

Incremental Conversion of Healthcare Professionals Circle Diagramming Technique from Manual to Digital

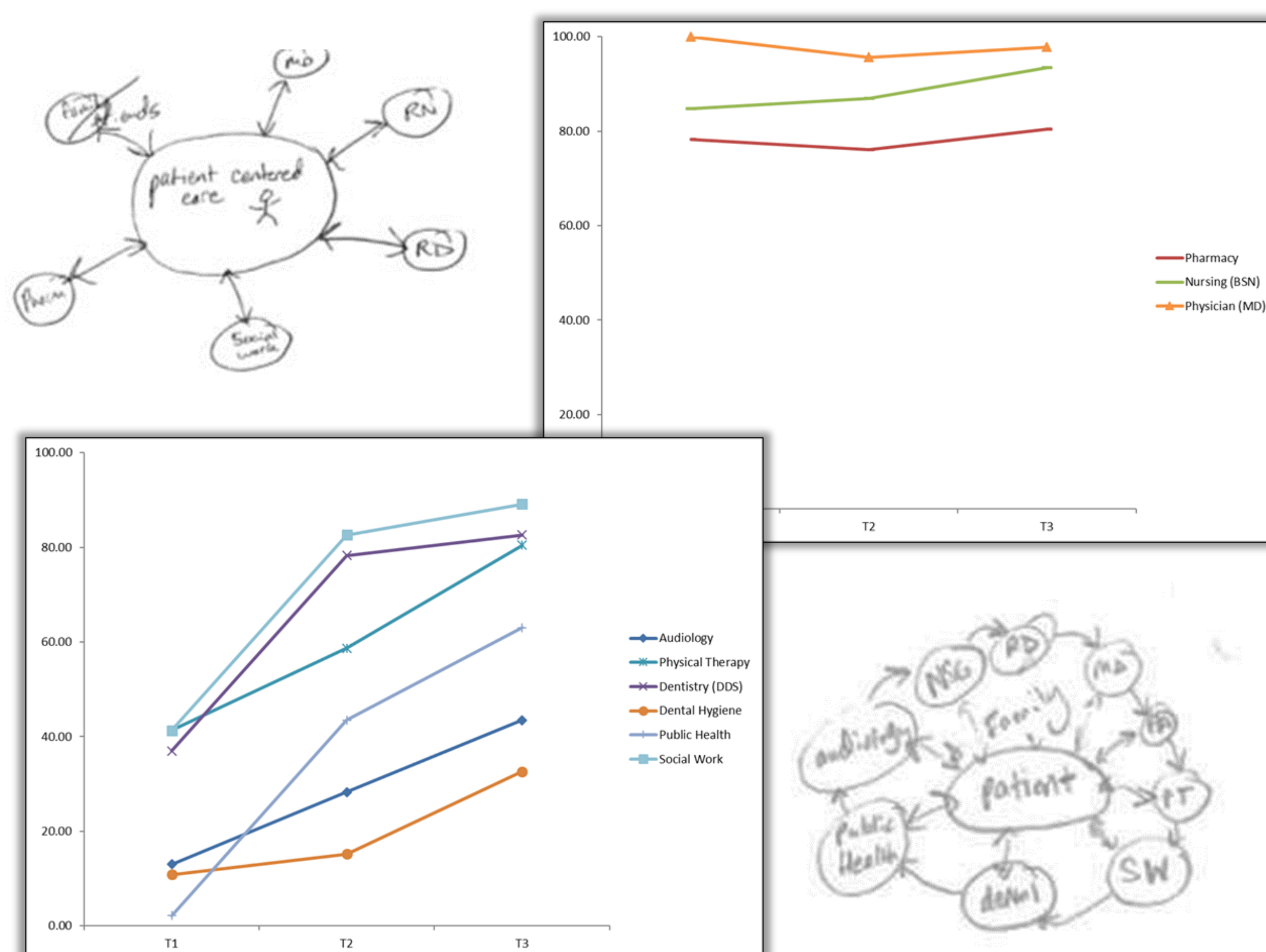
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Background

- The Healthcare Professionals Circle Diagramming (HPCD) technique was adapted from the "life circle diagramming" technique, a method historically used to facilitate communication about relationships and their meaning in the context of family counseling.^{1,2}
- The HPCD technique was studied³ by analysis of student drawings at two time points before and one time point after a longitudinal interprofessional clinical learning experience (IP-CLE)
 - across 3 time points spanning 6 months, significant increases in the number of professions and bi-directional communication were included in depictions of care provided to a patient with diabetes (**Figure 1**)
- Overall, the visual and quantitative complexity of student-originated diagrams showed intriguing changes before and after diverse interprofessional teams worked together to care for patients over the course of four evening outpatient clinic sessions.
- Manual analysis of written student HPCD drawings was highly labor intensive, making the technique impractical for use as a routine measurement instrument.
- The concept of automating the HPCD technique was advanced to determine feasibility.

Figure 1. Example student manual HPCD depictions and analysis of change in professions included across three time points (T1–T3)



Status

- The OUHSC study team collaborated with the Department of Computer Science from the University of Oklahoma Norman Campus to test the concept of automation.
- Once weekly meetings occurred with two students over 10 weeks:**
 - one undergraduate student (diagram creation tool; **Figure 2**)
 - one graduate student (tool for extracting/analyzing data; **Figure 3**)
- Goals for the project:**
 - describe, clarify and refine parameters for visual automation and analysis of the HPCD technique
 - produce general prototype methods to accomplish the intended purpose and allow students to present project results to their Department faculty

Figure 2. Diagram creation tool for drawing HPCDs

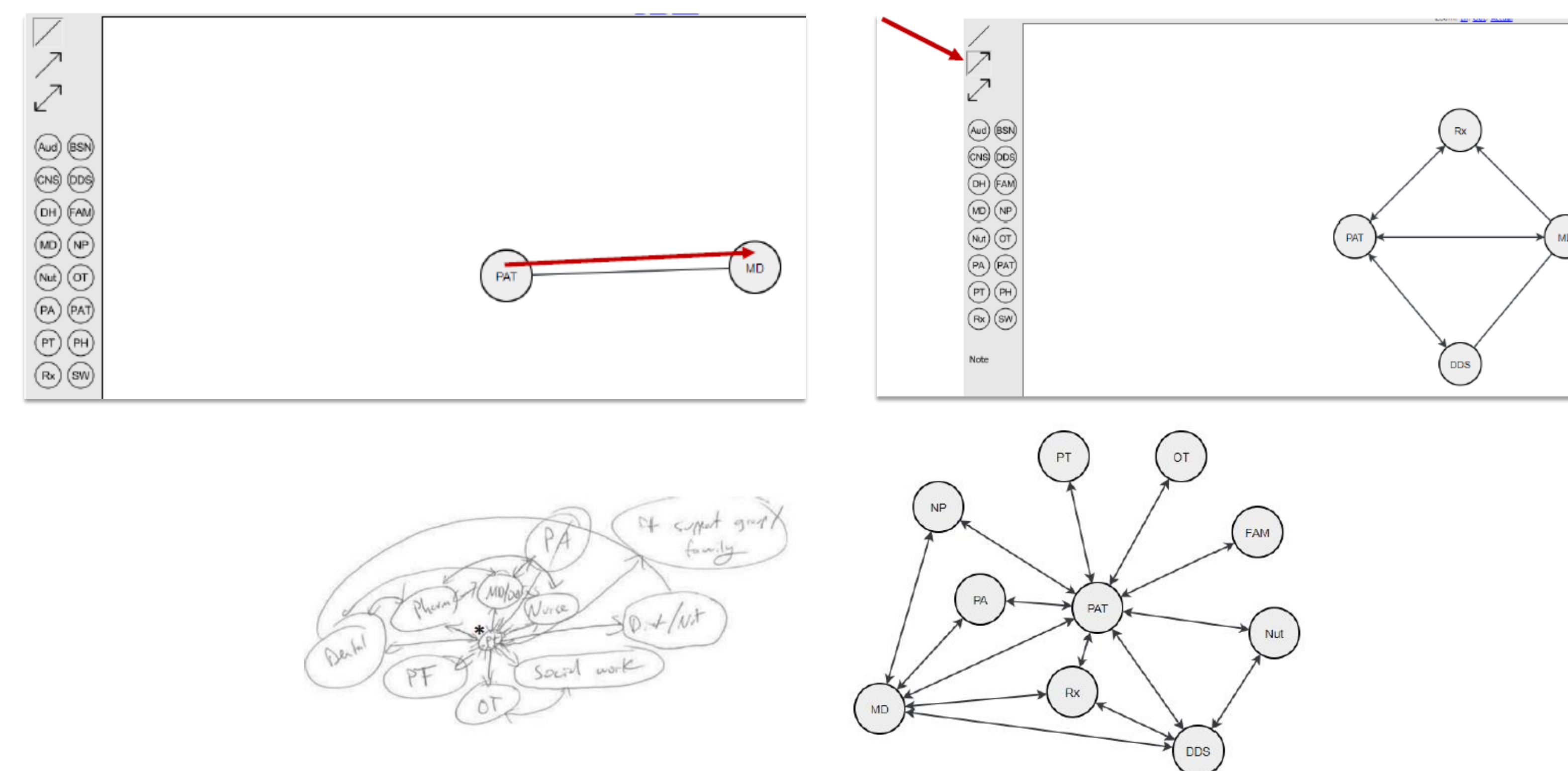
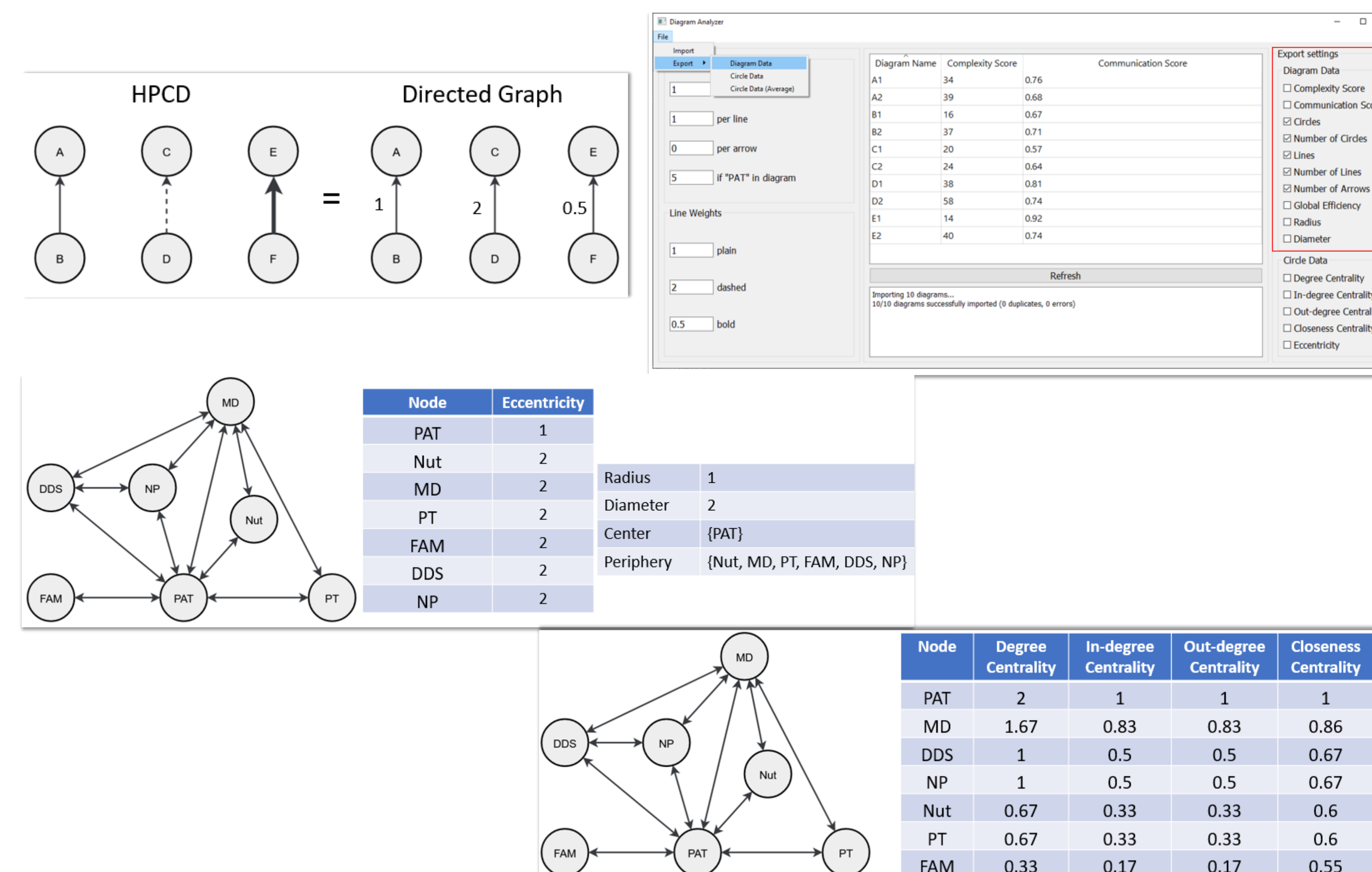


Figure 3. Extraction and analysis of data from HPCDs



Future Implications

- The use of a functional, electronic HPCD technique could reveal student understanding of patient care contributions needed from other professions and provide a method for students to depict their concept of communication and teamwork through a modality apart from written survey instruments, which are one of the most common assessment tools.
- Automation also standardizes sets of possible responses which could be aligned with observed actions that have a negative, neutral or positive effect in relation to IPEC sub-competencies.
- Automation and validation of the HPCD technique could result in a unique measurement instrument for:
 - (1) perceived professional gaps to meet patient needs [roles and responsibilities],
 - (2) quantitative and qualitative aspects of communication between team members [communication] and
 - (3) episodic and/or longitudinal team dynamics in the delivery of interprofessional care [teams and teamwork].

Bibliography

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Acknowledgements

Appreciation to the assigned students and Sridhar Radhakrishnan, PhD, Project Advisor and Director, School of Computer Science, Gallogly College of Engineering, The University of Oklahoma. Authors of this presentation have no disclosures to report concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

Further Information

- <https://ouhsc.edu/academicaffairs/interprofessionaleducation/Home.aspx>
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