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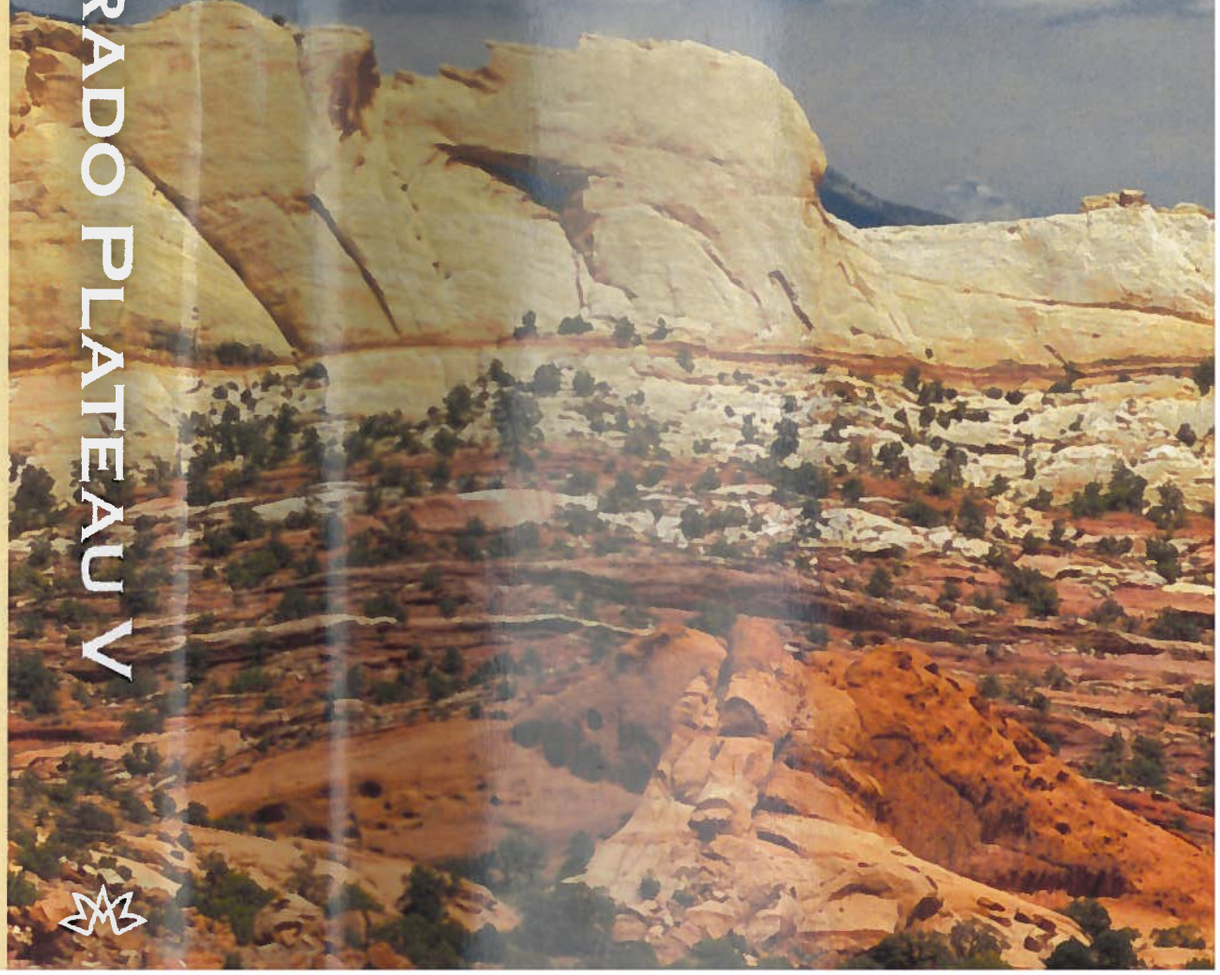
THE COLORADO PLATEAU V

Research, Environmental Planning and Management for Collaborative Conservation

Edited by Charles van Riper III, Miguel L. Villarreal, Carena J. van Riper, and Matthew J. Johnson



THE COLORADO PLATEAU V

REACHING TOWARD THE INTEGRATION OF RESEARCH INTO RESOURCE MANAGEMENT ACTIVITIES: A 20-YEAR EVALUATION OF COLORADO PLATEAU BIENNIAL CONFERENCES

Martha E. Lee, Carena J. van Riper, Charles van Riper III and Gerald T. Kyle

ABSTRACT

The Biennial Conferences of Research on the Colorado Plateau serve a critical purpose of connecting management and science in the southwestern US. The primary goal of the conferences has been to create a forum where managers and scientists could come together to learn about and discuss scientific findings to be incorporated in resource management and planning. The purpose of the present study is to assess whether, after 20 years, the conference is still meeting that goal of scientific integration, and ascertain how conference attendees believe the conference is of use, determine what aspects they would like to see retained and/or removed, and examine ways the conference could be improved. An on-line survey was administered to attendees of the 2009 10th Biennial Conference of Research on the Colorado Plateau. We utilize an importance-performance analysis and assess social networking among conference attendees. Results of our analyses show the conference is performing well and attendees are relatively satisfied with the organization, delivery and content of the meeting. Maintaining a reasonable cost and providing opportunities to network with speakers and other attendees are identified as particularly important elements that need to be maintained or enhanced. We found that interpersonal connections, social cohesion, secondary associations, and perceived utility emerged as dimensions of social networking and shaped the relationships formed among conference attendees. We anticipate that the findings of this conference evaluation will help future planners better meet the needs of scientists, managers, administrators, and students.

INTRODUCTION

A total of 10 Biennial Conferences of Research on the Colorado Plateau (COPL) have provided a scientific forum for the presentation and discussion of resource management topics related to biological, physical, cultural, and social conditions on the Colorado Plateau. Since the first meeting was held in 1991 at Northern Arizona University (NAU), the COPL conferences have served the critical purpose of facilitating intellectual exchange about salient resource management topics in the southwestern US. This meeting has created a place where managers feel comfortable interfacing with scientists, such that new ideas can be implemented in resource management, and provided opportunities to present and publish innovative research findings in a book series (e.g., van Riper and Cole 2004; van Riper and Mattson 2005; van Riper and Sogge 2008; van Riper et al 2010; http://www.uapress.arizona.edu/BOOKS/bid2255.htm). Over this 20-year time period, the organizers have strived to promote discussion, information sharing and productive communication among participants, with a focus on enhancing social networks among scientists, managers, administrators and student attendees. The COPL conferences have been widely supported across Department of the Interior

agencies (e.g., U.S. Geological Survey; National Park Service; Bureau of Land Management; Bureau of Reclamation; U.S. Fish and Wildlife Service), as well as the U.S. Forest Service, and Arizona Game and Fish.

Although the COPL conferences continue to garner support among federal and state agencies, as well as partner universities, the organizers felt it was necessary to take a step back and assess whether the COPL conferences have been meeting the needs and aspirations of attendees. Are the COPL conferences living up to participants' standards? How effective are the meetings for integrating research into management activity? What is the extent to which professional networking occurs at the COPL conferences? How can organizers most efficiently and effectively focus their efforts to improve future meetings? These questions guided the development of this research designed to improve the conference experience and help ensure relevant outcomes for science and resource management on the Colorado Plateau.

Study Purpose

In this paper, we report the results of a self-evaluation of participant experience at the 2009 10th Biennial Conference of Research on the Colorado Plateau held in Flagstaff, AZ. This evaluation was deemed necessary because of the changes that have occurred over the 10-conference series, and an expanding pool of participants. We determined the perceived benefits of the conference among attendees, examined which aspects could be retained and/or removed without compromising effectiveness, and explored areas for improvement. Our analysis offers suggestions for improving the conference experience so that future hosts and organizers can more efficiently invest their time, energy and programming. The objectives of this study were as follows:

1. Describe the socio-demographic characteristics, professional makeup, conference attendance history, and level of participation among attendees.
2. Determine the relative degrees of importance and satisfaction that attendees associate with the organizational components of the conference.
3. Examine social networking among conference attendees.

BACKGROUND INFORMATION

Over the past 20 years of COPL conferences, organizers have provided a suite of opportunities to share research findings, facilitate communication and enhance professional skills among attendees. These opportunities are referred to herein as the programmatic components of the COPL conference. For the purposes of this paper, these components were identified by the conference organizers and attendees during two focus group sessions aimed at capturing the most salient aspects of the meeting, such as paper and poster presentations given by academic and agency professionals, panel discussions, Client Day, and a Career Day information session. These events, in addition to optional fieldtrips and social activities, were considered relevant owing to the COPL goals and objectives, as well as their potential to enhance the conference experience.

Importance-Performance Analysis

We used an Importance-Performance Analysis (IPA) of the COPL programmatic components to determine if the conference was meeting the expectations and needs of conference attendees. This technique was introduced in the field of marketing (Martilla and James 1977) to compare the utility of brands, products and services with consumers' satisfaction of those same elements. The use of IPA has been widely adopted in various service industries for determining the quality or performance of service and education providers. Janes and

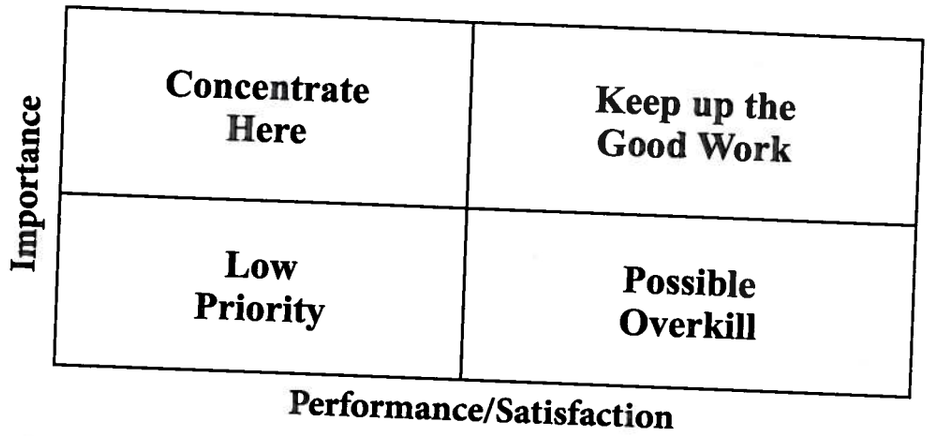


Figure 16.1 Example of an Importance-Performance Analysis grid.

Wisnom (Janes and Wisnom 2003) reviewed 42 studies that employed IPA in hospitality and tourism industry research. This technique has also been used to evaluate visitor experiences at recreational areas and other theme sites (Hollenhorst et al. 1992; Ellis and Vogelsong 2004; Rivera et al. 2009), service quality at university programs (Kitcharoen 2004; Ford et al. 1999), and professional conferences (Severt et al. 2006; van Riper and Healy 2008).

Our IPA provided a mechanism for assessing COPL conference attendees' preferences for the various programmatic components of the conference, and evaluating how well the COPL conference performed on these same components. IPA involves three steps: 1) selection of relevant attributes, 2) measurement of the importance and performance for each attribute, and 3) plots of the average score given to each component on a two-dimensional grid with importance scores displayed on the vertical axis and performance scores along a horizontal axis (Figure 16.1). The intersection of the importance and performance axes is centered on mean values rather than the center of the grid. This approach emphasizes the relative differences among items being evaluated (Manning 2011).

All programmatic components fall within one of the four grid quadrants. The upper left-hand quadrant includes elements that conference attendees perceive as being important but not offered at the desired performance level (i.e., "Concentrate Here"). The conference organizers need to focus on improving performance related to these components. The lower left quadrant showed programmatic components that are of less importance and average performance (i.e., "Low Priority") because both importance and performance are lower than the average. These elements should receive a low priority in resource allocation decisions. The upper right quadrant shows programmatic components that are important and have high performance (i.e., "Keep Up the Good Work"). Conference organizers are performing well with respect to these components. The lower right quadrant shows components that are of less importance but high performance (i.e., "Possible Overkill"), suggesting that conference organizers should place less emphasis on improving these components (O'Sullivan 1991; Wade and Eagles 2003). IPA helps determine whether the COPL conference is meeting the needs of conference attendees, and provides future conference organizers with insight into the

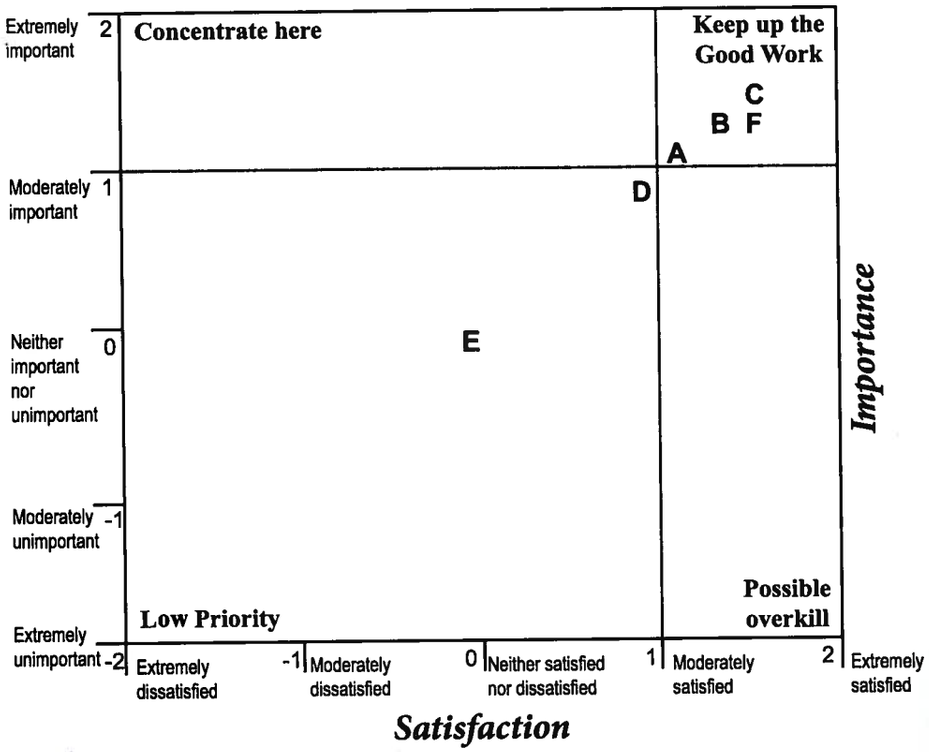


Figure 16.2 Importance-Performance Analysis (IPA) grid for the factors of the programmatic components of the 10th Biennial Conference of Research on the Colorado Plateau.

extent to which attendees believe they should retain, expand or possibly remove elements of the meeting.

Social Networking

This paper offers a perspective on social networking theory derived from the idea that conferences provide an external social structure that allows attendees to generate networks of secondary associations, form high levels of interpersonal trust, perceive mutual aid, and recognize feelings of reciprocity (Arai and Pedlar 2003; Glover and Hemingway 2005; Putnam 2007). Conference participation is assumed to be a voluntary undertaking that fosters collective decisions that further the goals of scientific and management communities tied to the southwestern US. This conceptual framework is guided by part of the COPL conference mission to connect science and management through forming networks

and promoting social interaction on formal and informal bases (Glover et al. 2005). Thus, there is a utility for social networking theory to assess the outcomes of conference participation.

Social networking is closely related to the idea of social capital, which is theorized to arise as a consequence of relationships, sociability and informal interaction (Bourdieu 1986; Coleman 1988; Putnam 2007). Individuals collectively build social capital by creating networks, norms and interpersonal trust and by acting to foster a sense of social cohesion (Putnam 1995). A number of underpinning themes emerge in the literature on social networking, including shared norms of reciprocity, interpersonal trust, and social networks. Researchers have explored these themes in the context of the social sciences (Glover and Hemingway 2005), examining how professional networks can be established through shared resources (van Riper and Healy 2008) and how leisure pursuits contribute to a sense of community (Arai and Pedlar 2003). Many of these themes align with the assumed beneficial qualities that are encouraged by the COPL conference organizers and achieved by conference attendees.

There are various forms of social networks that can emerge among members of a community (Ballet et al. 2007). These connections can help to expand and promote social cohesion while also having potential to discourage new relationships outside existing networks (Gargiulo and Benassi 2000). In this sense, both positive and negative outcomes can be produced by social capital. For example, Newman and Dale (Newman and Dale 2007) argue that social capital is comprised of "bridging" and "bonding" ties. Bridging ties refer to intergroup relationships that tend to promote diverse, flexible and adaptive networks. Bonding ties on the other hand, refer to interpersonal relations that exist within a close-knit community. These ties are often homogenous and centralized, in that there's potential for bonding ties to impede the formation of new connections. It is within the concepts of bridging and bonding ties that we frame the emergent benefits of attending the COPL meeting.

METHODS

Survey Questionnaire

The 2009 COPL conference was evaluated through an online survey of participants using Survey Monkey™ (Dillman 2007). Electronic survey questionnaires were distributed to all conference attendees with valid e-mail addresses one month after the symposium. We contacted 336 attendees by email, sent the first follow-up reminder a week later, and a second reminder three weeks after the initial e-mail contact. A total of 169 respondents completed the survey (50% response rate). The questionnaire was divided into three sections: 1) background information on respondents and participation in the COPL conference, 2) respondent evaluations of the importance of and satisfaction with the programmatic components of the COPL conference, and 3) measures of social networking and perceived utility associated with the COPL conference. The survey also asked respondents a suite of socio-demographic questions.

Survey Measures

Importance-Performance Analysis

We designed the programmatic components for an IPA using results from two focus group sessions: one conducted during the 2007 Biennial Conference of Research on the Colorado Plateau held in Flagstaff, AZ and a second at the 2008 Colorado River Basin Science and Management Symposium held in Scottsdale, AZ. The topics of the focus group sessions were to answer the following question: "What are the attributes of an excellent conference?" Results of the focus group sessions were used to develop

survey questions. We also identified salient themes and gleaned questions from the conference evaluation and social networking literature.

The final list of 37 programmatic components that we utilized addressed the organizational details of the conference, the content and delivery of conference presentations, opportunities to network and interact with speakers and other attendees, conference location and amenities, and additional activities such as field trips. Conference attendees were asked to rank the importance of each of these elements in deciding whether or not to attend. These items were ranked on a 5-point Likert scale ranging from "very important" to "very unimportant." Participants were then asked to report how satisfied they were at the 10th Biennial Conference with each of the conference attributes. This measure of satisfaction was treated as a proxy to measure the "performance" aspect of the IPA. Gap scores between the measures of importance and performance were analyzed for incongruities. These scores were obtained by subtracting the perceived importance scores from the performance scores. If the difference was negative, performance fell short of respondents' importance rating. If the difference was positive, performance exceeded importance. If there was no difference, performance equaled importance. A paired-samples t-test was used to identify significant differences between importance and performance measures for each programmatic component.

We used principal components (with varimax rotation) analysis (PCA) to group the 37 conference elements rated for importance into underlying constructs or themes. The PCA produced six underlying factors that accounted for 51.9 percent of the total variance. Survey respondents were assigned an importance score for each factor based on their averaged responses for the items loading onto each dimension. Mean satisfaction scores for each factor were also calculated. Importance and performance scores for the six factors were plotted on an IPA grid.

Social Networking Analysis

Social networking was measured using survey items derived from past research (Arai and Pedlar 2003; van Riper and Healy 2008). Data analysis first involved replacing missing data using a multiple imputation procedure in PRELIS 8.70 (Graham et al. 2003; Collins et al. 2001; Schafer and Graham 2002). We then conducted an exploratory factor analysis (EFA) using PASW Statistics version 18.0. All scale items were included in this procedure to determine how items fell into conceptual categories. This step helped us to identify patterns and groupings of items and evaluate overall consistency. We retained and/or rejected survey items according to low loading scores and cross loading using the oblique (Promax) rotation. Eigenvalues greater than 1.0 were accepted. The reliability measures of the proposed dimensions indicated good internal consistency according to Chronbach's Alpha scores. The final EFA solution identified eight latent constructs that accounted for 62.9% of the variance captured by the proposed dimensions. We also conducted a confirmatory factor analysis (CFA) to test the factors structure suggested in the EFA. Factor loadings greater than 0.5 were retained (Hair et al. 1998). This procedure allowed us to further clarify which items conceptually aligned with various identified dimensions.

Three dimensions that reflected the bonding and bridging ties mentioned above (Newman and Dale 2007) were hypothesized to form the construct of social networking, including Interpersonal Connections (e.g., "I connected with individuals outside of my area of expertise at the 10th Biennial Conference"), Social Cohesion (e.g., "The 10th Biennial Conference helps to build a

Variables		Percent
Education	High school graduate	0.7
	Technical school or Associates' degree	0.7
	Bachelor's degree	22.3
	Master's degree	38.5
	Ph.D., M.D., J.D., or equivalent	37.8
Gender	Female	56.8
	Male	43.2
Current Employer	Federal government	38.5
	State or county government	8.8
	Nonprofit organization	11.5
	Private business	2.7
	University	30.4
	Unemployed	2.7
	Other (e.g., retired, international organization, self-employed)	5.4
Length of Time Employed by Current Employer	Less than a year	10.1
	1 - 5 years	36.5
	6-10 years	21.0
	11-20 years	20.3
	More than 20 years	9.4
Job Title	Agronomist	0.7
	Attorney	0.7
	Biostatistician	0.7
	Economist	0.7
	Hydrologist	0.7
	Non-profit Organization Board Member	0.7
	Forester	1.4
	Habitat-Resource Specialist	1.4
	Retired	1.4
	Archaeologist	2.1
	Botanist	2.8
	Consultant	2.8
	Program Coordinator	2.8
	Technician	2.8
	Program/Research Manager	3.5
	Conservation Biologist	4.8
	Administration	9.7
	Researcher	9.7
	Ecologist	12.4
	Academic	12.4
	Biologist	12.4
	Student	15.2

Table 16.1 Profile of survey respondents at the 10th Biennial Conferences of Research on the Colorado Plateau.

Variables	Percent
Conference Participation	
First-time attendee of the Biennial Conference?	
Yes	54.1
No	45.9
Number of previous conference visits (n=68)	
1	32.4
2-3	39.7
4-5	17.6
5+	10.3
Likely to attend the next Biennial Conference?	
Very likely	52.0
Somewhat likely	27.0
Neither likely nor unlikely	14.2
Somewhat unlikely	4.7
Very unlikely	2.0
Gave a paper or talk at the conference?	
Yes	48.0
No	52.0
Attended the Colorado River Basin Science and Resource Management Symposium held November 18-20 in Scottsdale, AZ?	5.4
Satisfaction with the conference overall (n=161)*	
Very satisfied	54.7
Somewhat satisfied	40.4
Neither satisfied nor dissatisfied	3.7
Somwhat dissatisfied	1.2
Very dissatisfied	0.0

**Satisfaction scale, where 2=very satisfied, 1=moderately satisfied, 0=neither satisfied nor dissatisfied, -1=moderately dissatisfied, -2=very dissatisfied.*

Table 16.2 Involvement in activities and satisfaction with the 10th Biennial Conference of Research on the Colorado Plateau (n=148)

sense of community in my area of expertise"), and Secondary Associations (e.g., "The 10th Biennial Conference brings together people who come from different areas of expertise"). Respondents were asked to report the extent to which they agreed or disagreed with statements measured on a Likert-type scale ranging from 1 to 5.

Perceived utility of the meeting was also assessed using five survey items that measured the extent to which conference participants associated professional and career-oriented beneficial qualities with conference attendance. In other words, attendees were thought to become satisfied with the meeting according to the extent to which they reaped benefits and perceived the conference to be worthwhile. Respondents rated their agreement or disagreement with the survey items included in this dimension on a five point Likert-type scale.

RESULTS

Profile of Survey Respondents

A profile of survey respondents and their level of participation in the COPL conference are reported in Tables 16.1 and 16.2. Almost 100 percent of respondents had a minimum of a bachelor's degree while three-quarters had at least a master's degree. Gender was almost equally divided between men (43%) and women (57%). Close to 40% worked for the federal government, 30% worked for a university, 11% were associated with nonprofit organizations, 9% worked for state or county government, and 5% were students. The most often listed job titles were "ecologist, academic, biologist, student, researcher, administrator, and conservation biologist." Survey respondents were active participants in the COPL conference, in that 48% gave a paper or a talk and 86% had prepared a poster.

Fifty-four percent were first-time attendees at the COPL conference. Most of the 46% of previous attendees had been to one or two previous COPL conferences. Seventy-nine percent said they were likely or very likely to attend the next meeting. In contrast, only 5% had attended the 2008 Colorado River Basin Science and Resource Management Symposium.

Importance-Performance Analysis

The Importance-Performance portion of the survey was designed to assess COPL conference attendees' opinions regarding the most important elements of the conference and their impressions of how it performed on those same elements. There were 37 programmatic components included in this analysis, which were assessed for "importance" and "performance" (i.e., satisfaction; Table 16.3). Conference attendees rated the majority of the conference elements as being at least somewhat important. The features of the COPL conference rated most important included "networking opportunities at the conference," "opportunities to talk with other conference attendees," "organization of the conference schedule," "good acoustics and audio-visual equipment at the conference," "conference cost is reasonable," and "keynote speakers are experts in their fields." Rated as least important were "availability of team building activities," "Client's Day as part of the conference," and "Continuing Education Units (CEU) offered for attending the conference."

Conference attendees were very positive in their performance ratings of the conference. Ninety-five percent indicated they were either "somewhat satisfied" or "very satisfied" with the overall conference (40.4% and 54.7%, respectively). Survey participants rated the COPL conference highest on "clean and comfortable facilities," "convenience of the conference location," "food at the conference," "timely program topics," and "a mix of talks with specific and broader themes."

The comparison of the importance and performance ratings on individual programmatic components revealed little difference between these two measures as the majority of programmatic components were rated between moderately and extremely important. However, the comparison revealed components that needed additional emphasis verses those that received too much attention from conference organizers (i.e., overkill). The mean satisfaction rating for the conference cost was rated only slightly less than moderately satisfied and the gap between the two scores was significantly different. Networking opportunities at the conference and having time available to question conference presenters also showed statistically significant differences between the performance scores for these two elements, suggesting that conference cost and ensuring networking opportunities and interaction among presenters were programmatic components that could be

Component	Importance	Satisfaction	Discrepancy	t-value
Organization of the conference schedule	1.49	1.33	-0.16	2.12
Networking opportunities at the conference	1.53	1.34	-0.19	3.37*
Conference cost is reasonable	1.47	0.80	-0.67	6.47*
Keynote speakers are experts in their fields	1.47	1.38	-0.08	1.24
Applications to resource management are evident	1.39	1.39	0.00	0.00
Good acoustics and audio-visual equipment at the conference	1.48	1.54	0.06	-0.74
Opportunities to make new contacts	1.40	1.41	0.01	-.022
Conference theme appeals to both managers and scientists	1.41	1.37	-0.04	0.62
Timely program topics	1.45	1.48	0.03	-0.55
A mix of talks with specific and broader themes	1.42	1.47	1.33	-0.85
Mixed audience of managers and scientists	1.41	1.40	-0.01	0.22
Time available to question speakers after their presentations	1.40	0.97	-0.43	5.16*
Sessions stay on track	1.27	1.25	-0.02	0.20
Convenience of conference location	1.21	1.72	0.51	7.94*
Online registration	1.15	1.58	0.43	-6.88*
Clean, comfortable facilities	1.08	1.81	0.73	-13.8*
Conference proceedings are made readily available	1.03	0.97	-0.06	0.61
Conference abstracts available ahead of time	1.10	1.27	0.17	-1.97
Having both oral presentations and a poster session	1.09	1.40	0.31	-3.79*
Conference length	1.01	1.45	0.44	-6.16*
Adequate time allowed between sessions	1.01	1.06	0.05	-0.65
Panels with interactive speaker discussions	0.98	0.80	-0.18	2.08
Conference organizer contact information is readily available	0.89	1.10	0.21	-2.40
Food at the conference	0.82	1.54	1.46	-9.29*
Professional development opportunities for students	0.97	0.70	-0.27	2.84*
Built-in downtime at the conference	0.73	1.02	0.29	-3.36*
Interactive activities included in the agenda (workshops, hands-on activities)	0.76	0.67	-0.09	0.97
Introduction and wrap-up sessions	0.64	0.80	0.16	-2.01
Social events held during the conference	0.63	0.99	0.36	-4.18*
A single theme for the conference (vs. multiple themes)	0.21	0.84	0.63	-8.53*
Online evaluations to give post-conference feedback	0.24	0.91	0.67	-8.52*
Field trips	0.27	0.14	-0.13	1.26
Client's day as part of the conference	-0.10	0.40	0.30	-4.95*
Continuing Education Units (CEU)	0.07	0.34	0.27	-2.43
Availability of team-building activities	-0.24	0.14	0.10	-3.10*

* *Significant at $p < 0.01$.*

Table 16.3 Importance and performance scores for the programmatic components of the 10th Biennial Conference of Research on the Colorado Plateau.

improved upon. On the other hand, clean and comfortable facilities were rated as moderately important and close to very satisfied in performance, suggesting that the conference facilities exceeded what was needed. This is particularly important in light of the importance-performance gap found for having a reasonable conference cost.

The factor analysis of programmatic components identified six factor groups or conference dimensions: The Conference Experience, Conference Programming, Networking Opportunities, Other Benefits and Activities, Relevance, and Cost and Facilities (see Table 16.4).

The performance ratings of the programmatic components were put into these same groups and compared in the Importance-Performance Analysis (IPA) grid shown in Figure 16.2. The IPA grid included mean values for the six conference components for importance and performance to emphasize the relative differences among the components. The fact that four of the six factors fall within the "Keep up the Good Work" quadrant of the IPA grid reflects the positive experiences attendees had at the conference and sends a message to future conference organizers to follow the example of the 10th COPL conference. Additionally, future planners should continue to emphasize making the conference relevant to resource management, a well-programmed conference experience at a reasonable cost, and convenient facilities. If needed, less time and effort could be spent on providing other benefits and activities such as field trips and team-building activities. Even though networking opportunities fell within the "Low Priority" portion of the IPA grid, it should be noted that networking opportunities were consistently rated as an important element of the conference.

Social Networking

Respondents reported high levels of agreement with all items associated with social networking among conference attendees (Table 16.5). Respondents most strongly agreed with the statements, "I think the COPL conference is a beneficial conference" (M = 4.7), "The COPL conference brings together people who come from different areas of expertise" (M = 4.5), "I feel comfortable at the conference" (M = 4.5), and "I value the relationships I established with people who attended the COPL conference" (M = 4.2). These findings support the notion that conference attendance supports and encourages the formation of social networks among attendees.

To further refine our understanding of social networking among COPL attendees, we determined the groupings of survey items and emergent dimensions. Our analysis approach – data cleaning, EFA and CFA – yielded four dimensions. The fit indices for the final model indicated an acceptable model fit (X^2 = 1470.98, df = 547, RMSEA= 0.092, NNFI= 0.91, CFI= 0.917) and internal consistency (Cronbach's Alpha ranged from 0.765 to 0.881). First, a dimension of "interpersonal connections" (M = 3.91) emerged, suggesting that social networks were formed through new and existing professional relationships that lasted over time and were considered to be important. Second, a dimension related to "social cohesion" (M = 4.1) contributed to the formation of social networks. This second dimension was formed around the cohesiveness of the larger COPL community and beneficial qualities of the attendance. Third, a dimension of "secondary associations" (M = 3.8) was integral to the formation of social networks at the COPL meeting. According to this dimension, the COPL meeting brought together attendees from within and outside areas of expertise, drawing on the opportunities for informal interaction. Finally, "perceived utility" (M = 3.6) emerged as a dimension, in that attendees united on the basis of shared goals and objectives and feelings of comfort in attending the COPL conference.

Factor	loadings	mean	α
The Conference Experience		1.04	.832
Built-in downtime at the conference	.477		
Introduction and wrap-up sessions	.625		
Adequate time allowed between sessions	.444		
Mixed audience of managers and scientists	.699		
Time available to question speakers	.682		
Panels with interactive speaker discussions	.655		
Food at the conference	.581		
Opportunities to talk with other conference participants	.553		
Conference length	.427		
Conference Programming		1.11	.796
Organization of the conference schedule	.445		
Conference proceedings made readily available	.576		
Conference abstracts available ahead of time	.693		
Online registration	.654		
Good acoustics and AV equipment	.601		
Conference organizer contact information is made readily available	.530		
Online evaluation	.476		
Mix of talks with specific and broader themes	.395		
Keynote speakers are experts in their fields	.542		
Networking Opportunities		0.84	.816
Networking opportunities	.697		
Opportunities to make new contacts	.750		
Having both oral presentations and a poster session	.595		
Interactive activities included	.534		
Social events held during the conference	.519		
Client's Day as part of the conference	.512		
Professional development opportunities for students	.372		
Other Benefits and Activities		-0.96	.801
Continuing Education Units (CEU) offered	.760		
Field trips	.697		
Team-building activities	.793		

Table 16.4 Factor loadings, mean values and internal consistency of the importance scores for the programmatic components of the 10th Biennial Conference of Research on the Colorado Plateau.

Factor	loadings	mean	α
Relevance		1.41	.715
Applications to resource management are evident	.723		
Theme appeals to managers and scientists	.603		
Timely program topics	.511		
Conference topics relevant to my job	.581		
Cost and Facilities		1.25	.540
Convenience of conference location	.598		
Sessions stay on track	.510		
Conference cost is reasonable	.571		
Clean and comfortable facilities	.567		

Note. Importance scale ranged from 2 = very important, 1 = moderately important, 0 = neither important nor unimportant, -1 = moderately unimportant, -2 = very unimportant.

Table 16.4 con't. Factor loadings, mean values and internal consistency of the importance scores for the programmatic components of the 10th Biennial Conference of Research on the Colorado Plateau.

DISCUSSION

Our evaluation of the 10th Biennial Conference of Research on the Colorado Plateau offer support for the importance of the COPL conference as a venue to enhance communication among scientists, managers, administrators, and student doing work in the southwestern US. We examined the importance and performance of the programmatic components of the COPL meeting and offered insight on how conference participation helped generate forms of social networking among attendees. This information provides conference organizers with insights on how to tailor the conference experience to better suit the needs of the attendees, inform the supporting institutions and/or agencies of their successes, and points out where improvements could occur.

Our findings suggest that the 10th COPL conference was highly successful. The conference attracted a mix of university faculty, federal, state, and county land managers, non-profit organization personnel, and students. The IPA revealed that conference attendees were overall very satisfied with how the conference was designed and delivered. The gap analysis of the importance and performance of individual programmatic components of the conference revealed specific areas that required attention, specifically keeping the cost of the Biennial Conference reasonable, providing opportunities for networking, and providing additional time for talking with presenters and other participants. Keeping the conference theme and topics relevant for both managers and scientists, with a focus on applications for resource management, is another important component rated high in performance, which should be maintained in future COPL conferences.

Another message that emerged from the IPA concerned the difficulties in balancing conference quality and cost. The High Country Conference Center was an outstanding venue for the COPL conference. The facilities, A-V equipment and food were consistently highly rated by survey respondents. The availability of this venue for hosting the meeting is of considerable

Statement	Factor loadings	Mean	S.D.	α
Social Networking Scale Items				
Interpersonal Connectsion		3.905		.877
As a result of the scientific program sessions, I established new professional relationships at the COPL conference	.750	3.73	.93	
Through informal social interactions I established new professional relationships at the COPL conference	.742	3.81	.97	
I connected with individuals outside of my area of expertise at the COPL conference	.728	3.95	.91	
I will continue to associate with the individuals that I met at the COPL conference	.832	3.84	1.04	
I value the relationships I established with people who attended the COPL conference	.786	4.20	.87	
Social Cohesion		4.059		
The COPL conference promotes a sense of social cohesion on the Colorado Plateau	.758	4.02	.88	
The COPL conference helps to build a sense of community in my area of expertise	.747	3.69	1.17	
The connections I made at the COPL conference will benefit me in the future	.722	4.07	.91	
Secondary Associations		3.794		.808
The COPL conference brings together people who come from different areas of expertise	.666	4.45	.67	
The COPL conference brings together people from my discipline	.633	3.72	1.14	
This conference has helped me connect with other professionals in my area of expertise	.840	3.83	.98	
I formed a social network through informal social interactions at the conference	.831	3.33	1.16	
Perceived Utility		3.580		.759
I think the COPL conference is a beneficial Conference	.693	4.66	.58	
My colleagues and I want the same thing from the COPL conference	.557	3.31	1.00	
It is important to me to attend the COPL conference	.665	4.16	.96	
People who attend the COPL conference conference get along with one another	.587	3.98	.87	
I feel comfortable at the conference	.642	4.45	.67	

Table 16.5 Factor loadings, mean values, standard deviations, and internal consistency of conference attendees' agreement with statements measuring social networking (n = 169)

value to conference organizers and attendees. However, the benefits of holding the conference in such facilities must be balanced with the associated costs. Every effort should be made in future conference planning to maintain a reasonable cost for attendees.

Our analysis of social networking suggested that conference attendees built networks and formed social capital on the bases of trust, perceived mutual aid and feelings of reciprocity (Glover and Hemingway 2005). We found that four dimensions contributed to social networks facilitated by participation in the COPL conference: Interpersonal Connections (five survey items), Social Cohesion (three survey items), Secondary Associations (four survey items), and Perceived Utility (five survey items). These dimensions reflected bonding ties rooted in interactions with individuals in similar areas of expertise and bridging ties that facilitated access to resources and ties across groups of attendees (Newman and Dale 2007). The COPL meeting contributed to the formation of bonding and bridging aspects of social capital. These findings illustrated diverse and active networks, which will inevitably further attendees' professional goals and aspirations. Social interaction and networks formed through participation in the COPL conferences helped connect science and management by fostering more science-based decision making about resources management in the southwestern US.

CONCLUSION

This study draws on IPA and the idea of social networking to assess whether the 10th Biennial Conference of Research on the Colorado Plateau meets the needs of attendees by fostering communication between scientists and managers, providing a place for formal and informal opportunities for intellectual exchange, and facilitating the creation of social networks. Study findings offer insight on the relative importance and performance of the programmatic components of the meeting, and the extent to which social networking is encouraged by each of these components. Our findings aim to help conference planners better suit the needs of scientists, managers, administrators, and students that attend future COPL conferences.

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