THE RESEARCH/PRACTICE REPORT – 2022

CHARGE, RESULTS, RECOMMENDATIONS

1. Charge and Background

Dawn Jourdan, Dean of the University of Maryland, School of Architecture, Planning and Preservation (MAPP) provided an umbrella scope for this project: that the MAPP research/practice development office explore opportunities to better support Architecture Program faculty. The Dean's charge was timely and reflected previous conversations with former MAPP Interim Dean, Don Linebaugh. The research development office's mission is to support MAPP faculty in improving their overall funding success. This information-gathering report explores the following three-fold charge via Architecture faculty interviews, to better understand how MAPP architecture faculty*: (1) define creative practice; (2) employ tools and methodologies in support of creative practice; and (3) describe barriers to productivity and recommendations for improving outcomes.* Execution of the MAPP Strategic Plan, Pillar 3 – *Address society's "BIG" challenges* [1] will necessitate interdisciplinary research engagement; this focus was included in the methodology and questions asked.

This report required the generosity and collegiality of the 18 contributing interviewees. I thank each for their time, thoughtfulness, and expertise.

Ten standardized questions (section 2) serve as the investigative baseline. Eighteen (18) architecture tenure track (TTK), professional track (PTK), and adjunct/lecturer (A/L) faculty were interviewed from September-November 2021 (see Table 1); responses were transcribed (no audio recording was made) and then categorized. This report provides an overview summary of the responses by question and emergent themes along with non-attributed quotes. Resource lists/responses provided by the interviewees are included as tables and appendices.

Table 1: Overview

Interviewed	18	%
Tenure Track (TTK)	5	28%
Professional Track (PTK)*	8	44%
Adjunct/Lecturer (A/L)	5	28%
Women	9	50%
Men	9	50%
Early Career	7	39%
Middle Career	5	28%
Late Career	6	33%

**Includes professor of the practice*

Biases have inevitably played into the structure and interpretation of the interview questions/responses. I learned research development by supporting STEM disciplines; therefore, I brought existing definitions/assumptions for how research is defined and how it should be executed. Further, I have limited experience with the appointment, promotion, and tenure process (APT), pedagogy-based issues, and obligatory academic service work requirements. This knowledge gap extended to my initial mis-categorization of adjunct/lecturers into the PTK appointment category [2 and Section 10 – *Definitions used in this report*].

I began this project with my own working definition of creative practice (Box 1) that coalesced from an Architecture faculty's proposal where the definition was crafted to describe creative practice to STEM reviewers. It maps the use of two architectural tools to the "Common Rule" definition of research [3].

Box 1: Baseline Creative Practice Definition (pre-report)

The case study tool underpins creative practice-based research methods for knowledge creation in Architecture through both design and use, resulting in contributions to generalizable knowledge. This outcome maps to the "Common Rule" definition of research [3] both in (a) intent – to contribute to a body of knowledge and (b) execution – through systematic investigation. Collective discovery – wherein evaluation of the case study occurs via group discussion, produces additional knowledge benefits and communication skills development for the participants. While fundamental to architecture instruction and practice, collective discovery is an increasingly important methodology in STEM disciplines. Processes and techniques garnered from the proposed work are envisioned to be highly transferable to other disciplines.

2. *Interview Methods and Questions*

Interviewee suggestions were provided by Lindsey May (in 2021 the Assistant Program Director, in Aug 2022 the Associate Dean of Academic Affairs & Strategic Initiatives) and were specifically chosen to include early and mid-career PTK and A/L faculty. Brian Kelly (in 2021 the Program Director, in Aug 2022 the Associate Dean for Development and Faculty Affairs) provided additional suggestions of faculty with program longevity and history. The interviewees also provided suggestions.

The ten questions below were emailed, pre-interview, to the participants. 17 interviews were by video call and one by email; video interviews lasted between 30 minutes and one hour (average ~45 minutes). Each video interview began with a brief explanation of the charge and a short interviewee biography. Thereafter, we delved into the questions wherever the interviewee chose to start – most often it was with a derivation of question 1 (see section 3). Some questions simply did not apply to the interviewee and were skipped; this happened frequently with #Q5's sub-questions. #Q3 while interesting, did not add materially to the themed results.

Box 2: Questions

1) What is your definition of creative practice?
2) Describe the products of creative practice – based on your definition above.
3) What scale of creative practice project is of interest?
4) What do you want to do (per definition above) that you have been unable to do?
5) What funding sources have you found?
    a. Is it enough $ to do what you want to do?
    b. Were these self-generated proposals (vs. responding to a call?)
    c. What was the effect of doing the work i.e., winning an award (that may have a $ value)?
    d. If you have not gone after funding, can you speak about the barriers to doing so?
6) What disciplines have you collaborated with at UMD or outside of UMD?
7) What UMD disciplines might you want to collaborate with?
8) What role do you see creative practitioners playing on interdisciplinary research work?
    - *In later interviews, this question became*: what tools do creative practitioners bring to the table?
9) Do you know of a program in Higher Education that really supports its creative practitioners well?
10) What other information should I consider that I did not ask?
    - *In later interviews, this question also included:* who else should I interview?

3. *Results and Emergent Themes*

a. *Q1: Creative Practice Definition: use of the term was controversial*

While the first question was designed to elicit information whereby a "common definition" of *creative practice* could be crafted, many interviewees *stated that they did not have a definition of creative practice because they, themselves, do not use the term* (see Table 2). Some actively disliked the term; this response was not limited by appointment. Non-attributed quotes are provided below demonstrating the range of opinions.

- "All practice is creative."
- "The term is not used in the professional sphere."
- "The only people I know who use that term are TTK faculty."
- "Architects shy away from the term because it is not specific."
- "Architectural research aligns with all other types of research."
- "The term is too buzzwordy."
- "The term is too limiting."

Table 2: Use of the Term Creative Practice

	Total	TTK	PTK	A/L
Uses the term (positive)	2	2	0	0
Neutral to use of the term	4	0	2	2
Does not use the term (and often actively disliked use of the term)	12	3	6	3

With this unexpected beginning, many of the descriptions of creative practice given seemed a reaction to their perception of the term (like/dislike) or were tied to products (Section 3.c). Many offered different terms to describe their endevours. In Table 3 these terms are grouped into three main categories (not presented in order or by appointment category): (1) used another term with the word **practice**; (2) preferentially used the term **research**, (3) **other**. Consistent with the results of this question, for this report, *I have replaced the term creative practice with* ***research/practice (R/P)***.

Table 3: Alternative Terminology

(1) Practice	(2) Research	(3) Other
Practice (*without* descriptor)	Research (*without* descriptor)	Writing
Professional Practice	Architectural Research	Design Excellence
Design Practice	Research as Design	Speculative Design Work
Theoretical Practice (vs. Built Practice)		
Teaching Practice		
Critical Practice		
Art Practice		

b. Q1 continued: Descriptions of Research/Practice – thematic grouping by outcomes

Three "outcome" based thematic groupings emerged from the interviewees' descriptions of how they define the term research/practice. These categories were selected after reviewing the interviewee responses. Improvements to this methodology and/or more stringent thematic groupings could be an avenue for future review.

(i) traditional outcomes (in higher education) (7 of 18), whereby execution is related to gaining (or generating) new knowledge in a way that is recognizable (and rewardable) within APT guidelines,

(ii) professionalism-related (6 of 18), where outcomes improve professional performance in architecture and/or other interests (typically related to art),

(iii) pedagogy-related outcomes (5 of 18), where the practice is linked to teaching and students.

These groupings are not mutually exclusive; some interviewees provided statements that fit in multiple categories. A substantial number of interviewees linked all research/practice to engagement with students/curriculum. Many interviewees included their role in *teaching architecture* as being mutually beneficial to advancing knowledge in the field. The groupings are provided below with non-attributed comments for additional context.

i. Traditional (7 of 18)

- *I was referred to a RIBA article [4] for this definition:* The advancement of architecture is inextricably linked to the acquirement of knowledge. Architecture is a form of knowledge that can and should be developed through research and that good research can be identified by applying the triple test of originality, significance, and rigour.
- Methodology devised to describe how we will solve the problem; measure and evaluate our research findings to see if they are robust enough.
- Hypothesis based work; the process of doing the work is just as important as the results.
- There is a distinction between research/practice for the field (i.e., profession) and for research.
- Process whereby questions are formulated, process of framing ideas or issues.
- Using spatial thinking to synthesize or probe something.
- (*Research/Practice*) describes what is needed to be produced to be used in a tenure package.
- Having a point of view.
- Design as research.
- Intertwining design ideas with much broader social policy ideas.
- Expand beyond experimental design.
- Speculative or consulting work related to the tenure process.

ii. Professionalism (6 of 18)

- Theoretical practice -- wild ideas that are interesting but unlikely to get built tomorrow.

- Building bridges through making.
- Creating speculative design work.
- Best art is that which raised questions but does not provide answers. Architecture is interesting because we are obligated to provide answers.
- Art practice – research for architects with fewer constraints; intuitive work.
- Way to engage one's discipline that is unconventional, not dependent on traditional client relationship.
- Professional practice – done through instruments of service (models, drawings, specifications).
- Design excellence – primary vector for recognition as an architect.
- Research takes place in a studio but outcome feeds back into the professional practice.

iii. Pedagogy (5 of 18)

- Practice at UMD is linked to teaching - teaching is extremely rewarding and creative.
- A practitioner who teaches -- practice as tied to teaching.
- Marrying teaching with real practice resulting in a building or building proposition with "real" clients.
- Overlap of education and service.
- Faculty, working with students, to do research and design for real clients or communities.
- Outcomes you expect from a teaching-design process. Mechanisms to achieve same.

c. *Q2: Products of Research/Practice – grouped by identity*

The kinds of research/practice these interviewees engage in, and consequently the **products of this work**, can also be grouped by the interviewee's "**overarching identity**" (see Box 3). I created these identities and selected the one that I felt best fit the interviewee; some interviewees could have fit into two or even three of the identity classifications.

Box 3: Overarching Identities

i. Artist. The importance of art was often used in their descriptions of processes and products.
ii. Ideas Person. These interviewees prioritized the creation of ideas and knowledge - and products to represent these ideas and knowledge - as the driving force for research/practice.
iii. Practitioner-Teacher. The interviewee consistently described both the process of research/practice and the products per relationship to student engagement; sometimes MAPP goals were highlighted.

This grouping is not meant to be reductive, but a way to bring order to a very long, laundry list of research/practice products described by the interviewees (see Table 4). Taken alone, this list offers little insight; however, when grouped, five overlapping products emerge as important for all. These are highlighted in red in Table 4. Other products with a relatively high mention count are colored green. Per the report methodology, the products listed here were "*top of mind*", for the interviewees; I did not ask the interviewee's to prioritize their responses to this question.

Table 4: Products	Artist	Ideas Person	Practitioner-Teacher	Total
Exhibitions/installations/murals	6	2		8
Images	2			2
Performances	1			1
Physical models/piece	1	2	2	5
Book/Writing/Article	2	7	6	15
Designs/drawings/diagrams/specifications	4	5	11	20
Research/testing a piece	1	2	1	4
Speculative design process/methodologies	3	4	2	9
Collaborative result	1	1		2
Framework/conceptual model		2		2
Built, finished work/Building		2	3	5
Systemic intervention/Visions		1	1	2
Master plans		2	3	5
Competition Entry			3	3

Key:

red = overlaps all identities.

green = > # of mentions.

d. Q1-3. Identity per Outcome Grouping

Table 5 displays outcome groupings (Q1, 3b) by identity groupings (Q2.c, Box 3). While the sample size is small, in general, the outcomes fall into expected categories. The "Ideas Person" typically described a purpose related to the creation and dissemination of knowledge (i.e., a more traditional framework). The "Practitioner-Teacher" described dual outcomes – those related to pedagogy and professionalism. The "Artist" was split with their purpose defined in terms of the art itself or in the production of art; however, two of the artists defined this in a way that fit APT criteria.

Table 5: Identity Type	Outcome Type: Traditional	Professionalism	Pedagogy	Total
Artist	2	1		3
Ideas Person	5	1		6
Practitioner-Teacher		4	5	9
Total	**7**	**6**	**5**	**18**

e. Q1-3 (and short bio) Thematic Work - society's BIG challenges

Faculty described their work in passionate and heartfelt terms. All were deeply engaged in their area of interest including: (a) producing art to change or intensify peoples' understanding of a topic; (b) demonstrating how drawings can be a vehicle to convey new information or as creative design elements in their own rights; and (c) their engagement on sustainability and climate-change-related issues paralleled their view that this issue was the preeminent societal issue of our time. Others specified that their professional contributions were vitally important to society and could help solve urgent challenges. Below is a short overview of the thematic areas of interest (not prioritized or presented in a specific order). Many related to the same themes/goals outlined in the MAPP Strategic Plan, Pillar 3 – *Address society's "BIG" challenges* [1]. Some overlap exists, for example, with environmental justice work fitting in both the climate change category and the equity category.

- **Climate change** and sustainability issues; net zero; reinhabiting existing settlements; the built environment's effects on human health; healthy building materials design and investigation; climate adaptation, animal-human entanglement.
- **Architectural design**, sketching, drawing; visual analysis and communication through drawings; design excellence.
- **Art and architecture** overlap; especially through collaborative endeavours, making art, and art in public spaces.
- **Master and campus plans**; illuminating a common vision for these elements; guiding this process; community and regional level work to include participation of the public.
- **Hard societal problems requiring an equity and/or interdisciplinary lens**; municipal support for hard societal problems; providing new vision lenses for municipalities; engagement with new technologies.

4. Q4. Barriers

Transcript responses to question 4 and question 5d were collated into five categories that describes sixty-two (62) barriers to research/practice (see Table 6). The most prominent related to **time and money.** A relatively large number of barriers related to job structural issues (course load, service requirements). Two additional categories are highlighted below because, while unsurprising, they point to two specific recommendations for action at the university leadership level (see section 9): (a) collaborators – finding creative partners or suitable projects – goes to the university's role in facilitating interdisciplinary work, and (b) university leadership's understanding of the value of the architecture discipline and non-tenured faculty in delivering the knowledge/service/education land grant mission.

Tables 7 and 8 present this data via appointment, career stage, and gender lenses. Interviewee counts were slightly higher for PTK = 8; TTK = 5; Lecturer/Adjunct = 5 (see Table 1). Early career faculty and TTK faculty overall felt burdened by barriers (Table 7), as did women, regardless of their appointment (Table 8). Among adjunct/lecturers, the predominant feeling was that they had figured out how to do R/P on their own. Most (if not all) did not look to MAPP for support. As an aside, my experience working with the interviewees is below:

- I did not know eight.
- I have not worked with five (on their own research/practice agenda).
- I have worked with five.

Table 6: Barriers to doing research/practice

Barriers	Total	
Time to do research/practice	9	
Time to write up results of R/P - with funding pressure (relates to funding to write results); often detailed as $ for a graduate student	8	20
Time to apply for funding	3	
Funding to do the R/P (could be grant or client) - often detailed as $ for a graduate student or materials	8	
Funding to enter competitions/journal/book	4	19
Funding at a sufficient $ level to do the work they want to do	7	
Knowledge on where to get funding	2	3
Knowledge on how to scope a project	1	
Collaborators: finding creative partners or suitable projects (including companies in the private sector interested in the topic)	5	8
Chicken and egg - idea but no grant; sponsor does not fund in idea area or there is no good funding channel (yet) for this research area	3	
Service and other project distractions (includes licensure requirements for architecture - time consuming)	2	
Course load requirements (included structure of studio - days/hours)	3	
Laboratory space to do research	1	
Short term contract for PTK - challenging to think about all the time and effort needed to invest in	1	12
Lack of UMD leadership understanding of work value: included perceived lack of support for PTK outside of curriculum development or UMD leadership struggles to understand the value of practitioners	4	
Timeframe asymmetry between fellowships and sabbaticals	1	
	62	

T.7: Appointment / Career Stage	Barrier Count
PTK	**24**
Early	10
Mid	9
Late	5
TTK	**20**
Mid	10
Late	10
Adjunct	**18**
Early	14
Mid	4
Total	**62**

T.8: Appointment / Gender	Barrier count
PTK	**24**
F	17
M	7
TTK	**20**
F	17
M	3
Adjunct	**18**
F	7
M	11
Total	**62**

5. Q5. Funding – past funders

Past research/practice funding sources are presented in Table 9. Some faculty felt extremely knowledgeable about where to find funding, including what sponsors to keep up with, and some described not being knowledgeable in this area at all – not being "in that world". Almost all the interviewees described competitions as being important (especially to students).

However, except for the Adjunct/Lecturer faculty who were actively doing their own research/practice and had found external mechanisms to pay for this (including being self-funded), almost all faculty expressed frustration at successfully being awarded funding that was a good fit, that was at an adequate level, and that would allow them to pursue their "dream projects". In Table 9, descriptions of funders for research/practice work that an interviewee did as part of their professional practice scope, are mostly captured in the "Architecture aligned organization" category – as the "architecture firm they work for". Sometimes that "firm" was their own.

Table 9: Past sources of funding

UMD	Teaching Innovation Grant
	PALS (also in State/Local Agencies)
	Tier I / Catalyst / ISRCA
	Graduate School: CAPA/FSRA
	Solar Decathlon (materials only - no funding for time)
Competitions	ULI Hines competition
	Washingtonian Magazine Design Competition
	ACSA Competitions
	Self-Funded (also in Private funders)
Federal funders	National Science Foundation (NSF)
	National Endowment for the Arts (NEA)
	ArtPlace America
	Department of Energy (DOE)
	Housing and Urban Development (HUD)
	Department of Commerce
Fellowships	Hays
	MacDowell
	VCCA
	Isabella Stewart Gardner Museum Fellowship
State/Local Agencies	Maryland Department of Natural Resources
	Cities that the person works with (Los Angeles, etc.,)
	PALS (also in UMD)
Architecture Aligned Organizations	AIA; Latrobe
	Johnson & Johnson (design focus)
	Architecture firm they work for (paid time on R/P)
Private Funders/ Foundations and Commissions	Chesapeake Bay Foundation
	Georgetown Glow
	Mt Vernon Triangle BID
	Self-Funded (also in Competitions)

Table 9, Note a: ISCRA

PTK faculty are not eligible for UMD's new Independent, Scholarship, Research and Creativity Awards (ISRCA) funding mechanism – specifically designed as a new funding opportunity to support faculty pursuing independent scholarly and/or creative projects ($10K).

Guidelines: *full-time, tenured/tenure-track faculty members at UMD, at the assistant professor rank or higher.*

Table 9, Note b: Fellowships

Interviewees who described Fellowship opportunities noted that they were associated with other university programs and/or being "merit" based; i.e., not having to actually apply for the fellowship with a specific proposal.

Table 9, Note c: Federal Funders

Some interviewees noted that for federal funders, there was a chicken/egg issue (see Table 6) – finding a good sponsor match with their, "research/practice idea" was often difficult; these funders are not actively funding in the project area of interest and/or R/P "sweet spot" for their research/practice.

Q5 continued – Quest for Funding – dollar levels and help type

Responses received regarding what level of funding was needed to do the research/practice work they envisioned ranged from a couple of hundred dollars to millions. In retrospect, more information might have been elucidated if the question had requested the funding level and time frame for execution. Appendix A shows the funding wishes within 18 categories. Table 10 condenses this information into three funding levels and four "help type" categories. These numbers do not sum to the number of people interviewed in each category. Five interviewees did not respond as the stated they did not have enough expertise to know the funding level required, and others gave a blanket response of "it varies".

Table 10 - Funding Wishes

	Appointment			Gender		Outcome			Identity		
By $ Amount	TTK	PTK	A/L	F	M	Prof	Ped	Trad	Artist	Ideas	P-T
Small (<$15K)	5	4	0	7	2	4	0	5	4	3	2
Project ($15K-100K)	3	3	2	5	3	4	1	3	2	2	4
Big money ($100K+$Millions)	0	0	2	1	1	1	0	1	1	1	0
By Help Type											
Student help	3	3	2	3	5	5	1	2	3	1	4
Writing	3	6	2	5	6	2	5	4	3	1	7
Course time buy out	3	3	1	4	3	2	2	3	3	0	4
Professional time buy out	0	1	1	1	1	2	0	0	0	0	2

Table 10 has a zero count for TTK faculty in the "big money" category. I have worked with TTK Architecture faculty who have submitted $M+ proposals. Therefore, I consider this an error of omission. The TTK faculty interviewed concentrated discussion on the type of help needed (course buy out, lab space, alignment with sponsor and project interest). In future reports, requesting prioritization within a bounded range of responses may ensure more accurate results. While making strong inferences from these results is not advisable, the following points are still interesting.

- **Overall**
  - Paid time figured heavily in the discussions.
  - Overall, this topic appeared to be stressful for interviewees. There never seemed to be enough time, money, and/or alignment (of multiple factors) to do the work they really want to do.
  - A few people were fortunate to have their professional architecture firms (sometimes their own shop) subsidize R/P time.
  - Some interviewees stated that they did not have enough knowledge to answer the question (Appendix A).
  - The Pedagogy-outcome-driven people (Ped) more often discussed the type of help needed vs. money needed.
  - A reasonable percentage of people felt that they were already doing everything they needed to do to accomplish the work they wanted to do (included A/L, PTK). To do more or elevate their R/P to the next level (i.e., going from temporary installations to permanent installations), some stated that re-evaluating their process may be helpful (i.e., considering getting a student to document their process). Money seemed the limiting factor preventing attainment of the next level (millions for larger scale endeavors) or to pay for help.
  - Other issues raised:
    - No research lab space,
    - Sabbatical and fellowship time frames misalignment,
    - Chicken/egg – misalignment in R/P interest and sponsor program funding area,
    - Short contracts creates uncertainty that is difficult to manage.
- **By dollar amount**
  - *The small funding category was predominantly discussed by women faculty (7 mentions to 2).* They also spoke about project level and big money funding. However, they discussed the reality of needing small "bridge" funding – although this added significant complexity and did not solve the predominant time limitation issue.
  - Others highlighted the need for small dollar funding to cover competition fees and/or student support to ready a finished project for competition. A $2-5K level was identified as enough funding to cover materials.
  - Two A/L faculty were interested in pursuing "big money" projects.
  - The Monie Bay project was held up by 4 interviewees as a model project providing: engaged sponsor/client and ample funding ($100K) for project execution with excellent results.

- **By help type**
  - Many interviewees talked about the need for student support. Some did not have a good concept about how much this would cost. The most common time frame mentioned for this support was "3 months".
  - "*Practitioner-Teachers" (P-T) indicated needing support to write*; this was not brought up by "Ideas" people. It may be that "Ideas" people have already factored in the writing requirement as part of R/P projects. It appeared that P-T's, and to a lesser extent the "Artists", concentrated more on creating curriculum or executing a project with students or creating their "art" piece/exhibition/mural. Writing up the *process to publish* on the results appears to not be a consistent part of their current methodology. All saw the value in writing up their process. Some of the constraints were described as needing a second person to "document" their process. They found it difficult to "do" the work and "document" the work at the same time. Other interviewees talked about this constraint more in the context of busy lives and wearing yet another hat (this included school service obligations/roles and professional obligations). Others had successfully completed a book and had several more in mind; however, it was unclear to them *when* they would find the time to write.
  - Course/semester buyouts came up repeatedly – across all appointment types. One interviewee related this need to PALS' courses. Ideally, one would do the PALS course (i.e., produce the "client requested work" via a curriculum-based model) **and** have a concurrent course buyout so that they could dedicate time to a research/practice project that aligns with the PALS course This set-up accomplishes multiple goals over the same time frame (a limiting resource).

6. Q6 and 7. Interdisciplinary Areas

These questions were added to address MAPP's strategic pillar 3: *society's BIG challenges [1]*. Many of the R/P thematic areas of interest (Section 3.e.) highlight the need for interdisciplinarity - especially to be successfully funded by traditional sponsors (federal govt, state, foundations). Table 11 displays summary data for two categories: interdisciplinary areas the interviewees have already collaborated with, and those with whom they want to collaborate. These were combined as the results were relatively close at the school/college level. Appendices B and C provide details.

Table 11: Interdisciplinary Areas: have worked and want to work with

	Count	(5)	(8)	(5)	(3)	(6)	(9)	(6)	(5)	(7)
		Appointments			Identities			Outcomes		
	TOTAL	TTK	PTK	A/L	Artist	Ideas	Prac-Teach	Prof.	Pedag.	Trad.
MAPP and/or overarching area	60	27	21	12	18	16	26	18	14	28
Engineering/CMNS/iSchool - Technical Sciences	22	7	7	8	6	7	9	9	3	10
ARHU	19	7	7	5	10	4	5	7	2	10
AGNR	11	3	6	2	1	2	8	4	4	3
BSOS	8	2	4	2	1	3	4	3	1	4
OTHER - Journalism, Law, Business	6	0	3	3	0	4	2	2	1	3
Education/STEM	3	3	0	0	3	0	0	0	0	3
Public Health	2	1	1	0	0	2	0	1	0	1
N/A	8	3	3	2	0	4	4	2	2	4

Highlights:

- The interviewees are already collaborative. They have R/P partners within MAPP and across other schools/colleges. Areas within MAPP (and/or an overarching area that includes MAPP expertise) were identified for future collaborations:
  - Environmental assessments/science/sustainability/traditional ecological knowledge,
  - Social justice including decolonization and people with disabilities, indigenous groups,
  - Real estate (including the developer community),
  - Urban planning – social issues.
- Technology sciences including those housed in Clark Engineering, CMNS, and the iSchool were identified across the board (see red highlight in Table 11). Multiple interviewees identified that they would like to work with technical engineers including those doing materials engineering, civil engineering, geotechnical engineering, transportation engineering, and structural engineering. One interviewee expressed interest in working with a theoretical physicist.
  - *Note:* Technology sciences is distinct from "Solar Decathlon" interdisciplinary teamwork. This theme was included under MAPP (overarching area in which MAPP is already engaged).

- Landscape architecture at UMD in housed within AGNR. Seven interviewees noted that past collaborations have occurred in this area (this number does not include LA as a typical expertise on the Solar Decathlon teams).
- Many collaborations were identified as having been with Arts and Humanities disciplines. This emphasis carried through into future work.
- Unexpected outcomes include:
    - interest in collaborating with Geographers (4)
    - interest in working with Business students (2)
    - the relative lack of interest in Public Health expertise (1).

7. Q8. Roles and Tools in Interdisciplinary R/P

The question: *What role do you see Creative Practitioners playing on interdisciplinary research work?* was not very effective in generating specific responses. After several interviews, I modified the question to: *What tools do you bring to the table (in interdisciplinary work)?* This solicited very specific responses regarding how their *training as architects* is often useful in interdisciplinary contexts.

Table 12 groups the information into several overarching categories; highlights are bulleted below.

- "*Architects are the last great generalists.*"
- Graphical representation of complex, often spatial information (often the only team member with this skill set).
- *"Taking abstract ideas and making them spatial."*; adept at reading spatial organization.
- Coordinators of disciplines, *"…like an orchestra Maestro…and not Mozart, the composer*".
- Architecture training facilitates big picture thinking and detail observation: *"…zooming in and out of scales".*
- *"Architects move the ball down the field."*
- Knows the practice of presenting – reading the chemistry of a room/audience.
- Long life cycle view (building can be 3-10 years to build) and real-world experience.
- Systemic, holistic thinking.
- Design thinking and designing: *"…making creative judgement calls."*
- Technical tools such as BIM and 3D modeling.

Table 12: Interdisciplinary Roles and Tools

	Count	(5)	(8)	(5)	(3)	(6)	(9)	(6)	(5)	(7)	(9)	(9)	(7)	(5)	(6)
		Appointments			Identities			Outcomes			Gender		Career Stage		
	TOTAL	TTK	PTK	A/L	Artist	Ideas	Pract-Teach	Prof	Pedag.	Trad.	F	M	Early	Mid	Late
Graphical presentation of complex information (includes spatial and constructability)	12	5	6	1	4	2	6	3	3	6	5	7	4	3	5
Architectural being-ness/entrepreneurship focus/ "real world experience"	10	2	6	2	1	4	5	5	2	3	6	4	3	2	5
Coordinator/facilitator/lead: Maestro/communication skills/skill presenting information (moving the ball)/chemistry and people skills	10	5	5	0	0	5	5	4	1	5	3	7	2	2	6
Design critic/thinker/designer/out of box thinking/ creative judgement calls	9	4	3	2	4	2	3	4	1	4	4	5	4	1	4
Way of thinking - Interconnectedness - zooming in and out of scale; multiple lenses, way of processing information	8	1	6	1	0	1	7	4	3	1	2	6	4	0	4
Generalist (knowing a small amount about many topics)/ holistic thinking/life cycle analysis	6	1	4	1	0	1	5	2	3	1	4	2	3	2	1
Architect tools - BMI, 3D computer model; technology use - mural; zoom - pre-covid; dimension of time	3	1	2	0	0	1	2	1	1	1	1	2	0	1	2
Not enough experience to answer this question	2	0	0	2	0	1	1	1	0	1	1	1	1	1	0

8. Q9. Higher Education Resources

Some interviewees stated that they did not know the *architecture Higher Education world* well enough to comment on the question: *Do you know of a program in Higher Education that really supports its practitioners well?* For those who did, they relied on experiences teaching at other universities (Catholic University, University of Virginia, Virginia Tech) and/or their alma mater experiences. One interviewee noted that UMD's geographic proximity to a major metropolitan city engendered a strong cohort of PTK and adjunct/lecturers that could teach at UMD part-time. This is not the case for more rural architecture programs where fulltime TTK faculty are required. More than one interviewee described feeling that UMD clinical faculty are not well embedded in the university structure. However, UMD was also praised for its size and scope, and for the feeling that all sorts of different things were possible here.

Highlights from what other universities are doing well are listed below. Sometimes only a school name was provided. Additional time/research will be needed to further investigate these examples. Some organizational resources and a report were also called out as resources (last four bullets).

- University of California, Berkeley – good at exposing students to research; running lecture series with visiting architects; in house faculty talk about their research more; fellowships are provided.
- University of Oregon – large number of faculty doing research in different areas; products are showcased.
- Yale University; endowment.
- Rensselaer Polytechnic Institute (RPI) and Massachusetts Institute of Technology (MIT) – showcase ongoing research; have defined, research-based visions for program; less pedagogical-focused education.
- Alma mater fellowships: University of Michigan-Sanders Fellowship and Harvard's Kiley Fellowship for Landscape Architecture; Haystack Mountain School of Crafts Fellowship.
- Parsons School of Design – Health Materials Laboratory.
- University of Virginia – website is well set up by research themes that are cross disciplinary.
- Arizona State University – Community Design Lab – values the voices of creative team members.
- Parsons School of Design, sustainable design – continuing education program that brings funding to the program.
- Rhode Island School of Design (RISD) – expectation of doing research/practice.
- North Carolina State – public interest design.
- National Council of Architectural Registration Boards (NCARB).
- American Society of Interior Designers (ASID).
- Community and neighborhood design centers.
- The Boyer Report [5, 6].

9. Takeaways and Recommendations

Takeaways are peppered throughout the report in addition to the overview presented below.

1. Overall, the interviewees appeared interested in contributing to this discussion. The Q/A interview format allowed for clarifications and time to explore areas of interest. In the future, providing lists (R/P products, discipline areas, funding options etc.,) could allow for prioritization. Interviewees were thoughtful and generally optimistic.
2. Time and money are the primary barriers to R/P productivity. Knowledge deficits also impede progress.
3. APT and pedagogical-APT related issues/expectations were voiced as productivity barriers.
4. Some faculty felt they were "doing fine" in their ability to do their R/P. Many faculty expressed considerable frustration in being unable to do the R/P they wished to pursue.
5. I was surprised by the high tie-in of R/P to students/curriculum. In my experience, student engagement in the research process is rarely included in STEM faculty descriptions of their research. They focus on the thematic area, its significance/importance, and potential impact. It should be noted that the emphasis on student engagement was not universal. Some interviewees expressed a preference for a less pedagogically-focused program – i.e., adopting a more STEM-traditional R/P definition and expectations for execution. This was mentioned not only by TTK faculty, but also from faculty whose alma-maters did a "better job" engaging with and showcasing a diversity of faculty R/P. They felt that this had been foundational to their education. This may point to multiple avenues for "training". More focused/traditional R/P efforts/products/programs can also be highly valuable to students.
6. PALS and/or project level opportunities like Monie Bay were highly regarded, especially for those who prioritized student engagement/curriculum within the description of R/P.
7. Competitions were brought up by many interviewees.
8. The opportunity to better engage and support A/L faculty is high. Activating engagement through current UMD-level seed-grant funding is not an option because this appointment category is not eligible for most opportunities. An exception is the UMD Sustainability Fund (paid for by a mandatory undergraduate student fee) that has the significant limitations of only funding sustainability-based work that has an impact on campus (often with a financial component). While the MAPP research development office can support these faculty in exploring and applying for external funding opportunities, the very specific proposal format required by most sponsors is likely to be a high initial barrier. In my three years with MAPP, I have yet to work with any A/L faculty.
9. Time constraints and management are considerable challenges for early career architecture faculty (licensure requirements, small business pressures, client-based work).
10. The term "interdisciplinary" was used in the questions without a specific definition and often the interviewee's definition did not appear to match my own [7, 8, 9, 10 and Section 10]. The highest count for "interdisciplinarity" (past, current, future work) is within MAPP. In any future potential funding programs, such as seed-grants, etc., I recommend that MAPP adopt specific definitions for the following terms: (a) cross-disciplinary; (b) multidisciplinary;

(c) interdisciplinary; (d) transdisciplinary. This could positively impact success with future funders. Projects with traditional discipline partners (Art, Landscape Architecture, Urban Planning, etc.) might benefit from additional efforts to engage philanthropic support from alumni, companies (large architecture firms), and foundations as federal funding in these areas is not robust.

11. The tools/training that an architect brings to interdisciplinary research activities are robust (Q8, Table 12) including: (a) being able to graphically represent complex (and/or spatial) information; (b) real-world experience with coordinating multiple disciplines to achieve a long cycle project (a building); and (c) their training to be observant of different scales. A few people bucketed this wide range of expertise under the term, "generalist". This broad base of knowledge will likely allow engagement on a great variety of different types of projects, however there will also be constraints. Impact in the technical sciences is increasingly tied to specificity achieved via deep expertise. When working in the UMD Vice President for Research's office, I consulted with a mathematician about funding opportunities. He told me that he had spent the last three years exploring an interdisciplinary field of interest by dedicating himself to reading the literature, getting to know the different researchers, and digging into "definitional" differences in the use of common terms. And still, he did not feel ready to do interdisciplinary research. His main point was that he could not just bring himself and his Maths knowledge to a collaboration. He had to have a rather deep facility with the other discipline area. This limitation was echoed by an interviewee who said, "…you can't collaborate with everyone because you don't have the knowledge base". Interdisciplinarity is a hard path and yet to solve society's big challenges, we must walk it. Approaching interdisciplinary collaborations with the caveat that a long incubation period is likely, may be a beneficial framework.

Recommendations

Below are umbrella recommendations – often ones that bubbled up during discussion of barriers with the interviewees. No recommendations are put forward in relation to APT, curriculum, or service requirement issues raised.

Increase internal funding opportunities

Considerations may include these outlined below. I was very specific with the interviewees that I did not know the Dean's future potential plans in this area.

a. Open future potential opportunities to all appointment types (full and part-time).
b. Design opportunities for different funding levels:
   - Micro (competition entry fees, journal publication fees) – $ hundreds.
   - Small (materials, testing an idea) - $ thousands.
   - Medium (project-based work) – $ tens of thousands.
c. Design opportunities with different themes:
   - Collaborative: expanding opportunities for interdisciplinary collaborations via co-funding opportunities with other schools/units.
   - Themed verses self-directed: for example, tying funding to MAPP priorities. Some faculty felt that they would be in a better position and/or would feel more comfortable applying to opportunities wherein the thematic area or scope had been previously defined.
   - Complementary support funding – such as research/practice course buyout concurrent with a PALS class for faculty to do R/P.
   - Options to incentivize publications or conference presentations, especially for non TTK faculty.
d. High-risk, high-reward (Tara's suggestion): Lottery-based funding-award options may be an opportunity to decrease friction in any future seed grant funding options. There is evidence from pilot programs, such as in New Zealand and Europe, that using a lottery to allocate research funding (as opposed to the typical, peer-review rated panel) may eliminate biases against high-risk, high-reward research [11, 12]. I propose that this may also be the case for herein defined research/practice outcomes.

Expand funding sponsor range

e. A competitive funding analysis report specifically geared to Architects may be informative. This would likely need to include philanthropic opportunities from alumni, corporations, foundations.
f. Leadership might explore opportunities to collaborate with disciplines with more ample funding portfolios. For example, NIH's 2021 funding appropriation was $43B; NSF's was $8.5B [13] (5-fold difference). The DOD has released multiple reports on their assessment of climate risk to National Security. *"There is little about what the Department (of Defense) does to defend the American people that is not affected by climate change." — Secretary of Defense Austin, Statement Released in January 2021* [14].

University leadership actions

g. Open all university-wide seed-grant funding opportunities (and/or devise specific funding mechanisms) to part-time PTK and A/L faculty; consider the use of lottery-based funding (see recommendation 1.d).
h. Increase matchmaking along interdisciplinary avenues (mixer events, research showcases) for finding creative partners or suitable projects for research/practice projects at all funding dollar levels (current support is mostly at the $millions level).
i. Enact town-hall listening sessions to better understand the different discipline definitions and value of research/practice (and the architecture discipline).

Other

j. Investigate mechanisms used by other higher ed organizations to increase R/P productivity (Section 8).

10. Definitions - used in this report

a) Appointment and tenure status of the faculty interviewed were grouped into three categories and three career stages. The categories are based on the University of Maryland, Policy & Procedure II-1.00(A) [2], however some consolidation occurred:
- Tenure Track – maps directly to policy.
- Professional Track – maps to policy for clinical faculty (emphasis is on clinical practice and teaching in the departmental field); included in this track is the Professor of the Practice category - per term-base and non-tenure status - with an emphasis on professional practice that includes teaching, excellence, and leadership in the practice.
- Adjunct/Lecturer – map to policy – per emphasis on teaching with the delineation that the appointment is normally used for persons who are serving in a teaching capacity for a limited time or part-time. In addition, this category does not require a "terminal" degree.

b) Interdisciplinary definition: *Interdisciplinary research is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice* [10 – others include 7, 8, 9].

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12. Appendices

Appendix A - Funding Wishes by Major Category (18 total)

	Count
"Teeny amount" including $100's to pay for competition entries	1
Materials - $2k-$5K	3
PALS - increased to $10K	2
$10-15K (often associated with the cost for a graduate student)	2
At the level of a residential fellowship - $15K (3 months)	1
Project level: $10K-$30K (included temporary work at $15K)	4
Project level like the Monie Bay Project: $100K	4
More than $1M; $5M was mentioned (permanent work)	2
Semester Buy Out (up to $25K)	5
Academic Year - $40K)	1
Graduate student (no dollar amount provided)	4
Competitions that align with MAPP objectives (no $ amount given)	2
$ associated with writing - typically a book, includes journal/conference papers	5
Summer Salary	1
Practitioners time (like a commission or value based fees or hourly)	2
Paid time (no specified amount) to seed ideas and test things out (includes "commission based"	2
Did not have enough experience to answer this question (per TB probing, sometimes did answer after discussion)	5
It Varies (either a quote or inferred from Tara's experience of the conversation)	3
	49

Appendix B - Interdisciplinary Area- Already Working With (Table 11)

	TOTAL	TTK	PTK	A/L
Architecture, Planning and Preservation (MAPP) and/or overarching area	33	18	12	3
Interior Design	2			
Architectural History	1			
Solar Decathlon disciplines (Eng., AGNR, Comms, LA	4			
Urban Design	1			
Urban Planner	6			
Real Estate	1			
Environmental/Ecological/Sustainability	5			
Creative Placemaking	1			
Community expertise (including: municipalities, embassies, universities, NGO)	5			
Architects	3			
NCSG - PRESTO and PLCC	2			
PALS	2			
Technical Sciences: Engineering/CMNS/iSchool	8	4	1	3
Data or Information Science (iSchool disciplines)	1			
Computer Scientists	1			
Engineers (distinct from SD); includes structural engineer, geotechnical, civil	6			
Arts and Humanities (ARHU)	8	5	2	1
Dance	2			
Studio Art/Sculpturer/Gallerist	4			
History	1			
Women's Studies	1			
Agriculture & Natural Resources (AGNR)	7	2	4	1
Landscape Architecture	7			
Behavioral and Social Sciences (BSOS)	1	1	0	0
Psychologists	1			
Other - Journalism, Law, Business	2	0	1	1
Policy people including Political consultant	2			
Public Health (SPH)	1	1	0	0
Public Health Researchers	1			
Education / STEM (EDU and iSchool)	1	1	0	0
Stem Education	1			
N/A	4	0	2	2
Has not collaborated	4			

Appendix C - Interdisciplinary Areas of Interest (Table 11)

	TOTAL	TTK	PTK	A/L
Architecture, Planning and Preservation (MAPP) and/or overarching area	27	9	9	9
Any discipline engaged with MAPP curriculum	1			
Architecture PTK (also assume Adjunct/Lecturers) faculty in Practice	2			
Design for non-ableists	1			
Community leadership	1			
Environmental Assessments/Science/sustainability/Trad Eco Knowledge	6			
Disciplines aligned with UMD strategic Plan (not MAPP)	1			
Historic Preservation - including monuments	2			
Social justice including decolonization and people with disabilities, indigenous groups	6			
Solar Decathlon disciplines (Eng., AGNR, Comms, LA)	1			
Urban Planner (social issues)	2			
Real Estate (includes Developer Community	2			
NCSG (Transportation)	2			
Technical Sciences: Engineering/CMNS/iSchool	14	3	6	5
Hardware technology related - including IOT, Sensors, 3D printing	4			
Computer Science, AR/VR, AI	3			
Physics (theoretical)	1			
Data/Information/iSchool	1			
Engineer (distinct from DS), structural, material, civil, transportation	5			
Arts and Humanities (ARHU)	11	2	5	4
Environmental Humanities	1			
Humanities (including languages and history and theory)	4			
Street artist	1			
Art (those who work in 2D)	3			
Anthropology/Human Factors	2			
Agriculture & Natural Resources (AGNR)	4	1	2	1
Landscape Architecture	2			
Arborist	1			
Urban Ecologist	1			
Behavioral and Social Sciences (BSOS)	7	1	4	2
Geography	4			
Sociology/Psychology	3			
OTHER - Journalism, Law, Business	4	0	2	2
Law	1			
Journalism	1			
Business	2			
Public Health (SPH)	1	0	1	0
Public Health	1			
Education / STEM (EDU and iSchool)	2	2	0	0
Disciplines with some emphasis on STEM	1			
Education	1			
N/A	4	3	1	0
Cant collaborate with everyone - need a knowledge base	1			
NONE offered	3			