Background Information:

- Category learning can guide decision making through the identification of common features among category members, distinctive features among non-members, or both (Hammer et al., 2009)
- This process is involved among a large number of stimuli, including visual (Folstein et al., 2013), auditory (Ley et al., 2012), olfactory (Qu et al., 2016), and multisensory (Viganò, Borghesani, & Piazza, 2021) stimuli
- Reviews to date, however, have failed to discuss stimuli of *all* modalities, instead having a large focus on visual stimuli (Ashby & Maddox, 2011; Seger & Miller, 2010)

Purpose:

- The aim of this systematic review is to determine and analyze studies that investigate the changes in the neural representations of stimuli that follow category learning
- Category learning effects among the different sensory modalities will all similarly be analyzed and compared

Methods:

- **Search sources, search terms and inclusion criteria** (see Figure 1)
- **Study records:**
  - Covidence was used to screen and manage literature search results
  - Each article was evaluated by 2 separate reviewers for reliability and screened using the inclusion requirements
  - Conflicts among reviewers' decision on various studies were resolved through discussion

Figure 1. PRISMA diagram of the search strategy and article selection process for the systematic review
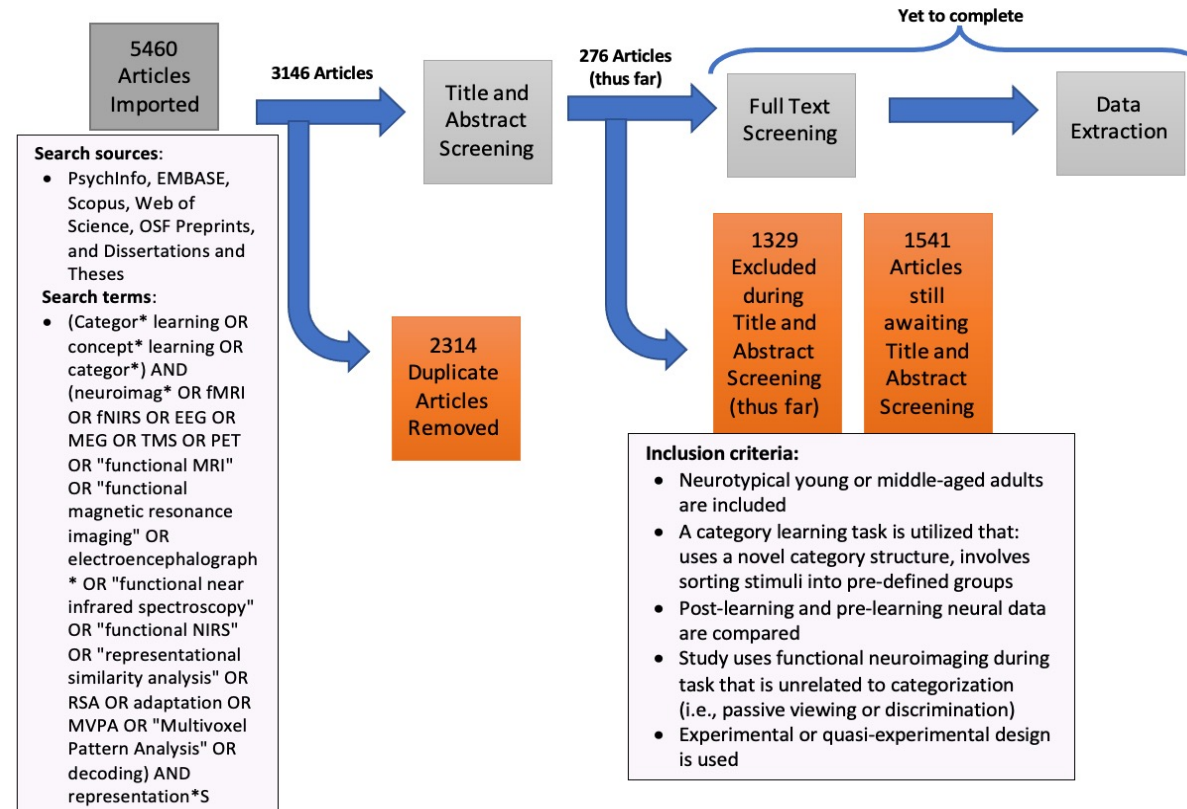
Results (see Figure 1):

- 5460 studies were imported for screening → 2314 duplicates were removed
- 1605 studies have been screened to date in the Title and Abstract stage → 1329 studies were irrelevant
- ~17% of the studies screened have moved onto the Full Text Screening, with the majority researching visual and auditory modalities and utilizing fMRI neuroimaging techniques
  - Can expect ~535 studies in Full Text stage

Future Directions:

- There are still 1541 studies awaiting decisions in the Title and Abstract screening stage
- The next step is the Full Text Review screening, in which 276 studies are currently awaiting decisions
- Data will then be extracted from the final list of included studies, including: the sample, category structures and stimuli, and the outcome assessment
  - Data extraction will also be completed independently by reviewers, with any conflicts being resolved through group discussion
- More research conducted in other modalities and/or using different neuroimaging techniques

Acknowledgments: