Engaging Students to Improve Research Competencies

Sam Bardarik, MLIS | Paul Hunter, DMD, MLIS | Gary Kaplan, MSLIS, AHIP

Information Services, Scott Memorial Library, Thomas Jefferson University

Faculty ask. Librarians answer. Students achieve.
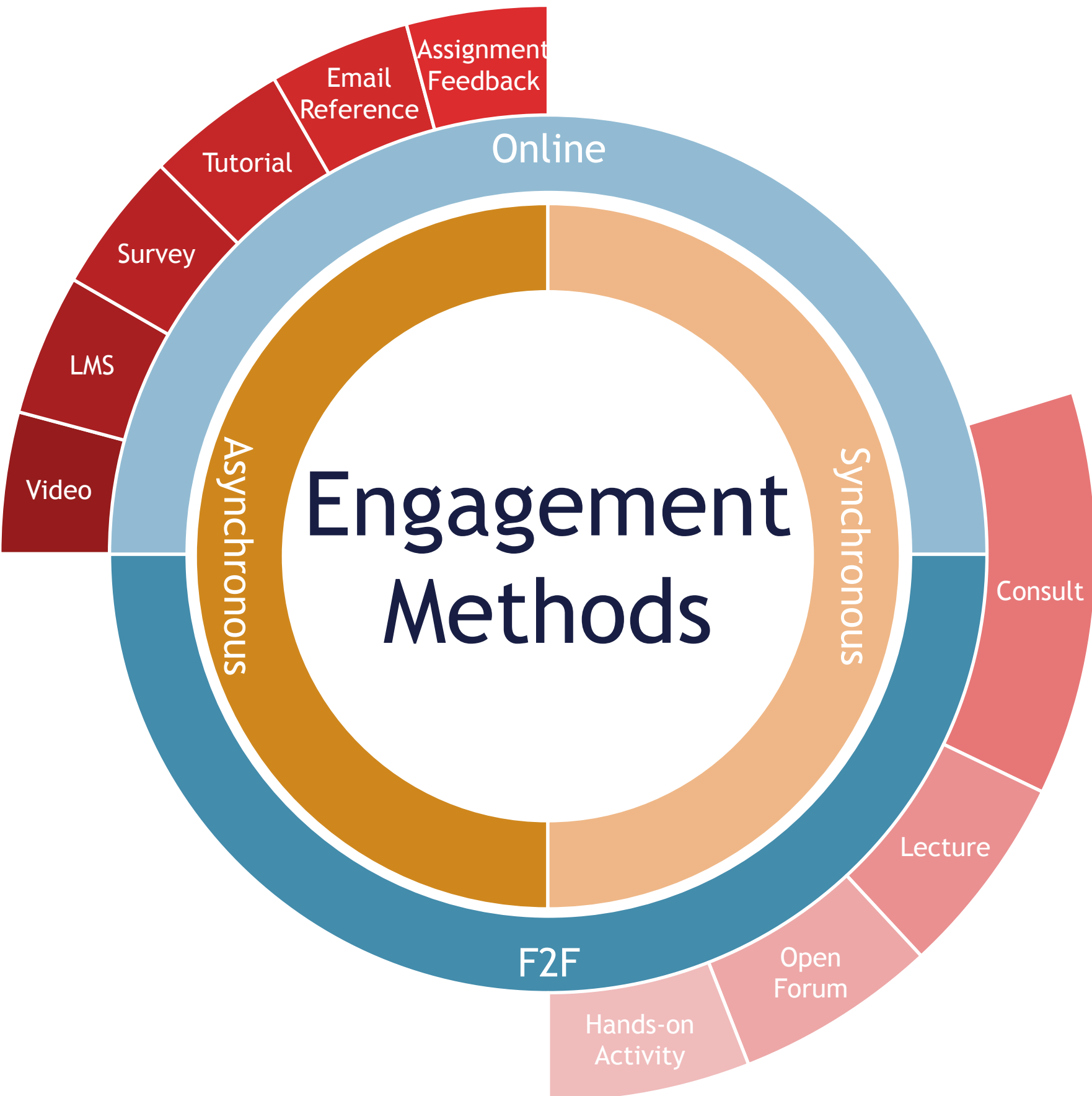
Where We Were

As pedagogical methods shift from the traditional recommendation of library resources during short, one-time, in-class presentations to developing content in various formats, satisfying online, face-to-face, and hybrid teaching environments, librarians at Scott Memorial Library have adopted instruction methods which foster *active learning* and *critical thinking*.

> The online workshop was well done, well organized, and full of important content and how-to instructions. The students really needed this content and some commented that they wished they had this back in their undergraduate programs. I am grading their first assignment now and the students who put the time in have produced outstanding searches and RefWorks libraries.
>
> –Beth Ann Swan, Professor, Jefferson College of Nursing

Where We Are

Recognizing the importance of information literacy*, faculty are providing additional class time and resources for librarians to ensure that students are equipped with *essential research skills* far beyond graduation.

Engagement Methods — Online, Asynchronous, Synchronous, F2F (Assignment Feedback, Email Reference, Tutorial, Survey, LMS, Video, Consult, Lecture, Open Forum, Hands-on Activity)

Where We're Going

By increasingly incorporating a variety of student engagement methods into instruction sessions, librarians will be able to build on basic skills (remembering, understanding, applying) and develop students' *higher order learning skills* (analysis, evaluation, and creation). For example, a skill librarians have recently introduced is critical appraisal of the literature, one component that ensures students effectively incorporate evidence-based practice into patient care. Librarians also aim to assess student learning and make appropriate iterative modifications to ensure these methods effectively set up students for success. Together, librarians and faculty are laying the groundwork to facilitate *lifelong learning* in Jefferson students.

> In preparation for this project, I had many consultations with the librarians (they are really helpful). The most useful tip I learned was to use the AND and OR functions (usually found under the "advanced search" tab) to come up with an ultimate combination of search terms that will reduce the number of articles returned by the search while ensuring that the most relevant papers are still selected. Also, the librarians taught me how to export my search results to a citation software like RefWorks and F1000.
>
> –Health Care Quality & Safety student, Jefferson College of Population Health

*Knowledge Check: What is information literacy?
As defined by the American Library Association, an information literate person "must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."
"Presidential Committee on Information Literacy: Final Report", American Library Association, July 24, 2006. http://www.ala.org/acrl/publications/whitepapers/presidential (Accessed May 30, 2019)

What does information literacy mean to you? Share with us!

PICO Terms List Worksheet: Before Librarian Feedback

PICO Question: What is the effect of Ayers Sensory Integration (ASI) (I) on parent developed goals (O) in children with Autism (P)?
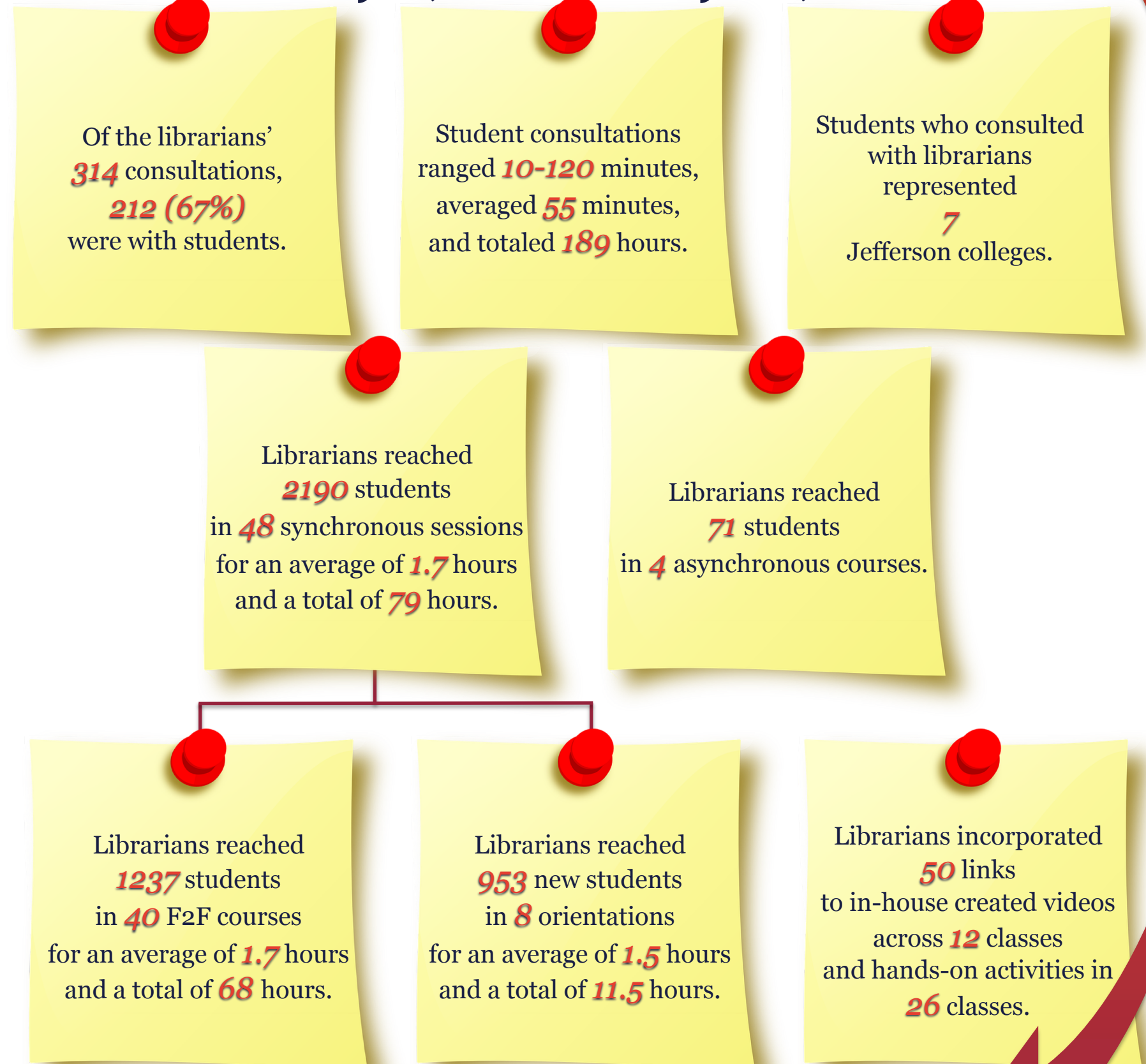
Databases Searched: PubMed

Inclusion and Exclusion Criteria:
- Patient characteristics: Children with autism
- Study types: systematic reviews X meta-analyses_ randomized controlled trials_ cohort_ case controlled X other_
- Date of publication (years): 2008-2018
- Languages: English

P		I		C		O
Autism (MeSH)		Sensory Integration (tw)				Goals (tw)
OR	AND	OR	AND	OR	AND	OR
Autism spectrum disorder (MeSH)		Sensory integration (tw)				Parent (tw)
OR		OR		OR		OR
Autism Spectrum Disorders (MeSH)		Sensory integration (tw)				Goals(tw)
OR		OR				OR
Autism (MeSH)		Sensory integration (tw)				Parent goals (tw)
OR		OR		OR		OR
Autistic disorder (tw)		Sensory Integration (tw)				Goals (tw)
OR		OR		OR		OR
Autistic (tw)		Sensory integration (tw)				Parents (tw)

Quick Stats
July 1, 2018 – May 16, 2019

Of the librarians' **314** consultations, **212 (67%)** were with students.

Student consultations ranged **10-120** minutes, averaged **55** minutes, and totaled **189** hours.

Students who consulted with librarians represented **7** Jefferson colleges.

Librarians reached **2190** students in **48** synchronous sessions for an average of **1.7** hours and a total of **79** hours.

Librarians reached **71** students in **4** asynchronous courses.

Librarians reached **1237** students in **40** F2F courses for an average of **1.7** hours and a total of **68** hours.

Librarians reached **953** new students in **8** orientations for an average of **1.5** hours and a total of **11.5** hours.

Librarians incorporated **50** links to in-house created videos across **12** classes and hands-on activities in **26** classes.

PICO Terms List Worksheet: After Librarian Feedback

PICO Question: What is the effect of Ayers Sensory Integration (ASI) (I) on parent developed goals (O) in children with Autism (P)?

Databases Searched: PubMed

Inclusion and Exclusion Criteria:
- Patient characteristics: Children with autism
- Study types: systematic reviews X meta-analyses_ randomized controlled trials_ cohort_ case controlled X other_
- Date of publication (years): 2008-2018
- Languages: English

P		I		C		O
Autism		Sensory integration				Leisure Activities [MeSH] or Play and Playthings [MeSH]
OR	AND	OR	AND		AND	OR
Autism Spectrum Disorder [MeSH]		Ayres sensory integration				Activities of Daily Living [MeSH]
OR		OR		OR		OR
Autistic Disorder [MeSH]		Ayres method				Social Participation [MeSH]
		OR		OR		OR
Autistic		Ayres occupational therapy				Self care [MeSH]
OR		OR				OR
ASD						Goals [MeSH]
OR						OR
						Parents [MeSH] or Family Relation [MeSH]

removed redundant terms

added additional terms to retrieve comprehensive results

included reproducible search

PubMed Search= 17
((((((((autism) OR autism spectrum disorder[MeSH Terms]) OR autistic disorder[MeSH Terms]) OR autistic) OR ASD)) AND (((sensory integration) OR ayres sensory integration) OR ayres method) OR ayres occupational therapy)) AND ((((((((leisure activities[MeSH Terms]) OR (play[MeSH Terms] AND playthings[MeSH Terms])) OR activities of daily living[MeSH Terms]) OR social participation[MeSH Terms]) OR self care[MeSH Terms]) OR goals[MeSH Terms]) OR parents[MeSH Terms]) OR family relation[MeSH Terms])))

What's Different?
After receiving several rounds of librarian feedback, this group was able to produce a PubMed search strategy that demonstrates two competencies:
- effective use of Boolean operators
- reproducible, error-free search

7 groups consisting of **13** total students submitted **91** total revisions (averaging **4** attempts per group) before demonstrating the desired competencies.