

# A Study of Relationship between Mountaineering Participation Motivation and Risk Perception

Yen-Chieh Wen, and Ching-Hui Lin

**Abstract**—The main purpose of this study is to analyze climbers involved in motivation and risk perception and analysis of the predictive ability of the risk perception "mountaineering" involved in motivation. This study used questionnaires, to have to climb the 3000m high mountain in Taiwan climbers object to carry out an investigation in order to non-random sampling, a total of 231 valid questionnaires were. After statistical analysis, the study found that: 1. Climbers the highest climbers involved in motivation "to enjoy the natural beauty of the fun. 2 climbers for climbers "risk perception" the highest: the natural environment of risk. 3. Climbers "seeking adventure stimulate", "competence achievement" motivation highly predictive of risk perception. Based on these findings, this study not only practices the recommendations of the outdoor leisure industry, and also related research proposals for future researchers.

**Keywords**—Mountaineering, motivation, risk perception, decision-making.

## I. INTRODUCTION

IN recent years the mountaineering in Taiwan rampant and has become one of the most important leisure activity of the public holiday. Taiwan's mountainous terrain, roughly divided into the suburban hills, the intermediate mountain hiking route, as well as more than 3000 meters high mountain three climbers types . Are set according to the Tourism Bureau for the positioning of mountaineering activities, mostly in national parks and wilderness of the mountains and peaks are sparsely populated, steep land environment, the altitude of 1500-3000 meters Intermediate Mountain, 3000 meters above the mountain. Visitors in its tourism area bit by exposure to environmental, topography, geomorphology, path changes to itself to overcome the harsh environment of the needs of the individual technologies and equipment, adventure mentality and participate in purpose, pursuing experience and physical endurance test, etc., are large on other hiking activities. In addition, in the course of activities, needs to combine a certain extent, such as: rock climbing, river tracing, and other special mountaineering skills and knowledge of wilderness survival. Means climbing and mountaineering in the study of more than 3,000 meters up formed by rushing river waters that has cut

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through the marble and granite to create a beautiful (more than 3000 meters above sea level, is a senior Hill), belonging to long-distance hiking trails [1].

Can be found climbing the mountains above 3000 meters above the mountains classification, risk, climbers need to have the physical strength, stamina, and technology. Mountaineering participation motivation, Ewert study participation motivation of outdoor adventure recreation activities climbers will include measuring motivation: challenge/adventure (Happily, achievement, excitement, adventure because we wanted the body skills test), purification (alone, release, relief, ease emotional role, personal values, away from the authoritarian), understanding (competition, to show others, become a climber), creativity (helping others, creativity, self-expression, photographic art, mind use), locus of control (development capacity to make decisions, get control of the team effort, friendship), physical environment (preferences wilderness, look at the scenery) [2].

Chang, Lin, and Li study mountaineering sightseeing participate in behavior patterns, the object of those who had to climb the 3000m of mountaineering, climbers participation motives to participate in the activities available physical and mental release, to meet the challenge and stimulate social interaction with others, enjoy the group experience, enjoy and experience nature, certainly their skills and achievements, and would like to experience new and unique and different daily situations explore new things and improve their knowledge, sports and promote physical health and the development of health-related fitness [3].

Robsion pointed out that when people generate participation motivation, be involved in the activities, environmental risk assessment, followed on the decision-making to be involved in the activities of this decision will be related to personal competence [4]. In risk perception, Yates pointed out that a major component of the risk, including: 1. Potential losses; 2. Significant losses; 3. Uncertain loss. First of engaging in risky behavior may result in a loss, such as health, freedom, life or money; Secondly, risk means to feel significant losses [5]. Cheron and Ritchie study of the risk of feeling of leisure activities, and illustrate the risk fractional part, the various risks of loss. Any kind of risk may affect the feelings of personal activities, and could therefore be followed to reduce the participant for the competence of the entire adventure. These risks can be divided into the following seven kinds: 1. Financial risk: the activity may be provided with money to spend is not the same value. 2. Functional risk: there may be instruments and equipment damage. 3. Physical risk: may cause physical injury or Tong pain. 4. Psychological risk: activities may change person self-awareness. 5. Social risk: activities may

change its awareness of others. 6. Time risk: activities may be too long or is not worth wasting time participating. 7. Satisfaction risk: the activity may not be able to achieve the expectations of the individual or personal goals [6].

Chang, Lin, and Li study mountaineering tourism participation patterns of behavior had to climb the 3000m of climbers, risk perception and decision-making is defined as the individuals involved in mountaineering activities involved in the risk assessment, and decided to participate in the cause. Climbers engaged before the event, the possible risks for the activities and decided to participate in the cause, including the risk of bodily injury and Tong pain, change may provide their own cognition, activities and spending is not equal to the value of money, wasting too much time, the risk of the natural environment, and even change the cognition of others. Reasons, decided to participate because we believe that self ability to overcome these risks, and control of the entire process is expected to participate in the outcome was successful [3].

Taiwan has a unique geographical environment and resources, and is ideal for development with adventurous nature of alpine mountaineering activities. Adventure sports tourism activities developed rapidly in Taiwan, but in empirical research has also been lacking. In a related study, most researchers still focus on the correlation between variables, differences in demographic variables involved in behavioral differences. Based on the above, this study focuses on the relationship climbers involved in motivation and risk perception hope to provide the mountaineering industry and future researchers important reference.

Based on the motivation of the research, the purpose of this study can be summarized as the following three points: (A) Analysis of the climbers involved in motivation and risk of cognitive situation. (B) Analysis of the relevant circumstances involved in motivation and risk perception among mountaineers and climbers. (C) According to the analysis results provide outdoor recreation industry and government sports units to promote mountaineering reference.

## II. METHODOLOGY

### A. Subject and Sampling

The study investigators to climb scaled many of Taiwan's mountains, clinging precariously to the steep slopes participants had targeted non-random sampling, assisted by Taichung outdoor recreation goods enterprise, the questionnaire was sent had to climb 3000m above alpine climbers. Investigation issued a total of 300 questionnaires were 256 copies, net of invalid questionnaires (the answer is incomplete or choose the same answer) 25 parts, namely, to obtain 231 valid questionnaires were valid questionnaires was 77%.

### B. Questionnaire

The research questionnaire is divided into three parts, the first part of "Participation Motivation Scale", mainly in analysis climbers climb the high mountains above 3000m reason. This section Scale total of 24 questions, mainly mountaineering adventure recreation research literature [3] are prepared. The second part of "Risk Perception Scale, a total of nine questions, mainly based Cheron and Ritchie mentioned in leisure

activities risk classification is made [6]. The above scale measure five-point Likert scale from strongly agrees (5) to strongly disagree (1). The third part is the demographic variables, including gender, age, marital status, level of education, personal monthly income, occupation and the number of alpine climbing 3000m above.

### C. Data Analysis

In this study, the valid questionnaires are the use of SPSS For Windows 12.0 version statistical analysis, analysis of the steps include: 1. Used exploratory factor analysis and Cronbach  $\alpha$  reliability test of statistical methods to construct the reliability and validity of this research questionnaire. 2. Use of the frequency distribution, percentage analysis climber's demographic variables, participation motivation, and the distribution of risk perception. 3. Product-moment correlation analysis involved in the situation between motivation and risk perception. 4. Multiple regression analysis to understand the predictive ability of the climbers involved in motivation for risk perception.

### D. Reliability and Validity Analysis

The results of the factor analysis, participation motivation were extracted six factors explained variance amounted to 64.85%. According to the characteristics of each of the factors, reference mountaineering adventure recreation empirical research, were named as: including "physical and mental release", "seeking adventure stimulation", "social interaction", "nature-oriented", "ability achievements", as well as "novelty experience". Risk Perception Scale, the results of factor analysis extracted two factors explained variance amounted to 59.01%. According to the characteristics of each of the factors, reference mountaineering adventure recreation empirical research, were named as "perceived risk" and the factors involved in the "decision-making". In terms of reliability, the results of the analysis, the study of mountaineering participation motivation scale  $\alpha$  value of .92; the "risk perception" scale  $\alpha$  coefficient was .87. From the above results, show that each scale has a high degree of reliability of this study.

## III. RESULTS

### A. Demographic Characteristics of Sample

In sample demographic characteristics, gender, number of valid samples of 231 people, including 167 males and 62 females. Marital status effective sample size of 231 people, including 130 married and 99 unmarried. Age effective sample is 231, including a number of the highest 31-year-old to 40-year-old age group, taking into account 64, the lowest for more than 61 years age, within five. In the level of education, the effective sample size of 231, in which the degree of colleges and universities share the largest number, 87 people, and minimum 13 junior high school (including the following). In terms of occupation, the effective sample size of 231 people, of which the number of manufacturing sector up to a total of 63 people, at least the total for health care workers. In personal monthly income of an effective sample size of 231 people, which income in the NT.\$ 30,001 to \$ 40,000 share of the number of maximum total of 68 people, at least NT.\$ 90,001 to

100,000 persons, taking into account 1. Climb the 3000m high mountain frequency, the effective sample size of 231, which account for the largest number of climbers within 20, 87, and less than 60 times, at least 16 people after.

### B. Analysis of Mountaineering Participation Motivation

The analysis found that, the motivation 24 items, in order: "enjoy enjoy the natural beauty of the fun" (M = 4.34, SD = .72), "close to the natural environment together" (M = 4.29, SD = .65), "to promote good health" (M = 4.21, SD = .73), "the depth of experience of the natural environment" (M = 4.19, SD = .65), and "away from the irritability of the day-to-day law of life." (M = 4.15, SD = .71), "to achieve physical and mental release" (M = 4.14, SD = .74) "to achieve the exercise effect" (M = 4.07, SD = .73), "enjoy a group experience" (M = 4.05, SD = .73), "to relieve stress and tension" (M = 4.05, SD = .79) "to establish an interactive relationship" (M = 4.04, SD = .70), "and others to explore new things"(M = 4.04, SD = .74)," the new experience of daily life context "(M = 4.03, SD = .65)," want to get a unique experience"(M = 4.03, SD = .76), "with friends or family together developing close relations "(M = 4.03, SD = .72), "get self-confidence and sense of achievement"(M = 3.99, SD = .69)," challenges abilities" (M = 3.98, SD = .81), and "developing the physical fitness" (M = 3.95, SD = .65), "for new knowledge to be able to tell others about this activity" (M = 3.88, SD = .68), "want to have the adventure experience" (M = 3.85, SD = .84), "the challenge of nature" (M = 3.77, SD = .13), "an exciting feelings" (M = 3.73, SD = .81), "seek excitement and challenges "(M = 3.63, SD = .92)," the development of new skills "(M = 3.62, SD = .79)," want to experience the horror dangerous situations. "(M = 3.11, SD = .11).

### C. Analysis of Mountaineering Climbers Risk Perception

The results of the analysis show that the climbers mountaineering "risk perception", in order: "the natural environment of risk" (M = 3.99, SD = .71), "the risk of bodily harm with Tong pain" (M = 3.94, SD = .70), "may be a waste too much time" (M = 3.94, SD = .75), "change the cognitive (M = 3.87, SD = .74), and even change the others cognitive (M = 3.85, SD = .72), "the whole process" (M = 3.73, SD = .70) in control, "is expected to participate in mountaineering results to be successful" (M = 3.71, SD = .73), "activity may provide money spent does not equal value "(M = 3.71, SD = .87)," I believe that self-ability to overcome the risks (M = 3.61, SD = .75).

### D. Correlation analysis of the Participation Motivation and Risk Perception

TABLE I  
CORRELATION OF THE PARTICIPATION MOTIVATION AND RISK PERCEPTION

	A	B	C	D	E	F	G	H
A	1							
B	.44*	1						
C	.44*	.53*	1					
D	.51*	.56*	.56*	1				
E	.56*	.54*	.46*	.51*	1			
F	.40*	.53*	.49*	.43*	.51*	1		

G	.49*	.37*	.39*	.44*	.48*	.39*	1	
H	.46*	.32*	.39*	.32*	.45*	.34*	.53*	1

\*\*p<.01

Note: A. Seeking adventure stimulus  
B. Nature-oriented  
C. Social interaction  
D. Novelty experiences  
E. Ability achievements  
F. Physical and mental release  
G. Perceived risk  
H. Participation in decision-making

Table I Correlation analysis of the results shows that participation motivation of the six factors (seeking adventure stimulus, nature-oriented, social interaction, quirky experiences, ability achievements, and physical and mental release), the risk perception of two factors has higher relationship exist.

### E. Regression Analysis of the Participation Motivation on the Risk Perception

In this study, the participation motivation, the "seeking adventure stimulus", "nature-oriented", "social interaction", "quirky experiences", "ability achievements" and "physical and mental release" the six factors for predicting variables and the criterion variable "risk perception" factor dimensions, mining forced into the method of regression analysis results, as shown in Table II. Six predictors, 2 variables were significant level, we can see from the table input and 2 variables can predict the risk perception value of 37%. Details see the shown in Table II.

TABLE II  
REGRESSION ANALYSIS OF THE PARTICIPATION MOTIVATION ON RISK PERCEPTION

Variables	B	Std. Error	Beta	t-value	Sig
A	.29	.07	.28	4.09*	.000
B	-.02	.15	-.01	-.16	.874
C	.30	.15	.14	1.93	.055
D	.14	.19	.05	.72	.474
E	.64	.20	.23	3.14*	.002
F	.21	.17	.09	1.24	.215
R =.608 R <sup>2</sup> =.37 adjusted R <sup>2</sup> =.35, F=21.94*					

\*p<.05

Note: A. Seeking adventure stimulus  
B. Nature-oriented  
C. Social interaction  
D. Novelty experiences  
E. Ability achievements  
F. Physical and mental release

## IV. DISCUSSION

### A. Mountaineering Participation Motivation

The analysis results show that the highest climbers generally nature-oriented motives. They think that in the process of climbing, not only to enjoy the fun to enjoy the natural beauty, the most important and the natural environment closely together, and the depth of experience of the natural environment. From the above results, in line with the related the mountaineering study pointed out [2] [3], together with nature, is the main motivation of the climbers involved in mountaineering. And nature together, however, and the psychological level, the study also found that climbers climb

mountains, mainly want to stay away from irritability everyday regular life, relieve stress and tension, and to experience daily life situations, to achieve physical and mental release purposes. In addition, from the perspective of the physiological, mountaineers also want to promote good health by climbers to reach the effect of movement and the development of health-related fitness.

Social interaction is usually the most important motivation to engage in sports and leisure, from the results of this study, mountaineers climbing motive, mainly want to interact with others. Some climbers want to enjoy a group experience, establish interactive relationships with others, with friends (or family) with the development of close relations. Some climbers want to get new experience; they explore new things by climbers, a unique experience, to acquire new knowledge, to be able to tell others about this event.

Climb altitudes above 3000 meters from the contact with the environment, topography, geomorphology, path changes, personal technology and equipment needed to overcome the harsh environment, adventure mentality and participation purposes, trace their experience with the physical endurance test to itself, are greater than other hiking activities. The study also found that, mountaineers and their participation motives sake to challenge their skills and get self-confidence and a sense of accomplishment, and want to have the adventure experience, challenging nature, an exciting feeling, seek excitement and challenges, the development of new skills and want to experience the horror dangerous situations. The results of the above analysis, the same and adventurous sport tourism research found [1] [3].

#### *B. Mountaineering Climbers Risk Perception*

Climbing more than 3000 meters high mountain, in essence, there is a risk, this is the main reason why annual mountaineering accident in Taiwan frequent. Of course, just as the findings of this study, mountaineers generally think that the two risk climbing mountains basic, is from the "natural environment" and "bodily harm with Tong pain" risk. Due to the vagaries of the natural environment, according to the researchers' experience, such as has not been correctly judge usually occur mountaineering accidents. So in terms of risk perception, why scholars think that the climbers control of the entire process, assess mountaineering results before departure smooth and successful, is very important [4] [5] [6]. The ability of the climbers whether overcome the risk is also very important, otherwise it cannot be successfully completed mountaineering, will produce change ideas of their own cognitive. In addition, there may be a result of the last reasons; others will change your view. Of course mountaineering activities planning is also quite important, otherwise they may have to waste too much time, as well as the activities may be provided with money to spend is not equal to the value of the case.

#### *C. Relationship of the Participation Motivation and Risk Perception*

The results of the analysis found that the "the participation motives" and "risk perception" between variables exist, this also shows that when people generate participation motivation, be involved in the activities, environmental risk assessment,

followed by the activities involved in decision-making, but this decision will involve personal competence [4]. From another point of view, also confirmed climbers them climbing higher participation motivation, risk perception will be more intense. Further found that the results of the regression analysis seeking adventure stimulus as well as the ability achievements of these two factors can effectively predict risk perception. According to the literature [7] pointed out that the motivation to participate in adventure tourism and recreation activities the reason other Robson pointed out that adventure recreation participants produce adventure attraction, followed be threatened situational assessment and decided to participate in or cancel [4]. Results of this study also support the perception of risk will affect to the people choose to participate in the adventure tour recreation activities [8], people will seek the most suitable personal capacity and environmental challenges commensurate with the recreation opportunities adventure recreation involvement generated depends on the personal perception of environmental risks as well as personal competence [9].

#### *D. Suggestions*

From the results of this study, the motives of the climbers can be divided into six, and is involved in moving the opportunity to influence risk perception. Therefore, in practical use, from several aspects to promote: 1 to illustrate the level of education that is stressed mountaineering participation benefits, and how to have a correct perception of participation in risk; 2. Newspaper media publicity through leisure travel magazines and newspaper travel sections, the existing planning climbing routes, specific environmental situation, individuals need to have those capabilities, as well as to satisfy those who experience; 3. government and civil hiking groups, outdoor recreation business, or the combination of recreation groups, introduce through tourism Web of climbing routes and specific instructions; 4. combination of school and corporate units, handling mountaineering activities, so that they have a correct understanding of the activities, plus on the trip before the process of active allow them to experience the fun of climbing.

For future researchers, this study only involved in motivation "and" risk perception "as the study variables, for climbers involved in mountaineering activities, its inside and outside in the psychological experience is not specifically discussed, it is the follow-up. The researchers analyzed this direction. Addition climbers' psychological impact involved in mountaineering activities also came to Canada to explore, to take to specific understanding of the climbers psychological and behavior.

#### REFERENCES

- [1] Tourism Bureau, Ministry of Transportation and Communications, *Taiwan potential eco-tourism and adventure tourism products research and investigation*, Taipei: Outdoor Recreation Association in the Republic of China, 1997.
- [2] A. Ewert, "Why people climb: The relationship of participant motives and experience level to mountaineering", *Journal of Leisure Research*, vol. 17. No. 3, pp. 241-250, 1985.
- [3] Hsiao-Ming, Chang, Shih-Hsiang Lin, and Ming-Sheng Li, "A study of mountain-climbing adventure sport tourism participative behavior model", *Journal of Sport and Recreation Management*, vol. 4, No. 2, pp. 95-109, 2007.

- [4] D. W. Robinson, "A descriptive model of enduring risk recreation involvement", *Journal of Leisure Research*, vol. 24, no. 1, pp. 52-63, 1992.
- [5] J. F. Yates, Epilogue. In J. F. Yates (Ed.), *Risk-taking behavior*, pp.321-330, New York: John Wiley & Sons, 1992.
- [6] E. J. Cheron, and J. R. B. Ritchie, "Leisure activities and perceived risk", *Journal of Leisure Research*, vol. 14, no. 2, pp. 134-154, 1982.
- [7] C. M. Hall, Adventure, sport and health tourism. In B. Weiler, & C. M. Hall (Eds.), *Special interest tourism* (pp.141-158), , London: Belhaven Press, 1992.
- [8] D. Williams, R. Schreyer, and R. Knopf, "The effect of the experience use history on the multidimensional structure of motivation to participate in leisure activities", *Journal of Leisure Research*, vol. 24, no. 2, 265-282, 1990.
- [9] G. Carpenter, and S. Priest, "The AEP and non-outdoor leisure pursuits", *Leisure Studies*, vol. 8, no. 1, 65-75, 1989.