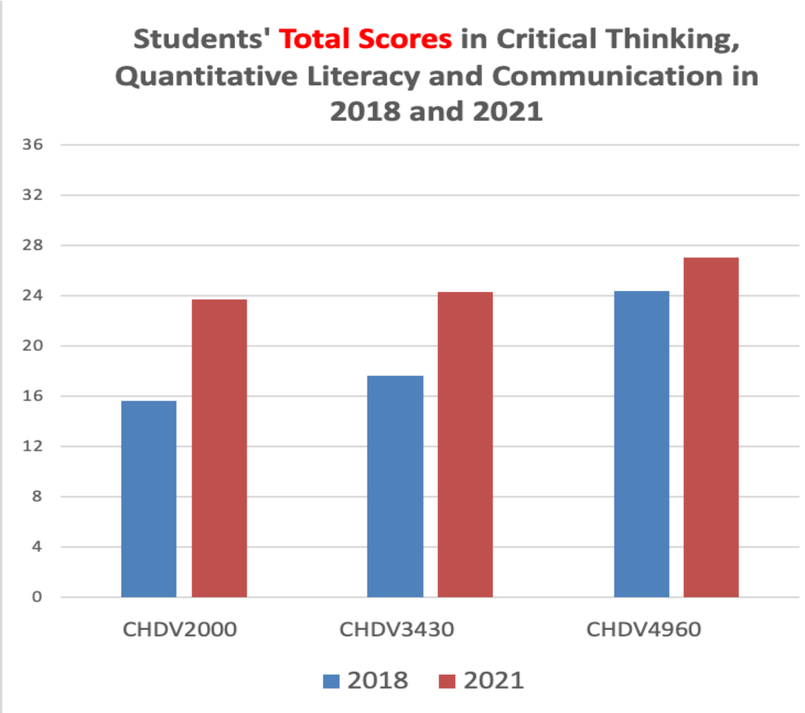
	Critical Thinking (CT)/Quantitative Reasoning (QR)	Communication
Criteria	• Explanation of issues (CT) • Evidence- Selecting and using the information to investigate a point of view or conclusion) (CT) • Influence of context and assumptions (CT) • Student's position (perspective, thesis/hypothesis) (CT) • Conclusions and related outcomes (implications and consequences) (CT) • Interpretation of data presented in a graph (QT)	• Genre and disciplinary conventions- Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields. • Sources and evidence • Control of syntax and mechanics

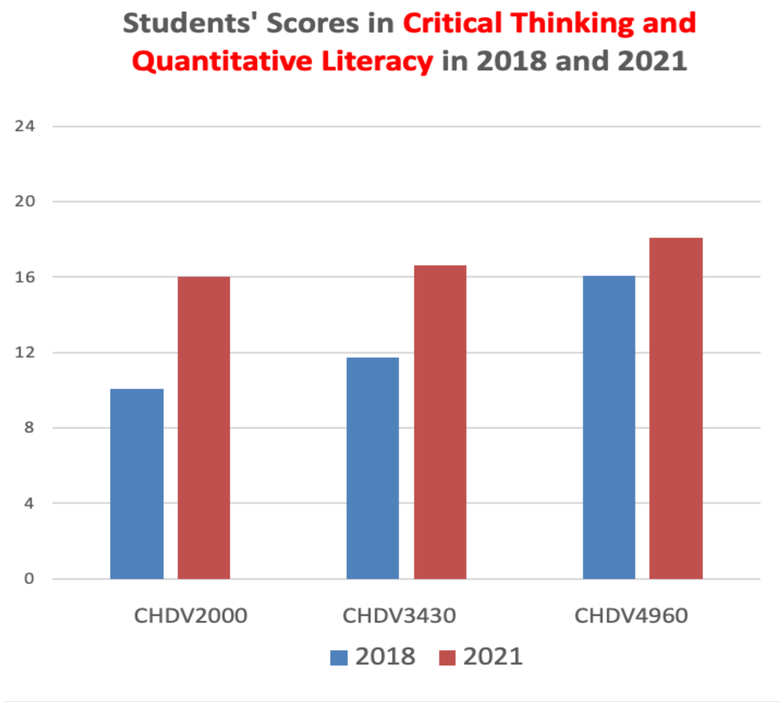
Each criterion in the rubric had four levels of competence:

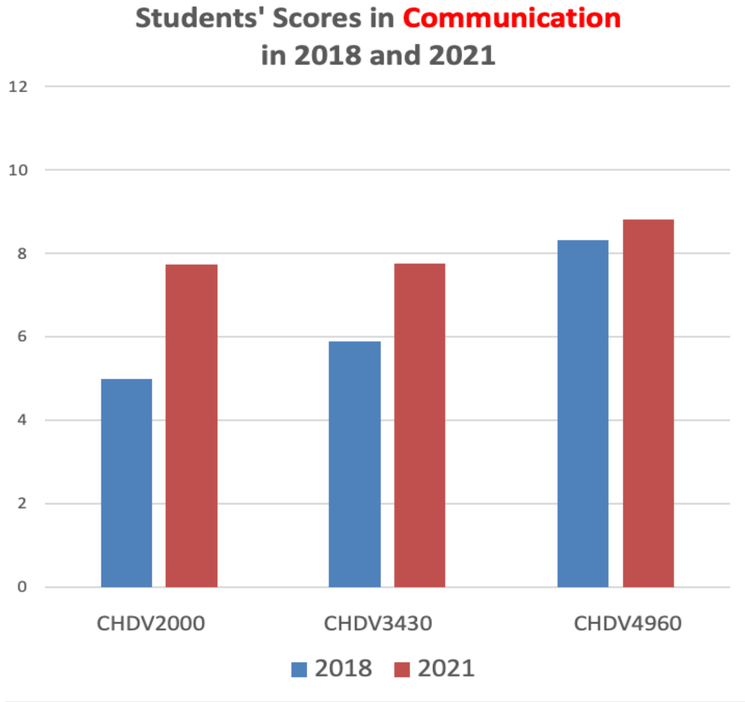
- 1 = *Benchmark/Does not meet competency*,
- 2 = *Milestone/Approaching competency*,
- 3 = *Benchmark/Meets competency*,
- 4 = *Capstone/Exceeds competency*.

- Scores for each criterion were summed up to obtain
  - A total competency score (36 max)
  - A score for critical thinking/quantitative reasoning (24 max)
  - A score for communication (12 max)

Results







- 2021: 4960 students' scores are significantly different from 2000 and 3430 students' scores → improvement from beginning/mid to end of the program for each PLO
- No differences between 2000- and 3000-level students both in 2018 and 2021
- 2021 students performed better than 2018 students at 2000 and 3000 levels

Results

- Large standard deviations of 2000 and 3430 students' scores in 2021, which were almost twice as large than those of parallel students in 2018

	2018	2021
CHDV2000		
Overall	$M = 15.6$, $SD = 4.65$	$M = 23.7$, $\mathbf{SD = 7.7}$
Critical Thinking/Quantitative Reasoning	$M = 10.8$, $SD = 3.14$	$M = 16.0$, $\mathbf{SD = 5.0}$
Communication	$M = 5$, $SD = 1.6$	$M = 7.74$, $\mathbf{SD = 2.9}$
CHDV3430		
Overall	$M = 17.61$, $SD = 5.35$	$M = 24.3$, $\mathbf{SD = 9.0}$
Critical Thinking/Quantitative Reasoning	$M = 11.71$, $SD = 3.37$	$M = 16.6$, $\mathbf{SD = 6.1}$
Communication	$M = 5.89$, $SD = 2.12$	$M = 7.76$, $\mathbf{SD = 3.0}$

Discussion

- Hard to explain superior student performance of 2021 as compared to 2018
  - Curricular improvements between 2018 and 2021
  - Focus on improving writing skills
  - Faculty commitment to students during the pandemic and remote instruction
- Large standard deviations may explain different student responses/reactions to the pandemic's challenges and different levels of student engagement and performance during remote instruction

Discussion

- Next steps: Closing the loop
- Vast majority of students *approached* competency across domains
- But only about 50% of students *met or exceeded* competency in critical thinking/quantitative reasoning and communication skills by 4960
- Need to develop strategies and approaches to strengthen student critical thinking and communication skills from as early as possible
- Interesting fact: as compared to 2018, students discussed internet usage as positive rather than negative

Limitations

- Small *Ns*
- Different assignment scorers
- Some assignments assigned as extra credit, others as part of course work

Questions?

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Thank you!

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