

Engineering Vacation Research Internship Program



PROJECT MANAGEMENT RESEARCH PROJECTS FOR WINTER 2021

PROJ2021/1 How Diversity Impacts Project Team Performance in Project Organisations.....	2
PROJ2021/2 Challenging norms in recruitment for construction industry: Redefining the talent pool to increase women’s representation at all levels	2
PROJ2021/3 Systematic literature review of gender-based HR initiatives and organisational outcomes in project industries	3
PROJ2021/4 Leveraging community networks for implementation of conservation programs.....	3
PROJ2021/5 Employing network analytics and Fuzzy approaches to explore various aspects of the Critical path method.....	4
PROJ2021/6 Shaping the Front-End of Projects.....	4

FACULTY OF ENGINEERING

PROJECT MANAGEMENT RESEARCH PROJECTS

PROJ2021/1 How diversity impacts project team performance in project organisations

Supervisor: Dr Marzena Baker

Eligibility:

- Understanding of qualitative and/or quantitative research methods
- Skills in effective communication, project and time management and critical analysis
- Skills in Excel
- Interest in this research topic
- Availability to participate in conducting in-depth interviews by zoom, phone or in person

Project Description:

This research project is part of the 2021 Project Management Institute's (PMI) Research Grant (Grant application pending) to be undertaken by a team of researchers from the University of Sydney, Queensland University of Technology and HTW Berlin - University of Applied Sciences.

This will be a sequential mixed method study in construction, property and engineering organisations. It will involve survey, in-depth interviews with team members & team leaders, as well as use of WGEA / ORBIS / OSIRIS archival data. The study will focus on team and organisational diversity at multi-levels: organisational, team and individual.

The diversity will include aspects of gender, 1st Nation, age, and non-English speaking participants. Study moderators will include creativity, improved problem solving, market insight, experience.

The research internship recipient will have the opportunity to work on this project and participate in the data collection and analysis.

Requirement to be on campus: No

PROJ2021/2 Challenging norms in recruitment for construction industry: Redefining the talent pool to increase women's representation at all levels

Supervisors: Dr Marzena Baker & Prof Lynn Crawford

Eligibility:

- Understanding of qualitative research methods
- Skills in effective communication, project and time management and critical analysis
- Interest in this research topic and working with an industry partner from the construction industry
- Availability to participate in conducting in-depth interviews by zoom, phone or in person

Project Description:

This research will address the question: Can the construction industry reframe its perspective of a female 'talent pool', so it turns into an ocean of non-traditional talent, i.e. without direct construction training or experience. We will challenge the industry to reframe its understanding of talent and use this new lens to enlarge the pool of women from which it recruits and widens the pipeline. Increasing women's participation in construction will significantly benefit the

industry. Bringing both the well understood benefits of diversity and improved corporate performance, whilst also tackling imminent skills shortages in the industry so it has the capacity and capability to grow (Sang and Powell 2012; Hatcher et al. 2013; Sunindijo and Kamardeen 2017; Baker et al. 2019). COVID-19 and its economic aftermath have significantly affected woman's unemployment reflecting the fact the industries women are heavily employed in were hardest hit (ABS, 2020). It may be the time for the construction industry to open the doors to more women for a resilient, growing and sustainable industry. This will be a mixed method research study including the use of surveys and in-depth interviews with participants from the construction and engineering organisations from the National Association of Women in Construction (NAWIC) network. This study is part of the NAWIC's International Women's Day (IWD) Scholarship 2021 project to be delivered together by the University of Sydney and Acciona Construction Australia. The research internship recipients will have the opportunity to work on this project and participate in the data collection and analysis.

Requirement to be on campus: No

PROJ2021/3 Systematic literature review of gender-based HR initiatives and organisational outcomes in project industries

Supervisor: Dr Marzena Baker

Eligibility:

- Skills in effective communication, project and time management and critical analysis
- Interest in this research topic
- Interest in learning how to conduct a systematic literature review

Project Description:

Gender-based HR initiatives research has been conducted at the individual and organisational levels, yet one important question remains unanswered: Do gender-based HR initiatives improve organizational outcomes and if so how?

This study will be a systematic literature review of the impact of gender-based HR initiatives (bundles vs. separate programs) on outcomes at the organisational level with focus on project industries. A systematic selection process will be adopted for the literature review of peer-reviewed journals from 1990-2021.

This review will draw on quantitative and qualitative empirical studies to summarise, explain, and refine the business case for gender-based HR initiatives. The resulting framework will provide directions for future research.

This study will be undertaken in collaboration with Queensland University of Technology.

The research internship recipient will have the opportunity to work on this project and participate in the systematic literature review and data analysis.

Requirement to be on campus: No

PROJ2021/4 Leveraging community networks for implementation of conservation programs

Supervisor: Dr Petr Matous

Eligibility Criteria: The applicant will need a strong working knowledge of network analysis, statistics, and preferably the experience of working with R, although experience with other statistical packages would also be considered. The applicant should also have good writing skills and an interest in environmental management and international development projects.

Project Description:

Much of what we do, what we think, and what we prefer is influenced by our peers in social networks. Sometimes this manifest in, for example, members of certain social circles preferring the same music, but in other cases social influence can have more far-reaching consequences.

Around half of the world's food calories are produced by smallholder farmers and their decisions to use certain technologies and practices have profound implications for food security, biodiversity, as well as their own livelihoods. Countless development programs have aimed to enhance the sustainability and effectiveness of small holder agriculture in developing countries, many with implicit reliance on local social networks, but their success has been mixed.

Collaborate with our partners in Indonesia to model multilevel interactions among thousands of farmers in hundreds of villages and based on the results propose concrete steps towards environmental conservation and more effective implementation of development projects.

Requirement to be on campus: No

PROJ2021/5 Employing network analytics and Fuzzy approaches to explore various aspects of the Critical path method

Supervisors: Dr Shahadat Uddin

Eligibility: Analytical minded would be an advantage

Project Description:

The critical path (CP) method, a widely used technique by project management professionals, is an algorithm to schedule a set of inter-dependent project activities. The resultant critical path(s) during the project planning stage can be affected by various reasons (e.g., delay due to natural causes) during the project execution stage. This project aims to employ network analytics and Fuzzy approaches to explore the alternatives and required adjustments (e.g., allocate more time and crashing activity duration) of CPs (which resulted from the planning stage) while facing unexpected situations during the project execution phase.

Requirement to be on campus: Yes (dependent on government's health advice)

PROJ2021/6 Shaping the Front-End of Projects

Supervisor: A/Prof Julien Pollack

Eligibility Criteria: The Vacation Research Intern working on this research will be analysing interviews with project managers, to gain an understanding of the different socio-technical factors influencing project planning.

The researcher will first develop an understanding of Activity Theory, an influential social science analysis framework. This will then be used as a coding framework to analyse interview data. The analysis will involve close reading of interview transcripts and will require advanced English language skills. Exposure to qualitative data analysis software (e.g. nVivo or AtlatTI) is preferable, but not essential.

Project Description:

Billions of dollars are invested every year in projects in Australia, from infrastructure megaprojects, to small IT systems. One of the most important factors affecting the success of projects is the process of setting a project up correctly, but this is rarely managed effectively.

According to the main practice guides in project management, the planning phase of projects should focus on producing detailed project plans. These guides emphasise documentation. They largely ignore fundamental social processes that occur during planning, like developing a team and creating a shared understanding of common goals. While planning documentation is important, it is only part of what is needed during project initiation.

In this research we will use an innovative approach to analysing and understanding the relationship between the social and technical aspects of initiating and planning projects, giving greater insight into how we can more effectively set projects up for success.

Requirement to be on campus: No