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Risk Culture as a Method of Risk Mitigation for the Whitewater Industry .

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Abstract

This paper is a literature review and case study exploration of risk management at the organizational level in the outdoor whitewater recreation industry. The goal of the study is to identify any weaknesses or vulnerabilities in the culture of contemporary risk management, and to make recommendations to address these weaknesses.

The case involves a situation in which I was personally involved, with an outcome that was tragic. In the light of what I have learned from this project I believe that a stronger risk culture would have resulted in a very different outcome. The distinction between risk culture and safety protocols will be addressed extensively in a discussion of risk clockspeed. One conclusion of this study is that effective risk management depends upon creating a risk culture that relies upon situation analysis in addition to developing stringent sets of safety protocols. The situation described in this paper involves a scenario where neither a risk culture nor adequate safety protocols existed, even though resources to solve problems were readily available.

The case involves two operations of the same company, a whitewater operation and a zipline operation. The literature provides conceptual tools and a larger context. I provide relevant information based on my direct involvement in the situation. The analysis and discussion focuses on an accident involving the shared resources of both operations. I will conclude by addressing how creating a risk culture and safety protocols can lead to a greater awareness that will help to prevent similar situations, and avoid similar outcomes, in the future.

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Introduction

This study was undertaken in response to the combination of my experience as a business student and an outdoor industry employee. While working in that industry I was involved in a tragic accident. At the time I was working as an employee of a company that operated a challenge course and rafting company. After taking the business courses I kept thinking back on my experience and what circumstances made that event possible. I spend large amounts of time guiding people and helping them explore challenges safely. Without guides the activities are not nearly as safe for these people to participate in. This leads to a certain amount of thought and energy, which is prioritized in safety. This paper will explore this event as a case study, the relevant safety literature, and my own thoughts and recommendations.

Purpose

The purpose of this research is to gain insight into the circumstances surrounding the event. Generally when an accident occurs in the outdoor industry the details are investigated to determine improvements that could be made to safety. This paper explores and considers potential solutions based on my experiences and the literature. These opinions and experiences are from an eyewitness perspective that comes from my involvement with the event.

Svedung and Rasmussen have suggested, "It is … becoming increasingly difficult to explain accident causation by (retrospective) analysis of local factors within a work system. Safety and risk management increasingly become sociotechnical system problems (rather than

the study of accidents themselves) (Knox 2002). This is where risk culture will come into play. Risk management is moving towards a method where mitigation comes from training the people in risk management more so than safety protocols. On that note, these are the questions the paper will seek to address.

Questions:

Main: Learning from Loss.

-What solutions are there to improve the safety of Company X based on my experience?

-Can risk culture and clockspeed improve current decision making models in the outdoor industry with regards to (accident prevention/ risk mitigation)?

Sub:

-What is the difference between risk culture, risk clockspeed, and safety protocols?

-What is risk and its context in the outdoor industry?

-How is decision making affected in the outdoor industry?

-Do new branches of an organization benefit more from risk culture than from newly developed safety protocol?

Methods

The Event

The event in question provides the data for this case, and involves a company we will call Company X. During the time this event occurred I was an employee of this company. Company X is a company that had started as a rafting company but had expanded into the resort and challenge course industries. This case looks at an accident (also referred to as the "event") that occurred during the introduction of the challenge course segment of the company. I was involved in this accident and will be giving my perspective of the surrounding circumstances, and analysis, and an overview.

The accident occurred during working hours with a cable car on site, 3 employees, and a manager. During operation of this cable car one of the employees lost his life by drowning while crossing the river. I was one of the employees on the cable car when my coworker fell into the river. The accident was on the Colorado River and involved employees from both the rafting and challenge course segment of Company X. These employees were extensively trained in safety protocols for their respective companies. The study will examine the protocols and circumstances surrounding this event.

Literature

I gathered information for this study through various sources. I am an eyewitness source from the event itself and corresponded with other members of the company during and after the event. I consulted current literature dealing with risk mitigation and decision making. I also looked at literature about the outdoor industry, their standards, and government agencies they

report to. References to the literature will be made throughout the following discussion of the case.

The Case

The Event

The event that this case centers on occurred on the Colorado River while I was working for Company X. I was an employee of the rafting segment of the business and was on the final day of my training for the challenge course / zipline segment. The zipline course was situated on both sides of the river with lines for crossing. Underneath this course was an old cable car that had been used by the previous owner of the land to cross back and forth. On this day myself and 2 other employees were working on the zipline course and there was some equipment that was needed on the other side of the course. Our manager had two of my coworkers and himself set to use the cable car to take the equipment to the other side. I asked to join them and take his place, because I had always wanted to ride the car. **Sidenote**: As a rafting employee we had always been told that the cable car was not to be used and that it was dangerous. He consented and we got ready to use the cable car.

This is when the scenario changed from a routine workday into something tragic. As we launched the cable car from the resort side of the river, we began to hit the water. This was due to something I will discuss further. The cable car began to sink and stretch the cable like a spring until it catapulted back upstream to repeat the process. Items not tied down that were to be used on the other side began falling into the river. As the process continued other coworkers and our manager began trying to help us by throwing a climbing rope. This proved to be too

heavy to throw far enough and they searched for other methods. **Sidenote:** There were no throw ropes designed for this purpose on site, though the rafting company had many spares. On the car we were all wearing our climbing and challenge course gear along with our backpacks full of gear for the course. We were not wearing **life jackets** so swimming was out of the question. If we fell off the car we would sink straight down.

In the process of catapulting up and down the river one of us did fall. It was in this moment that I decided that we, myself and my remaining coworker, could not wait for the rescuers on shore. I clipped my safety tether to the cable, which we had not done previously because of fear of the cable car breaking and us being attached as it sank, and began to climb the wire back to shore. When I was close enough, the zipline instructor tossed me the climbing rope and I went back to the cable car to secure it. The team on shore then pulled the cable car, my coworker, and myself to shore. The search then began for the coworker who fell into the river.

Sidenote: There was a raft on the opposite shore in case someone needed to be brought back across for emergencies or some other scenario. It was locked to a tree and did not have lifejackets on board. The oars were also not on site. There will be more on this later in the solutions section.

Post Event

The search process followed the rafting accident protocol set forth by Colorado River Outfitters Association CROA. Many of the staff had been trained by the rafting company so they quickly mobilized to begin the search process. The rafting segment of the company, which is on the same site, also mobilized for the search. In the end they did not find the drowned man.

Sidenote: this process went smoothly due to a search and rescue plan set out by CROA. The remainder of the search and rescue/ retrieval process also followed this plan.

There are a few important facts that made this day different from the routine. The day this occurred was during the beginning of summer and was a record year for water. The river rises to high levels during the beginning of summer due to snow melt. This is normal and the rafting company counts on this for business. The level of the river was high but not higher than a normal runoff on this day. Levels such as this occur every summer.

Why the Car Was Used

The cable car was never used by Company X until the challenge course began construction. The company always told guides that the cable car was off limits. There was a documented history with the rafting company that the car's previous owner had fallen into the river in a similar scenario and been rescued by passing rafts. The reason the car was being used by the challenge course was to transmit gear across the river that was too heavy for the ziplines. As one of the guides I knew that we were not supposed to use the car. I saw it being prepared for use and asked to join because this stipulation had obviously changed. I did not question this change since I wanted to use the car and did not feel comfortable telling the new manager we were not allowed to use the car. Being a guide I also knew what the water levels were since I checked the gauges everyday for work. Somehow these warnings from my training as a raft guide do not compute while working near the challenge course. I hope to address this issue below.

Circumstances Creating Event

The course construction was started during winter when the river almost dries up and the bed freezes. This means that heavy machinery can install items and people can pretty much walk across the river unassisted. The car was used then for convenience and ease of transporting goods. The challenge course manager, new to the company, became comfortable using this piece of equipment under 'normal' circumstances. There was also a change in management within the rafting company, the challenge course manager had previous rafting experience so was taking the dual role of challenge course manager and rafting manager while a transition occurred. This led to a communication gap about the cable car.

Sidenote: the employees that work on the challenge course often work on the rafting company and vice versa. They have training from both companies and follow their protocols closely. There is also a strong sense of safety in the mind of the company. The results will seek to address the gap between the two organizations.

As the water can quickly rise several feet in a night and day the car was thought to be safe and usable. Normal routines could not suggest otherwise since the company was new and had not used the equipment in these conditions. There were no protocols for this type of situation. The car had been off limits previously so the previous protocol was done away with. This leads to the case study and research materials. There are a few questions I have been thinking about since this case and will answer them using this experience as a basis. I have been considering how much this industry is involved with risk. The industry centers on offering risk in a more controlled environment to its clients. I thought this might lead to a better

understanding of risk management. The questions explore risk management within the industry and a method of managing risk that I think the industry could greatly benefit from. The remainder of this case section will report other relevant information under questions as headings.

Main: Learning from Loss.

-Based on my experience can risk culture and clockspeed improve current decision making models in the outdoor industry with regards to (accident prevention/ risk mitigation)?

Sub:

-What is the difference between risk culture, risk clockspeed, and safety protocols?

Risk Culture: "The norms of behavior for individuals and groups within an organization that determine the collective ability to identify and understand, openly discuss and act on the organization's current and future risks" (Levy 2009)

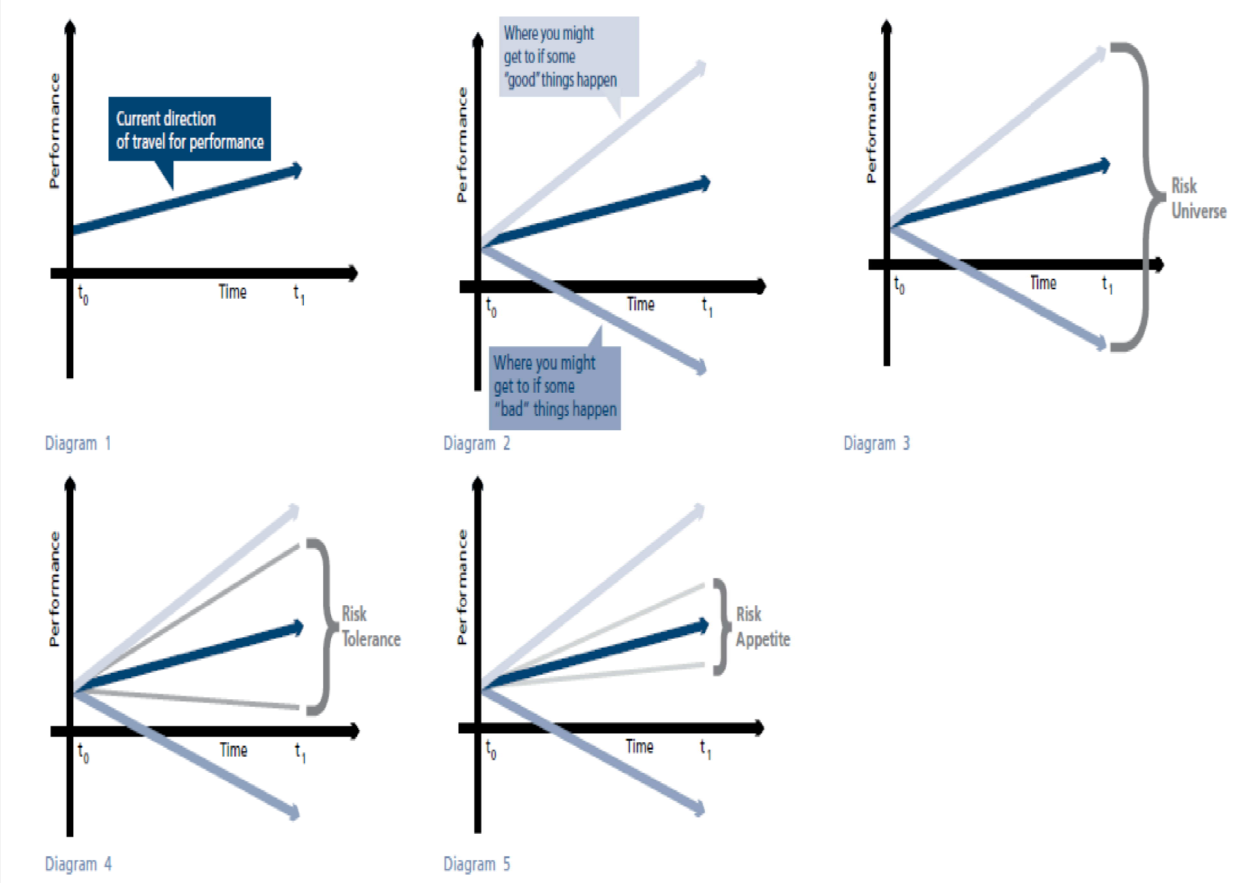
In a strong risk culture, these norms or attributes of an organization nurture and sustain a common set of standards whose rigor and disciplines define its approaches to risk-taking. This sense of common purpose and understanding was described by author Edgar Schein as the "deeper level of basic assumptions and beliefs that are shared by members of an organization, that operate unconsciously, and that define in a basic 'taken for granted' fashion an organization's view of itself and its environment." It is what McKinsey's late managing partner Marvin Bower meant by his simple phrase, "the way we do things around here." (Levy 2009)

Risk Appetite: Amount and type of risk that an organization is willing to pursue or retain (ISO 31000/ Guide 73 2002)

Risk Tolerance: The boundaries of risk taking outside of which the organization is not prepared to venture in the pursuit of its long term objectives (Anderson 2011)

Risk Universe: The full range of risks which could impact, either positively or negatively, on the ability of the organization to achieve its long term objectives. (Anderson 2011)

It is important when trying to implement a risk culture that risk is clearly defined. This risk will change depending on the organization and situation. Staff and managers need a way to determine what kind of risks are acceptable to the organization and thus should learn about the risk appetite. Below is a model of what risk appetite, tolerance, and universe look like when together. This model is important to help manage risk. "The ability to determine, manage and monitor a risk appetite will depend to a large extent on the maturity of risk culture within the organization (Anderson 19)." When coupled with a strong risk culture this can be an effective tool for an organization.



(Anderson 2011)

The job of risk culture is to help an organization stay within the parameters set by this model. Owners and management have to help maintain this culture so that when decisions become quicker the staff and management know what the company needs and can make decisions that stay within the organization risk appetite.

Risk Management and Risk Clockspeed

A new method for looking at risk management coupled with risk culture is emerging. Smith has been proposing a theory called risk clockspeed. He discusses the various reasons why humans can determine a fast or slow clockspeed decision. He discusses how culture effects the decision making process of individuals and its effect on risk management. This ideology is a

perfect framework for looking at the case study. It is interesting to look through the lens of clockspeed to see risk management. Smith (2010) says that in order for this organizations to make the best fast clockspeed decisions, add culture that supports clockspeed.

Risk Clockspeed: The rate at which the information necessary to understand and manage a risk becomes available

–Two main classes:

-Slow Clockspeed Risks are those where a sufficient amount of thinking time is available

-Fast Clockspeed Risks are at or close to real time

-The Risk Clockspeed Window is the range between how well organizations can deal with Fast Clockspeed Risks and Slow Clockspeed Risks and still function effectively (Smith)

-People make decisions:

-Rationally (Cognitively)

-Associatively (Intuitively)

–Using Heuristics (Rules of thumb that reduce the amount of thinking we have to do)

–That are always biased

The time we have to think about the information, along with the importance of the decision and the familiarity with the situation has a big influence on the balance between Cognitive or Associative modes.

Our first reaction to every risk, when freshly uncovered, is Associative. We 'feel' before we rationalize. (Slovic 2004) So if time is lacking, this may be our only reaction.

Thought Processes:

Associative (Experiential, Intuitive)

–Based on patterns and 'affect' tags. Images with labels stored in the brain

–Fast acting

–Based on pleasure and pain

–Influenced by readily recalled past events

–Highly committed actions

–Do not 'know' how you arrived at the decision

Rational (Analytical)

–Slow and mentally intensive compared to Associative

–Characterized by conscious and often repeated appraisal of 'the facts'

–Always about future action (responses to Slow Clockspeed Risks)

–Often shared (Social construction of worldviews)

–Can explain how you arrived at the decision

-People can slip from one mode to the other so easily, it goes unnoticed (Smith 2010)

-What is risk and its context in the outdoor industry?

Risk as defined by ISO Guide 73: effect of uncertainty on objectives

Note 1 – An effect is a deviation from the expected – positive and/or negative.

Note 2 – Objectives can have different aspects such as financial, health and safety, and environmental goals and can apply at different levels such as strategic, organization-wide, project, product, and process.

Note 3 – Risk is often characterized by reference to potential events, consequences, or a combination of these and how they can affect the achievement of objectives (ISO Guide 73 2002).

Risk Management: Coordinated activities to direct and control an organization with regard to risk (ISO Guide 73 2002).

In order to effectively instill a risk culture into an outdoor industry there are a few factors that must be addressed. The nature of risk, the dynamics of accidents model, the in-field decision making process, and the policies used to keep risk in check are important factors. The nature of risk is inherent. Risk is in every activity no matter how small or trivial it may be. The key to understanding the nature of risk is to look at +R and –R.

Risk yields two outcomes, positive and negative. Negative potential outcomes are labeled –R and positive outcomes with +R. Both R- and R+ have to exist in activity. There can be no R+ without R- and vice versa. For example, if a car and driver increase speed they incur higher potential risk. The risk for getting a ticket increases (R- or loss) and the potential for

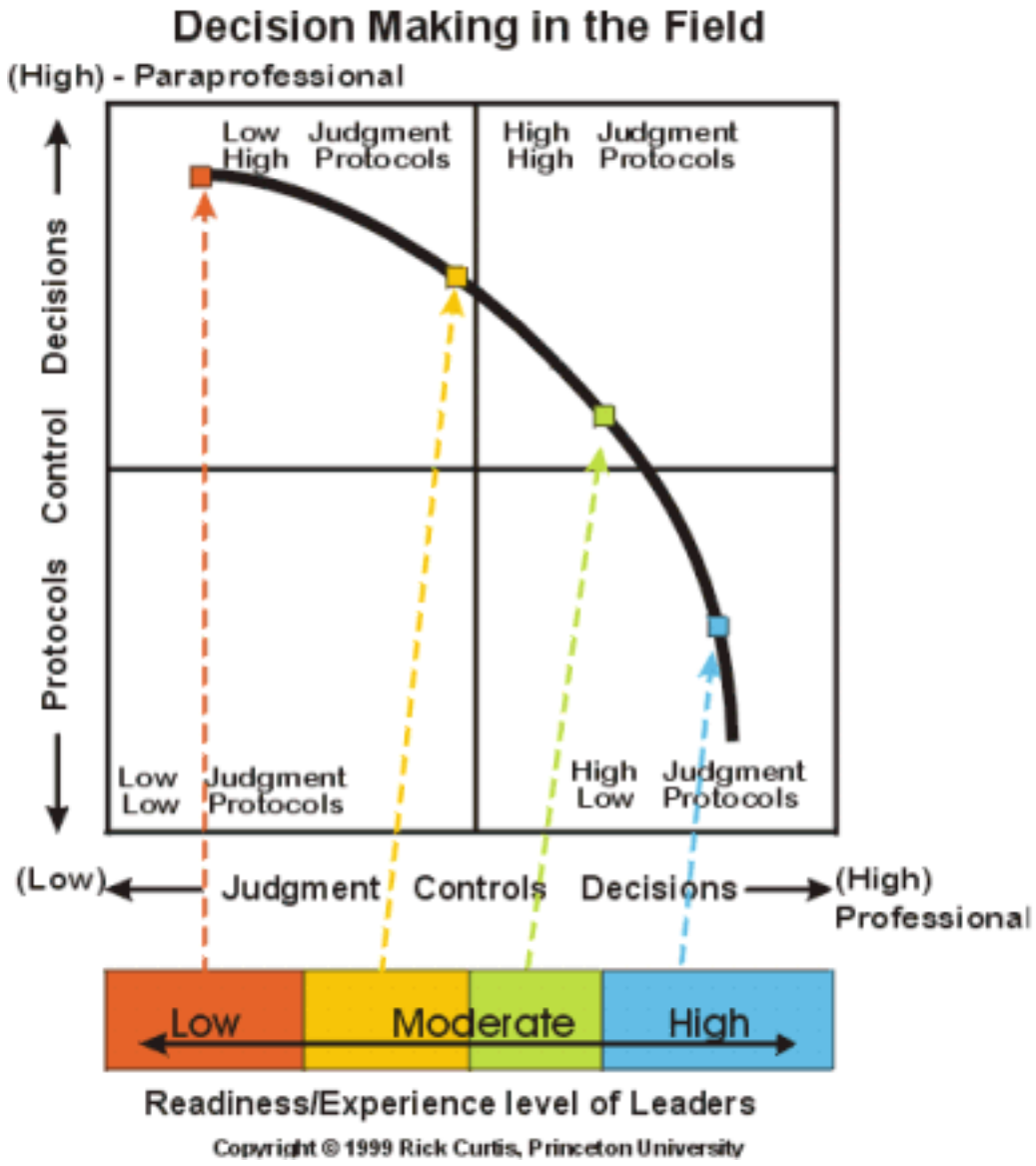
arriving early or on time increases (R+ or gain). These principals help mold the challenge and recreation industry (Curtis Risk 2012).

The outdoor industry is centered around risk. They hope to give their customers better odds at positive risk while offsetting the negative risk. They hope to develop their clients through challenge. In order to do this they must understand risk and its inherencies among all activities. The guides who work in this industry thrive on risk and their ability and opportunity to share it with others. As such they will be the focus of the case. We will look at how they can better understand risk in an industry that is full of potentials.

-How is decision making affected in the outdoor industry?

Decision Making in the Field

This model illustrates how decision making in the industry is made while in the field. It relates the ratios between safety protocol and experience levels. Decision making in the Outdoor Industry is affected by protocols, experience, and hazards. Judgment is the end result of the process. The graph below shows a curve for how outdoor professionals arrive to their judgment decisions. Professionals in different sectors react to scenarios differently depending on where their judgment comes from. The benefits over one sector or the other will be discussed later.



Dynamics of Accidents Model

The dynamics of accidents model also applies here. It is in the appendix for further reading. When dealing with risk there is the possibility for loss. Many times this leads to what are known as accidents. The dynamics of accident model is a good way to envision accidents or the potential thereof when thinking about managing risk. Basically it states that accidents are a product of environmental hazards and human factor hazards. The multiplication of these factors per given event will yield the accident potential. The dynamic of accidents model helps visualize

the changes that can quickly occur when practicing activities out doors. Below is a picture of the model and some examples of factors that could come into play in an outdoor setting (In Appendix).

(Curtis Outdoor 2012)

-Do new branches of an organization benefit more from risk culture than from newly developed safety protocol?

As experience and risk culture gain ground staff and management can move to the right side of the curve and follow less protocol and make more judgment based decisions. When an activity is new or staff has just exited training they will lean more on policy and less on judgment for their decisions. The key to safety is judgment, judgment on whether to rely on experience or to rely on policy. It is important to keep awareness in the business culture especially when expanding into a new field as the above example. Experience and safety protocol mean nothing if the staff and management are not aware of the surrounding situations and how they are changing. As a new organization forms they will have less protocol. If this organization has a

strong risk culture as they move into the new field they will have a higher decision making curve based on how ready they are to react to decision making scenarios.

Having protocol is a good way to mitigate risk. These protocols however, will fail when a scenario like our case arises. The dynamic of accidents model and the risk culture we have talked about will lend help to these situations. These tools give staff and participants :

- A technique for evaluating risk potential in the field
- A tool for analyzing how accident potential can be reduced
- A decision making tool
- A rationale for particular things taught and particular rules and policies
- A rationale for why you make particular decisions

If the nature of risk and accidents are brought to the forefront of attention during training risk will be reduced. Learning a framework for how to identify risk, assess it, and make decisions is key to reducing accident potential. It also helps employees because it is easier for management to explain the reason for conducting activities with a certain method.

In the case above we can see that it occurred in an area that is not part of daily routines. This means that it could not fall into the normal protocols. I am willing to say that there was information available that may have changed the outcomes of this event. This information was not made part of protocol or shared cross organizationally because of a lack of risk communication. This is my opinion based on my experience with this company. I believe that had there been a stronger risk culture where employees and management consulted more about risk this may have changed. I will talk more about this in the next section.

Discussion

-Based on my experience can risk culture and clockspeed improve current decision making models in the outdoor industry with regards to (accident prevention/ risk mitigation)?

Based on my experience I believe that risk Culture and Clockspeed can improve current decision making models in the outdoor industry. I also believe that these improved decision making skills will reduce accidents and mitigate risk. Improving the way employees and management look at scenarios will help reduce accidents. It will also help to analyze the situation through risk culture and risk clockspeed training instead of following rules and protocols to the letter. The lines of communication would also be affected by improved risk culture and clockspeed training. Much of the problem with this case could have been mitigated if I had communicated my previous training from previous years about the cable car. Improved communication between managers and employees about risk is a great way to mitigate risk.

It is also important to be aware of risk. Without being aware that a risk exists one cannot mitigate it. Risk culture helps an organization become aware of risk. Know about clockspeed will also increase risk awareness during decision making scenarios. I believe that risk culture and clockspeed will increase risk awareness and therefore reduce accidents and mitigate risk.

Risk is Inherent Safety is Not

The case above was hard to deal with. Company X has a strong reputation for safety and put emphasis on training all employees and staff correctly. Even so, in an industry with inherent risk, such as the outdoor recreation industry, accidents will happen. It is up to owners and managers to help mitigate this risk. Instituting a risk culture is a viable way to do this.

The focus of a company can be on safety. The question is whether that focus is effective. Company X often spoke in meetings about their safety record. It is slightly different to speak about safety though than to practice it. In order for a company to maximize safety everyone must become involved. When communication opens, between management and staff about potential risks, the possibility to reduce those risks increases. In order for this to happen there must be pathways for this communication. Risk Culture provides the tools needed.

Post Event Communication

In order for future events to be mitigated communication is key. This case is largely to blame on a lack of information transfer I believe. I did not voice my thoughts about the cable from my previous training. The water levels were not talked about as potential hazards for operation of the car. These are key issues in this case. To pull from a different instance with company X I will discuss another communication story (one after our case). I once fell from a raft in a normal routine unloading procedure during work. There were supposed to be spotters below in case this happened. They were there but did not catch me.

After work that day the whole company, employees, management, and the owner, got together and we discussed this event as a training exercise. I was fine except for some scrapes and bruises. We talked about why it occurred and what we could do and already knew how to prevent further instances. My point is that this was a post accident discussion. The key to excellent risk management is this type of communication before an event occurs. Building a risk culture and training clockspeed is an excellent way to help open that channel of communication. If a meeting had been held prior to the accident to discuss any potential risks or accidents that

may arise during operations the safety standards may have been fresh and I would have been caught by my spotters. The point is risk mitigation is ideally a preventative measure.

Risk Culture and Changing Clockspeeds

The benefits of Risk Culture become more evident as the Clockspeed of decisions change. When decisions are quick they become more intuitive. This type of decision will be based on the experiences and protocols ingrained in an employee. If there is a risk culture then the time needed to process those types of decisions shortens. This leads to 'slower' Clockspeed decisions. Like the decision making model above there is a curve to slow and fast clockspeed decisions. The faster the decision, the more the maker will rely on protocol or experience than rational thought.

If a company deals in fast clockspeed decisions, like Company X, they need to train fast clockspeed decisions. Company X trains guides who make split second decisions on the river. Choosing to go left or right at specific rock could be the difference between a safe run on a rapid or a flipped raft. This type of processing should transfer back to the company from the river. To make a successful risk culture the company must discuss this intention. As a guide there I was used to making these decisions on the river. I was also used to being on the water and around the river. This may have prompted my thought process when I left out the information about the cable car. I did not perceive the risk correctly and as such did not say anything. I left my judgment based on protocol unsaid because those protocols had changed. Management also thought it was an ok decision. Again this reflects on communication and the way the company analyzed risk in this scenario.

To quote the dynamic accident model, there were many environmental factors as well as human factors affecting this event. This led to an increased accident potential that resulted in an accident. The key to managing further risk for this company and others is to look for those factors. Even giving employees and management the tool of this model will increase risk awareness. As in this case things may change if certain factors are known or made aware.

Success is analyzing information not being in possession

Looking at the case study, there was information available on these factors. The history of the cable car for serious accidents was known to the rafting segment of the company. Proper methods for rescue or precautions were known to the rafting company. If we had even been wearing life jackets the case would have been completely different. The water levels for that given day were normal for that time of year and known to me, the manager, and several others within the rafting company. Risk culture is about the processing of this information. It is the communication pathway that could have shared this information that is important. In a company that focuses on safety it is not always a given that they have open communication about risk.

It is my hope that this paper will provide an example of a company who held high safety standards in a high risk industry. I also wish to show that they can improve by using risk culture and discussion of risk clockspeed and its effects on our decisions. Company X has done a good job of improving the area where this accident occurred. They have begun by reinstating the policy that the cable car is off limits. They have also placed a raft on the opposite side of the river, unlocked this time, with oars and spare life jackets. There are now specially designed throw ropes in the event that someone falls into the river. This is an example of how some scenarios are never thought or talked about because they are rare. The river is only this high

once or twice a year, but at those times the river is very powerful. The company has had other meetings now to discuss safety, and they are opening new lines of communication about risk.

Recommendation

I would recommend future research into this topic. I have only written about one case so I cannot make any final general statements. I do believe that instituting a risk culture and talking about clockspeed would have helped prevent this accident. I also believe that the company will rebuild its safety record if it does so. If more concrete data is desired I would recommend studying companies who are building risk cultures. It is an up and coming thought process in risk management and several companies are involved. I am sure they would be willing to share numbers and discuss the data about the process. I will say this about risk management, it is hard to measure the number of accidents stopped by risk mitigation and often it is an expense that is hard to justify. It is hard to justify until such an accident occurs. Like my discussion about the rafting fall and Company X's post meeting, companies do not have to wait for an accident to begin opening communication and building risk awareness.

In order to build risk culture and risk awareness, communication is key. Company X should institute weekly safety/risk meetings to discuss the week's events future and past. The safety meetings they had after an accident were great. These just now need to take place before accidents occur to move into the preventative stage.

Safety of the area in question should be improved. The company has already closed the cable car and made staff cross train in the rafting and zip line organizations. Company X has also placed new safety equipment in the area; they now just need to train staff in the use of these items. It would also be helpful to discuss scenarios where these tools could be used. The

company can review safety protocol with the staff to determine if new procedures need to be introduced. They can also discuss how having no protocol for the cable car affected the decision-making model for this scenario.

Hindson (2010) states this about fostering risk culture:

-Leadership behaviors support and encourage appropriate risk taking

-Executive sponsorship is clear

-Risk Awareness is encouraged

-People learn from poorly managed risks without 'shooting' the bringer of bad news

-Appetite and boudaries of risk taking are discussed and agreed

-Risk is visible in key decision making

-Skilled risk taking is rewarded and valued (Hindson)

The company also should shift its focus on safety towards a stronger position on situational awareness. As Knox has said, risk management is moving away from looking at specific accidents or safety protocols and more into investigating how organizations analyze and react to events. As the business world increases in complexity the company will need to address this with increased culture and risk awareness. To change the culture the leader must set the tone at the top. The owner and managers must meet to discuss the benefits of strong risk awareness and how best to explain it to employees. This is where communication is key. The company has to be direct when explaining this theory and their wish to use it. Finally it is key that when communication of risk does occur it is encouraged so that the process can continue. The risk

awareness of staff and the culture of the organization feed off each other. Changing culture takes time and as such small steps must be taken. If a company chooses to change its culture expect obstacles and unexpected events. This is normal and can even help in the growth process.

Appendix A

Works Cited

Curtis, Rick. "Outdoor Safety Management." *Outdoor Ed - Articles*. Outdoor Ed, n.d. Web. 02 July 2012. <http://www.outdoored.com/Articles/Article.aspx?ArticleID=121>.

Curtis, Rick. "The Risk Assessment & Safety Management System." *Outdoor Ed - Articles*. Outdoor Ed, n.d. Web. 02 July 2012. <http://www.outdoored.com/Articles/Article.aspx?ArticleID=151>.

Hindson, A. (2010, December). Developing a Risk Culture. Risk Management Professional.

ISO. (2002). Guide 73 Risk Management Vocabulary.

ISO. (2009). ISO 31000 Risk Management Principles and Guidelines.

Knox, G E. "Risk management or safety first?." *BMJ Quality and Safety*. Qual Saf Health Care, 11 2002. Web. 2 Jul 2012. <http://qualitysafety.bmj.com/content/11/2/116.full

Levy, Cindy, Eric Lamarre, and James Twining. "Taking control of organizational risk culture." *McKinsey and Company*. (2009): n. page. Print.

Anderson, Richard. "Risk Appetite & Tolerance Guidance Paper." *Risk_appetite*. Institute of Risk Management, 2011. Web. 02 July 2012. <http://theirm.org/publications/risk_appetite.html>.

Slovic, P., *et al.*, 2004. Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality. *Risk Analysis*

Smith, K. (2010). An introduction to risk clockspeed. Institute of Risk Management Professional Development Forum.

Appendix B

1. ACTIVITY

- Static - activities in which the environment is relatively unchanging (e.g. hiking)
- Dynamic - activities in which the environment change very quickly in unpredictable ways (e.g. whitewater paddling, biking)

2. LOCATION

In remote locations you need to exercise additional precautions. One common method of accomplishing this is to increase the rating of the rapid by one class if you are in a remote setting. For example, a Class III becomes a Class IV. This helps take into account the increase in Accident Potential (see below).

3. SEASON/CLIMATE

Weather and the possibility of weather changes also have a significant impact on Accident Potential.

A) Environment

- Rocky trail

- Exposed ledges
- Cold temperatures
- Rain
- Darkness
- Overexposure to sun
- Poison ivy
- Beestings

B) Equipment

- Broken stove
- Boots not broken in
- Improper clothing
- Inoperative equipment

C) Driving/Transportation

- Bad road conditions
- Darkness
- Unfamiliar road
- Difficult road (CLASS I - VI)
- Other erratic drivers
- Pedestrians/cyclists

Human Factor Hazards

A) Participants

- No awareness of hazards
- No skills to avoid hazards

- Resistance to instructions
- Irresponsible/careless attitude towards self, others, equipment>
- Need to "prove" self, macho attitude
- Poor physical strength, stamina
- Fear, anxiety

B) Leaders

- Lack of knowledge of environmental hazards
- Inadequate skills to extricate group and self from hazards
- Poor safety judgment
- Poor teacher of necessary skills
- Instructions unclear
- Poor supervisor, does not correct problems
- Ineffectual under stress
- Lack of teaching plan

C) Drivers

- Poor driving skills
- Rushing to meet schedule
- Overly tired on long drives
- Not driving defensively

D) Group

- Group not yet formed, lacks cooperative structure
- Interpersonal frictions unresolved
- Poor communication patterns excessive competition

- Scape-goating or lack of concern for slow or different individuals
- Excessive pressure or stress to "perform" - macho
- No practice in working harmoniously under stress
- Lack of leadership within group
- Splintering into sub-groups (Curtis Outdoor)