

Research integrity: learning from collective action in Nepal

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Abstract

Early career researchers in developing countries like Nepal have faced many barriers while learning and practicing research integrity. Having easy access to appropriate resources for learning research integrity is essential to ensure academic integrity in higher education in Nepal and promote responsible research practices. This paper presents an approach to collective learning that will help stakeholders initiate learning and foster research integrity at their own level. Methodologically, the learning interventions were conducted in four phases: preparation, planning, implementation, and learning. Throughout the process of each phase, social exchange theory and collaboration in social learning were considered as new literacy models to promote research integrity knowledge. The interpretation of experiential learning interventions led to the development of the 4Co collective learning model. This model is contextually applicable for gaining deeper knowledge and skills and new networks of research integrity. With the purposes of awareness and development, this article is divided into two sections: the first part explores the actions taken and the second explores experiential learning that provides insights about the 4Co collective learning model.

Key words: learning approach, responsible research, academic honesty, research misconduct, capacity building

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Introduction

Research and innovation are based on the foundation of trust and integrity. Responsible conduct of research is boon to society, as it provides valid and reliable evidence that can support human welfare. Research needs to be conducted considering the principles or practices of social values, norms, and ethics of the research context or community. Researchers are responsible for actively adhering to the ethical principles and standards of research, which is termed research integrity.

Research integrity concerns the behaviour of researchers to ensure the accountability and constancy of their research. The notions of honesty, fairness, justice, and cultural sensitivity comprise research integrity (Eriksson and Helgesson 2018). Integrity in research is a personal commitment to one's action and the extent of measures in carrying out research responsibly (Saldaña 2015; Frankel et al. 2016). However, personal principles of interpersonal conduct are derived from the integration of a person's life experience. Any act in research can be ethical or unethical based on the context of the research. Research integrity is one of the basic determinants of whether research results are trustworthy and adaptable to the research community. Thus, researchers should be well informed about the context of their research and research participants' socio-cultural and ethical practices. These

practices of research integrity contribute to making research responsible to the community, society, and nation. It is important for researchers to ensure that their research is responsive to the social transformation of the people participating in the research (Chilisa 2012). Responsible research concerns social justice and the potential benefits and harms to the people, society, culture, or environment because of that research. Three basic concepts—research integrity, research ethics, and responsible research—are complementary to each other. To conduct responsible research, it is essential to ensure research integrity and research ethics. In each study, these can be ensured by considering the principles or practices derived from social values, norms, ethics, culture, and tradition of the research context or community where the research is being conducted (Dahal 2020). For this reason, researchers should have the capacity to conduct responsible research, construct new knowledge, and transform society sustainably.

Many scandals of plagiarism and fabrication can be found in academic and research practices in low- and middle-income countries (LMICs). There is a lack of comprehensive response to misconduct in LMICs (Ana et al. 2013). In this regard, different South Asian countries have explored their policies and actions against academic dishonesty or research misconduct (see Bretag 2016). However, they are more oriented towards research misconduct behaviours that exist in different countries and universities (e.g., see Cheah 2016; Mohanty 2016) rather than focusing on how to mitigate it by adopting a context-specific approach. In the case of Nepal, autonomous bodies, including the University Grant Commission and Nepal Health Research Council, have been trying to spotlight cases of research misconduct, but academic dishonesty is still a major issue in research practices (Sangroula 2021). Similarly, there are insufficient policy provisions primarily focused on researchers' capacity to build research integrity (Dahal 2021). As a result, early career researchers are not adequately aware of research integrity (Dhakal 2016). It is essential to inform them about research integrity and develop their capacity to conduct responsible research. This will ultimately maximize the quality and societal impact of the research (Prieß-Buchheit et al. 2020).

Several policies, strategies, guidelines, and development manuals on research ethics have been deployed by the authorized body of the Nepalese government over the decades; however, their proper implementation and follow-up monitoring mechanisms are yet to be explored. The current academic and organizational research practices in Nepal need to be reviewed comprehensively to build researchers' capacity for research integrity to foster responsible research. Early career researchers in Nepal do not get adequate opportunities to learn the basic knowledge, skills, and principles of research integrity because there is a lack of: (i) proper training facilities, (ii) course work and curriculum about research integrity in universities and higher education institutions, and (iii) learning sharing platforms/networks among researchers. As a result, research misconduct like plagiarism, fabrication, falsification, and harmful activities are common practices for those who do not have a basic concept of research ethics and integrity (Risal 2015; Dhakal 2016). To minimize research misconduct and enable researchers to conduct responsible research, it is crucial to make them aware and create a learning environment to foster research integrity. Learning is possible when learners integrate their experience with their context. Authenticity of learning depends on how honestly learners integrate their experiences with contextual challenges. Everyone has their own life philosophy of learning strategically or methodologically (Kazu 2009).

Learning is a continuous process that can be achieved through social interactions. Learning research integrity is possible with collective interactions and dialogue among stakeholders on various issues and approaches to conducting responsible research. With this notion, this paper reflects on the experience of carrying out activities through collective learning to foster research integrity, especially in Nepal. The purpose of this paper is to provide evidence of approaches that could help in the capacity building of early career researchers. In addition, it helps policy makers and research educators

emphasize research integrity development policy provisions and practices. The evidence from this paper supports the development of programs to foster responsible research practices in Nepal.

Exploration of the collective learning experience is necessary for teaching research integrity to early career researchers to ensure responsible research practices. An early career researcher means anyone who is a novice in the field of research as well as those who are practicing to construct new ideas, skills, and knowledge in a particular field through research and innovation. Those who are passionate about research and innovation must have a basic concept of research integrity, research ethics, and responsible research practices. Research integrity concerns the researcher's behaviours that directly and indirectly make a difference in the process and findings of the research (Banks 2018; Peels et al. 2019). Similarly, honesty, fairness, and cultural sensitivity are important in all educational and social transformation research.

Both authors have extensive research experience in Nepal and are committed to working with early career researchers' awareness of research ethics and integrity. We carried out a range of different activities to promote and foster research integrity in Nepal, such as collaborating with national and international governmental and nongovernmental organizations and projects, reviewing existing research ethics and integrity policies, organizing different webinars and skill-development programs, and participating in national and international forums. We gathered information from those working in the research policy formulation and planning sections of the Government of Nepal. This paper presents our collective learning experience to foster research integrity in Nepal. Precisely, we detail our leadership experience of general principles to teach and foster research integrity in developing countries like Nepal. This experience may support researchers and other stakeholders in developing countries by offering insights, especially for those who are novices in research and are struggling to learn research integrity or responsible research practices.

Learning research integrity: a methodological insight

The engagement of numerous stakeholders, including subject experts, policy makers, universities, academics, government, and nongovernmental organizations, was a fundamental part of our learning experience. Engagement with these stakeholders occurred through webinars, a series of discussions, and meetings and workshops. In our experience, learning has continuously occurred from the social interaction and collective effort of research practitioners, which has helped them develop a shared understanding of research integrity (Garavan and McCarthy 2008). We experienced learning research integrity as a systematic form of gaining shared knowledge, skills, and ideas among practitioners and experts. We have described the steps followed to create learning opportunities for research integrity in Nepal. The exploration of our experience is about activities in the Nepalese context to ensure a learning process for fostering research integrity among wider scholars.

For methodological rigour, social exchange theory was adopted for e-learning training activities because of the COVID-19 pandemic. The theory is that social behaviours are based on self-serving motivation that is a result of the exchange process of learning (Homans 1961). Based on this, our activities focused on taking action against research misconduct in collaboration with stakeholders. Additionally, collaborative learning as a new literacy model, as discussed by Lankshear and Knobel (2011), provided continuity to our effort towards the improvement of research integrity literacy in Nepal. Our activities were conducted in four phases: preparation, planning, implementation, and learning. Ethical procedures were followed while performing various activities during each phase. For example, verbal consent was obtained from the participants and presenters of the webinar to record their voices and visual appearance and to promote the program on social media. Similarly, written consent was obtained from the participants of the research integrity development workshops, and they were provided with autonomy to leave the workshop as per their will.

While collaborating with national and international experts on research integrity and like-minded organizations, we maintained professional ethics as much as possible. For example, we respected the time availability of experts for meetings and requested them to voluntarily contribute to promoting integrity literacy in the context of Nepal. Further, in the case of collaborating with like-minded organizations of research integrity, we have a memorandum of understanding even though we have contributed voluntarily without any financial collaboration and management.

The interpretation of each phase provides greater insights for all early career researchers and research professionals.

Preparation phase

Communication was a crucial preliminary component of the preparation phase. The process was initiated by internal communication with the Path2Integrity (P2I) Project. The P2I Project is working to promote research integrity through international collaborations, where representatives from universities and higher education institutions actively engage with their expertise in research dissemination, compliance, and research ethics (Prieß-Buchheit and Häberlein 2021).

In early 2020, P2I Project team members, including the authors, started a learning campaign, "Path2Integrity Community Nepal", in Nepal. Both authors voluntarily worked for the community as leaders and interns. We communicated ideas to foster research integrity in Nepal. The commitment was to work remotely to spread awareness of research integrity among academicians and scholars. The P2I Project team and the authors had many insightful discussions on the importance of research integrity to ensure responsible research, especially in developing countries like Nepal. As a result, we realized the importance of developing research integrity knowledge.

Our ongoing discussions inspired us to communicate further with national and international experts and stakeholders about research integrity and training early career researchers. We communicated with individual experts and authors who are in our personal and professional network from Nepal, the United Kingdom, Germany, Spain, Denmark, India, and Australia. Similarly, we communicated with governmental and nongovernmental organization experts in research integrity in Nepal. Social media sites (like Facebook, Twitter, and LinkedIn), email, and Zoom are important ways to communicate with people in the COVID-19 context; this has facilitated global contacts.

Planning phase

The planning phase was initiated through collaboration among multiple stakeholders. Frequent communication with experts and organizations created a platform to collaboratively work on research integrity. Initially, we collaborated with the P2I Project to practice research integrity learning units in learning forums and webinars among early career researchers in Nepal. The learning units are innovative cards prepared by the P2I Project to address the basic principles of research integrity using a dialogical approach (Prieß-Buchheit and Häberlein 2021). The collaboration with the P2I Project created wider spaces to connect national and international subject experts, researchers, like-minded organizations, universities, and policy makers. We then organized different learning sharing programs in collaboration with those who are directly connected to the issue of learning and fostering research integrity in Nepal—for instance, the universities of Nepal, professors and researchers of different countries, the University Grant Commission, the Nepal Health Research Council, policy makers, and many others who are directly connected to the issue of learning and fostering research integrity in Nepal. We all agreed that there should be adequate opportunities for novice or early career researchers to gain knowledge and skills in research integrity via a learning platform.

Implementation phase

In the implementation phase, we launched a P2I community learning campaign in Nepal. We discussed the initiation and way forward with early career researchers and academics, leading us to organize research ethics and integrity learning and sharing programs. We carried out the stakeholder mapping to identify people engaged in the field of research ethics and integrity and, after identifying the stakeholders, we planned learning and sharing activities for researchers.

Owing to the social distancing requirements of COVID-19, we planned to use a remote learning approach. We organized two webinars among the stakeholders, early career researchers and experts, to focus on the research integrity and responsibilities of researchers, including the philosophical and practical outcomes of responsible research. The main objective of the webinars was to increase the level of awareness of Nepalese researchers regarding different paradigms and practices of research ethics and integrity. We invited national and international speakers, researchers, professors, ethicists, and policy makers to participate. The first webinar was aligned with the discussion on social science research ethics and integrity. In this webinar, more than 200 research scholars and students met online through Zoom to critically reflect on the research ethics policies and practices. The second webinar focused on health science research ethics and integrity. It dealt with the research code of conduct in health research in Nepal and different strategies and frameworks for practicing ethical research in public health. More than 54 health professionals and public health students joined this webinar.

The webinars were promoted on social media (Facebook, LinkedIn, and Twitter). Webinars and on-line courses were effective ways of creating further dialogue, discourse, and co-ordinated action among stakeholders to strengthen the culture of research integrity practice. Using social media and online platforms such as Zoom for discussions helped us to advocate research integrity. From the webinars, it was evident that social media is a successful strategy to globally connect professionals working for the promotion of research ethics and research integrity to build the capacity of early career researchers, ethical review boards, academicians, and students. Similarly, webinars might help early career researchers to recognize their own capacity for learning and fostering research integrity at their own level.

Along with these webinars, we organized online development workshops for undergraduate students using P2I S-learning units (Prieß-Buchheit and Häberlein 2021). The workshop focused on undergraduate public health students' development in research integrity. The main aims of the session were: (i) to transfer the knowledge and insights about research integrity among undergraduate students and (ii) to test whether the S-learning unit can be used in the context of Nepal. Eleven undergraduate public health students participated in this workshop. They were provided with articles, brochures, and videos in advance of the workshop. In each session, the students engaged in storytelling exercises practicing research integrity. They discussed the scenario in the Nepalese context and shared their thoughts and ideas. They empathized with the scenario, which helped them understand the case from the lens of research integrity.

These activities inspired us to review the research ethics and integrity policy provisions deployed by the government and universities in Nepal. We reviewed the existing policies of research ethics and integrity in line with the provision of development for ethical research practices in Nepal. The policy review demonstrated the existing gap between the policy provisions of research integrity and its proper implementation or practice in Nepal. The policy review helps early career researchers and policy implementation officials understand existing policy provisions. It also supports them in making collective efforts to learn and foster research integrity.

Learning phase

In the learning phase, we reflected on the insights resulting from the completed activities. This helped us examine our knowledge, skills, and awareness that developed after the completion of activities or collective contributions. It also encouraged us to widen the communication among global and local networks of research integrity. Ultimately, the process of learning and fostering research integrity that started from simple communication among authors and the P2I Project team became an insightful campaign in Nepal. From the collective contribution, early career researchers gained access to research integrity training and connected global networks to foster it further at their own level (Homans 1961). Multiple stakeholders benefited and became aware of the importance of research integrity through collective learning actions. The evaluation carried out after the completion of the webinars showed that the programs were useful for the participants. More than 76% of the participants strongly believed that they acquired the knowledge they had expected to gain from the webinar, and 63% of the participants were committed to applying the knowledge acquired from the webinars in their research and innovation activities. Similarly, the online workshop on research integrity helped undergraduate students understand how to maintain research integrity when working on research projects. The students understood how research is important for the welfare of society and became aware of the importance of responsible research. They learned how to argue in support of practices and principles to ensure reliable research.

The people who benefitted from such contributions committed to creating such a learning and sharing platform on their own networks. This will be helpful for further interactions and collaborations among participants by creating their own networks in their workplace. Most importantly, all the stakeholders who joined our research integrity learning campaign had the opportunity to develop their own knowledge and awareness of research integrity and its importance in social transformation.

Experience-led collective learning

The collective learning experience completed in four different stages was an insightful learning experience for fostering research integrity. The overall process realized the need for a systematic learning model. This helps to develop further activities in research integrity, especially for developing countries like Nepal, where not all early career researchers have adequate access to global resources and practices of research integrity. Thus, from the phases of our insightful practices and lessons learned from our own experiences, we developed a 4Co collective learning model of research integrity, where communication, collaboration, contribution, and cognizance are the four components of the model (Fig. 1). Each component requires the collective engagement of stakeholders. The actions under each component are theoretically based on Homans's (1961) social exchange theory, aligned with the antithesis of research misconduct. Further, collaborative learning as a new literacy model of social learning, as discussed by Lankshear and Knobel (2011), has also been taken as a reference to our practices of collective learning model to foster research integrity in Nepal.

Communication

Communication refers to a learner's intentional interaction or discussion with others to learn about research integrity (Hurst et al. 2013). Communication among individuals, organizations, and global experts helps early career researchers be honest and fair in their research. It also covers learners' reflections on their own experiences with a particular issue that supports them in learning and fostering research integrity. In addition, communication is an essential component that connects learners with people and entities from whom or which they can obtain research integrity and learning opportunities. It can be individual to individual, individual to a group, individual to the organization, individual to living and nonliving entities, and so on.

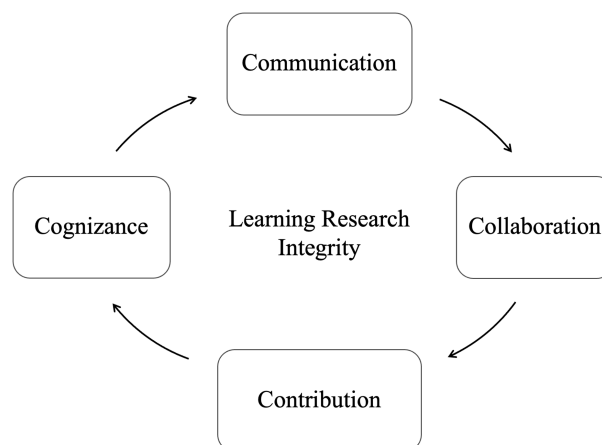


Fig. 1. 4Co collective learning model is developed based on the authors' experiential learning.

Communication is the foundation for all other components. It is a two-way process between actors, with the intent of creating a comfortable zone to exchange their learning and experience with each other. In this regard, communication is a process that is interactive by nature and participatory at all levels ([van Ruler 2018](#)), which emphasizes the purposeful action of learning and fostering research integrity. Learning research integrity is a social process in which learners interact or take collective action to maintain professional, social, and personal norms, values, and principles of interpersonal action while conducting research. The learner does not only learn from their own experience, but also by observing others' actions and the emerging consequences of those actions. Thus, communication is the foundation for collective learning through social interaction in collaborative learning systems ([Soller 2001](#); [Hurst et al. 2013](#)). It helps the actors of research integrity share their academic and professional interests with each other, which may also be insightful in creating a new platform of collaborative work for those with similar interests ([Homans, 1961](#)).

Collaboration

Collaboration refers to a partnership among people or organizations with similar interests that helps them engage collectively to transform their existing practices of conducting research ([Mitcham 2003](#)). We collaborated with national and international projects, organizations, governmental and nongovernmental agencies, institutions, national and international experts on research integrity and research ethics, authors, professors, researchers, policy makers, and others who can, directly and indirectly, contribute towards learning and fostering research integrity in Nepal. Collaboration with all concerned people and organizations created a common platform for all to contribute to learning and fostering research integrity. The use of online meeting platforms (Zoom, Teams, and GoogleMeet) and social media could be an effective way to educate researchers on research integrity ([Bramstedt 2020](#)).

Collaboration is possible when people or organizations have a common interest such as developing responsible research practices or ensuring ethical research practices. Collaboration not only accepts the interests of another (person or organization), but also integrates them equally into the interests of all (people or organizations) who collaborate for a particular action ([Lawson 2004](#)). All collaborators' ideas and experiences are relevant, and it helps them be responsible for their collective actions to achieve the intended results. Thus, collaboration between people or projects/organizations initially

plays a vital role in ensuring collective learning about research integrity ([Lankshear and Knobel 2011](#)). Further, collaboration as a component of 4Co collective learning is the mutual engagement of people with a common interest in solving existing problems together ([Camarinha-Matos and Afsarmanesh 2008](#)). It also helps foster mutual trust, effort, and dedication among collaborators, particularly in learning and fostering research integrity in Nepal. Thus, it is essential to create a common platform for constructing mutual trust and efforts to contribute to transforming the existing research practices.

Contribution

Contribution as a component of the 4Co collective learning model indicates collective intervention by people or organizations who have collaborated on common research actions. All research actions are taken collectively to develop the knowledge, skills, and habits of research practitioners to transform their existing practices to maintain research integrity. Further, the contribution of this model is the development of research integrity of early career researchers, which promotes responsible research practices in Nepal. It is the third stage of this model and refers to the utilization of experience, resources, capacity, amount of quality time, etc. to empower those who are needy for awareness, skills, knowledge, and access ([Forsberg et al. 2018](#); [Lerouge and Hol 2020](#); [Moher et al. 2020](#)). The collaborative contribution supports the need for early career researchers to be cognizant of research integrity.

Cognizance

Cognizance refers to knowingness, awareness, and research integrity knowledge and skills in a person, organization, university, and so on ([Spanoudis et al. 2015](#)). Cognizance begins by using the new knowledge and ends with skills and ideas that then lead back to new communication—the 4Co collective learning model is cyclic. Further, this stage is all about the meaningful results of the contribution, such as professors teach research integrity to students, early career researchers practice research integrity, policy makers review the existing policies, and everyone contributes their experiences to learn and foster research integrity. Thus, everyone who participates in different stages of this cyclic learning model gains collective opportunities to build research integrity ([Mitcham 2003](#)). They acquire access, networking, exposure, and research integrity resources, which also creates a communication platform for them, starts a new cycle of learning, and fosters research integrity.

For all participants, globally and remotely, the 4Co collective learning model could be used as a best practice for learning research integrity. It has the flexibility to teach research integrity from social interaction, mutual trust, and commitment to actions against unethical research practices. A researcher, organization, or university that wants to develop their ethical research practice can easily and readily adopt the 4Co collective learning model by contextualizing each component. The process and stepwise ordering of the components significantly contribute to the successful compilation of the learning cycle envisioned by the 4Co collective learning model. The 4Co collective learning model envisioned that research integrity capacity is developed on a cyclic learning model ([Bruner 1977](#); [Denker 2014](#)), where the cycle of learning starts from communication and ends in cognizance, and then continues to the next level of communication. Completion of one cycle results in a new communication platform to learn and foster research integrity. Thus, the 4Co collective learning model functionally creates a platform for continuous learning and fostering research integrity to promote responsible research practices.

Conclusion

This paper outlines the experience of fostering research integrity in Nepal. The actions of communication, collaboration, contribution, and cognizance steered further steps with individuals, organizations, and universities to promote responsible research. With the insights of designing 4Co

collective learning model to promote research integrity, the authors created a platform to raise cognizance among young researchers. The learning model provides access to resources and networks related to research integrity and responsible practices. Higher education institutions and other research institutions can create such platforms to widen the network, create a learning environment, and share resources. This will help to promote a responsible research environment in higher education institutions. Similarly, it helps students and young researchers understand research integrity and practice it by learning through a dialogical approach envisioned by the 4Co collective learning model. Bodies responsible for ensuring higher education academic integrity, including university granting commissions, can prioritize use of the 4Co collective learning model. Such a climate can build a learning network to collectively learn research integrity. Adopting the 4Co collective learning model can help to develop an intact mechanism. Since the model is very flexible and can adapt to different contexts of learning and fostering research integrity, different educational institutions can also adopt it to improve the practices of research integrity. This model will help to bring the University Grant Commission, universities, research institutions, and young researchers together to discuss responsible research practices. In developing countries where researchers do not have adequate access to learning and fostering research integrity, the 4Co collective learning model can play a significant role in promoting responsible research practices at the individual, organizational, and university levels.

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BD conceived and designed the study. BD and SR wrote the manuscript. BD finalized the manuscript.

Competing interests

The authors have declared that no competing interests exist.

Data availability statement

All relevant data are within the paper.

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