

Kindling Research Competence Development in a University: Reflections on a Pilot Effort



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The paper is intended to present and discuss the processes and achievements of a university-wide initiative to develop research competencies among faculty and students for becoming inclusive and responsive - by addressing regional issues. Data were collected through participant observations, structured questionnaires, presentations and informal interactions through action research methods and analysed qualitatively. Study suggests that it is possible for institutions of higher education, to address regional issues through inter-disciplinary interventions and build university-wide research competencies. Voluntarism, vision, networking and persistence of the leader, flexible organisational arrangements, workshops on research methodology, continuous feedback and support by the citizens and the regional authorities are the key drivers of success. This short duration pilot initiative on a limited scale in a University may serve as a model for other universities to emulate.

Keywords: Action Research, Inter-Disciplinary, Regional Issues, Research Competence, Higher Education

1. Introduction

This paper attempts to tackle a significant issue about how to build research competency of faculty members and students in the higher education institutions. There have been considerable efforts all round the world in developing research competencies among the faculty members and the students in universities. Focus on research provides universities an added advantage to differentiate themselves and gain leverage in the global rankings of universities; in the crowded space of higher education. Moreover, all over the world, universities are changing rapidly to compete and to sustain. In this process, the higher educational institutions are becoming complex with a variety of programmes and with diverse student profile.

With multiple programmes spanning over different disciplines, universities, as institutions of higher learning, are uniquely equipped to build inter-disciplinary research competence of faculty members and students through varied efforts and experiments. (Lovat, Davies & Plotnikoff, 1995; Embo Reports, 2007; Yarullin, Bushmeleva & Tsykun, 2015; Willison, 2018; Wong, 2019). Further, they have emphasised on the use of research skill models across disciplines for prompting institution-wide research. Coelho et al. (2014) have argued for building research skills in teachers in addition to teaching skills. Bankauskiene, Augustiniene and

Ciuciulkiene (2005) propound that teachers develop competencies in research, self-assessment, change management, negotiation and current problem analysis when they are engaged in action research projects. Wernli and Darbellay (2016) identified governance handicaps, inadequate leadership vision, internal rivalry, absence of coordinating processes and mechanisms as barriers to faculty members engaging in research activities. Structural reforms and active leadership (Townsend, Pisapia & Razzaq, 2015), and incentives (Sa, 2008) are recommended to overcome the barriers. Mallari and Santiago (2013) assessed the research competency and interest of accountancy faculty of institutions of higher learning and noted that there was a need to conduct seminars to build the interests and competencies of colleagues.

Chatterton and Goddard (2000) added another dimension to the research agenda by pointing out that universities tend to focus on global and national agenda at the cost of regional needs. Regional development issues do not get the required attention, though they can provide useful sites for research projects. Despite this, most research in universities gets confined to individualised and compartmentalised programmes, elective courses and discipline-based faculty projects. For a better connect with societal situations, research should lead to innovative solutions and creation of new knowledge. (Hatakenaka, 2010; MacDonald, 2012). Universities are organizations having close ties and bonds with local communities. An academic institution/University could act as an anchor by establishing stable and long-term relationship with civic authorities, universities and researchers. The concept of 'Universities as Anchor Institutions' (Goddard et al., 2014) refers to the key role that University can play in the resolutions of local issues and development.

National educational policies laid down by the University Grants Commission (UGC) emphasise high quality teaching across disciplines with significant contributions to research. The need for multi and trans-disciplinary culture is stressed. It is even suggested that institutions of higher learning should create a formal position of 'Dean (Research)', to signal the importance of research and initiate efforts towards realizing it (UGC Public Notice July 31, 2019). As per the knowledge and experience of the authors, such positions are non-existing in many universities in India, even where the universities have Research Deans, mostly their main focus is on Ph.D. Programmes and not in promoting a campus-wide research culture among students and faculty members. The National Education Policy (NEP) 2020 envisages the promotion of quality research within the Higher Education System. The policy further lays stress on research and innovation to ensure quality education. It is envisaged that the emphasis should be on identifying young talent to strengthen the research culture, build capacity, promote innovation and support, in multi-disciplinary and trans-disciplinary research. It is envisaged that the emphasis should be on identifying young talent to strengthen the research culture, build capacity, promote innovation and support trans-disciplinary research. Further, Sengupta (2019) recommends ways of inducting under-graduate research in the present system of higher education in India based on the prescription by the Council on Undergraduate Research (CUR).

Therefore, the moot question is: Can universities build inter-disciplinary and regionally relevant research competence? If yes, then how? This paper is an effort in this direction. This paper presents the processes and the achievements of a pilot initiative to ignite university-wide inter-disciplinary research competence through working on action research projects to resolve regional issues. The projects

encompassed library search, field immersion, diagnosis, issue framing, action intervention and assessment of the outcome. Based on an analysis of the pilot experience, the implications for embarking on such initiatives in institutions of higher learning are discussed. The overall message for the educational community is that inter-disciplinary participative research competence building initiatives through centralised and guided efforts are possible and should be encouraged by the leaders of institutions to address the needs of their respective regions.

This paper adds to the stream of literature on building research culture at the institutions of higher education. The paper is written in a case –study format which focuses on understanding the dynamics present and felt within a single setting. The case study is presented in the form of Process Documentation Research (PDR) as it is a tool for developing organisations’ learning from experiments, experience, opinion etc.

2. Context of the Pilot Exercise

This initiative was launched by the Research and Development Centre, established in 2014, of a premier educational Institution offering courses in multiple disciplines for higher learning. The institution was catering higher education through seven self-financing and nine grant-in aid constitutes, located in a city in western India. The Self-financing institutions came under the umbrella of a Private University, created in 2015 by a state legislation. The grant-in aid institutions continued their affiliation with the State University. The vision of the aforesaid Research and Development Centre was to promote research culture among the students and faculty members by providing necessary skills and identifying opportunities available for research funding, fellowships etc. The role of the centre further expanded to cultivate research culture in the young University. According to the Centre, in 2017-18, there were 19,776 students and 260 faculty members in the University and the other constitutes of the higher educational institutions in faculties of Humanities, Business Administration, Commerce, Computer Application and IT, Computer Technology, Design, Law and Management.

In order to accelerate research activities and develop research competency, the first Director of the centre initiated the series of activities to meet this end. The Faculty Development Programmes (FDP) on curriculum design, innovative teaching methods, case method of learning, research methods, publication processes etc., was an on-going exercise based on the need assessment of faculty members.

To promote research in the University, the director discussed the idea of recognising the achievements in research by the faculty members and the students with the management of the University. They decided to celebrate January 19, birthday of a major contributor to the growth of the organization, as Research Day. The first Research Day was celebrated in 2017. Research awards were presented to faculty members for recognising their excellence in publishing papers, theses and books and to post-graduate students in recognition of their excellence in their final year projects. The award carried a certificate of appreciation, medal and a token cash prize.

2.1 The Idea of University-wide Action Research Project

The director of the centre felt that the existing rewards motivated the faculty members and the students to excel in research in their respective disciplines/faculties and satisfy

their individual ambition/need, but did not generate a collective euphoria and enthusiasm and common zeal to participate in research. It was time to think differently and challenge to find alternatives to traditional academic metrics and reward through innovative methods.

It was sensed that research in different disciplines/faculties were difficult to compare and rate for awards. The award in every discipline would dilute the purpose. In order to develop a research culture university-wide, pushing beyond the traditional way of 'publish or perish', it was very necessary to develop a university-wide research culture. For achieving the same it was essential to sow the seeds of research passion among the faculty members and students on a common platform to create excitement and kindle research competency development. Moreover, as the disciplines keep on converging, a collaborative effort on research was required. Therefore, it was decided to start a new process that would promote collective enthusiasm, through involvement of faculty members and Under-Graduate (UG), Post-Graduate (PG) and Ph.D. students from different faculties such as management, business administration, computer technology, design, etc., in addressing research problems to tackle the regional issues. This would provide an opportunity for the faculty members and students to move out of their own silos and experiment with their domain knowledge to address issues with multiple perspectives in a collaborative manner. Saunders (2009) had advocated that research skills are discipline based. Every discipline provides specific input which are useful for collaborative work.

The director proposed to experiment with the format of action research as it has dual thrust -one on action and the other on research. This will facilitate involving multiple stakeholders in articulating the problems of public concern and resolving issues with action on the ground to get more insights. The director enunciated the need for greater participation of faculty members and students in research-related activities. Necessary approvals and sanctions for going ahead with the initiative were obtained from the President and the Provost of the University. The centre was required to manage the entire project from the overall funds allocated to the Centre for 2017-18.

The director requested, an independent researcher, who had retired from a national level institution to be a mentor in the research process. They explored the ways and means of involving faculty and students from all disciplines and programmes in undertaking action research projects. Both of them brainstormed and thought it appropriate to focus on the problems faced by the citizens of the city with whom the researchers were likely to have significant empathy. Building the research competence to recognise and respond to the regional needs was seen as an important contribution of the University, particularly given its historical lineage of the city and the institution. The city also provided a rich site for action research projects with its diversity in heritage, culture, commercial activities and educational initiatives. They contemplated a broad research space with the theme 'Enhancing Citizen Welfare in the City' to guide the choice of action research projects.

After crystallising the idea of university-wide multi-programme action research project, circulars inviting participation were sent to the Deans, Directors and Principals of 15 constitutes of the institution/University and they were requested to send the names of five students each from UG, PG and Ph.D. programmes, based on interest, curiosity, commitment and sincerity, for involvement in the project. In a separate communication, invitations for participation were sent to the faculty members of the

Institutions. The volunteering students and faculty were required to suggest to the Centre three (in order to have a wider choice) researchable topics of their interest under the broad theme of ‘Enhancing Citizen Welfare in the City’. The Centre intended to form inter-disciplinary teams of a maximum of five students from each of these programmes and a maximum of three from the faculty members’ category. The team whose project was adjudged as the best project in each UG, PG, and Ph.D. students and faculty categories would receive awards on the Research Day.

2.2 Mentor Team

Further, the director decided to induct two more resource persons to bring in diverse competencies and take the initiative ahead with speed. Thus, the four individuals with different expertise and experience, together formed the mentor team. Mentoring has been effective and can be used to build research competence across various professional courses and geographic settings. This was illustrated by Byrne and Keefe, 2002. The team was tasked with the responsibility of resource persons-cum-jury for planning, execution, and evaluation of the projects.

2.3 Deadlines and Dilemma

By the end of the first deadline on October 12, 2017, responses came only from the faculty of Management of the University. Faculty members attributed the delay to examination workload. The centre extended the deadline for submission to November 6, 2017 and sent reminders to the institutions. At the end of the revised deadline, the centre received proposals from 40 students - 20 each in the UG and PG categories - from management and business administration faculty and 10 faculty members from the Management and Computer Applications and IT faculty from the new private University. The response of the grant-in-aid institutions was negligible; possibly due to the language handicap. As the response was still lukewarm, the director discussed the dilemma of whether to continue the project or call it off with the other mentor team members. They felt and opined that the initiative should not be called off and it should be seen as a ‘proof of concept’. Further, it could set a precedent and be a platform for mounting subsequent programmes to enhance research competencies across disciplines and institutions. Hence, the initiative was to be considered as a pilot project.

2.4 Kick-off Workshop

A kick-off workshop was organised on December 5, 2017 to help the participants to understand the concept, process, and path for undertaking action-oriented research work. The workshop discussed the key stages and concerns in research methodology, proposal preparation, problem solving, processes of observation, and listening to spoken and unspoken words in the field interactions. The kick-off workshop was a warming up exercise and hence no evaluation was done at this stage.

At the end of the workshop, the participants formed 14 teams, five each in UG and PG, and four in faculty categories, and chose the themes to work on. The teams met and firmed up their proposals. On December 11, 2017 teams presented their proposal to the mentor team in a plenary session. The project proposals were on a range of issues like solid waste management, plastic pollution, pedestrian safety, street lighting, etc. and received feedback from the participating teams and mentors. The need for sharper scoping, greater clarity and appropriate concretisation in methodology was

emphasised by the mentor team. This was followed by a detailed e-mail feedback on each proposal. The mentor team constantly and continuously interacted with the participants individually and in groups as and when requests for guidance were received. This was initiated to sort out issues, share progress, and outline the directions for further development. The proposal carried 15% weightage.

2.5 Midterm Review

In the midterm review organised on December 28, 2017, which carried a weightage of 25%, 13 teams out of 14 participated. One of the PG teams opted out citing increased workload as the reason. In its review of the presentations, the mentor team suggested that the participants should focus on one or two doable aspects to bring about some changes at site during the research project and recommended them to focus on grass root issues, create actions and declare the likely benefits for self and the stakeholders. The mentors stressed the imperative of participatory interventions to improve the ground reality and provided guidance to enable the participants to assess the gap between the desired and actual levels of services, identify the causes and think of possible ways to address them. The participants and the mentor team opined that the mid-term review exercise was very useful. In their formal and informal interactions after the mid-term review, the participants mentioned to the mentor team that they were very excited about the research work they were engaged in. They also mentioned that their colleagues were curious about their activities and the workshops. It was felt that this was a good development to enhance the possibility of greater voluntarism and 'buy in' for the future.

2.6 Final Review

On January 10, 2018, the final day of the project, three officers from the City Municipal Corporation, the apex agency in charge of providing civic services in the city, were invited to provide comments and suggestions. All the 13 teams presented their work for 60% weightage for evaluation. The topics/themes of the projects are listed in Table 1. The presentations revealed that engagement with the public was the focal point in the research process used by the teams. Observation of what was happening in the field was their first activity followed by interactions, consultations, and collaboration with the seekers as well as providers of the specific service. They, then, consolidated the suggestions received from different stakeholders for improvement in services and enhancement of their own learning. The participants of the project tended to develop a reflexive mind-set as they reviewed their own thinking, responses to questions, analysis, and decision-making processes of the stakeholders. They wished to continue their involvement in their research projects. Out of the 13 projects under consideration, five had developed the blue print for interventions and the rest were at the field interface building stage. Out of those five, three projects were at the stage of measuring the stakeholder benefits. The mentor team's assessment was that out of the final three, two projects could be taken up for implementation with financial support.

The key achievements were the development of awareness among the citizens around the project sites; development of apps for pedestrian safety, public transport needs and car-pooling; and demonstration of the prototype of a solid waste management system using the Internet of Things (IoT). The project-wise actions

initiated and achievements are presented in Table 1. The Corporation officers promised to provide help to the research teams to continue and advance the scope of implementation of their projects.

Table 1 *Titles, Approaches and Achievements of the Projects*

Sr. No.	Group Name	Title of the project	Action in the field	Reported achievement
1	Post-graduate Participant Team 1	A Study on Imparting Awareness of Traffic Rules Amongst the Citizens of the City	By directly approaching the people of the city to study the problems faced by them due to traffic congestion.	By imparting awareness to the stakeholders like: citizens and the concerned government department. Issues like: unable to cross the signals on time, increase in chaos between the citizens, increase in accidents, etc. Suggested some solutions to authorities.
2	Post-graduate Participant Team 3	A Study on Street Light Management for Crime Prevention	The group observed conditions of street lights in some selected lanes. They also gathered information regarding theft/robbery, eve-teasing etc. in the area.	Correlation between crime and street lights explained. Action on ground needs to be further initiated for safety of public.
3	Post-graduate Participant Team 4	Parking Management of Vehicles on Busy Roads	Observations were made on the busy roads to understand the problems of parking. Three posters were made to create awareness and encourage people for proper parking and prevent parking violations.	As a part of solution, parking passes on daily basis for parkers and “a park as easy app” were suggested.
4	Post-graduate Participant Team 5	Smart Cities: Opportunities and Challenges	The concept of smart cities is getting implemented at present in the city.	Most people were aware about the same through different media. The group had presented more theoretical work rather than practical problems.
5	Under-graduate Participant Team 1	Swachh Bharat Mission: A Step towards Cleanliness	Met the policy makers and placed three dustbins in slum area where the study was undertaken. Advocated Citizen-Government interface.	Some action emerged at the end of the project as there was some improvement in the slum area covered.
6	Under-graduate Participant Team 2	Pollution of Plastic and Its Recycle Management	Visited a waste management company to understand about plastic and its segregation, and pollution caused due to plastic use. Focused on supply side of plastic to create a larger impact. The group contacted several shopkeepers and gave an alternative to plastic bags and tried to convince them on its use.	Awareness was created and developed. The team could convince shop keepers to go green.
7	Under-graduate Participant Team 3	A Detailed Study on Youngster's Perception about Public Transportation in the city	“City Parivahan” is an App to connect the public on transport needs. The team talked about dustbins in buses and diverting routes to avoid overloads. They even travelled in the bus, met and discussed with the passengers, and cleaned some buses.	An app was developed and tested.
8	Under-graduate Participant Team 4	An Analytical Study on Satisfaction level of Citizens at selected Public Gardens of the City	The group was involved with public for discussion about status of the selected public gardens. They prepared charts to create awareness. The solution found through analysis was translated into feasible action on the ground through formation of committees and discussions among them, which, if followed up, would result in sustainable change.	Communities were created and awareness built.
9	Undergraduate Participant Team 5	Assessment of Selected Urban Green	The project focused on awareness more on themselves and less on the stakeholders. The analysis which	Self-learning and creating awareness among public.

		Spaces for Citizens of the City	required follow up and action was not initiated.	
10	Faculty Team 1	A Study on Left-Over Food Management Practices in the City and Creating a Framework to Match Demand and Supply	Supply side was evaluated. Demand side was ignored. Taken the help of a Non Government Organization (NGO) to execute the task. Action is there. Experience for self and students which brought smiles on people and resulted in satisfaction. Undertook action with the help of an NGO.	Self-learning and insights from field association.
11	Faculty Team 2	Safety of Pedestrians (Shoppers) at a busy cross road in the city .	Use of "Ped safe" App, a free app, to make pedestrians visible to drivers so as to make them safe. Some action was observed.	The causes for pedestrians not being safe was understood. An app was developed and demonstrated.
12	Faculty Team 3	A Study of Carpool Users and Non-users in the city.	No such study was undertaken earlier in the context of the city, according to the researchers. The focus of the present study was on users and non-users of car pool. The team conceptualized an App, to be incubated, to connect people to encourage them to use car pool.	Insights into the concept of Gift economy and Karma earnings are the larger concepts in this research problem.
13	Faculty Team 4	IoT and WSN Based Solid Waste Management System for the City	Use of IoT and WSN will result in smart dustbins, smart sweepers, smart vehicles and smart Department of Waste Disposal in the City Municipal Corporation, if implemented.	The group demonstrated its model in the University canteen. A miniature model was demonstrated during the presentation.

Following the final presentations, the mentor team evaluated the submissions using the criteria of extent of engagement in the project, the depth of thinking through the issues, the quality of the research process, and the appropriateness of the solution provided to decide the award winners. The teams in each category were placed in the first and second positions for awards. The mentor team also decided to award certificates to other teams to recognise their significant contribution to the resolution of civic issues. It opined that the awards to other teams were required to support the sustenance of the research culture ignited in the participants.

3. Research Day Celebration

The President of the University, presided over the Research Day celebration. All faculty members of the University and other Constituent of the Institutions and the participating students were invited to attend the Research Day celebration. The Director, of a national-level research laboratory of India, was invited to deliver the keynote address on the theme 'Excitement of Research'.

The Director of the Research and Development Centre at the University narrated their efforts and excitement over the exploration and research projects undertaken by them. Sharing and internalizing such experiences would motivate and instil pride among youngsters for the research efforts in the country.

The mentor team shared their reflections and perceptions on the journey from conceptualisation to the celebration and mentioned that the journey would not have been completed without the active involvement of the participants and the support provided by the University administration. The participants shared their feedback orally and mentioned that they learnt a lot from their research project. They felt that the role of mentor team was very useful in sustaining their spirit for learning. An interaction with those who did not participate in the project indicated that they had missed out on a good learning opportunity.

Data on the processes and achievements were collected through participants observations, structured questionnaires, presentations and informal interactions and discussions. It was analysed qualitatively. Additional feedback from the participants was collected through a structured questionnaire on the overall experience with their involvement, takeaways, discovery of strengths, identification of handicaps, and directions for the future. The responses received are summarised in Table 2 and mapped on to the components of research competence framework namely cognitive, motivation-goal, activity-evaluation, and communicative (Yarullin et al., 2015). Though the original study pertains to students trained in mathematics, it was felt that in this situation also the same model was applicable. It can be seen from the Table that the pilot study had ignited the development of research competencies across the student and faculty teams; in terms of cognition, motivation, activity evaluation and communication.

Table 2 Mapping the Feedback on Research Competence

No.	Component	Summary of the Feedback
1	Motivation	- As the project was action-oriented, they met many people in the field - To be able to hear about one's weaknesses without getting emotionally disturbed - Enthusiasm to get involved - A sense of satisfaction for doing something unique
2	Cognition	- Their knowledge about research was enhanced - They got to know their own weaknesses and strengths during the research process - Knowledge about action-research - Recognised that one can work with constraints - To focus on a particular problem - Gained practical knowledge - Problem analysis and solving skills
3	Activity-Evaluation	- Exposure to societal problems/real world experience - Confidence in getting into new areas - They experienced the ground realities and they could also gauge various types of mentalities of people - This exercise provided them with a platform to explore new areas of research - Getting to the root of the problem - Exposure to observation and field work data collection methods
4	Communication	- Team work - Communication skills - Inter-personal skills - Presentation skills and confidence - Developing empathy to people's problems - Learning from peers' topics and presentations - Improved communication skills and learnt how to follow up with authorities - Capacity building for presenting oneself before an authority

		• The interaction with different types of people made them confident about asking questions • Realised that one can build relationships easily
Source: Yarullin et al., 2015		

Source: Feedback Questionnaire of Participants (Centre Records).

Note: The summary is based Collating Similar Feedback (Maximum Frequency) by Participants

Similar conclusions have been arrived at by Pengyue et al., (2020) by review of project based learning in Higher Education to improve Cognitive outcome (i.e. knowledge and cognitive strategies and behavioural outcome (i.e. Skill and engagement).

The participants felt that the research project initiative should continue. The main constraint, according to them, was time. They suggested that more time should be allocated for the projects in the next cycle. They also sought a small funding support to meet operational expenses and dedicated mentor support for each team instead of common mentors for all teams. The mentor team felt that the initiative of the Centre was helpful in igniting the spirit of research across disciplines and programmes and creating a demonstration effect. This would build a platform for subsequent initiatives of the Centre. The mentor team wished that the constituent institutions/faculties of the University would initiate their own inter-disciplinary research efforts to strengthen the competence ignited by this central initiative.

4. Analysis and Discussion

The participants felt that this initiative was very different from the traditional/routine research projects normally undertaken by them. The entire exercise was very demanding on the organisers, the mentor team and the participants. Initially, it appeared that the project would not take off and not be able to provide the boost needed for a university-wide initiative. The mentor team took the perspective of “building the proof of concept and creating a demonstration effect” and ensured that the initiative took off. During the project the participants experienced a sense of discovery, achievement and anxiety. When the project culminated with the celebration of Research Day, there was a feeling of fulfilment among all the stakeholders.

This pilot initiative should inspire other institutions of higher learning to attempt their own institution-wide regionally responsive research competence development. The following key features are worth noting.

4.1 Governance and Leadership

This experience reinforces the role of dedicated structural unit, leadership, vision and networking in facilitating the initiation and building of institution-wide research competencies. Through these interventions, it is possible to overcome the barriers mentioned by Wernli and Darbellay (2016). The governance was facilitated by setting up a dedicated Centre to signal its commitment to encourage research. This helped overcome the structural handicaps that constraints across programme research initiatives. It also signalled the intent to do something different from the regular department-oriented research.

The appointment of the Research Centre leader with research, teaching and administration background was another significant development. The leader had the flexibility to provide attention to both recognition of research done and competence building, in addition to interacting with University's authorities for infrastructure and other resources.

The leader remained committed and played another crucial role by putting together a mentor team to plan and execute the initiative. Each mentor team member tapped his or her competencies to provide consistent and coherent support to the project. This supports the arguments of Townsend et al., 2015 in leadership efforts. Further, Puplambu (2015) asserted that leadership is a key factor at the level of the Dean in leadership efforts. The leader's goodwill with both internal and external network helped a great deal in facilitating the conception, execution, and completion of the project.

4.2 Voluntarism and Sustenance of Involvement

The pilot project provides insights into the possibilities of voluntarism, as opposed to incentive-driven, as observed by Creso (2008), in initiating university-wide projects. The only expressed incentive from the University was the awards given on Research Day. In institution-wide projects, voluntarism and sustenance of involvement are the key to building competence. When the response is voluntary, incentives matter less. What matters is a sense of making a contribution, building opportunities for personal learning in the context of continuous feedback and encouragement.

The voluntarism, involvement, and tangible outcomes experienced by participants and the community can create a platform for subsequent initiatives. In this exercise, the participants experienced that, the process of celebration of Research Day was not just a one-day affair but was spread over 35 days for the faculty members and students as they were working on their research problems, apart from their normal academic work. The volunteerism helped in sustenance of efforts in all stages of the projects – face the field-based unstructured situations, analyse the issues, identify solvable problems, think of creative solutions, and initiate actions. Each team had to deal with a number of unknown people and situations in the field. The group action was dependent not only on analysis but on factors like members' motivations, abilities, teamwork, inter-personal skills and community response. This showed the usefulness of team work assignments as observed by Simone et al. (2017).

4.3 Workshops and Visible Culmination

A distinct and significant feature of the pilot was the organisation of workshops, plenary sessions and presentations. Structured workshops provided conceptual and methodological inputs, and initial guidance for visiting the field, making observations, identifying problems, designing interventions for follow up, etc. The plenary sessions provided opportunities for peer learning and were helpful in bringing diverse participants on the same platform for motivation and participation.

This is supported by the concept of CUR's 'Professional Skills Workshop' that train the participants in the basic skills of research (Sengupta 2019). The mentors could leverage their background and experiences to design and conduct these sessions. These activities also gave them an opportunity to interact with the participants in formal and

informal settings. The participation in informal settings helped clarify specific anxieties of the team members and build the motivation to move forward.

Under-graduate and post-graduate students and faculty members from different programmes and disciplines interacted in a classroom environment and worked together. They commented on each other's progress and provided helpful suggestions. The workshop sessions used to continue for over three hours, without any break. The process bridged the conventional distance between teacher-student and demarcation between the traditional roles of teachers and students. They shared the same platform for learning, going to the field, working together, posing questions, presenting their findings, improvising based on feedback and sharing their final outcome. This created a unique bond among the members as reflected in their approach while elaborating each other's points and defending the positions taken while making presentations and receiving feedback. Thus, a special synergy was created between faculty members and students as observed by Pratt, Margaritis and Coy (1999). Of course, there is a need to examine the resistances and success requirements in involving a larger number of participants from diverse disciplines and initiating efforts to institutionalise the research competence-building efforts.

Culminating the pilot with the Research Day and award distribution created opportunities for sharing project experiences and setting up a platform for the next cycle of activities. The day provided formal and informal interacting opportunities for the administration, heads of institutions and faculty members. The participants became motivators for others present by sharing their excitement and accomplishments. The leader of the Centre found a platform to be held responsible and accountable for this assignment undertaken. The President of the University could share his research vision and set a context for subsequent initiatives. The experience stresses the need for providing academic inputs and visibility to project activities to sustain competence building.

4.4 Regional Needs and Public Support

The pilot study involved the local administrative authorities and citizen-built neighbourhood linkages. The authorities not only provided data but also responded willingly to the interventions by the teams and provided them the needed clearances. The University was able to harness twin advantages – its heritage and its location within the city. This provides hope to the movement to investigate regional issues as a part of University research and supports the argument of Chatterton and Goddard (2000), in highlighting the role of higher education to regional needs. Brundiers, Wiek and Redman (2010) emphasised the real-world learnings in sustainability from classroom into real world.

This pilot study involved civic authorities in the presentation of the projects. Though their participation was limited, it supports the concept of “Universities as anchor institution” Goddard et al. (2014) and demonstrated that university can contribute in the local development. Further, Toquero (2021) has reported that the real –world applications of research skills developed teachers research competence. The institutions of higher learning should reach out to the regional needs as an opportunity not only for building research competence and goodwill but also for identifying researchable issues that lead to change initiatives and publications.

5. Integration

There are many institutions of higher learning across the world with multiple programmes in multiple disciplines, large student enrolments, and several civic, economic and social problems in the neighbourhood. The initiative presented in this paper will help them in appreciating the role of research-based intervention in bringing about positive changes in the neighbourhood. Building a culture of research competency among faculty and students rooted in real issues takes time and effort. It would also require regular attention and maintenance. Going forward, the process has scope to become more intense and gain sustainable momentum.

It is possible to scale-up this pilot by involving more faculty members and students on a year-to-year basis by taking up several social issues. The demonstration effect created by this is likely to have multiplier effects. Moreover, the results of the pilot study demonstrated that self-perceived competence had increased among the participants, at least by a small degree, in specific research skills such as data collection and handling, evaluating formal and informal discussions from the field, ability to critically think, etc.

Research is a tool for generating knowledge, which can improve life. This exercise, based in the context of academic learning, uses action research to make a difference at societal level. Students and faculty members immerse themselves in the ground reality to bring about change- small and big. Action research is a tool in the hands of the participants of this pilot which they used effectively to direct positive change in spite of constraints and limitations. To build research competency in younger generation through action research was meaningful as they could see the process of societal change as part of their academic work.

6. Limitations

This research has to be considered as exploratory and presenting a single case. This was a pilot initiative on a limited scale in a university and for a shorter duration. . Paucity of time and the low participation by faculty and students across disciplines of various institutions are the major limitations of the pilot study. To see the visible impact of any Action-Oriented Research, a longer time span is a pre-requisite. The low participation, in a first initiative of this kind, is natural. This exercise was intended to be inter-disciplinary, but in reality, as the participation was limited, it could not represent a true inter-disciplinary team. However, it seems that one important reason for the low participation was the timing as well as scheduling of the initiative along with significant time consuming regular academic activities. Both these limitations imply that there is need to plan better for collaborative research to attract larger participation. These kinds of experiments should be interwoven with the curriculum by extra credits to encourage participation.

7. Implications and Conclusions

Despite the limitations of this study, this experiment demonstrates that, it is possible for institutions of higher learning to address regional issues through inter-disciplinary interventions and build university-wide research competencies. Voluntarism, vision, networking and persistence of the leader, flexible organisational arrangements,

workshops on research methodology, continuous feedback and support by the citizens and the regional authorities are the key drivers of success.

Despite the constraints and challenges, the overall message for the educational community is that it is possible to build an inter-disciplinary research culture even in traditionally governed educational institutions of higher learning. What is required is dedicated attention through a structural arrangement like the office of the Dean (Research) and the appointment of a leader who is enthusiastic, perseverant and optimistic. UGC's mandates also confirms the same. The leader should be able to invest time and energy in leveraging the existing network of contacts and building new networks within the educational institutions and across various communities in the society. The support of members within the institution who respond to the Dean's initiatives optimistically to help get the ball rolling is needed. Needless to say, the Dean and the team members engaged in such creative efforts need encouragement, guidance and flexibility from a supportive governance and administrative structure in the educational institutions (Robinson, Schaap & Avoseh, 2018). Visionary leadership, flexible structure, workshops, periodic monitoring and feedback facilitate enhancing inter –disciplinary research competencies in institution of higher learning. Cooperation from the heads of different disciplines and administrative structure of a university is a underlying principle for such pilot efforts to succeed.

The following observation of Byrne and Keefe (2002; pg. 395) is relevant to this study.

“Projects over short periods, multiple sources of mentors across careers, and mutually beneficial peer relationships all provide infusions of mentoring techniques requiring limited resources.”

This pilot exercise illustrates that students and faculty members can play a constructive role in addressing societal issues over and above their curriculum and syllabus.

This experiment may be useful when India is joining the CUR for enhancing collaborative undergraduate research. Leveraging University platform and students'/teachers' potential to engage in community concerns to bring about visible change has immense scope. A pilot effort of this kind described in the paper can have both multiplier and spill-over effects to create a sustainable research culture and capabilities. This will help the local needs leading to a symbiotic eco-system among education institutions/universities and societies. As outlined in NEP 2020, societal challenges of the country can only be met by having ecosystem of research. Similar or improved versions/efforts by institutions of higher learning will provide major push for research promotion initiatives as charted in NEP 2020.

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