What did I do?

A thought project chases charms as concept and is committed to post qualitative inquiry through a sensibility of creating and becoming, or in other words, by engaging with transcendental empiricism.

How did I do it?

A dozen fictional letters addressed to a Critical Studies scholar grapple with and question charms as concept—oftentimes in connection with other philosophical concepts.

What did I find?

It is in the grappling and questioning, or chasing, that I learn to appreciate how charms might be utilized in post qualitative inquiry.

What are the contributions?

The research contributes to post qualitative inquiry by suggesting that charms deteriorate, die, incubate, live, energize, affect, create, produce, seduce, learn, write, move, nurture, support, anticipate, surprise, activate, imagine, catalog, connect, reach, and give. [these concepts inform FYAP MS #2]

What did I conclude?

Chasing charms as concept (a) produces methodologies like reading with poststructural philosophy, writing with (and listening to) the Critical Studies scholar, walking with a psychoanalytic scholar and (b) invites thinking/creating and living/becoming differently.

FYAP Accomplishments:

Two article manuscripts submitted to international peer-reviewed journals: IMAG and Qualitative Inquiry.

Next Steps:

A co-authored literature review with a graduate assistant focused on local folklore and black magic will work as a creative thought project to consider how researchers and educators might explore a sensibility of creating and becoming in qualitative inquiry.

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Neutron-star mergers and $r$ process

- First multi-messenger detection of a binary neutron-star merger [1].
- Evidence for synthesis of lanthanides in subsequent kilonova [2].
- First direct evidence that neutron-star mergers could be one of the main sites for the rapid neutron-capture, i.e. $r$ process.
- All neutron-rich nuclei far off the valley of $\beta$ stability are synthesized in neutron-capture reactions and subsequent $\beta$ decays during the $r$ process [3].
- Nuclear Physics provides critical input to understand the observed isotopic abundance pattern. The $\gamma$-ray strength function ($\gamma$SF), dominated by dipole strength, is one major input for statistical model calculations of neutron-capture, i.e. ($n,\gamma$) rates [4].

Goal at FSU: Establish setup to measure $\gamma$SF in neutron transfer with $(d,p)$, which mimics the astrophysically relevant $(n,\gamma)$ reactions.

The low-energy electric dipole strength in atomic nuclei

Schematic electric dipole (E1) strength in atomic nuclei. Several modes can generate E1 strength.

- Two-Photon
- PDR
- IVGDR

Influence of the PDR on neutron-capture rates [5]. The PDR can enhance neutron-capture rates to isotopes produced in the $r$ process by up to a factor of thousand as compared to when only the IVGDR existed.

Population of the PDR in $(d,p)$ neutron transfer mimicking $(n,\gamma)$ neutron capture.

First experiments at the SE-SPS and tests of the CeBr$_3$ $\gamma$-ray detectors

A new scattering chamber was designed and constructed at FSU. The new chamber was tested, the CeBr$_3$ $\gamma$-ray detectors positioned around it and characterized. Data from tests with a $^{152}$Eu calibration source are shown to the right. The $^{152}$Eu $\gamma$-ray spectrum measured with the CeBr$_3$ detectors.

Lifetime determination of the 122-keV state in $^{132}$Sn populated in the decay of $^{152}$Eu via the 1408 keV - 122 keV cascade.

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Decreasing the Summer Slide Through an At-Home Reading Program
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Introduction
Poverty has continued to have persistent, negative impacts on language, literacy, and executive function development. Due to COVID-19 school closures, students missed up to six months of classroom instruction at the start of the 2020-2021 academic year. Consequently, the typical “summer slide” (loss that occurs in reading ability over summer months due to less time spent reading) was expected to be much worse for most students, and even greater among students living in poverty, who may experience disproportionately more barriers to continued learning outside of school. This learning loss is cumulative and accounts for 80% of the reading achievement gap (Alexander et al., 2007). However, the “summer slide” can be decreased by providing students with access to books, as well as increasing adult interactions around book reading.

The purpose of this project was to investigate a five-week, low-cost, low-tech, home-based summer reading program that promotes high-quality, caregiver-child engagement with books.

Method
PARTICIPANTS
The goal was to recruit ~100 families from a charter elementary school serving boys of color from low-SES backgrounds.

PROCEDURES
Consenting families in Pre-K through 5th grade would participate in a five-week summer reading program receiving age-appropriate, diverse books and aligned storybook guides, evidenced-based literacy printable activities, and Youtube video demonstration models.

MEASURES
• Home literacy practices survey
• iReady student literacy benchmarks from spring 2021 and fall 2021
• Minnesota Executive Function Scale

Challenges Faced
Unfortunately, many challenges were faced when it came to recruitment. It is hypothesized that due to an abnormal pandemic school year, caregivers did not want to commit to a summer project.

The Pivot
The proposed FYAP project was an extension of the PLEASE READ pilot completed during Summer 2020 to respond to the needs of families after school closures due to the pandemic. Once it was determined that enough participants could not be recruited, there was a pivot to analyzing data from the pilot project. The following goals were accomplished this summer:
• Database created to catalog shared caregiver-child storybook recordings pre- and post-intervention
• 2 master's students trained and gained reliability on the Systematic Analysis of Language Transcripts software
• 75% of pre-intervention recordings transcribed
• Codebook created to measure caregiver-child interactions (e.g., asking questions, defining new vocabulary, making predictions, book conventions, discussing background knowledge etc.)

Future Research
Over the next semester, the shared storybook recordings will continue to be transcribed and coded to measure changes in caregiver-child interactions after the 5-week pilot of the PLEASE READ intervention.

Future research includes carrying out the original FYAP project to explore changes in caregiver-child engagement with books at various grade levels and to explore whether executive function skills mitigate the summer slide in children of color from impoverished backgrounds.
The benefits of gathering and learning outdoors go well beyond a reduction in disease transmission. Although physical health has been a focus of historic and current efforts to move schooling outdoors, it is only one of many advantages that can be gained from such a shift. Human learning comprehension, creativity, and mental health have all been proven to benefit from outdoor settings (Danks, 2010). At the same time, educators are looking to integrate a more active approach to learning for many reasons of study. Outdoor classrooms and learning environments create opportunities for a variety of teaching models and methods to serve a diverse range of learning styles. In addition, these spaces contribute to the health of people and the planet through exposure to nature and reduced energy usage.

Previous research conducted on outdoor learning, and efforts to expand it, have been focused on younger children in primary schools. However, universities are a prime setting to diversify learning approaches and environments. A student's experience in college has long been linked to physical location and, more specifically, how the environment is structured, designed, and programmed. Historically, there have been limited opportunities to teach outdoors. Although it is recognized that the regional climate allows for almost three months worth of outdoor learning, only a small number of outdoor spaces have been created on campus to take advantage of this potential. A lack of feedback and input in planning and design means that many locations are not optimal for learning.

The PI mapped over 100 sites for potential outdoor learning and gathering on campus. University greens, parking lots, and existing sitting or rollerblading services were not included since their programs are already established and used accordingly. The goal is to expand upon existing opportunities for students and faculty to be outside, as opposed to replacing them for another purpose.

Many of the originally mapped spaces were removed from the final list due to their location in a residential and/or remote zone of campus. The final number of mapped locations includes 20 existing spaces and 18 potential spaces for outdoor learning. The methodology measures the presence of a number of factors that contribute to a suitable and effective classroom setting outside.

### Methodology

**FSU’s main campus not only has a large number of potential spaces for outdoor learning, there are also many existing locations that could serve in the same capacity.** The PI mapped over 50 sites with potential for outdoor learning and gathering on campus. University greens, parking lots, and existing seating related to dining services were not included since their programs are already established and used accordingly. The goal is to expand upon existing opportunities for students and faculty to be outside, as opposed to replacing them for another purpose.

### Limitations

Sitting (and designing) a space with little feedback or previous planning can be a bad idea. Truly successful and inclusive built environments not only consider context, but allow for the input of the anticipated users. Although there was a small amount of feedback included in this study, ideally there would be more meaningful engagement in order to truly have these spaces, but also how they can best be programmed and designed for regular use.

One other limitation to this study includes the time frame. With activity levels being low during the summer, there was less opportunity for observations. Most mapped spaces might typically be used by a fully populated campus.

### Map Zones

As part of this research, the PI put in contact with a small group of current FSU instructors who have expressed an interest in opportunities (and tools) to teach outdoors. In an effort to understand where these resources might already be requested, a zone map of the campus was presented to the group. They were asked in which of the seven zones they would prefer an outdoor classroom or some other opportunity to teach outside. The bar graph at right shows the number of votes for each zone, with the most occurring in central campus. Zones 3 and 4.

### Findings and Outcomes

The PI gathered data on foot for over 35 hours from May to August of 2021. After mapping over 50 sites with 12 variables, 20 existing spaces and 18 potential spaces were selected for the final comparison chart. Subsequent visits to most locations were required to provide the detailed information necessary for analysis and Utilities. The final 38 sites, 20 have more than 50% potential, are the factors for a suitable outdoor learning environment. All but one of the existing spaces have some existing infrastructure in place. And airflow and proximity were consistently good for most of the locations.

### Next Steps

This research provides a foundation to expand upon both the typologies and the design of outdoor learning spaces on FSU’s campus. Additional feedback from instructors, along with information from the registrar on size, location, and classification of courses, will help guide the selection of sites to move into a conceptual phase.

Other factors, such as historical use or significance of the mapped locations, will also be helpful to inform both the suitability of the program and the site’s design. As with any design solution, there is no “one size fits all.” The best settings for outdoor learning will not only be comfortable and suitable, but will also further enrich the campus environment with their own unique character.