

Strategies for Risk Management and Mitigation in Faculty-led Courses

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Abstract

International exchanges are exciting opportunities for students and faculty, while risk management and risk mitigation are critical to ensure that such exchanges are safe so that the group will enjoy the exchanges. However, students and faculty might not realize how important it is to manage and mitigate risks and what their roles are in such efforts. Especially, new trip leaders might find it overwhelming to even consider which factors should be considered. Furthermore, trip leaders may be occupied with connecting with the hosts, developing class activities, attending to logistical details, etc. to overlook risk management. As a result, the group may respond to risks reactively but not proactively, making the risky situations more stressful or more costly unnecessarily than what needs to be. This paper focuses on faculty-led trips, because there are many variations in faculty-led trips in terms of course structures, destinations, activities, trip lengths, and group sizes, which complicate the risk management and risk mitigation procedures. This paper provides a thorough discussion on the framework of strategies in risk management and risk mitigation based on literature and campus policies, and then presents practical tips and seven case studies from the authors' personal experiences. These case studies demonstrated how the strategies were integrated and applied, which led to best solutions.

Keyword: Risk Management, Risk Mitigation

Introduction

In international exchanges, risk management encompasses assessing risk factors pertinent to the destinations, activities, and participants that are largely predictable, as well as local events or weather that are beyond one's control. Risk mitigation requires feasible and practical action plans in unexpected situations, and trip leaders will communicate the expectations and common risk factors to the students so that they will behave responsibly.

As NAFSA summarized in [1], risks may arise to impact a participant's physical or mental health, personal or financial safety, privacy, security, as well as interactions among participants and/or with their families remotely during the trip. Adapting to the local culture and lifestyle is vital of an effective action plan, instead of demanding that the same solution that would have worked in the home country should work in the host country. In general, risks do not outweigh the benefits, though. As Study Abroad Association indicated in [2], risks should be acknowledged, managed, and mitigated by the faculty-led group, but not a deterrent to participating in faculty-leds or experimenting a different pedagogy [3][4]. Many benefits include experiential learning in the international environment, skill building in cultural responsiveness, communications, professionalism, teamwork, etc. [5]

Generally speaking, in any faculty-led trips, complying with campus policies is obligatory, and joining STEP (Smart Traveler Enrollment Program by State Department) is strongly recommended. Meanwhile, it is beneficial for the students to get familiar with the host country's culture and history, do research on the intended destinations, and get to know their fellow travelers through teambuilding and group assignments, before the trip. During the trip, frequent checking of participants' physical and mental status by the instructors or among peers is important to reveal the seedling of any potential issues, and frequent reflections via journal taking or group discussions at various intervals helps the students make sense of their experiences and adjust their expectations. These reflections also stretch the students' worldviews and supports them to make the most of the trip. After the trip, an online meeting of the group, if any, and assignment collections are another opportunity for the group to reveal any remaining concerns in a timely manner to get those concerns addressed.

The rest of the paper is organized as follows. Risk factors will be discussed in detail in the next section. Risk management and risk mitigation strategies for each category of risks will be presented next. Campuses and organizations have developed policies to enforce such strategies, which will be summarized. Some past scenarios and helpful tips from the author's personal experiences are shared as examples of the strategies and policies, followed by some concluding thoughts.

Risk Factors in International Engineering Education

The commonly considered risk factors in international engineering education are related to the trip itself, but even before the trip is planned, the faculty need to consider the risks in the pedagogical choice of leading a faculty-led trip such as program needs, extra workload that is often not compensated, and the needed professional development. Meanwhile, leading a student group as a campus activity is complicated with liability issues unlike travelling alone or with family. In parallel, the students need to consider if the trip may fit with their academic plan and graduation timeline before they consider the risks during the trip. An overview of the main risk factors before and during the trip is presented in Table 1, together with how the trip leaders and students need to fulfill their roles. Table 1 is a summary of literatures, campus policies, providers' standard procedures, and the author's personal experience.

During the trip planning phase, it may take the faculty a couple of years to deliberate the destinations and class activities to best suit the program needs under the guidance of U.S. Department of State's Travel Advisory. Even in a destination country where the trip happens regularly, the activities are revised from year to year, and the sites to visit may be updated for the group to adapt to the latest learning goals and local environment. The most engaging activities are conducted with local connections, and it is extremely valuable if the faculty member has some local connections. Or else, the faculty may take some time to make local connections, such as through personal or professional contacts and/or campus' Global Office who have connections at the intended destinations, via trustworthy third parties (budget needs to be considered), or simply cold emailing or cold calling. There are factories and companies with outreach departments that are willing to offer tours and meetings. The risks in this phase are mainly due to changing conditions over time, and/or limited knowledge about the intended destinations. From trip planning to trip execution, there can be several years, and the health, political, or environmental situations at the destinations could change. Online sources and local contacts can provide general information about the destinations, but the information may not be the most up to date. Once the group is on the ground, the actual situation could differ from expectations. Even simple things like changed hours can cause frustrations for the group. While it is ideal to make reservations in advance and to stick with a planned timetable to ensure availability, if that's not possible, the travel group should be prepared to be flexible throughout the trip, as they would in any other situation in life. As a precaution, the faculty can set the expectation for the travel group to be flexible from the very beginning.

During the trip recruitment phase, the faculty needs to be transparent with the students about the known risks involved. The first factor is whether the trip is associated with course credits, and how the credits can be used in the students' graduation plan, or not. The second factor is the anticipated costs, and the students should talk with the financial aid office and family as early as possible. Other factors are required by laws or regulations, such as that the destinations are at acceptable travel advisory levels, mandatory vaccinations must be taken, and passports need to be valid for at least six months at the time of entry. The students should apply or renew their passports early and comply with all the requirements. No compliance means not being able to travel to the destination, which is beyond what the faculty could control or help. From the faculty's point of view, the number of students who join the trip is uncertain, which can impact the budget significantly and limit the choices of lodging or other reservation options. If the minimum number of enrollments is not reached, the trip risks being cancelled.

Table 1. Major Risk Factors and Trip Participants' Roles

	Risk Factors	Trip Leaders (Faculty/Staff) with Global Office	Students
Trip planning and recruitment	Suits academic plan	ABET, program needs	Graduation plan
	Costs	Be transparent, and allow a range of class size	Talk to financial aid, family, etc.
	Political environment	Be aware	Be aware
	STEP registration	Strongly recommended	Strongly recommended
	Travel advisory levels by U.S. DoS	Must check	
	Vaccination requirements	Must check and comply	Must comply
	Travel health insurance	Must purchase for the whole group	Carry insurance card or e-copy
	Passport expires 6 months after the trip	Must check	Must apply or renew early
During trip	Travel group dynamics	Facilitator (campus, majors)	Teamwork
	Physical wellbeing	Two leaders, just in case. Be sensitive	Take prescriptions, ask for help when needed
	Emotional wellbeing	Be sensitive to group needs	Ask for help when needed
	Cultural learning	Facilitator in reflective discussions	Take journals
	Subject learning	Design course content, may improvise on the go	Take notes, do research later
	Safety and security (person, data, privacy, etc.)	Give precautions, enforce buddy system	Stay away from questionable persons or situations
	Action plans	Know contacts of medical help and embassies, etc. Set up expectations. Clarify class policies.	Be aware of class policies
	Companion of faculty (such as a family member, a minor)	May complicate trip planning. Follow campus policy	
	Minor behavioral issues (tardiness, conflicts, manners)	Clarify expectation and consequence daily, educate	Respect others
	Major behavioral issues (alcohol, drugs, assaults, law)	Clarify expectation and consequence, report	Be responsible
	Illness, injury, or even death	Lead student to medical facility, follow procedures, report	Report immediately
	Political unrest	Follow campus policy, keep students safe	Follow instruction and keep in touch
	Severe weather, natural disaster, pandemic	Check forecast, plan, follow local instructions	Follow instruction and use common sense

During the trip, every participant should stay healthy physically and mentally; the group should, hopefully, interact amicably, get to reservations on time, and stay engaged during class activities. The students should keep the same safety standards in mind during their free time, too. Incidents that deviate from these goals will cause negative consequences to varying extents, risking defeating the purpose of the trip. The group dynamic is cultivated by the faculty's guidance and fostered by the whole group. It is expected that the faculty prepare emergency action plans before the trip and be mindful about potentially adapt the action plans when needed. The consequences of behavior issues should be clarified to the students from the very beginning so that the students will avoid causing such issues.

Risk Management and Risk Mitigation

The hierarchy of risk control in industrial processes, such as the framework proposed by OSHA [6] or Sitemate [7], can be similarly proposed to international engineering education trips. This paper proposes the hierarchy of risk control for faculty-led trips to be illustrated in Figure 1, for each of the risk factors elaborated in the previous section.

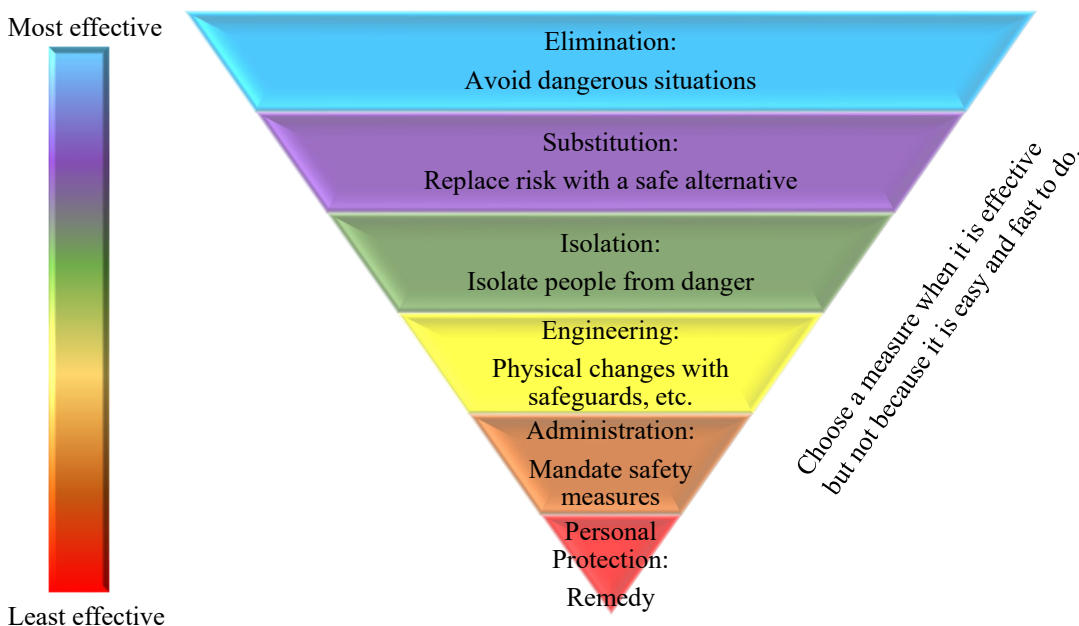


Figure 1. The Hierarchy of Risk Controls in International Engineering Education

There are multiple strategies to address the risk factors, with the strategies' effectiveness ranking from higher to lower in the inverted pyramid in Figure 1. A measure should be chosen based on its effectiveness and the local condition instead of it being the easy and fast way to implement.

- Elimination means to avoid the dangerous situations altogether where risks outweigh benefits. For example, during the pandemic, the non-essential travels were all suspended. Post-pandemic, if some regions have elevated risk levels due to political stress or natural disaster, a trip to those regions should be re-evaluated and potentially cancelled. Or if the group is already at the destination and plans to take a boat tour, but the weather forecast predicts that ocean waves are too high for a boat tour, then the boat tour needs to be cancelled or postponed.
- Substitution means to identify a safe alternative to the risky destination or activity. For example, if a participant has a dietary restriction, when an ethnic meal is arranged as a group cultural experience, it is important to consider alternative dietary options for that participant.

- Isolation means that when a risky situation cannot be avoided or replaced, isolating that situation might be the solution. For example, when a participant exhibited cold symptoms, it would be safer for the participant to go visit a doctor, accompanied by a trip leader, than participating in the group activity, because their own recovery might be quicker if they took a good rest at the onset of the symptoms, and the other participants would not get infected.
- Engineering controls mean physical changes to the trip arrangements. The travelers on the move have limited capacity for luggage, so these changes need to be mindful. For example, if the voltage level and power plugs at the destinations are different from home, the trip participants should check their devices' range of voltage ratings and take converters if needed. We also provide reusable notebooks to the participants so that the scans of the pages can be uploaded to an online server then the content on those pages can be erased and reused. This kind of notebook doesn't take much space or weight and is very useful for the students to take journals without the need to take a laptop, a pad, or conventional paper notebooks with many pages.
- Administration controls are mandatory safety measures that educate and support the trip participants on safety, such as joining the Department of State's STEP program, purchasing a travel health insurance, preparing an airport meet-up instruction, and mandating an eSim or international data plan and creating a chat group for instant connection among participants.
- Personal protection measures are a personal remedy in case something unexpected happens. For example, google maps and google translate apps are effective to guide the participants to navigate and stay safe, band-aids are handy when someone may scratch their skins or get a small cut, facemasks are useful when the participant may be coughing and doesn't want to impact others, or when the group is in a crowded place, wearing facemasks is a precautionary measure.

The strategies for risk management and risk mitigation can be also categorized at the following levels defined by organizations or persons. In the inverted pyramid in Figure 1, roughly, the higher the hierarchy, the wider the strategy's impact can be; the lower the hierarchy, the more personal the measures can be. Note that the solutions may involve implementations at various levels.

- National and international level: The general guideline takes many factors into consideration to be a valuable recommendation. Meanwhile, many organizations provide useful resources.
- Campus level: Each campus has their own set of policies. The international engineering education can be managed centrally by a Global Office on campus or locally by a college, or no formal procedure exists but there are guidelines on how things have been done. Regardless, the policies or expectations are set to ensure that safety, security, liability, and federal and state compliance are in place with proper documentation.
- Faculty/leaders' level: The trip leaders are educated through national and campus resources, and they are critical to implement risk management and risk mitigation strategies. They need to develop emergency action plans and come up with solutions no matter what happens. For a group more than a handful of students, it is best to have two trip leaders so that when anything unexpected happens, one of the two trip leaders can handle the emergency while the other trip leader can lead the group to finish their preplanned activities.
- Students level: The students play a key role to ensure their own safety and security. They need to be proactive, responsible, and collaborative, follow instructions, report anything they don't feel good about early on, and be motivated to maintain the same safety standard no matter if they are with the group or on their own during the trip.

Such strategies can be also summarized along the timeline as responses to the risk factors discussed in the previous section: during trip planning, during trip recruitment, and during trip. If the strategies are

implemented well in the earlier phase of this process, fewer issues may arise in the latter phase of the process. Still, not all activities can be planned, and not all situations can be predicted, these strategies are meant to provide a protocol in problem solving but not intended to be an answer book that can be looked up upon for all the answers. Being flexible and proactive, and adapting to local cultures, are a must for a participant to find a good solution.

Note that different categorizations of the strategies by hierarchies of effectiveness, levels of organizations or persons, or timeline are not exclusive to each other. These three frameworks on strategies of risk management and risk mitigation for international engineering education are presented as a thorough analysis of the strategies from different perspectives.

Campus Policies Regarding Risk Management or Risk Mitigation

Campuses have similar policies regarding studying abroad for short-term or long-term [8][9], federal organizations such as the IDEAS program provide suggestions on risk management, especially when expanding to new destinations [10], and third party providers recommend well-developed action plans for faculty and trip leaders [11]. A list of common policy items is provided below with reasoning, so that the faculty would not regard them as bureaucratic paperwork but a tool to ensure their trip's smooth running.

- Provide trip details with itinerary, hosts, lodging locations, and contact information of trip leaders. This information allows the campus to examine the background of the providers to ensure compliance.
- Describe trip leader's experience in leading a trip and their familiarity with the destinations. Not having any experience does not exclude a trip leader from establishing such an experience, but a new trip leader will need to do more preparation to ensure that the trip will run as expected.
- Depending on the size of the travel group, a secondary trip leader is usually expected.
- If there is anybody accompanying the trip leaders, especially a minor, the trip leaders need to demonstrate that the accompanying person will be taken care of, under all circumstances, without affecting the student activities. The budget and expenses need to be clean so that the class budget is only spent on students and trip leaders.
- Arrange travels such as flights, ground transportations, renting a car or not with liability complications. The group should travel together with occasional free time and/or free days, and all participants should be always counted for.
- Assess the safety and risk levels at the destinations based on reliable sources.
- Address any safety or risk concerns at the destinations with an emergency action plan.
- Research the medical requirements at the destinations, such as what vaccines are mandatory, and what prescriptions are legal or not at the destinations. Obtain doctor's prescription and find alternative medications when needed.
- Be transparent and realistic with the physical requirements of the students. Be inclusive and arrange activities that the whole class will enjoy and learn. If some participants find a certain portion of the activity challenging due to physical limitations, find alternatives for those students.
- Understand the travel health insurance coverage and get familiar with the doctor's network along the itinerary. Arrange translation if needed. In case of medical emergency, one trip leader will help the student in need, and the other trip leader will lead the preplanned class activity. Such cases should be reported to campus.
- In case of student behavioral issues, trip withdrawals, or trip dismissals, communication is key for the trip leaders to understand the reasons and for the students to understand the consequences. Such cases should be reported to campus.

- In case of mental health issues, communicate with the student and refer them to professionals. Such cases should be reported to campus.

Case Studies of Risk Management and Risk Mitigation

The strategies and policies for risk management and risk mitigation come down to actionable items. Below are the actionable items as a suggestion, as well as seven case studies on how emergencies are handled.

Here is the list of items that each traveler must carry:

- Contact card with the info of trip leader(s), campus global office, local hosts, embassy, local first responders, etc.
- Travel health insurance card.
- Passport that is valid for at least 6 months at time of entry, with visa, if needed.
- Electronic copy of all the info above on a campus approved server, in case of losing documents.
- A chatting app that is used most often in the host country (so that the students can get connected with local friends easily) and join the group chat for the travel group for instant contact.
- Smartphone with an eSim that works at the destinations or with an international data plan, saving google maps and google translate language pack offline. Charging cord, a battery bank, if desired, and a converter, if needed.
- Cash and credit cards.
- If personal medications are needed, check the host country's policy on what medications are allowed, get enough prescriptions that are allowed, and keep the doctor's prescription note, as well as any medical forms required by the host country.
- If needed, eyeglasses, contact lens with cleaning lotion, etc.
- If the trip leader(s) need to take a laptop, get a loaner from the campus.
- We require the students to carry a reusable notebook for daily journaling. Other instructors may choose other means of journaling.

Here is the list of items that are strongly recommended:

- The trip leader can set up a Google calendar of daily events in the local time zone to share with the class. The students can use the address of each event to learn to navigate. This calendar can be also shared with family members/friends, if desired.
- Students should decide a way and a time to communicate with family and friends. Such chats should be brief to allow students to immerse in the trip experience, although they can chat regularly. They need to consider the time difference to decide the meeting time.
- Always use buddy systems.
- Students should find their personal interests along the itinerary of the class to take advantage of their time there. They can find friends in the class to visit those personal interests together.
- Carry a foldable day pack with inner pockets for valuables. The bag can be worn in a way that the pockets are near the front side of the person to avoid theft.
- If the trip is not associated with a course before the trip, set up a series of meetings before the trip to educate the class on the discipline knowledge, cultures and history of the destinations, let the students do research on the specific destinations, and give them an orientation when the travel time gets close.
- Pack light with clothes, toiletries, etc. Each person should carry only one carry-on luggage and a personal bag. No checked bag on the way over, so that there is no need to wait for it at the rotary, and there is no risk of losing it. There may be stairs without an elevator during the trip, and

everyone needs to carry their luggage so packing light can help the group to travel swiftly. One can buy a bag at the last destination for souvenirs, which can be checked on the flight back home.

Below are seven case studies with scenario description, what strategies could be used, what action plan was executed, and what the follow-up or consequence was.

Case Study 1: A student could not remove his contact lens after wearing it for more than 24 hours.

This student normally wears glasses, but during travel, he wants to wear contact lens for convenience. The disposable contact lens should be worn no more than 24 hours, or it should be worn only during the day activities. He could not remove it at night before sleep, so he wanted to try again in the morning after sleep, and he did not tell the instructors until morning. In the morning, he still could not remove it. At that time, he told the instructors.

Considering each of the strategy hierarchies of risk controls in this case study:

- The situation has already happened and hence could not be eliminated. He did not have the option of not wearing contact lens at that moment anymore.
- A substitution of the contact lens by glasses would be a safe solution (the student did take glasses with him so he could wear glasses later), but this substitution could only be done after the issue was resolved.
- Given this issue, the student had to be isolated from the group to see a doctor to remove the contact lens, while the rest of the group went to their preplanned museum visit. There were two instructors leading the group. One instructor led the student to see the doctor, and the other instructor led the rest of the group to the museum. When that student's appointment was finished, they reunited with the group at the museum. In situations like this, it is critical to have two instructors lead the trip.
- As soon as the instructors got to know this issue, they searched for the doctors in the network of the travel health insurance and found one that accepted the same-day appointment. The appointment was in an hour when they made that appointment, and hence the student and the accompanying instructor took a taxi, instead of the subway that they normally use, to save some time to get to the doctor's clinic on time. This caused higher transportation costs, and the budget should have some buffer to absorb such incidentals.
- During the whole incident, the student and the instructors were calm because they had the travel health insurance mandated by the campus Global Office before the trip. Given this administrative requirement, they were able to find the clinic in a foreign country, and that clinic had ample experience treating foreigner patients and they accepted English as a language in use, without the need of a translator. This is a shared risk management with the insurance company.
- The student was cautious to have brought both glasses and contact lens so that when one option went wrong, the other option was still functional.

This case study demonstrated that nearly all the hierarchies of strategies were integrated to yield a good solution, as shown in Figure 2: The doctor was able to remove the contact lens quickly, and the student was able to rejoin the group to continue their activities promptly. If there were any missing link in this action plan with integrated risk management and risk mitigation, the solution would be much harder to find or more expensive than what had been done. For example, if there were no travel health insurance, it would be hard to find a clinic that specialized in what needed to be done, the clinic might not accept English as a working language, or the cost would be paid by the student in full. If the student had not brought a pair of glasses, he would fear that the same incident might happen again if he wore the same type of contact lens again, or he had to buy another pair of glasses, but he might not have brought the

prescription of the glasses. Reserving an eye exam at the last minute would be hard to do and take a lot of time when he could not join other class activities. On top of that, buying a new pair of glasses was not only expensive but also time-consuming, when the travel group might have gone to other cities. None of these challenging scenarios happened because all the possible risk management measures were implemented, so that the risk mitigation steps could be carried out efficiently.

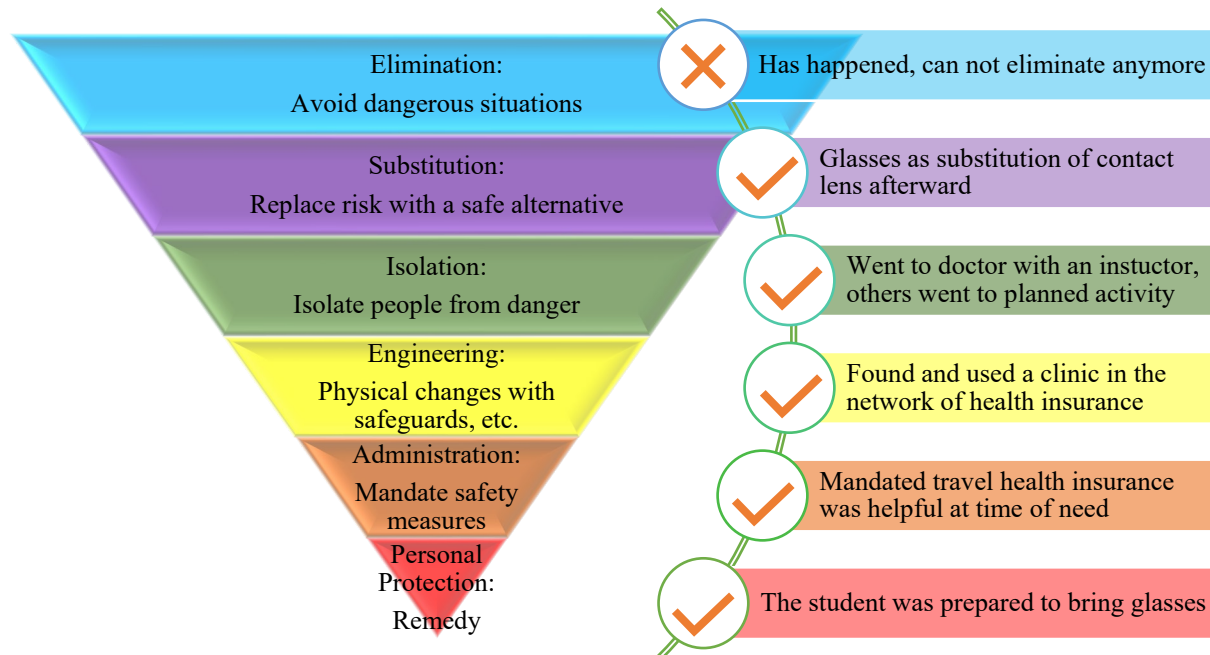


Figure 2. Matching Hierarchies of Risk Controls in Case Study 1

This case study is an educational case for future students that they should bring clothes, shoes, glasses, etc. that they normally wear and are known to be good, instead of bringing new items that they have not tried as the new items might not work as well.

In the rest of the case studies, the relevant hierarchies of the risk controls will be explained briefly, but it is a common expectation that all these strategies will be integrated to yield a good solution.

Case Study 2: A student had a low fever and could not join the class activity for a day.

During a trip two years after the pandemic, at a late night, a student messaged the instructors that he had a low fever. Since the pandemic was nearly ended for two years, he thought that it could be a cold instead of COVID. The instructors immediately checked the travel health insurance's in-network list of doctors to see which clinic could treat this. There were a couple of options, and the students decided to wait till morning to see what would be needed. In the morning, the student felt that his fever was lessened, but he still lacked energy and wanted to rest in bed more. He didn't want to go to the doctor's yet, but he kept that option open if he still didn't feel well in the afternoon. The instructors brought some fruits and a facemask to the student, and the student later wore that facemask to go to a store to get some over-the-counter medication. He took that medication and felt much better in the afternoon, so he never needed to see a doctor. He fully recovered for the next day's activities. The instructors shared the photos and videos from the activities that he missed and brought him up to speed on the missed course content.

In this case study, it was again demonstrated that all hierarchies of the strategies were needed for this health issue to be resolved quickly, as shown in Figure 3. Instructors were not medical professionals, and the treatment decisions were made by the student as an adult, but the instructors were ready to help.

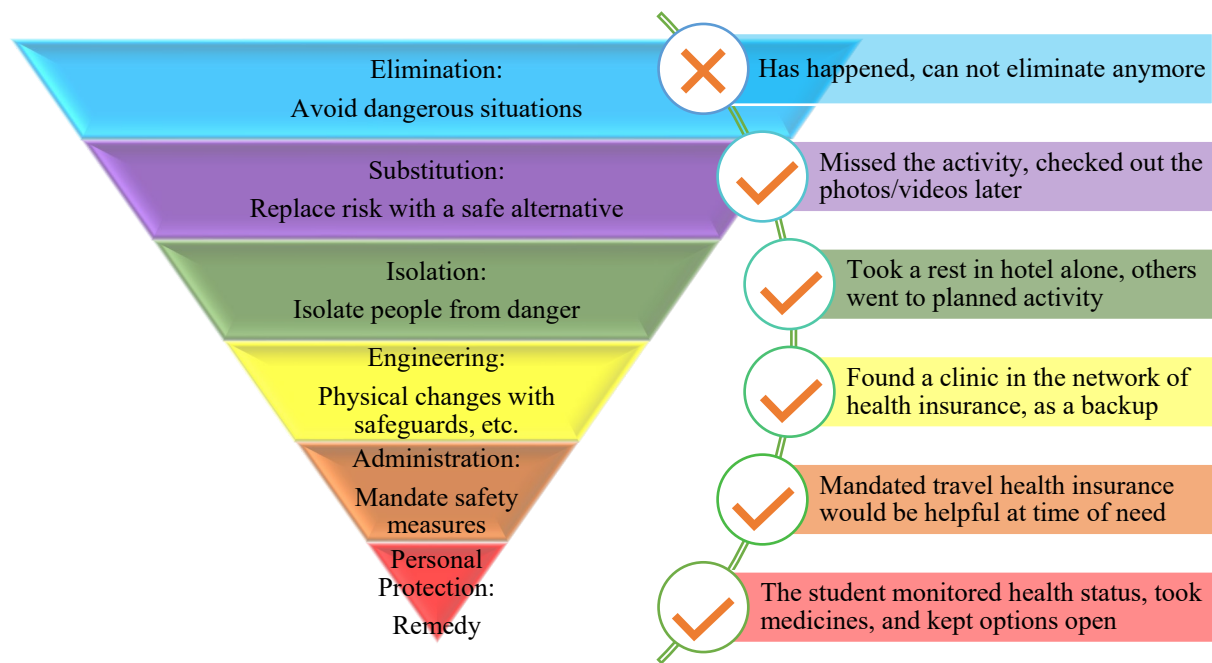


Figure 3. Matching Hierarchies of Risk Controls in Case Study 2

Case Study 3: A couple of students could not enter their dorm building after going out at night.

In a trip many years ago, a host arranged dorm rooms on their campus for our group. The instructors' dorms were in a separate building from the students' dorms but within a short walking distance. The students shared the few keys to their dorm rooms but not all students had a key. The students' dorm rooms were on the second floor of the building. Two students went out to take a walk around campus at night but when they came back to the dorm building, they found out that neither of them had a key, their phones were out of battery so that they couldn't reach other students. As the dorm rooms were on the second floor, even if they shouted, they couldn't capture any attention from the students already in the dorm room. The students were frustrated as they felt that the other students didn't care about their whereabouts, but the other students later said that they wouldn't know when these two students would come back and hence, they couldn't wait at the door of the first floor all the time. Eventually the students went to the instructors' dorm building and the building door was fortunately open so that the students could go up to the room door of the instructors. The instructors heard their voice and went out to check on them. The instructors used the group chat to inform the students in their dorm room that the two students would need them to open the door, and then escorted the two students back to their dorm room. During this escort walk and on the next day, the instructors talked with all the students to let them understand each other's perspective and they forgave each other. The group also analyzed the pragmatic reasons that there were not enough keys, and the phone batteries should be charged to stay safe.

Most of our lodging options have been hotels, and since this incident, we have been limiting our lodging options to hotels exclusively, which eliminates this risk altogether, as shown in Figure 4.

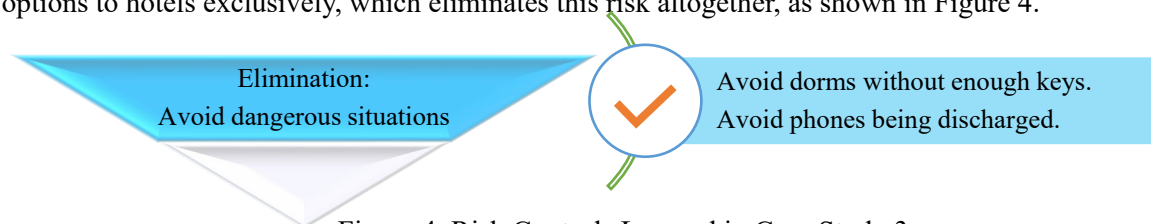


Figure 4. Risk Controls Learned in Case Study 3

Case Study 4: A student was late to meet in the lobby in the morning so that the group could not depart on time on multiple occasions.

We usually announce our exact meeting time for next morning in the group chat at the night before. Some students might be late in the morning, and we reiterated the expectation for them to be punctual several times. We often sent them reminders in the group chat before the meeting time, too. Most students could become punctual after such measures. A student was consistently late, though, and hence the whole group could not depart on time, and we had to postpone our later arrangements. This caused resentment in the group, too, as all other students had to wait for this student. On one day, the tardiness happened again, and the instructors told the student sternly that if he were late again, he would be dismissed from the trip without any refund. He made an apology to the group and changed his behavior in the later days. Expectations should be made clear no matter if it was set amicably or sternly. The relevant strategies used in this case study 4, as well as in later case studies 5-7, are presented in Figure 5.

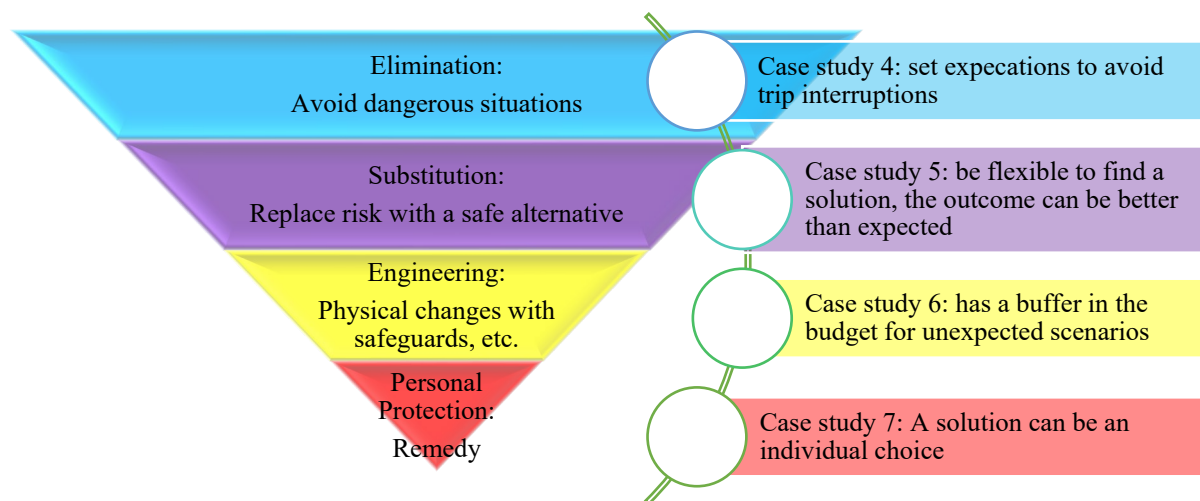


Figure 5. Relevant Hierarchies of Risk Controls in Case Studies 4-7

Case Study 5: A student lost his reusable notebook.

Before the trip, we provided a label printer to the students for them to print a name sticker to put on their reusable notebooks. This notebook is required on the trip for their daily journaling. One day a student found that he lost the notebook and the last time he used it was on the train to get to the city we stayed in. We felt fortunate that the content on the notebooks had been uploaded to online servers so that the content was not lost much. We then talked about options to realize that the worst-case scenario was that this student needed to buy a regular paper notebook and upload the scans manually, which was not too bad, either. Then we went to talk with the train station's lost and found department, and they had this notebook in store. We were grateful that the local citizens were kind to hand in the lost items. Throughout this process, the students and the instructors were not blaming anyone or any situation but sought solutions with a positive and flexible mindset. The outcome turned out positive, too. Even if the outcome were not positive, the student would have found an acceptable solution.

Case Study 6: The class got on the train that was heading towards the correct destination but was not covered by the pass that we had paid for.

When we visited Japan, we bought the JR passes, which cover nearly all the JR trains, JR busses, and some ferries, but the JR passes do not cover certain highest-speed bullet trains. In one morning, we intended to head to a city, and we were in a hurry, so we got on the first train we saw on the platform that

showed the correct destination. The train quickly departed, and a ticket inspector started to check every passenger's tickets. That's when we realized that this train was not covered by our JR passes. Luckily that ride was a short one, and the extra fares did not impact our budget significantly.

Since this instance, we became more careful to read the train names and numbers, check our intended itinerary on Google maps to match the info, and make sure that the whole group would get on the same train (if not, the subgroups should be on similar trains). Our budget should have a buffer for such incidents, and events like this were learning opportunities for the whole group.

Case Study 7: A student arrived in the airport one day earlier than the rest of the group.

We typically ask the students to buy their own flights to depart from their home airport instead of having to leave from campus together. By doing so, the students can add a personal trip after the class ends, and they could use mileage points in the booking. We do take a meeting period to talk about how to book a flight, around what time we should all arrive in the first city in our itinerary, and naturally people will be on several of the same last legs of the flights to travel in groups. Then we each upload our flight information to a shared spreadsheet so that we have a record on who will be on which flight. This system has worked well and should ensure that the whole group gets to the first city around the same time, but human error happened one year that a student meant to travel together with another student. During the meeting, both students booked the same flight. Most airlines allow passengers to cancel their booking for free within 24 hours, and the second student changed his flight during that window, so the first student wanted to change his flight to match the second student's flight again. In so doing, however, he missed the date to be one day ahead. When his flight info was added to the spreadsheet, the date difference was overlooked as a typo. As a result, this student had to take the flight to arrive in the airport one day ahead of us. As soon as the instructors got to know this when this student landed in the first city, the instructors offered to book a hotel for the student, but he didn't want to venture out of the airport as it was his first trip abroad. His phone had trouble connecting to the airport Wi-Fi, so our contact was on and off. Eventually he stayed in the airport for one extra day, until we met up together. Despite physical discomfort and some mental anxiety, this student chose a solution that he was most comfortable with. He appreciated our offer of the extra hotel stay, even if he didn't take up on that offer. Again, this case was an educational opportunity, and we told all the future students that each step of our protocol was meant to safeguard our flight booking, but human errors could get in the way. Either way we could find solutions, but it works better if we follow the protocol carefully.

Summary

This paper has thoroughly examined the risk factors in planning and leading an international engineering education trip. This paper focused on the risk factors in faculty-led trips, because the faculty-led trips can be more diverse than the semester-long or year-long studying abroad programs as those long-term programs are typically conducted on a single campus with fewer variations in trip planning, although there is no faculty from the home institution to facilitate the students. Still, the risk management and risk mitigation strategies presented in this paper can be applied to semester-long or year-long studying abroad programs, too.

Besides the risk factors, this paper proposed three frameworks to categorize the risk management and risk mitigation strategies. The first framework is the hierarchy of risk control in the shape of an inverted pyramid. A measure should be chosen based on effectiveness and the situation but not which one is easy and fast to implement. Oftentimes these hierarchies are implemented in an integrated way to support the common goal of reducing the risk and finding a solution in all scenarios. The second framework is based on the levels of organizations or persons. The third framework is based on the timeline to be done during

the planning, during the recruitment, or during the trip. These frameworks are not exclusive from each other but to provide different perspectives.

Next, the common policies across campuses, organizations, and third party provides on risk management and risk mitigation were presented. These policies reflect the strategies, and they are the administrative control measures in the inverted pyramid diagram.

Lastly, actionable items that reflect the strategies and policies are presented as a suggestion, together with seven case studies. These best practices and case studies are based in the author's personal experience, which demonstrate how the strategies guide the action plans to reach solutions.

In the future, the list of risk factors and the hierarchies of risk control will be examined using a bigger dataset from more trips. Their general applicability to semester-long or year-long studying abroad programs will be studied, too.

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