

THE USE OF CODESIGN BY RESEARCHERS IN PAKISTAN TO CREATE BETTER STAKEHOLDER ENGAGEMENT AND PATHWAYS TO IMPACT

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ABSTRACT

Developing countries, such as Pakistan are at the forefront of working on UN Sustainable Development Goals (UN SDGs). The problems faced by resource-constrained people (RCP) living in these countries are multidimensional [1]. Design, with its central idea of changing an undesired situation into a desired one [2] can provide holistic approaches and solutions that satisfy needs of resource-constrained people in developing countries [3]. The creation of research led, impactful solutions require an efficient and well-integrated research infrastructure and research/design capacity to design and execute research in challenging environments.

The British Council support the delivery of training courses to build national research capacity in Pakistan. Drawing on the authors' experiences of delivering such courses, this paper considers problems related to the use of codesign in impact and stakeholder engagement, project planning, and conducting fieldwork. Analysis of coursework and the 'end-of-course' world café reveals the researchers' commitment to addressing UN SDGs, lower than expected levels of participatory engagement, the challenges of working with stakeholders and tensions in research assessment methods. The paper closes with recommendations for Pakistan and ways in which this analysis and reflection can inform the design of future courses.

Keywords: Design, research capacity building

1 INTRODUCTION

1.1 Context

The development and adoption of United Nations Sustainable Development Goals continues to shape research activities in developed and developing countries. These are wicked, integrated problems [4], the true complexity of which is hard for researchers to fully comprehend when they come from HEIs (Higher Education Institutes) with more integrated research cultures operating in socio economic cultures which value research and diversity. This produces a tension in relation to knowledge transfer activities that are modelled on western approaches. Coventry University's Capacity Building Programme for Pakistan provides their senior researchers with the skills to become 'authentic scientists' [5] and the building blocks needed to create a stronger research infrastructure. This will allow the Pakistan research community to evolve, not necessarily replicate Western systems and develop context specific research approaches to addressing UN SDGs.

There is a long tradition of the application of design to support resource-constrained individuals and communities [e.g., 3,6, 7 and 8]. The underlying philosophy is that appropriately designed solutions, designerly thinking and methods can create a significant impact, supporting social and human development. Underpinning this is the belief that everyone can contribute to 'design', working collaboratively in multi-disciplinary teams driven by a shared vision to create solutions to improve the quality of life of those suffering from multiple levels of disadvantage. Implied in this is the need for meaningful involvement with end users through co-design, participatory engagement and co-creation. Pakistan began working on SDGs in 2013, when the United Nations selected it as one of the countries to conduct consultations on the post-2015 development agenda. The key development priorities included

peace and security, governance, inclusive economic growth, the rule of law, social development, gender equality and women's empowerment, sustainable low-cost energy, disaster response and preparedness, and the much-needed broader role of the developed world.

[10] recognises that addressing these problems needs partnerships across institutions and sectors to develop plans that can simultaneously help alleviate poverty, improve social inclusivity, eliminate hunger and improve health status whilst managing climate change. The Local Government Summit in 2017 raised awareness among grassroots level public officials and parliamentarians, to prioritize the SDGs in legislative business in response to local needs. Civil society and academia are supportive of the government in terms of achieving these targets. However, many challenges need to be addressed within the academic and research community such as such as financing to address local and national issues, developing a Responsible Business Framework, engaging local universities in devising local solutions for local problems, engagement of local stakeholders, training and the recognition of 'outreach and impact in career progression. This paper considers the extent to which codesign is currently employed in addressing these challenges.

1.2 Summary of the research culture in Pakistan

This section briefly summarizes the research context in Pakistan, and an explanation of why Coventry University developed a Capacity Development Programme – from which the data in this paper is drawn, Research in Pakistan is rapidly expanding. For example, the number of Pakistani PhD graduates increased by 248 percent between 1947 and 2014 [11]. In 2020/21 there were 239 accredited universities (143 in the public sector and 96 in the private sector) educating approximately 2.27 million students, with 57,000 faculty out of which 20,000 have PhD degrees, and 20,000 PhD students. However, the Economic Survey of Pakistan 2021-22 pointed out that only 1.77 per cent of GDP was spent on the education sector.

The rapid growth and underinvestment in basic research infrastructure is being addressed by the Higher Education Commission (HEC). Critical reviews [11-14] have revealed lack of adequate support for new staff, career progression and professional development, High workloads have been linked to academic burnout and issues with staff retention. Academic progression is based on the number of research publications which has led to a 4-fold increase in the number of research publications between 2006 and 2015. The Knowledge Platform report [11] documents the resultant poor quality, such as ghost writing, plagiarism, requirements to include non-contributing senior academics on papers, quantity over quality, prioritizing research which is attractive to western audiences The report stressed the need to

1. provide a greater role for academics in guiding the research agenda and funding allocation process through the establishment of research councils and the formulation of a research excellence framework.
2. allocate greater funding to Pakistan's most urgent challenges.
3. increase the appetite for university research among government agencies, the private sector, and the donor community by developing linkages and good practices.
4. cultivate communities of practice and knowledge networks.
5. drive research excellence by promoting mentoring and collaboration.
6. improve incentives to deliver impact-oriented research by revising the research evaluation system beyond publication metrics.

In response to the recommendations of the HEC, the British Council invited organizations from outside Pakistan to deliver training to improve research capacity. Coventry University's Capacity Building Programme was developed in response to the need to support researchers, at all stages in their career. The course was based on our experience of doing research in the west. Elements of the conduct and management of research are transferable (e.g., communication of research outputs, project management and the research craft per se including issues of ethics, honesty, positionality, reliability, replicability). However, as has been noted above, the reality of conducting research in Pakistan is very different. An example here is the notion of 'impact'. In the UK, and many other countries, impact assessment includes the impact of work outside of academia. For senior and STEM academics in Pakistan, impact is measured by the number of publications in high impact journals. This has skewed what is researched, how it is researched, the allocation of time developing research cultures and junior researchers and the need to use multidisciplinary approaches to design, deliver and measure social, cultural, environmental, and economic impact. This is clearly at odds with the need to address UN SDGs. Our training offered participants different insights into research practice which they could apply in their own universities. Of

especial interest for this paper was the extent to which our mainly STEM participants approached impact and stakeholder engagement and considered designerly approaches to this.

1.3 Overview of Research Capacity Building Programme

Coventry University's RCBP delivered training to over 1000 researchers and research service professionals to help them to become the next generation of internationally competitive grant winners, research executives, research managers, and trainers who could develop successful bids, cascade best practice and develop impactful research contributing to Pakistan's development needs. Therefore, the overall aims of the programme were to:

- Grow researcher capacity and enable them to achieve high success rate in winning large scale national and international research grants,
- Grow a population of grant reviewers that understand and can promote and apply international best practice in grant review,
- Train and support the Principal Investigators (PIs) & Co-PIs,
- Benchmark the HEC research grant review process against international standards.

1.4 Research question

Some sessions of the RCBP focussed on writing research grant applications. Typically, these include important, and sometimes poorly completed, sections on stakeholder engagement, pathways to impact, and impact measurement. If the intended research addresses a UN SDG more consideration needs to be placed on these and a well-articulated case developed to engage with end users. The RCBP provided an opportunity to gain insight into the ways in which these, and the use of codesign or wider activities were considered.

2 DATA COLLECTION

Material for this paper was generated during the delivery of two courses for Principal Investigators (PI) and researchers (RT) in Islamabad in 2022. Participant details were collected prior to the course, with a non-completion rate of approx. 20%. Details included:

- Number attending 3 PI courses - 130, with 51 attending the RT.
- Average age 41.1 years for the PI course and 39.4 years for RT.
- Ratio of male to female, 91:39 for the PI course and 36:15 for the RT
- Number of Higher Educational Institutes represented - 55 for the PI courses, 15 for RT.
- Most participants had a Science, Technology, Engineering and Mathematics background.
- Levels of seniority ranged from Director of ORICS and research, through to lecturers. Most participants were either at the level of associate or assistant professor,

A full record of classroom activities was collected and collated during each course. The course included lectures and interactive activities on project management skills (such as diversity, creating fairer workplace cultures), presentation and communication skills, ORICS, the VITAE framework, commercialization, impact and stakeholder engagement. These themes were picked up in world café sessions on the final day of the course. Coventry University Ethics Committee provided ethical approval to use qualitative data to inform guidelines and best practices.

The data used in this paper was derived primarily from one representative PI cohort of 50 participants. Individual, 'nonmandatory' coursework associated with the lectures included participants developing pathways to impact and stakeholder engagement plans for their own research using standard templates that required the following elements:

- Stakeholder mapping - name of stakeholder group, what is important to the stakeholder, how named stakeholder groups could contribute to, or block the project, the potential strength of their impact and influence on the project and engagement strategies.
- Impact planning coursework - impact goal, stakeholders, their reasons for interest in the project, activities to engage each group, indicators to measure successful engagement, risks to activities and mitigation strategies, who would be responsible for this, resources and timing of events.

The aim of the course work was to show participants the factors to consider in stakeholder engagement and impact planning and provide them with an easy-to-use template for capturing this information.

Individual plans were shared across participants and feedback given at group level through googledocs.

The response rate indicates an appetite for research skills development in this community (with similar buy in rates found for all coursework). It should be noted the course work was undertaken after a day of lectures, with participants also having to find time to manage their ongoing workloads and commitments, and that female participants had to manage their household duties. A limitation of the study is the small data set and that time constraints might have led them to prioritize primary stakeholders and neglect community engagement.

41 sheets were submitted with 5 rejected as not including sufficient detail for the analysis. Given the focus of this paper on UN SDGs and user engagement an additional 12 were rejected because they did not have direct engagement with people (e.g., structural engineering, health data sets, drug development, animal husbandry and automotive technology) or had interpreted stakeholder engagement and impact as staff/student engagement. Of the remaining projects 10 related to agriculture, 7 to health with the rest shared between law enforcement/policing, environment, heritage (religious and cultural tourism), child poverty and education.

3 RESULTS

The analysis of engagement activities included the purpose of the engagement [15], depth and width of the engagement [16 and 17] and perceived barriers.

3.1 Willingness to address UN SDGs in a holistic manner

Across all cohorts, discussion with participants and their research ambitions revealed a deep commitment to conducting research which addressed local and national UN SDGs, such as food security, better health care, improvements in agricultural and educational processes, and dealing with problems which push the boundaries (such as religious and gender intolerance). Female participants showed a greater insight into the potential of qualitative and participatory methods. Stakeholder engagement usually included more than one quadruple helix agent, reflecting the need to involve government agencies and industry in the development of solutions.

3.2 Levels of user engagement

It was hoped to apply [16] and [17]'s criteria to the breadth of user engagement especially in relation to the involvement of resource constrained people in the development of solutions to UN SDGs. From the information provided it seemed that most activities fell well short of standard definitions of co-creation, co-design or participatory engagement. Most engagement activities related to informing and consulting. [15]'s framework deals with the depth dimension of co-design with RCPs. Although it was established that co-design was rarely present, the use of these criteria enabled an analysis of the focus of engagement activities in terms of whether it was:

- 1) Business driven or legitimation (i.e., gaining access to social networks and for building legitimacy of solutions);
- 2) Efficiency seeking – aiming to develop solutions through collaboration local partners;
- 3) Sustainability seeking - aiming to ensure environmental or social value; or
- 4) Empowerment seeking – aimed at empowering resource constrained individuals and communities.

Given the nature of the UN SDGs it was not surprising that 7 projects considered all 4 categories, Business driven engagement was most common with only 2 projects emphasizing empowerment (relating to community support for sustainable tourism and development of strategies to deal with 'out of school children'). These were also the ones that had a larger participatory engagement element,

3.3 Perceived barriers to proposed engagement

[1] provides an extensive list of barriers to codesign and co-creation activities with RCPs. Given the recognised importance of and challenges to 'end user' engagement, in developing RCBPs for developing countries, we are interested in understanding where barriers might occur so that we can co-create activities to help participants address these challenges Using a grounded approach, 3 key areas were identified which blocked stakeholder engagement. Of these end user issues accounted for most for the problems regardless of engagement type.

Table 1. Perceived barriers to stakeholder engagement

Process issues	End user issues	External factors
Need for multiple sign offs for each user group	Key players too busy to give the time to commit	Organisational/staff churn and death;
Poor research ethics – lack of responsibility, accountability, ownership and management, corruption, carelessness	CEOs and key staff do not attend key meetings due to time constraints – this signals a lack of interest/perceived importance in the project by senior people	Refusal of line manager to give time to staff to work with the project;
Inability to get necessary approvals	Lack of buy in of key stakeholder groups e.g., end users, professionals (e.g., doctors, teachers), industry sectors, target communities (e.g., Buddhists, farmers)	Overall disinterest in leading stakeholders in the need to address the problem e.g., government, local authority, key industry player and influencers
Resources (e.g., space and funding) are delayed, do not occur at the level expected,	Lack of interest in the project by RCPs, end users, industry, local authorities, government, informal sector, and communities	Lack of understanding about the need for the research/importance of the issue
Poor communication and product marketing	Lack of access to key participants due to gatekeeper controls (e.g., children, patients, women)	Political instability
Inappropriate sampling and methods		

4 SUMMARY AND RECOMMENDATIONS

The RCBP showed a clear need to increase basic research skills and improve the research culture. Our cohorts included national and internationally renowned subject experts. However, many had not received any form of research capacity development and were not familiar with the wider responsibilities of research leadership (such as mentoring, creating a research culture).

- Recommendation 1: Codesign a RCBP focusing on research centre development rather than individual skills which recognizes the current research infrastructure and culture.

Participants were committed to research which addressed national issues.

- Recommendation 2: Prioritize funding to address UN SDGs as they are manifest in Pakistan.

Participants were very aware of the problems associated with such engagement, many of which are context specific. However, in the RCBP we focused attention on academics, rather than fieldworkers and NGO staff who have greater insights into participatory engagement.

- Recommendation 3: Map out existing pathways to impact and stakeholder engagement plans that have had a demonstrable effect, with a view to creating research practitioner resources that can be incorporated into grant applications.
- Recommendation 4: Create high quality opportunities at local, regional and national level to share insights for all stakeholders, and users to share insights g. conferences, round table.
- Recommendation 4: Reward and disseminate excellence in innovative ways to engage with quadruple helix agents.

With a rapidly expanding research community, a pressing need to address UN SDGs at a national level and constraints on research funding, there is an urgent need to ensure high quality grant applications which produce real world impact.

- Recommendation 5: Provide reviewer and participant training for grant applications. Incentivize the delivery of constructive feedback on these sections of grant application. Ensure that resources can be included to cover costs of meaningful engagement and impact assessment.

Our cohorts were mainly drawn from STEM disciplines. As such they had only limited understanding of other disciplinary approaches and how these might assist in creating more meaningful stakeholder engagement and pathways to impact. Of special interest in this paper was the lack of awareness of co and participatory design approaches, living labs etc.

- Recommendation 6: Create and share greater awareness of how designerly approaches are being used to address UN SDGs in Pakistan

Design is recognised as a crucial in addressing UN SDGs. Researchers attending our RCBP were predominantly from a STEM background. Widening their understanding and recognition of designerly ways of thinking and approaches, may help deliver against UN SDGs in a more holistic manner and increase stakeholder engagement and impact.

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