

**Users and Librarians Engaging in Virtual Spaces: Using Critical Incidents to Inform
Practice and Education in Chat Reference.
ALISE, Philadelphia, PA, January 8-11, 2008**

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Live chat virtual reference services (VRS) have become mainstream access points for tech-savvy seekers of online help from librarians over the past ten years (Sloan, 2006). Research informing LIS practice and education is critical for sustaining the relevance of library services in these rapidly expanding virtual environments. This paper reports new results from the final phases of a two and a half year grant project. It highlights findings from an investigation that compares the perceptions of VRS users, non-users, and librarians by means of the Critical Incident Technique (CIT) (Flanagan, 1954). This qualitative method is designed to elicit the most memorable aspects of an event or experience from participants (Ruben 1993) and has been used successfully in LIS for research in face-to-face reference service evaluation (see Radford 1993, 1996, 1999, 2006a). Here, it is used to expand our insight and understanding of the VRS interaction.

Critical Incident (CI) narratives in which VRS librarians, users, and non-users describe successful and unsuccessful chat interactions, have been collected through online surveys (from 175 librarians, 184 non-users, and 60 users). The user online survey is still in progress with a target of 200 total surveys. The theoretical perspectives of Watzlawick, Beavin, and Jackson (1967) and Goffman (1959, 1967) provide frameworks for a content analysis of these CIs to address the following research questions:

- What are the critical factors that determine users' perceptions of success and satisfaction in VRS?
- What are the critical factors that determine librarians' perceptions of success and satisfaction in VRS?
- How do users and librarians differ in their perception of factors critical to their perceptions of success and satisfaction in VRS?
- What is the relationship between information delivered/received (task/content) and interpersonal (relational) dimensions of VRS in determining perceptions of satisfaction/success?

The online survey contained two critical incident questions, asking the librarian, user, and non-user participants to describe an experience in which they felt that a chat reference encounter achieved (or did not achieve) a positive result. From the 175 librarian online survey participants, 143 positive and 126 negative critical incidents were collected. 149 positive and 106 negative critical incidents were collected from the non-users. The user online survey is still in process, and of the data that has been collected so far, from 60 participants, 57 positive and 30 negative critical incidents were elicited.

Qualitative analysis of each CI involved repeated reading, identification, comparison, and categorization of themes. The categories and coding method were developed in a previous study (see Radford, 1993, 1999) and applied to VRS in prior research (Radford 2006b) and in earlier phases of the current grant project (Connaway & Radford, 2007; Radford & Connaway, 2007).

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The CI coding scheme possess a hierarchy of codes for both positive (facilitators) and negative (barriers) relational and content elements as seen below in Table 3. Negative CIs were coded using the Barrier themes while positive CIs were coded using the Facilitator themes. Depending on the assigned codes, each CI was determined to have primarily “relational,” primarily “content,” or an equal combination of “both” aspects (see also Radford 1993, 1999, 2006a). As can be seen in Tables 1 and 2, for both positive and negative CIs, content themes were more numerous, followed by incidents in which content and relational aspects were equally present. However, in negative critical incidents, relational dimensions played a much more significant role for librarians and non-users, while users remained largely focused on content issues. Note that the results for users are still preliminary as the bulk of online surveys have yet to be completed.

Table 1

	Positive Critical Incidents (CI)		
	Relational	Content	Both
Librarian CI (N=143)	3	56	84
User CI (N=57)	3	38	16
Non-User CI (N=149)	3	96	50
Total	9	190	150

Table 2

	Negative Critical Incidents (CI)		
	Relational	Content	Both
Librarian CI (N=126)	46	45	35
User CI (N=30)	4	20	6
Non-User CI (N=106)	33	53	20
Total	83	118	61

Based on these research findings, the authors will discuss implications and detail recommendations for LIS education that encourage reflective practice and service excellence in face-to-face and virtual environments. An important feature of the CI analysis is that it will provide an increased understanding of VRS from the viewpoint of users, non-users and librarians so that greater success and satisfaction for all involved can be achieved.

*Note: This research project, “Seeking Synchronicity: Evaluating Virtual Reference Services from User, Non-User, and Librarian Perspectives,” is funded by the Institute of Museum and Library Services, Rutgers, The State University of New Jersey, and OCLC Online Computer Library Center, Inc.

PowerPoint slides for this presentation are available at the Seeking Synchronicity web site:
<http://www.oclc.org/research/projects/synchronicity/>

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Table 3
Results of Critical Incident Analysis of Librarian, User, and Non-User Online Surveys

[Using Expanded Critical Incident Coding Scheme for Face-to-Face and Virtual Reference & Explanation of Category Placement (Radford, 1999 & Seeking Synchronicity, 2008)]

Facilitators - Relational Categories			
Positive Critical Incidents			
	Librarians CI (N=143)	Users CI (N=57)	Non-Users CI (N=149)
1. Attitude – Displaying positive attitude	70, 49%	22, 39%	43, 29%
1.1 Toward other (e.g., supportive, friendly, helpful, patient, grateful)	27	14	37
1.11. Provides positive feedback (e.g., in survey or in chat transcript)	44	1	
1.2 Toward task (e.g., persistent)		1	11
1.21 Receptive toward instruction	4	3	3
1.22 Positive impact of anonymity	2	1	0
1.3 Toward VR service	4	7	0
2. Relationship quality	30, 21%	8, 14%	21, 14%
2.1 Good communication skills	12	3	8
2.11 Ability/use of question clarification/feedback/response	20	2	6
2.12 Use of humor			
2.2 Good orientation toward process (e.g., librarian or user concerned primarily with teaching/learning the research process)	2	3	3
2.3 Willingness to self-disclose to provide context for query (e.g., age, personal info)	4	0	2
3. Approachability	1, .7%	0, 0%	3, 2%
3.1 Positive nonverbal behavior (e.g., smiling, nodding, use of positive rerepresentation, chat speak, emoticons)	1	0	0
4. Impact of technology assisting relationship formation/development	0, 0%	0, 0%	0, 0%
5. Familiarity (repeat user)	4, 3%	0, 0%	0, 0%

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Facilitators - Content Categories			
Positive Critical Incidents			
	Librarians CI (N=143)	Users CI (N=57)	Non-Users CI (N=149)
1. Providing Information	125, 87%	53, 93%	123, 83%
1.1 Assisting information delivery/retrieval	12	2	1
1.11 Answering question (ready reference, technical questions, holdings)	10	3	28
1.12 Quickly providing answers	32	26	31
1.13 Locating specific resources	28	11	84
1.14 Providing accurate answer/information	15	34	4
1.15 Follow-up			
1.2 Providing information access	6	0	2
1.21 Access to other geographic locations	25	0	1
1.22 Access to those with disabilities	0	0	0
1.23 Access to speakers of languages other than English or language difficulties	0	0	0
1.24 Access for those unable to come in person	8	4	1
1.25 Access to non-traditional users	2	0	0
1.3 Being product oriented (e.g., concerned with finished product such as speech or paper, rather than with the process of research)	0	1	0
1.4 Making referral	4	0	4
1.41 Making referral to physical library, service desk, or phone	3	0	0
1.42 Making referral to other electronic service (e.g., email, SMS)	0	1	0
1.43 Making referral to subject specialist/expert	0	0	0
1.5 Using software/interface to assist information seeking process (technology worked)	21	0	0
1.51 Co-browsing worked	5	0	0
2. Demonstrating knowledge (e.g., specialized knowledge of sources or systems)	16, 11%	10, 18%	47, 32%
2.1 General knowledge	0	8	6
2.2. Specialized knowledge	0	0	1
2.21 Subject knowledge (other than library science)	2	3	4
2.22 Knowledge of library science (including e-resources)	3	1	0
2.23 Knowledge about information need	0	0	8

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<i>Facilitators - Content Categories , continued</i>			
<i>Positive Critical Incidents</i>			
	Librarians CI (N=143)	Users CI (N=57)	Non-Users CI (N=149)
2.24 Knowledge of how to articulate need	0	0	1
2.241 Spelling and grammar	0	0	0
2.25 Knowledge of tools, information sources	1	0	31
2.25 Knowledge of search process (including time needed to search)	4	0	10
2.26 Knowledge/ability to speak languages other than English	0	0	0
2.27 Knowledge/ability to use chat conventions	1	0	0
2.3 Technical knowledge	0	0	0
2.31 Solving/working around technical problems	3	0	0
3. Providing instruction - teaching process/resources	50, 35%	3, 5%	25, 17%
3.1 Guiding user through search process	31	0	21
3.2 Introducing new resources	11	0	10
3.3 Providing appropriate level of instruction	3	1	1
3.4 Learned new resource/process	4	0	0
4.0 Convenience/multitasking/time saving/money saving	11, 8%	9, 16%	0, 0%
4.1 Specific technological interface benefits (e.g., drawing a graph)	0	1	0
<i>Barriers - Relational Categories</i>			
<i>Negative Critical Incidents</i>			
	Librarians CI (N=126)	Users CI (N=30)	Non-Users CI (N=106)
1. Attitude – Displaying negative attitude	68, 54%	8, 27%	36, 34%
1.1 Toward other (e.g., angry, impatient, resisting, rude, inappropriate)	38	5	20
1.2 Toward task (e.g., uninterested)	5	4	4
1.21 Unreceptive toward instruction , demand for answer	12	0	0
1.22 Unrealistically high expectations for quick & full answers	27	0	1
1.23 Fear of being overwhelmed	0	0	0
1.24 Fear of transcript evaluation/presence	0	0	0

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Barriers - Relational Categories, continued			
Negative Critical Incidents			
	Librarians CI (N=126)	Users CI (N=30)	Non-Users CI (N=106)
1.25 Detrimental impact of anonymity (e.g., prompting inappropriate behavior)	4	0	0
1.26 Busy/does not commit time to question	2	0	16
1.3 Toward VR service	4	1	0
2. Relationship quality	32, 25%	3, 10%	12, 11%
2.1 Poor communication skills	4	0	0
2.11 Inability/use of question clarification, lack of feedback/response	11	0	5
2.12 Abrupt sign off	10	2	
2.13 Different than FtF in a negative way	1	0	0
2.2 Poor orientation toward process (e.g., librarian or user not concerned primarily with teaching/learning the research process)	3	0	3
2.3 Unwilling to self-disclose to provide context for query (e.g., age, personal info)	6	0	1
2.4 Lack of personal response	0	0	2
2.5 No follow-up	0	1	
3. Approachability	2, 2%	1, 3%	18, 17%
3.1 Negative nonverbal behavior (e.g., frowning, staring, use of negative chat speak)	1	0	0
3.11 Librarian points or does not come out from behind desk	0	0	13
3.2 Disclaimer	1	1	0
4. Impact of technology impeding relationship formation/development	3, 2%	1, 3%	1, 1%

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Barriers - Content Categories			
Negative Critical Incidents			
	Librarians CI (N=126)	Users CI (N=30)	Non-Users CI (N=106)
1. Information	75, 60%	20, 67%	66, 62%
1.1 Impeding information delivery/retrieval	2	0	1
1.11 Problematic for complex, obscure, highly specific questions	20	0	2
1.12 Not answering question	8	11	15
1.13 Slow in providing answers/response	4	1	16
1.14 Not locating specific resources	6	0	10
1.141 Missing or unavailable resources	5	0	10
1.15 Shortage of library staff	3	2	3
1.16 Waiting a long time in queue for response	0	4	0
1.2 Lack of information access	2	0	1
1.21 No local library access	6	2, 6%	0
1.3 Lack of accuracy - wrong information provided	2	1	3
1.4 Information technology- impeding process	8	1	3
1.41 Limited availability of resources	5	0	2
1.42 Time pressure (e.g., users in queue)	5	0	1
1.43 Multi-tasking, distraction	4	1	0
1.44 Lack of proximity to physical library, librarian	1	0	0
1.45 Poor usability or unclear/misleading information	0	0	4
1.5 Negative software/interface impact	5	0	1
1.51 Limitations of software (e.g., IM, chat, email)	11	0	1
1.52 Software problems (e.g. co-browsing)	6	0	0
2. Lack of knowledge	6, 5%	7, 23%	20, 19%
2.1 General knowledge	3	2	9
2.2. Specialized knowledge	10	0	11
2.3 Technical knowledge (including chat, typing, computer skills)	3	0	1
3. Instruction	0, 0%	0, 0%	7, 7%
3.1 Lack of instruction	1	0	4
3.2 Level of instruction inappropriate	0	0	2
3.3 Amount of instruction inappropriate	0	0	1

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