



REPORTS FROM THE FIELD



SCIENCE FOR MONKS

Science for Monks and Nuns: Leadership Cohort

Discovering the Leader Within: Findings and Observations at the Final
Science Workshop for the Members of the 3rd Leadership Cohort

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Reports From the Field:

Inverness Research supports the Science For Monks program through a process of “groundtruthing” where we help the program articulate its theory and intentions, and then make site visits to the field to check the congruence of theory and field realities. This report is part of a series of Reports From the Field where we ask senior researchers to write about their site visits sharing what they learn from their in-depth interviews, observations and discussions with monks and faculty. The reports are intended to maintain an informal tone and reflect the researcher’s impressions as well as the data they have gathered.

Background on this report

This report contains observations and interview statements that Kapil Bisht, a freelance writer and researcher based in Kathmandu, recorded during the fourth – and final – workshop of the Science for Monks and Nuns Leadership Program, held in Dharamshala, India, in November 2019. This report presents the participants’ experiences of studying science in the program, and the changes that resulted from that novel experience. In this report, the participants evaluate their journey as science students and the opportunities they got for learning about leadership. Also included are their views on the Leadership Program: what worked and what didn’t. Above all, it’s individuals reflecting on an unprecedented experience after emerging on the other side.

Background on the Leadership Cohort

His Holiness the Fourteenth Dalai Lama was astute enough to see the need for the monastic community to, if nothing else, have a dialogue with the scientific community. The participants of this Leadership Program have come to see the veracity of that wish of His Holiness. They realize that the world has changed a lot since Tibetans fled from their country. Monasteries are no longer secluded communities; they are part of the global community, even if they are unique.

The world is connected like never before. If monasteries isolate themselves from mainstream society, they do so at their own peril. The monks and nuns – leaders of the monastic communities of tomorrow – see the incoming tide of change. They see the need to ride it. Otherwise, they might be swept away by it. Developing leadership that draws from science, many of the participants of the Leadership Program believe, is one way of surviving the tumult of modernity.

Adaptation. That is how one monk from this leadership cohort summarized the need of the hour. He explained that it was time for Buddhism and Buddhists, monasteries and monks, to adapt to the massive changes happening around them. He didn’t mean it in a foreboding,

portentous way: Buddhism could survive without the modern world. But what he meant was that the world had so much to offer that it would be foolish not to at least take some of it and use it. It might turn out to be something meaningless, like some modern things are. But it might be the start of something wonderful, something profound. Besides, that was what the Buddha advised: believe in things only after you have analyzed them. To reject something without first investigating it would be silly to say the least, perhaps even anti-Buddhist.

The unfamiliar unsettles us. Monks and nuns are no exceptions to this. Learning science, being in a classroom with Western teachers, speaking in public, discussing in groups as opposed to their traditional rote-learning, expressing their feelings in writing and then having it read by their peers. These are all novel experiences for the monks. No doubt they were exciting, but they were unsettling too. Only through repetition – four workshops in three years – did the monks begin to see the value in these new methods. And they began to enjoy it.

The monks and nuns learned science in class, but the lessons they took home were more than just on science. They grew in confidence. They met people with a scientific, not Buddhist, perspective. They had teachers tell them that teachers and students were equals, and that every student had something to contribute to the learning process. They realized that students could learn from one another. Sharing one's feelings stopped making them self-conscious; it made them self-confident. Every day spent in the Leadership Program helped the monks and nuns emerge from their shells. It was a process of discovery. They found out new things about science, and through the prism of this new knowledge, different and often deeper insights into Buddhism. But the most significant discovery was the potential they unearthed within themselves. They were Buddhist monks and nuns, but they could be so much more. They could be leaders, the kind that the Tibetan community hadn't seen before, but the kind that they need in this modern world.

Introduction

The dialogue between science and Buddhism, which began as a fulfillment of His Holiness the Fourteenth Dalai Lama's vision, has gained considerable ground in the past decade. Although science is still not uttered in the same breath as Buddhist philosophy, more and more monasteries and nunneries are taking an interest in science. To expand and deepen the exchange between science and Buddhism, the Sager Science Leadership Institute has been training monks and nuns to be leaders of science education in their community. The goal is to develop leaders who will be capable of utilizing science to address issues in their communities as well as enriching science with insights from their own tradition.

Leadership training for monks and nuns is done in cohorts. Each cohort, which usually has between 30 to 40 participants, comprises 4 or more leadership institutes (10 weeks or 400 hours of training) conducted over a 3 to 4 year period. Under the tutelage of Western teachers, the cohort members take on projects like making exhibitions, publishing journals and

developing programs for their science centers. They also learn new pedagogy and how to create a more interactive learning environment.



Major Findings

1: Cohort members are proud of their newfound status in their monasteries as monks with scientific knowledge. Recognition in their own community has resulted in pride in their growing relationship with science. Moreover, the recognition has led to an increased sense of responsibility and a desire to do something with the science they have learned.

In the early days of the Leadership Program, the monks and nuns who were selected to attend the program had little idea where it was going to take them. Perhaps the first effect their selection had was setting them aside from their peers at the monasteries. This, many of the cohort members confessed, led to them becoming the butt of jokes, some of which were not subtle or entirely playful.

However, as they returned from the workshops, each time with more knowledge of science and the wider world, they acquired – to use their term for it – a sort of “status” in the eyes of their peers. The cohort members used the term ‘status’ frequently to talk about the positive impact of the program on them. By that they didn’t mean that they had been somehow elevated to a higher position or that they were superior to monks and nuns who didn’t know science. They meant it more like an accreditation, something that would give them credibility in the monastic community.

Earning that “status” was a tipping point in the monks’ and nuns’ transition from monastics dedicated to only their monastic vows to individuals who saw the need and had the confidence to tackle issues that were confronting the wider world. One monk told me how his fellow monks had nicknamed him G.K. [General Knowledge] because of the wide range of his knowledge, from current affairs to science. His friends often came to him to verify facts. Sometimes when monks couldn’t agree on who was right about a scientific topic, he was called upon to adjudicate. The trust that was behind this kind of credibility fuelled the cohort members’ desire to learn more science in order to better help others. Leadership emerged from scientific knowledge. It also fostered a sense of responsibility. When others saw them as leaders, they began to see themselves as leaders too. And as this feeling took hold, they felt the need to act. Learning science has set in motion a cycle: acquiring knowledge, sharing knowledge, doing something concrete with the knowledge, and learning more in order to do more.

“I want to share with others what I learned in the Leadership Program. That would justify the opportunity I was given to participate in this program. I won’t be a great man, but I can always share with others what little I know of science, Buddhism, and how to be happy.”

“Because of this workshop I realized that I had to do something. I realized all the knowledge I was getting at the workshops would amount to nothing if I didn’t put it to use. I knew the risk of failure was ever-present, but worse than that was not doing anything at all. The desire to contribute has grown in me steadily. Consequently, since 2017 I have been part of a team at our monastery’s science center that has been working on a maths textbook for monks. We figured that monks needed maths because if they don’t know it physics becomes much harder to understand. And so many monks have a deep interest in physics. So not knowing maths was a big obstacle. We already have the first draft ready. Our vision is to publish it as soon as possible.”

“Before I joined the Leadership Program, I had only heard that His Holiness wanted monks to learn science. Like most monks, that is why I joined the program: to fulfill His Holiness’s vision. But some time after attending the workshops I felt that each one of us could do something in our own monasteries, not as part of His Holiness’s view but as our own personal goals. I have to make a contribution, no matter how small.”

“Sometimes people ask us: ‘What are you learning science for? You are not going to build cars or planes, are you?’ We tell them that science is not only for building cars, planes or houses. In today’s world, science is growing ever more popular. Buddhism, too, needs to ride this wave.”

“My mother lives in a small village. Sometimes, when I talk to my mother on the phone, I remind her to avoid using plastic, because it harms the environment and society. Starting things in your own family might be more helpful than planning huge projects.”

“There is a grocery shop in our monastery. Before, when people bought things there, the shopkeeper gave them plastic bags to carry their purchases in. So our science center bought biodegradable carry bags and gave it to the shopkeeper to give out instead of plastic bags. When my friends came to know about this they praised me, which made me feel very good. Before that, they used to teasingly call me a scientist because I’d been to several science workshops. They said to me, Finally, you did something good. I told them, You just wait and see what else I do. Later, when we held a big conference at our monastery to celebrate a renowned lama’s birth anniversary, we announced that we wouldn’t be providing drinking water in plastic bottles; we used cups and glasses.”

“Last year, when I asked my teacher permission to attend the leadership program, he said with unmasked resignation, What can I do? It’s His Holiness’s vision. I got the

feeling that didn't accept that science was important but allowed me to go only because it was about fulfilling His Holiness's view. This year, when I went to ask for permission, he told me that what I was doing was very good. This time he didn't even mention His Holiness. I think this year my teacher allowed me to go to learn science not just because it was about fulfilling His Holiness's vision. He sent me because he agreed with what I was doing. That moved me a lot. I felt a kind of pride in what I had done. My fellow monks used to tease me, What are you learning science for? Are you going to make a bomb or something? Now, they ask me the scientific view on some Buddhist philosophical point."

"Whenever we decide to improve things we try to change others. In my case, I want to start with myself, to change myself, to apply what I have learned on myself to become a better human being. Only then I will begin to implement things on a larger scale. Sometimes I feel the monastic community does things just to show His Holiness. But there is no result of the actions at all. So we need to act to fulfill our own vision. For instance, I have started spreading awareness on the harmful effects of plastic. I have given presentations on this in classrooms in my monastery several times. I have also sought help from Bryce for installing drinking water dispensers so that we don't use plastic bottles in our monastery."

"Two years ago, the principal of our monastery called me to his office and told me that they needed a teacher. He wanted me to teach. I had never taught until then. I had never seen myself as a teacher. But he said that since I had participated in the leadership program I could and should teach. Furthermore, he explained that it was high time I did something with all the things I had learned in the workshops. I needed to take the first step. He had faith in me. I decided to try. That was memorable, my principal trusting me to teach. He did that partly because he too had participated in the leadership program. He understood the need to change things."

"There is almost no history of monks doing something outside their monastery in India. Now we not only have Buddhist knowledge but also scientific knowledge. If we don't do anything even now, what is the use of being a monk? We have to step outside our monasteries and do something in the lay community. There are things to be done. Gone are the days when people came to monasteries to seek help; now we have to go to them and help."

"This program kindled in me an interest in reading. As a Buddhist monk, my main aim in life is to serve as many people as possible. In today's world, knowing only Buddhism is not enough. If we know science, we can reach far more people because we will have

more credibility. Reading improves my knowledge of science. Moreover, reading makes me more intelligent.”

“Through this workshop I came to see what true leadership is. Sitting on chairs and ordering others around is not leadership; working together with other is true leadership. I saw Bryce’s diligence and thought, This is what a leader should be like. Although I work at my monastery’s science center, I sometimes sweep and cook. I help other monks with their chores. I tell them that together we can improve our society. I am a teacher at my monastery. That is an important position at a monastery. But I sometimes clean toilets with my students.”

“Most people think that monks are isolationists who have opted to stay far from society, that monks have shunned social responsibilities. I know a single, anonymous monk cannot work miracles. But if the more and more monks start acting, we can surely make a difference. For example, before the earthquake in Nepal in 2015, people knew little else about Buddhist monks than their robes. In the aftermath of the earthquake, acting upon His Holiness’s suggestion to act rather than just pray, monks went out and helped those affected by the disaster. That changed people’s perception of a monk’s role.”

“If monks take educational programs like exhibitions on the environment into the lay community, it’s even more beneficial than doing something in the monastery. Lay people would look at monks and realize that if monks are doing so much they should act too.”

“Although I have several friends in the United States and Canada, I never asked them for anything. But since last year I have started asking them for one thing: science books. And I do this because I want to learn more science.”

“After I had attended the first workshop in this program, I met an Indian guy on a train. He was a Christian. We got talking. I expressed my views on ethics in relation to humanity and the environment. I did this without using a single word related to Buddhism. At the end of our conversation, he asked me for my phone number. That was unusual: a stranger had never done that. I felt perhaps it was because I had shared something useful with him. I had talked about climate change and ethics. And these are not religious concepts; they are things that concern all of humanity. I think I made a small difference that day. I am not going to wait to get a huge platform from which to share my scientific and Buddhist knowledge. I will share what I know with anyone I meet, without any hesitation. And science will be a tool for me, because it’s like a common language.”

“Just living in a monastery, praying and giving sermons is not sufficient. It is never enough. It never has been. There are no records in history of talking being sufficient. Hands that help are always better than mouths that pray. Only praying and not doing anything is fooling yourself.”

“For monks to build credibility and win trust in society they need to have a background in science. And you need credibility and trust in order to do anything in society. People might understand me better if I have some scientific knowledge. For example, if I tell people that being happy makes us healthy without providing any facts to prove it, they might not take any interest in it. But if I have some scientific facts to corroborate this point, they might listen.”



2: The cohort members became more confident because of the Leadership Program. The first milestone in their confidence growth was the ability to speak in front of their peers. The obvious benefits of standing in front of others and speaking one’s mind were amplified by the warm reception the teachers gave to the speakers. As a result, two types of confidence developed: the first was an increase in the confidence to stand and speak; the second was the confidence in the worthiness of one’s own views.

Monasteries are not known for providing multiples avenues for their residents to prove their worth. The only way for a monk to distinguish himself in his monastic community is by

exhibiting his prowess as a scholar. The curriculum and teaching methods, both of which are traditional and rigid, only reinforce this narrow definition of a good student. A good student is one who has mastery of the scriptures. There is little space for those who think out of the box. The result of this is often that while students who do well in exams are extolled and celebrated and grow in confidence, others who struggle with their studies, but might be equally bright, never get the opportunities to show their abilities.

During interviews, several of the cohort members related experiences of having stifled an answer to a question posed by their teacher at the monastery simply because they thought that their answer wasn't "intelligent enough." The corrosive effect such a learning environment has on an individual's self-confidence hardly needs elaboration.

The teachers at the Leadership Program introduced the monks and nuns to a style based on equal participation of students. For some of the cohort members, being in the classroom was the first time in their lives they had been given a chance to speak in front of others. (Sometimes they weren't given a choice; they *had* to speak.) Although the speaking up in class was the unprecedented experience, the real game changer was the reception those who expressed their views and ideas got from the peers and the teachers. Teachers at the Leadership Program usually responded to the students' answers with: *That is an interesting point*. Or lauded queries with: *That is a great question*. For someone who had remained silent all his life in class from fear of not having a view that was intelligent enough, such words were life-changing.

Equality amongst students also erased any hierarchies that existed between them in monasteries. When every student's point of view was welcomed and its uniqueness acknowledged, the classroom became a place to share ideas, not contest which was the best.

"I gained confidence because this program makes us engage with others. We had to stand in front of others and express our thoughts. Through that we overcame the nervousness that people feel when they have to speak to a group. My confidence grew from this experience of standing in front of a class and speaking to a group. When I first joined this program I didn't have the confidence to speak in public. But after attending a couple of workshops I began to translate talks into English at conferences."

"Another thing I liked a lot about the classes was how the teachers made students participate equally. They gave each student an opportunity to participate. Many times students hesitate to ask questions out of shyness and fear. But the teachers created an environment where we felt comfortable asking questions. I saw firsthand the importance of this."

“The way I looked at myself has changed. I never thought I would be a leader. This program has given me the belief that I can be a leader.”

“I have become more confident because this program promotes equal participation. When we worked in a team there was less ego. Also, the possibility for finding solutions was very high because someone or the other came up with ideas. Working in a team helped me become more confident. Even when you contribute something small to a group you feel a sense of collective achievement: We have done it. It gives you the belief that you can do something, that you can make a difference because the group’s work is not the doing of just one person.”

“Before the monks at our monastery weren’t that interested in science. Now, whenever there is a science exhibition people show interest. This fact and my own increase in confidence as a result of attending the workshops have made it easier to do science-related work in our monastery. As a result, interaction between those of us at the science center and the other monks has increased.”

“The opportunity for teaching that we get in this program is also very beneficial. That gives us time to practice, which builds confidence.”

“In the monastic community, we place our teachers on a lofty level. We are scared to ask them questions, not out of fear of reprisals but out of reverence. We feel that teachers and students are not equal. Because of this we don’t pose questions to our teachers. Weaker students struggle to participate in such an environment because they feel they don’t have anything particularly intelligent to contribute. They fear their questions are dumb. Western teachers treat their students as equals. They don’t consider themselves superior to their students. This creates equality in the classroom. Students feel confident asking questions. Doubts are cleared. A closer bond forms between teacher and student. I used to be too shy to pose questions in class. Now I am more confident.”

“Four workshops of a couple of weeks each is not a very long time. However, within this short period of time, the program brought tremendous changes in me. My determination to fulfill my goal [of serving others] became stronger. I started believing in myself. I became more confident.”

“I no longer feel nervous around my students, fellow monks, or teachers . I consider them my friends. As a result I am able to express my views or teach comfortably, without hesitation. When participating in events outside the monastery, I don’t worry about other people’s perceptions of me. What I know I share. If someone asks me a

question that I don't know the answer to, I admit it—just like our teachers in the leadership program did.”

“There has been a great increase in my confidence because of this program. Before joining the program, we had no experience of standing in front of people and speaking. We had many opportunities to speak on science or Buddhism during the course of the program. We discussed things with our teachers. Gradually, I began to feel confident about being able to work in the larger community. Previously I thought as a monk I could only do things within a monastery's confines. Now I believe I can contribute to the world outside the monastery.”

“I had never taught before joining this program. Here I got opportunities to teach a class and speak in front of others. This had many benefits. The first time I taught a lesson, I was nervous and scared. I could barely utter what was in my head. But as I taught more my teaching improved. By my third or fourth time teaching, I had improved so much that I was able to convey around 90 percent of what I wanted to. I went from never having taught to being a confident teacher.”

“Compared to monasteries like Sera, Drepung, and Gaden, I come from a very small monastery. I lacked the confidence to even hang out with the monks from these monasteries. In the early days of this program I used to think that those monks were better than me. I had low self-esteem; I thought I knew nothing. I kept a very low profile. Then as the teachers began giving us opportunities to share our views, knowledge and observations my confidence started growing. The fear I had of monks from the bigger monasteries just blew away because of this program. I had carried that fear in me for the last fifteen years, and it would still be in me if it wasn't for this program. That fear has been replaced by memories of great times, deep bonds forged, love and laughter, sharing knowledge with those same monks.”

“I became more confident after joining this workshop. Before coming to this program, the only experience I had of speaking in front of a group was during debate sessions at the monastery. Here, we had to often stand before a class and speak. The more I did this, the more confident I became about speaking in public. Confidence is very important to learning something. It helps you gain more knowledge. The more confidence you have, the more you will approach other people with questions or to explain things.”

“If you're not confident, no matter how much knowledge you have, you are not able to share these with others.”

“After a session of group discussion, the teachers asked one student from each group to read out his group’s views and ideas to the class. I think this was a very beneficial strategy to help a student overcome his shyness and fear of speaking in public. His confidence level rose by sharing. Through this process of discussing and sharing we learned things we didn’t know before as well as revising things we already knew.”

“My confidence has definitely grown after joining this program. I can’t guarantee that I can overcome every challenge in life, but I am more confident than before. In the beginning I didn’t think we could do an exhibition on our own. Now almost 90 percent of it is done. By doing that, I have gained the confidence to do even more in the future. In the first year of this program, I didn’t have the courage to read out my writings or share my thoughts with others. Now I am comfortable doing these.”



3: The cohort members found the teaching strategies particularly effective. The novelty of the teaching strategies like making the classroom student-centric, allowing equal participation, encouraging and welcoming questions from students made the participants re-examine their own long-held beliefs about teaching. They experienced firsthand the positive impacts of making lessons student-focused, inclusive, equal and fun.

The Western teachers who taught at the Leadership Program possibly had the biggest effect on the monks and nuns. Their teaching methods were almost the polar opposite of those the cohort members had known at their monasteries. Learning through such methods shook some very fundamental beliefs that the cohort members had about teaching. These beliefs included what teaching was supposed to be like and do for students. Then there was the debilitating belief that some students' queries, opinions and ideas were less intelligent than that of other, supposedly smarter, students. They had grown up in an environment where students were not seen as individuals who brought something unique to the learning table but as belonging to either one of two classifications: good student, bad student.

The cohort members loved their Western teachers very much. They spoke very highly of them and many of them formed a deep friendship with them. However, it was the teachers' pedagogy that captivated the cohort members' imagination. During my interviews with the cohort members the most vivid memories, complete with recollections of the topic being taught, the method used and its effect on the students, that they related were invariably of the teaching methods used in the Leadership Program.

The reason the cohort members were quick to see the effectiveness of the teaching methods was because they could compare it with their experience of learning under the traditional monastic system. They were able to see the value of a learning environment that emphasized student equality because they had felt "inferior" to other students many times in their lives. That is why the teaching methods were so popular: it gave every student a chance they had never got at their monastery. It was touching to listen to them explain the differences between the teaching style of the monastery teachers and that Western teachers. The former had always categorized them (bad student, good student). The latter offered them a chance to be themselves, *a* student with his or her own unique questions and answers.

Being able to relate on a personal level with the teaching methods gave the cohort members a sense of urgency about *using* the methods themselves. Many of the cohort members who were teachers at their monasteries were already including innovative teaching methods in their classrooms to make learning more student-focused, inclusive, equal and fun. Although no easy task given the rigidity of monasteries, they were making or planned to make the most of the teaching methods they had learned at the Leadership Program at any chance they got.

The cohort members not only looked at the mechanisms of the teaching methods and their effectiveness and impact on students, but went deeper into the philosophy behind them: teaching should be student-centric. They had only known a teacher-centric teaching style all their lives. Experiencing firsthand the marvelous results of a student-centric teaching style was a liberating experience. The Leadership Program's teaching methods changed the cohort members' very *idea* of teaching—a change at the deepest level possible. It's not an

overstatement to say that it changed not just teaching styles but lives. If nothing else, it will at least make the teaching and learning experience at monasteries (or anywhere the cohort members might end up teaching), to use the most frequently used word for describing the teaching at the workshops, *fun*.

“My most memorable experience in this program has been watching the teachers closely. I think I will remember their personalities and teaching techniques the longest. The best thing about them was that they never discouraged a student. They responded to questions with ‘excellent!’ In monasteries, questions that aren’t up to the mark are met with frowns.”

“Before joining this program I firmly believed that traditional teaching style – teacher lectures, students sit still and listen without asking questions – was the best. But then I came to the Leadership Program and saw the teachers give science lessons in such joyful ways. That helped me teach others in similar ways. Their style of teaching maximizes the exchanges between teacher and student. Now, when I teach I quiz my students to understand their views on what I am teaching. I try to understand my students better. This helps me to have a dialogue with them as opposed to me lecturing. I learned this from the program’s teachers.”

“The learning environment of the workshops is pressure-free compared to what we are accustomed to in monasteries. There is more freedom to express ourselves.”

“The most memorable experience of this Leadership Program was teaching in different ways. For example, teaching through pictures, songs, dance and writing. These are lessons I can carry with me for the rest of my life. I remember that when our teacher mentioned that we could explain the concept of impermanence by dancing or singing, I was shocked. Later, I realized how it could be done and it became very interesting. I will never forget that.”

“During the first workshop of this program I realized that the way we taught in monasteries was like vomiting your knowledge onto your students. We didn’t think about the students. We wanted to show them how much we knew. I learned at the workshop that that was not what teaching was about. I learned that students have to be the center of attention, not the teachers. It’s not about how much teachers know; it’s about how much students can learn. And I slowly saw that classrooms needed equality—equality not just between a teacher and a student but between students. I learned that every student needs to be encouraged. They need to feel they can learn. Teaching is also about building a student’s confidence.”

"I loved how the teachers zeroed in on students who tended to 'hide' in the classroom. These were invariably the weak or shy students. They questioned them and encouraged them more."

"I sometimes use the techniques I learned from the teachers in the program. I joke with my students. Sometimes I let them play."

"Making lessons fun and teaching in a joyous way are strategies common to all the teachers in the program. They value their students. They don't push students towards results but allow them to do things on their own through hands-on activities."

"I learned several teaching skills from the teachers in this program. One was making classes participatory. Another was creating a healthy relationship between teacher and students. The teachers didn't only focus on the content but made efforts to make their lessons fun. I saw that learning didn't have to be all about books; students of all ages learn equally well through activities."

"One of the most important teaching strategies I learned was grabbing your students' attention. We were taught many ways to do this. One was making the lessons fun. Another was starting a class with a simple question so that everyone is hooked."

"Before joining the leadership program, I used to teach sitting on a chair at my monastery. And I was very proud of myself. I never thought about my students. After returning from the first workshop, I began copying the teachers' style. And it worked so beautifully! I used to teach a class to the third grade right after lunch. My students were always sleepy. When I used the methods the program's teachers used on that class, my students became active. It worked from day one! Before that, some students used to be late to class. After I started teaching them differently, some of them started coming to class before me! And they were busy preparing for the day's lesson."

"Stories are a prominent feature of the syllabus I teach in my monastery. The stories have in them things like fruits, butterflies, ghosts. One thing I learned from this program is that learning doesn't only happen through words. So to teach the children I sometimes show them objects, or even take them outside."

"There are no hands-on activities in the Buddhist teaching tradition. We only teach by lecturing. This makes the students passive. In these workshops we learned various techniques for engaging students. For example, our teachers always included a slot in their lessons for questions."

“After attending this program I saw the need to improve the way we learn and teach. I think 90 percent of our teachers in monasteries just talk in classrooms. They read from books and give definitions. They don’t make the students work things out on their own. The teaching method used in these workshops is scientific. It’s good for students because they learn more and learn by experiencing things by themselves.”

“The effectiveness of hands-on activities shows on the faces of the students we teach. Participating in activities is an entirely different experience than listening to lectures. When a teacher only lectures, students soon lose interest: mobile phones come out or they just make notes. When students participate actively they awaken. And because hands-on activities also tend to be done in groups, they foster teamwork.”

“Hands-on activities were my favorite part of the workshop. In these activities, every student got ample time and had a role to play. I liked this aspect of the activities.”

“I saw the value in making the students work on things by themselves rather than the teacher showing them how to. For example, if we had to work on a project that required building something, rather than the teacher building it and showing it to the students, he let the students build it. That way, the students learned not only how to build but also to plan.”

“Learning is not only listening and seeing; it’s doing. Learning is best when all your senses are engaged. When you learn to do something only by listening you have the feeling of having learned something. However, when the time comes to do that same thing you realize that you really don’t know how to do it. As Bryce once said, you can spend years and years watching others make momos. After a while you will even be able to tell others how to make momo. But when the time comes for you to make momos, you might not be able to. That is why learning by doing is very important.”

“From the leadership program I learned a lot. For example, asking questions. Before this workshop, I used to walk into a classroom and ask my students to open their textbooks and just revise the previous day’s lesson. Then I used to quiz them on that. I no longer do that. Now I let them read and retell the content in story form, based on their individual understanding. I tell them not to worry about the words they don’t know. They are coming to the school to learn, not to show how much they know. I learned that teachers have to simplify their lessons to match their students’ level.”

“Whenever I teach I start off by telling my students that all of us in the classroom are equals, that they needn’t hesitate to ask questions. I tell them that there is no such thing as a bad question.”

“Sometimes my students ask silly questions. Everyone knows it is silly because the class bursts into laughter. But I simply compliment the question and say that it is very close to the truth. While working in the science center we get students who have studied some science. I encourage them also to make inquiries, to express their doubts. I stress that I am a student of science just like them, that we are equals.”

“The teachers at the Leadership Program never discouraged us. They never judged our questions. No matter what the question, they always praised it. This made a tremendously positive impression in our minds. When a student’s question is praised in class he feels confident about asking questions in the future. He may be asking unrelated questions now but he might ask a brilliant one in the future if he is encouraged.”

“I used to judge my students. I used to point to a student and say, You are bad. Or praise another: You are good. I have never done that after joining the Leadership Program. I am very happy that I learned the importance of being non-judgmental. I have stopped responding to my students’ attempts with ‘right’ and ‘wrong.’ Since I made this change I can see the improvements in my students. Now my students are never discouraged. They are more courageous, more confident now.”

“At the Leadership Program, even when I asked a question that was unrelated to the lesson being taught the teachers answered it with a smile. They even said that my point was a valid one. That gave me confidence. So I tried this with my students too. They loved it because I didn’t judge them. Earlier, whenever I asked them if they had any questions, they went silent. No questions. Nowadays, everyone asks me questions, because they know that I won’t judge them.”

“I am a teacher at my monastery. It’s very important for a teacher to attract the students’ attention while teaching. So I apply the strategies for engaging the students that I learned from the teachers at this program. Teaching and learning must be fun. Teaching is not just about giving knowledge; it’s about noticing if the students are learning or not. So I use different strategies that the workshop’s teachers used to ensure that my students have fun while they learn.”

“Another thing I liked a lot about the classes was how the teachers made students participate equally. They gave each student an opportunity to participate. Many times students hesitate to ask questions out of shyness and fear. But the teachers created an environment where we felt comfortable asking questions. I saw firsthand the importance of this.”

“The teachers in this program worked hard to create a classroom environment where every student could participate equally. This was something I really liked about their teaching style. One of the first things that the teachers did upon entering the class was shuffle us around so that we weren’t sitting with those we already knew. The teachers formed new groups and made us discuss on a topic. Then each group had to share their ideas with the class. Through this process, each one of us got to express his or her ideas and views.”

“The teachers in this workshop make it a point to get every student to participate. If a student is not participating in the class, they even handpicked him. When we started this program we didn’t know each other, so we barely spoke with each other. The teachers made us switch places every day in class.”

“The most important thing about teaching I have learned from this program is to give students a chance, to make lessons flexible and to create an environment in which students are not afraid to ask questions. In our society, the biggest problem is not asking questions. Nowadays, I let my students ask questions. Also, I learned the value of interaction, not just teacher-student but student-student interaction. I don’t make my classes all about reading and writing. Sometimes I let them sing, sometimes dance. I let them do whatever they are good at, like back flips. If I ask my class to read all the time, then the weak students are discouraged and try to “hide” and forego reading. I want my students to feel free and feel that their work is being valued.”

“We have to teach very profound concepts like emptiness and impermanence. It’s very hard to teach these in the traditional way. In our first workshop of this leadership program, the teachers suggested that we could teach complex concepts through storytelling and drama. Basically, the teachers showed us that we could teach in unique ways.”

“I made my students write the things they didn’t understand from the previous day’s lesson. I did this for two reasons: first, to ensure equal participation; second, to improve their writing. Then at the end of the class I made them write down their feedback on my lesson—what they liked, what didn’t work, what part of my teaching did I need to improve. I read their feedback. Some of them thought the class had been too long [45 minutes]. After that I began teaching 30-minute classes.”

“One change I made in my teaching was using the whiteboard. That was a big thing. Teachers at our monastery don’t use the boards at all.”

“I used the teaching methods I learned here while teaching in my monastery. For example, before I teach a lesson I try to understand the students’ perspective as much

as possible. So I question them about science or a particular topic before I start teaching. I board a topic or a statement and ask the students their views on it. This helps me engage them from the beginning. It prevents boredom. Also, through their answers I come to know their understanding about science as well as different views on the same topic. Then I teach them based on the new information."

"I teach language, so the opportunities to have hands-on activities are not as great as when teaching science. But I often start my lessons by telling stories or cracking jokes. That helps a lot. The environment of the classroom changes with a joke. Students relax. It dispels boredom and sleepiness. Students become more active."

"We learned a multitude of teaching strategies during the workshops, from tips on organizing a class, managing time, using different materials to how to get your message across to the students. The teachers emphasized the importance of not putting too much pressure on students. Overall, the strategies that the teachers used in these workshops were geared toward making the learning enjoyable. Once students enjoy a lesson they come again and again. You don't need to ask them to attend."

"The most important thing about teaching I learned is that the student should be the center of the lesson. It's not about how much the teacher knows; it's about how the students can learn more. In our culture, students don't have the confidence to ask questions because if they make a mistake their peers make fun of them and even their teachers might scold them. I taught some classes on Tibetan grammar, and I let my students ask as many questions as they wished. When I teach science, I employ hands-on activities. I let them play with things. Through playing I make them curious about the subject matter. Last year I learned about giving equal opportunities to students to participate in class. I used it this year when I was teaching Buddhist philosophy to very young monks. Whenever I asked questions, the best students were the most eager to answer them. But I let other students, the ones who normally don't volunteer to answer on their own, answer."

"I had learned in Buddhism about the pitfalls of making oneself the center of attention. There should be no self. That means that if you are doing something and at the same time advertising your own importance in that process, it harms you and your society. Chanting 'I' does no good to anyone. I learned this in my monastery. But by taking the focus away from themselves and turning it on their students, the teachers at this workshop showed me how to put it into practice. This was very useful because sometimes Buddhist ideas seem larger than life: they sound great in the scriptures but are very hard to apply in one's life. I learned at this workshop that such ideas can be applied in real life."

“The administrator of the science center at our monastery has already asked me to teach other monks the hands-on activities that I have learned in this program.”

“A leader doesn’t have to be very famous. He doesn’t need to have the ability to move the entire world with one stroke. Teaching in a classroom is also leading.”

4: The cohort members felt that the skills they had learned at the Leadership Program would serve them through their lives. They believe that what they learned at the Leadership Program will benefit not just them and the monastic community but society at large. Although they first became familiar with some of these skills in a classroom setting, they felt their usefulness would transcend the classroom. They saw in the social component of these skills the potential to build bridges between sections of society that had historically remained aloof.

The cohort members are well aware of the gulf that exists between the monastic and lay communities. As their knowledge and understanding of science grew, they began to see science as a language of truth and fact. So learning science has been to them like learning a new language—one that is increasingly becoming the medium of exchange between disparate groups. Ever in touch with reality, the monastics see that religion does not have the same pull as facts for many in the world today. As Buddhists, the monks and nuns wish above all else to help others—Buddhists, non-Buddhists, the religious as well as atheists. They have come to the conclusion that science (in unison with Buddhism) is the way to go about doing that.

Learning science by doing – hands-on activities, experiments, building machines –helped the cohort members internalize the scientific spirit: constant effort to find answers. They learned to try, and to persevere when they failed.

As they performed more scientific experiments and tinkered, the cohort members realized that the practical side of science could be a platform for dialogue, especially between groups that had little in common. One side had to come up with the scientific “bait”. Curiosity would take care of the rest. The result could be an enlivening encounter between two sections of society that had barely exchanged a word before. From there, the possibilities were endless. Assuming leadership roles was the goal of the cohort members. Science would be the medium.

“About 5 percent of the local Indian school children would have had a meaningful exchange with a monk before the time when they were invited to the science exhibition at our monastery. A conversation on science was the reason these two groups – monks and lay school children – came together.”

“We monks are not studying science to learn to make things. We are learning science to be able to better engage with the wider world and contribute something from our Buddhist knowledge – love, peace, compassion – to the world.”

“Everyone involved in the Leadership Program – the teachers, the students, Bryce, Bobby – is working very, very hard. It’s because we want positive changes in the world. Even if there is a tiny beneficial change in the world because of our endeavors, it’s a contribution to His Holiness’s vision of a world with secular ethics. I think the Leadership Program will definitely make a difference in the world.”

“Most people today are products of a modern, scientific education system. They know about science and accept scientific explanations. If we monks know about science, we can talk about both the scientific as well as the Buddhist perspectives on a particular subject. For example, we can talk about our bodies. In that way, people will know and understand more. This is one advantage of this program. If we only spoke about Buddhism, only a few people would understand us. We would only reach a small section of society. With the help of scientific knowledge we can help a much larger number of people.”

“Many lay people have this image of monks as being concerned only with Buddhism. We have to show them that that is wrong, that monks too can contribute something to the larger society. One good recent development has been that school children from the lay community are being invited to conferences organized by monasteries. This makes interaction between monks and school children possible. Both parties question each other. A relationship is building between the two.”

“What I learned through the experience of working with others and doing experiments is to never give up. Sometimes experiments works, sometimes they don’t. If your intentions are pure and you are working to make a positive impact, then never give up.”

“There are still four years before I do my gelug exams. After I pass those exams, I want to work in my home region of Ladakh. People there still don’t care much about their environment. They have almost no scientific knowledge. For example, thousands of tourists visit Ladakh every year. As a result, there is plastic everywhere. Some high lamas have started expressing concern about the rapid deterioration of Ladakh’s environment, and how the people are not caring about the environment. I think I can do something about this. One of my fellow cohort members and I think organizing an exhibition on climate change in Ladakh would be very beneficial. Many students could see it. Through the exhibition we [the monks and the lay community] can talk with

each other about the environment. I think it would be great if Buddhist monks and nuns in Ladakh learned science. The Ladakhi people have deep faith in Buddhism. They respect monks and nuns a lot. If monks and nuns did something for the environment, the lay community would pick it up fast.”

“The leadership skills that monks from my monastery and I learned in this program helped us to organize a symposium at our monastery. I always knew that a leader is someone who leads by example. This belief was reinforced by this program. I have come to see that a leader is someone who actively seeks cures to social ills.”

“Organizing science exhibitions is a good experience for monks. And it’s necessary. Most monks don’t have any experience of working in the lay community. Through exhibitions they experience what it is like to work in a community. They face challenges, but they also become more determined. They go from mere words to doing things. They try to make things, but it doesn’t come out as they wanted. Then they try again. They begin to experiment more and more.”

“Collaborations between science and Buddhism, especially for teaching, will bring more understanding and form better connections. There are many methods in teaching, like singing, writing, acting, hands-on activities. However, monasteries don’t use any of these. We have been teaching in the traditional style for centuries. But we can apply these techniques to teach Buddhism too.”

“Now many monks at my monastery come to me when they have scientific queries. Because of this I’m engaging more with them. Not just with monks but also with my cousins. Science helps people to bond with each other. This is important because not everyone wants to learn dharma or spirituality. Some people want to learn about other things.”

“This program is one of the reasons that I no longer like statements like ‘my country, your country’ or ‘your race, my race.’ When I was small I was oblivious to these mental walls. By learning science and about leadership, I’ve come to see that there is no such thing as ‘your religion, my religion,’ ‘your race, my race.’ This workshop has helped me see people simply as humans.”

“If a Buddhist monk wants to help people, he needs to engage with them. And he shouldn’t try to turn them into believers. That is why I think learning science is very important. We shouldn’t learn science simply to teach it. Nor should we only focus on teaching Buddhist philosophy. What we need to teach is inner values. In the Tibetan community, the older generation would respect me because I’m a lama. But the younger generation sees monks as people who don’t know much about the world,

because what they call knowledge is not knowledge of Buddhist philosophy; it's scientific knowledge. So if a monk has some background in science, he can go to young Tibetans and they will at least listen to him. Not to say that the monk should then preach Buddhism or teach science. He can talk about inner values. In this 21st century, Buddhist teachings and science are tools—tools to help the young generation learn about their inner values.”

“I will never forget the way the teachers interacted with us, focusing not only on groups but also on individuals. This was a very important skill. I learned from Bryce how to interact with and manage many people. As a monk I meet a lot of people. These skills of interacting with several people within a larger group will help me in the future.”

“We have learned multiple hands-on activities in this program. We can use them to connect with schools outside our monasteries. Hands-on activities are a kind of language. They give us access to others and help us relate with them, especially lay people. And vice-versa.”

“The leadership program gave us skills that can help us establish relationships in the lay community. The science exhibitions that we learned to prepare in this program are not just for the monastic community. For example, the last time we had an exhibition at our monastery, we invited students from the lay community. The students did hands-on activities. They were very happy. They asked us a lot of questions, both about science and Buddhism. In this way, monks and lay people can come into contact with each other and communicate. Science exhibitions bring people from diverse backgrounds together. Conversations start between them. As a result, people – Buddhists, non-Buddhists, believers, non-believers, scientists – understand one another’s perspective. This reveals ways to connect with people.”

“A monk who knows both science and Buddhism can help more people because he has knowledge of two disciplines. That means he can have conversations with people of diverse backgrounds. If you only speak to people based on religious knowledge, they won’t listen to you. After all, not everyone is interested in religion. But if you talk from a scientific point of view, people, whether they are believers or non-believers, will listen to you. At least, they will try to understand what you are trying to convey. Science helps to connect people of different backgrounds.”



5: The monks and nuns see their leadership cohort as a community of monastics with scientific knowledge. They see the Leadership Program not simply as a coming together of people, but as a springboard for future collaboration. Through the program they have learned how to work in teams. They have seen firsthand the advantages of group work. They feel the experience of the Leadership Program has enabled them to serve their particular monasteries in unique ways and achieve their personal goals. But they have greater hopes of their cohort as a group, a community within the monastic community. They believe they are part of a team that can make significant contributions to society.

Like any monk or nun who has studied science, the members of the Third Leadership Cohort make up a tiny minority within the monastic community. They are still misunderstood by fellow-monastics. They regularly come up against rigid rules and orthodox senior monks at their monasteries. They know science, but remain highly misunderstood by those who are unfamiliar with science. Needless to say, this is not the kind of environment in which an individual raring to take on leadership roles (and equipped with scientific knowledge to boot) can shine.

The feeling of being an outcast at their monasteries was quickly offset at the Leadership Program by the experience of teamwork. Used to doing science-related activities on their own, they delighted at working with others. Teamwork proved to be a form of learning—something that never occurred to them before. Many of the cohort members decided that a team was a way to overcome obstacles that are overwhelming for an individual.

The fact of being minorities within their monasteries (with all the problems and challenges that brings) makes the relationship between cohort members all the more crucial. It's a peer group that can help relieve the pressure that comes from being in the minority. The cohort members often collaborate with one another, more frequently within a monastery but sometimes also *between* monasteries. This latter joint effort is highly effective for problem-solving. Another, more long-term, effect communication between cohort members from different monasteries has is amplifying the benefits of using science as a way of inculcating leadership qualities in monks and nuns. Even a lone monk returning to a monastery equipped with science can teach it to others or do something with his newfound knowledge. He can at least try. He can be an example, a figure to look up to. A leader. That is much better than a monastery without a single monk thinking out of the box.

The Leadership Program gave the monks and nuns from different monasteries a chance to know one another better. It was surprising to learn that the gap that is often referred to between the monastic and lay communities actually also existed, though to a lesser degree, between monasteries. Some monasteries are cut off geographically. Others do the bare minimum – a ceremony or a conference once in a while – to facilitate inter-monastery exchange. Monks and nuns meeting at the program and becoming friends was like opening a communication channel between monasteries through which ideas can flow.

Above all, the feeling that they are not alone and that there are like-minded people who they can reach out to for help and guidance is very comforting for each cohort member. In that, it resembles in function the *sangha*, or monastic community, where one aspirant has another's back.

“In a monastery, the people who have knowledge of science are a minority. Though they want to do something, they don't have the authority power to decide. Decision-making in monasteries still rests with abbots and discipline masters. Monasteries have their own rules and schedules. It's very difficult to fit one's plans into this fold without being disruptive.”

“One of the most important lessons I learned at the Leadership Program was teamwork. I learned that groups are more effective than individuals.”

“When people work in groups they definitely produce bigger results than when they work individually. Working in teams brings benefit both the group as well as the team members. Besides achieving the group's goals, individuals receive knowledge from others that they themselves do not have. Groups foster a spirit of sharing. In a group, not knowing something often inspires the members to learn.”

“Since I am the captain of a house at my monastery I have many responsibilities. Although I have done many things at the monastery, I did it by myself. In this program, however, we did many things in groups, from teaching science to Buddhist philosophy. You struggle more when you work alone. It’s easier to get things done by working in teams. And the chances of success go up.”

“A big positive of the program was that it taught us how to work with others. We learned how to prepare exhibitions as teams.”

“I will never forget the monks who participated in this program. We worked hard to accomplish things. We got many ideas from one another. Working in teams also helped turn ideas into reality. Working and learning from one another improved each one of us. And it was fun! The results of working in teams were very visible. That made us happy and want to do more.”

“The experience of sharing knowledge with our peers was also very educative. Group work was very effective. Teaching strategies like think-pair-share and I do, you do, we do were revelatory.”

“By working in teams I made new friends—friends I wouldn’t have made otherwise. Secondly, I get new knowledge by working in a team. This kind of knowledge is something I can’t get from any other source. It’s unique to the group.”

“I got many new ideas by working in a team and discussing things with others. There were many things that I did not understand on my own or things that I couldn’t do on my own. For example, sometimes I was stuck while writing. When I mentioned this to my peers, they suggested ideas. I used their feedback to make changes to my writing and it improved! I used to be embarrassed about showing my writing to others in the beginning. That was because I just didn’t know how to write. Now, after doing it several times, I not only see the benefits of sharing my work with others and discussing things in a group but I also find it enjoyable.”

“The chief obstacle for me to do something as a leader is finding a team, a team that would stick with you till the end of the project. This is very difficult because every monk has many other things to do: studies, duties, chores.”

“One of the things we did after returning to our monastery from these workshops was teach science to young monks. That began to draw them to science. And this is happening in other monasteries as well as between monasteries. Sometimes we go and teach at another monastery. Sometimes their science center members come to ours and teach.”

“The coming together of monks and nuns from different monasteries for a common purpose and working together to achieve things is this Leadership Program’s greatest strength.”

“Science is still misunderstood in many monasteries. That will take time to change. In meantime, we need to find monks who are eager to learn science and start teaching them basic science. If we start now, those monks will have a good grasp of science in fifteen years. In my opinion, this leadership program will bring some change in Buddhist monastic ideology. It will change the way people teach and learn. If this program continues training monks, maybe fifteen years from now there will be so many monks trained in science in every monastery that there will be no need for science workshops or for monks to go abroad to study science. Everything will take place in their monasteries. But that will happen only if we start now.”

“There are still many people in the monastic community who strongly believe that we should not learn science or involve ourselves with modern education. There are a lot of people like that. In order to broaden their perspective, we need monks who know science scattered in as many monasteries as possible. This will be one way of fulfilling His Holiness’s vision of the 21st-century monk. Being a 21st-century monk does not mean using fancy gadgets; it’s being aware of the world around you. Science is the biggest factor in shaping our world now. So we need to know science.”

“There is not much enthusiasm amongst students in monasteries for learning science from a monk who is from the same monastery. They are more excited about having someone from another monastery come and teach. They even pay more attention to such a teacher. This is a significant advantage of having monks with scientific knowledge scattered in different monasteries.”

“We learn new things from each other. How the science center at one monastery solves a particular problem is often shared with other science centers. Consequently, each science center tries it out for itself. We often exchange tips and strategies for teaching. This helps us a lot.”

“Working in teams is another positive aspect of this program. It is especially effective because monks from different monasteries are teamed up. This creates new connections. Our knowledge about other monasteries grows. New relationships form. Communication channels open up between different monasteries.”

“This program united us. At the beginning of the program, we used to identify ourselves with our particular monasteries. We only spent time with monks from our monasteries. Now all of us feel like a family.”

“Bonding with other monks was memorable. When I first met one of my peers, who is very funny and a wonderful guy, my initial impression of him wasn’t good. I took his constant joking as an expression of his ego and domineering nature. But as I spent more time with him he became a very close friend. I was also cut off from the other monasteries. At this workshop I met several monks from those monasteries. Spending time with them inside as well as outside class forged a deep bond with them. I wouldn’t have met them if it weren’t for this program. If I hadn’t met them, we would have remained strangers. We would always be distant from one another. This workshop taught me that nobody in this entire world is a stranger. Strangers remain strangers as long as you remain distant.”

“Monks from different monasteries joining this leadership program creates a small community, a science sangha of sorts. This has many benefits. We develop a bloated sense of self because as monks who know science and speak English we are unique in our monasteries. Getting to know other monks who know science dismantles that ego as we realize there are people who are better than us. A healthy competition emerges. We are motivated to improve. The monks we meet in this program become our contacts in the monasteries they are from. If we need some assistance from their monasteries, they can prove useful. We can invite each other to conferences and exhibitions on science.”

“The most memorable thing about this program is the bond that we formed between each other. We are from different monasteries, often quite far apart. Most of us hadn’t met each other before we joined the program. Now we are very close. From now on if we decide to run a project we won’t be alone. Beside those of us from our monastery who were at this program, there will be others at different monasteries. So we will be able to team up with them. We will be able to help and guide each other. The results will surely be positive.”

“The difference between the monks in the leadership cohort and those at my monastery is quite big. My peers at the Leadership Program are an academic lot. If I have any questions about or need help with science or English, I am confident that they will be of help.”

“The reason I believe in the need to maintain this bond between cohort members is that our work is not done yet. We still have to work together in the future. And when we work together, it will be easier to understand each other. We will be more comfortable because of the bond created during the Leadership Program. Also, each one of us is more knowledgeable on a certain topic than the other. For example, my monastery’s group designed hands-on activities on the solar system. If another

monastery needs to teach about the solar system, they can consult us. Similarly, if I need to know more about a topic another cohort member knows more about, I can seek his advice. Last year, the cohort members from the Drepung Monastery held a science exhibition. They invited us. Later, we invited them to a science event at our monastery. This cohort is like a brotherhood made up of small groups that are themselves tiny units within their own monastery. We share our knowledge in person or through social media. But we have to stay in touch. It's important to stick together."



6. The cohort members found the writing lessons particular effective. Besides the skills, writing proved a way of building confidence for the participants.

I was not able to express my views and opinions as well as I wanted to. This was a recurring statement during my interviews with the cohort members, especially when the conversation turned to leadership skills. The monks and nuns are fully aware of the importance of communication skills, so they considered the inability to speak their mind lucidly a big handicap.

The heartening thing about that recurrent admission was that it was spoken in the past tense. While it can't be claimed that the cohort members are now all master orators or eloquent

conversationalists, they have at least overcome their initial inhibitions. Writing lessons that they had played a big role in this development. Writing proved to be not just another skill they learned or improved, it became a medium for growth and enhancement. Confidence rose. The participants began seeing writing not as an individual endeavor but, through giving and receiving feedback on each other's writing, as a collaborative process. As they wrote more, the monks and nuns felt freer to express their views. Writing, which was once so onerous and debilitating, turned into something liberating and morale-boosting. And the trust and comfort that formed between cohort members through sharing each other's writings made communication more natural and unself-conscious. In the end, writing helped the cohort members feel at ease expressing their views and ideas—something they felt was holding them back from realizing their potential as leaders.

“Through this workshop I have learned several writing techniques and skills. Earlier I didn’t have any skills or confidence about writing. Since joining this workshop I have started writing essays and articles. That helped me improve my writing and also gave me confidence.”

“I used to easily get bored and feel lazy whenever I was asked to write. That laziness has vanished after I joined this workshop.”

“Through this workshop I learned different ways to writing. It also improved my grammar and spelling.”

“I came to know different ways to write and to organize my writing. I learned how to elucidate my point.”

“This workshop brought me joy in writing and improved my writing. I learned the process of writing articles: selecting a topic, researching, organizing my points. I learned to connect these steps.”

“I learned that it’s worthwhile to make a note of all the things that happened in my daily life. This improved my writing and language skills.”

“I learned that while writing you always have to think about your readers. One way of finding out if your writing is understandable is giving your work to your friends to read. I also learned the importance of connecting paragraphs.”

“In order to produce good writing, we have to write and rewrite several times. I also became more interested in writing through this workshop.”

“I learned how to improve my writing. For example, looking at a picture and describing it. Another way was to let other students read my writing and write their

comments on stick-it notes. Or reading my articles to others to see what they think, followed by a discussion on how to improve it. Once you have written your article, you rewrite multiple times to make it better.”

“Earlier, when people asked me to write, it was painful. It gave me headaches. Since I joined this workshop, I have learned many writing skills. Now when I am asked to write, I can express my views freely. Using the techniques in this program, I can write essays and even articles. We got a lot of writing practice in this workshop. That proved useful even for writing answers to questions in our gelug exams.”

“There is a lot of writing practice in this program. This helped me with my thought process. The teachers made us correct each other’s writing. This improved my writing. Writing essays improved my handwriting, grammar and spelling.”

“My vocabulary of everyday life expanded through writing. It made me pay attention to events around me. My interest in reading grew. We learn about topics we didn’t know anything about while researching for articles.”

“Through this workshop I got the opportunity to write the first essay of my life. I learned how to choose topics to write on, several approaches to writing after a topic has been selected, and how to put all my points together in an essay.”

“My problem before was excessive thinking without actually writing much. I spent too much time on deciding what to write and what to exclude. It took me a lot of time simply to start. After learning about writing in this workshop, I just put down whatever pops up in my head. I write what is on my mind, without trying to evaluate if it’s right or wrong.”

“By reading the writings of my peers, I gain knowledge and useful tips about writing that I can later use in my own writings.”

“For the first time in my life I am writing so much, and it’s all because of what I have learned in this program. There has been a little improvement in my writing skills.”

“One of the reasons I like this program is the writing lessons. We are asked to read and write a lot. So it has helped me improve both my writing and reading skills. I don’t see any drawbacks to spending a lot of time on writing.”

“This program has definitely improved my writing. Before joining it, if someone had asked me to write about an empty plastic bottle, I would have been stuck. Now, I can write many sentences on a bottle. I have learned techniques like thinking about my topic and discussing with my peers. I realized how these things improve your writing.”

7. Although there was a lot of praise for the Leadership Program from the cohort members, they pointed out some things that could be improved.

The cohort members pointed out numerous areas in the Leadership Program that needed improvement. However, their views on improving the Program reflected interests, needs, expectations and goals that were sometimes very individualistic. For example, for some monks the Program would improve if there were more classes on quantum physics. Others felt that quantum physics was being emphasized at the expense of other, equally important, sciences like biology and neuroscience.

One thing that the cohort members had in common when giving feedback on the Leadership Program was they never dismissed a feature – writing lessons, physics classes, hands-on activities – outright. They liked what they learned and did in the program. Nevertheless, an important factor to consider when going through the cohort members' feedback about the program is that the opinion of one member is sometimes the exact opposite of another. This disparity will not be found here because I didn't ask each member to respond to another's view; but it's important to keep that in mind lest one participant's view be misunderstood to represent that of the entire cohort.

Pointing out the conflicting views is not a way of saying that the participants' feedbacks were flawed in some way. On the contrary, they are valuable tips to consider while improving the program. But it's important to acknowledge that the ideas for improvement put forth were tinged with personal preferences.

It is also important to note that there was at least one thing from the Leadership Program that made a deep, life-changing impression on every cohort member. Some had never had the courage (because of the way the classrooms are run in monasteries) to ask a question in class. Others had never been able to write a paragraph without being tormented by worries of grammatical correctness. Many discovered in themselves a knack for connecting with their students. For some working in groups became great learning experiences. Every single cohort member got something that boosted their confidence, offered a refreshingly new perspective, taught them effective methodology and developed their leadership qualities. So after a while the members had developed a bias for aspects – subject matter, teaching, writing, hands-on activities – which had proved most meaningful to them. This explains, to an extent, the conflict of interest in the participants' statements.

Naturally, almost every participant felt a sense of disappointment, frustration, confusion, a sense of missed opportunities, or a feeling of "it would have been better if...." This happened when they realized that the Program didn't hit the depths that they themselves wished to reach or didn't encompass areas that they felt should be covered when learning something. Given

individual preferences and biases, it was understandable that every cohort member felt what they liked should be prioritized at the expense of something *they* saw as less important. However, the monks and nuns were fully aware of the challenges of designing a program like this one, and were quick to admit that implementing their ideas was not an easy task.

Clearly, it's not possible to implement every suggestion given by the participants simply because that would mean designing a Leadership Program that would satisfy individual expectations—an impossible task in itself. On the bright side, the feedbacks are encouragement in critique form: it is a reminder for the team behind the Program to strive for the right balance. Every cohort member made it a point to explain to me during interviews that they didn't expect a perfect Leadership Program; they just wished to supply ideas on *how* to improve it. I got the sense that they were alluding to keeping a realistic outlook, accepting limitations and pursuing goals with humility. Like everything – their Buddhist practice, the monastic community, their leadership skills – the Leadership Program, too, was a work in progress.

Selecting Participants with Some Background in Science and English

“The leadership program would be even more effective if monks who have some knowledge of science, are good in Buddhist philosophy, and speak English well are selected. Selecting such monks would benefit their monasteries. It would also be better for this workshop.”

“It would be better if the participants of the workshops have prior experience of learning science. The more science one knows the easier the learning process is in the leadership program.”

Subjects and Lesson Content Taught at the Workshops

“As a Tibetan, I feel that it would be nice to have a Tibetan writing teacher. That would help us a lot—learning to write better in Tibetan.”

“Having a couple of lessons designed to improve English would be nice. There are some monks here whose English is very poor. At least after three weeks of such classes they will learn something, and they might continue learning after the workshop.”

“The lessons on quantum mechanics were too deep for our level. The lessons need to be designed to suit our level of scientific knowledge, which is not very advanced.”

“There should be something more than just an exhibition at the end. I sometimes get the impression that whatever we learned in this program was in order to prepare an exhibition. Sometimes it feels like we are here not for the workshop but for the exhibition.”

“In the first workshop there was a biology teacher who taught us about photosynthesis. I thought it fine at the time. But looking at it now I feel that that was a waste of time because it’s not related to what we are learning now. It could have been planned better. I know it’s not easy to do but I think there needs to be a very specific theme that runs through the four workshops. Each workshop should flow into the succeeding one.”

“Manish taught us many hands-on activities. It was fun, but I didn’t understand the long-term benefits of learning those activities. We weren’t taught the scientific background to those activities. If we taught those same activities in class and our students asked us what their benefit or background was, we wouldn’t be able to tell them. I have the same questions about the sessions on tinkering. Besides, we monks are not studying science to make things; we are learning science to be able to better engage with the wider world and contribute something from our Buddhist knowledge – love, peace, compassion – to the world.”

“We should have more maths and chemistry classes. It would be nice if there were classes to build our knowledge of basic science.”

“There needs to be more consistency in the workshops. For example, Manish, who was one of our teachers, taught us to build things, especially from cheap materials. During the first workshop he also delved into the background and concepts of what we were doing. But this year it was like letting a kid play with Lego. He didn’t explain the background. I wondered why his lessons went from good to bad when they should have gotten better.”

“Topics are not taught in-depth at the workshops. It would be better if a topic is selected and we are taught about it in great detail.”

“We need more classes on other science than physics. We should have lessons on biology.”

“I think too much time went into learning hands-on activities and writing. We could have done less of these and used the time to extend the lunch break. We don’t enough time to take naps after lunch, so we are often sleepy in the class after lunch. We need hands-on activities and writing, but not with the kind of intensity and frequency as we did in this program.”

“We are studying physics more than the other sciences but I understand why. We need the knowledge of physics for our exhibition. However, it would be nice if we also studied neuroscience and biology. Neuroscience offers interesting insights into the

brain. This is useful for us monks who have studied about consciousness and mind a lot.”

Buddhist Lessons

“I understand why we are given a time limit for teaching a lesson. However, it would be better if that wasn’t mentioned while we are teaching. That can be very disruptive.”

“Though by the last workshop the pace was more relaxed, the first workshop had us rushing to do things. Back then, sometimes there was such an urgency to get things done that we were all tense. Bryce was rushing us. You can’t think properly during such times. I know it was all part of the program but all the hurrying sometimes made classroom activities like writing feel like chores.”

“Teaching Buddhism was a great experience for us all. However, Bryce sometimes crammed three lessons into an hour-long slot. He has a strong sense of responsibility toward the workshops and us, so he took it upon himself to sometimes guide us, even scold us if things were not moving along. He should only inform each group when their time has started and when it has ended. He could even show us how to teach within the time frame before we begin teaching. This would take some load off of his shoulders, because he works very hard to keep things in order.”

“It would be better to increase the Buddhist lessons to 20 minutes.”

Timing and Length of the Workshops

“I think the workshops are too long. Three to four weeks is a long for monks to be away from their monasteries. Most participants are still students, so they miss out a lot on their Buddhist studies if they are away for this long.”

“Most of the cohort members are seniors in their monasteries. It would be nice to perhaps select younger monks in future cohorts. They have more time to devote to learning science. Senior monks usually have some responsibilities they need to tend to in their monasteries. A couple of our fellow cohort members couldn’t come this year [third year, last workshop] because they weren’t given permission. That was because they occupy some post in their monasteries. They are torn between their duties and this wonderful opportunity to study science.”

Field Visits and Outreach

"We could have also gone to a local school and taught hands-on activities to the children there."

"Sadly, we didn't get the opportunity to observe the teaching in some of the local schools."

The Language Barrier

"It would be better if participants with a better command of English were selected to take part in this program. If this is done, nothing would be lost in translation."

"All the participants of the leadership program speak Tibetan but not everyone speaks English. So it would be nice if classes were taught in Tibetan. Translating takes up too much time. The time we would save by switching to Tibetan could be used for learning. The only other option is to select monks who are fluent in English for the leadership program. To be clear, I don't have an issue with the language used. I just don't want to see so much time used up for translations."

"The negative aspect of this program is that the faculty does not include a Tibetan teacher."

Lunch Breaks are Too Short

"It would be better if the lunch break was more than one and a half hours."

"The schedule of classes could be changed to give us more time after lunch. We are habituated to afternoon naps. We could start the classes earlier in the morning to make up the time."

"If we start the morning session at 8:30 then we can have lunch at 12, so that we have a two-hour rest after lunch. It's better for our brains."

"The leadership program doesn't really have major flaws. However, if it's possible, the schedule should be changed a bit. We had two classes in the morning and two in the afternoon. I think that is hard to change. But we could start the day earlier, maybe at eight or eight-thirty. The time thus saved could be added to the lunch. I think this is important because most of the monks here are used to afternoon naps."

"Classes start on time but don't end on time; they keep us beyond the scheduled time."

Tales of Leadership

Some of the cohort members have already begun applying the leadership skills they learned in the Leadership Program. Boosted by their knowledge of science and emboldened by the small yet valuable experiences of applying science, they have initiated or been involved in projects at their monasteries. Some of these have been one-time events, some that radically changed a particular tradition. But they all have one thing in common: monastics looking at their communities and its problems in a new way.

Case Study 1: Convening Supporters and Champions

Four members of the 3rd Leadership Cohort, monks from Drepung Gomang, organized a science conference in November 2018 at their monastery. During the conference individual monks gave presentations on topics like the Buddhist perspective on atoms, scientific perspective on atoms, light, and other similar topics. After their presentations, audiences asked them questions. Abbots and high lamas also attended the conference. Some of them commended the organizers – Ngawang Sopa, Tsultrim Sonam, Lobsang Tsering, and Tenzin Gyatso – and told them that they needed to continue learning science and doing science-related activities in order to improve further. To the organizers’ delight, the abbot of Drepung Gomang proved their biggest supporter. He felt that there should be more conferences. He strongly supported the idea of science-related events like conferences and exhibitions because he felt that monks who study science should be given a platform to share their knowledge with others. This was a particularly promising situation because many abbots and lamas, especially the older and orthodox ones, don’t have the same view on science and aren’t much interested in it.

Below are some images from the conference held at Drepung Gomang. The captions are from interviews with Nwang Sopa, one of the monks who conceived the idea for the conference.

“The idea for the conference came from this Leadership Program. We do several activities here in the workshops. The teachers and Bryce always encouraged us to do things. We realized that we had to do something in the monastic community. So my cohort peers and I got together and discussed about things that we could do at our monastery.

Once we had come up with an outline for the conference, the members of our monastery’s science center, including the center’s manager, helped us. Bryce helped us too. Next, we took our idea to our abbot. Luckily, he consented. He was very supportive. He feels that one or two science conferences a year are too little. He is for several small conferences and exhibitions as

opposed to one or two grand ones. He reasons that the more conferences young monks participate in, the more experience and confidence they will gain.

Preparing the exhibition was a big task. We had some knowledge, but we still needed a lot of help and guidance. One of our exhibits was a model of the solar system. We traveled to Hubli to see the solar system model in the city's science center. That is how we learned about the materials needed to make the model. We took photos. We discussed with the staff of the center there and got ideas. It took us more than a week to build the model."



I was one of four monks who organized this conference. All of us are members of this [3rd] Leadership Cohort. Crucially, we had our abbot's backing [pictured, standing, in the photo above]. His belief is that there should be more opportunities for monks who are science students to exhibit their knowledge.



This is our monastery's former abbot [center in photo above, wearing dark glasses] looking at our solar system model. He is the head of the two Drepung monasteries: Drepung Gomang and Drepung Loseling. I don't remember what exactly he said about the conference, but he spent over one and a half hours at the conference, going from one exhibit to another, questioning the presenters. His aide was getting nervous because the place where the conference was held was very cold. He was afraid that the abbot would fall sick by being in such a cold place for so long. But the abbot took his time. He took a good look at all the exhibits.



We invited monks and nuns to the conference. Invitations were also sent to monastic schools. It was Teacher's Day on that day, so many people didn't come.



Young monks from monastic schools trying out one of the hands-on activities.



We also sent invitations to local schools. The conference was very popular among the schoolchildren [pictured above]. During our interactions at the exhibition, they told us that they wanted to attend more and more of such events in the future. They said that although the monastery had been in the area for a long time, the conference was the first time they had been invited into the monastery. If this wasn't a science conference, the local school kids wouldn't be that interested. For instance, they wouldn't have the same enthusiasm if it was a Buddhist conference. We – the monastics and the lay school children – are both interested in science. That is why the interaction between us is mutually beneficial.

Case Study 2: Chipping Away at a Big Problem

Kunga is the vice-principal at the Dzongkar Choede Monastery. He was known in the leadership cohort for his sense of humor and predilection for mischief. Within minutes of meeting him, it is clear that he is not the serious, ascetic, wisdom-dispensing monk that most lay people expect people to be. However, by the time he joined the Leadership Program, he had given in to the pressure from peers and senior monks to take on a sterner disposition to be a more effective vice-principal. In their view, an authoritative figure made a better leader and teacher. That was almost the opposite of who Kunga was as a person: affable, open, approachable and fond of joking. The Leadership Program helped him reconnect with his older, original self. In the process, he discovered true leadership had nothing to do with wearing a serious expression.

“I used to joke a lot with the younger monks at our monastery because I was very informal with them. Seeing this, many senior monks warned me that I should be jovial with the younger monks all the time. They told me that if I joked with them all the time eventually they would not respect me. They would not see me as someone to fear, they wouldn’t listen to me. But I ignored the senior monks’ warnings. I knew what I was doing. Gradually, I realized that the kids were indeed not listening to me. I stopped joking with them. I even started smiling a lot less in their presence.”

“I learned many, many things from this leadership program. It changed my entire life, my way of thinking. It brought my jokes and smiles back. I used to suppress my true personality. I was fond of cracking jokes. Some of the senior monks made me change that. But now, after the leadership program, I have returned to my old ways. Nowadays I joke, even during the morning assembly at the monastery. I smile at the students. I’m probably the first principal who does that. And there are students in the crowd that make funny faces at me. I’m happy about that.”

Like anyone who is constantly clowning around and teasing people, Kunga could be seen as yet another individual who lacked discipline and a sense of purpose. But in his dedication to protect the natural environment, especially his personal goal of minimizing plastic use, he was as driven, committed and persistent as any person crusading for a cause can be. Here is what he thought about the importance of doing rather than mere noble intentions:

“First, we have to show by doing rather than simply speaking to or advising people. We have to show what we can do in a very practical way to encourage and inspire people. After that, we can begin to advise them to help them make this world a better place to live in. People hold different philosophies and principles. We can’t plant our own philosophies and principles

into their individual minds. So when we try to tell them something we should do so by acting. Actions are always louder than words.”

Kunga implemented his belief in acting before advising at his monastery by chipping away at the significant problem of plastic use. It must be noted that his position in the monastery does not come with enough administrative power to make big decisions like banning plastic at the monastery. Wise enough to know that seeking permission for a project would be a slow process, he cheekily took matters into his own hands—for a short while – and tested his hypothesis: plastic can be substituted out of everyday life at the monastery.

“I didn’t have any goals or plans before I joined the leadership program. After participating in the workshops, I became concerned about climate change. Nowadays, I think a lot about plastic’s harmful effects. In the past, we used a lot of plastic at my monastery. With guidance from Bryce and support from the Sager Family Foundation, my peers and I have started a program at our monastery. We have replaced plastic shopping bags with bio-degradable ones in our monastery’s grocery store. We did this unofficially. We can’t do it officially because we are members of the science department; we don’t have the authority to make such changes. When my friends came to know about this they praised me, which made me feel very good. Before that they used to teasingly call me a scientist because I’d been to many science workshops. They said to me, Finally, you did something good. I told them, You just wait and see what else I do. Later, when we held a big conference to celebrate a renowned lama’s birth anniversary, we announced that we wouldn’t be providing drinking water in plastic bottles; we used cups and glasses.

Now when I am walking on the street, my eyes keep following people to see if they have plastic carry bags. I have a goal now: to turn my monastery into a plastic-free zone. After I do that, I will try to do it on a village-level. Then on a level larger than that, and on and on.”

