Developing a virtual reference service based on team development and collaborative learning

Forsberg, Åsa; Stenson, Linnea

[Link to publication](#)

Taking Charge of your LIS Career: Personal Strategies, Institutional Programs, Strong Libraries
12 -14 August 2015
Cape Town, South Africa

Developing a virtual reference service based on team development and collaborative learning

Linnéa Stenson
Lund University Library, Lund, Sweden
linnea.stenson@ub.lu.se

Åsa Forsberg
Lund University Library, Lund, Sweden
asa.forsberg@ub.lu.se

Abstract:

In August 2014 Lund University Library launched a Virtual Reference Service (VRS) consisting of email reference, chat reference and telephone reference. The service is staffed by a "FirstLine" team with team members who have a broad range of different competencies. For questions that require expert competence the team has the opportunity to forward the questions to colleagues at all the different departments within the University Library (i.e. "SecondLine"). In this article the process, from designing the organization behind the VRS to implementing and improving it, is discussed, emphasizing both challenges and key factors for success. The team concept and team learning theory are used as foundations for understanding experiences. In addition, results from an email survey for end users and chat ratings are presented to show what we have accomplished so far.

Keywords: virtual reference service, team work, collaborative learning.

Introduction

In 2012 the Lund University Libraries went through reorganization. One result of this was the merging of two common units, the University Library and the Library Head Office. The University Library is the largest and oldest of the Lund University libraries; it is a legal deposit library with a collection of all Swedish print works since the end of the 17th century, and it also has a large collection of manuscripts and several special collections of images, maps, music sheets, letters and more. At the same time the University Library is a modern library

with a reference service and 500 study places for students and researchers. The Library Head Office had responsibility for coordinating the network organization of all the libraries at Lund University, maintaining and developing the common library systems, making electronic resources accessible and giving support both to scientific communications and to higher education teaching and learning.

The new organization has thus a very wide range of responsibilities and activities, with about 100 staff members, many highly specialized. It is structured as five major departments with a number of sections, most of which have contacts with users (i.e. end users and librarians at the other libraries at Lund University). The former Library units have however had different traditions and patterns of communication with users and the merging of the two organizational structures created a need to find new ways of communicating with different categories of users, to facilitate ways for users to contact the University Library and to make reference and support services more efficient.
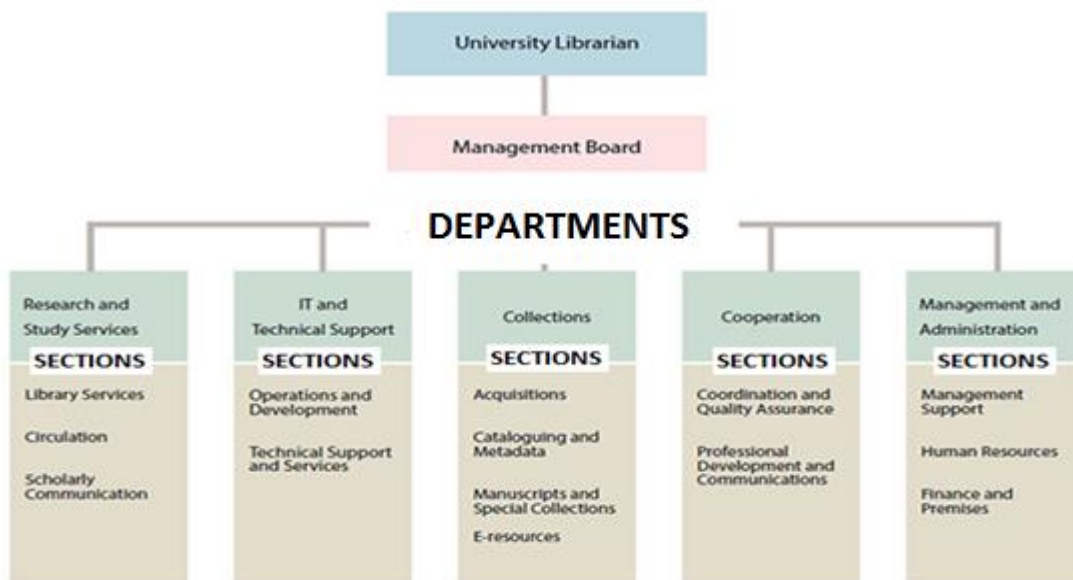
Figure 1. The organization of Lund University Library

Lund University Library has had previous experience of offering Virtual Reference Services (VRS). Between 2004 and 2009 the Library participated in a national "Ask a Librarian" service and a few years later the system librarians responsible for the Online Public Access Catalogue (OPAC) launched a very much appreciated chat service available directly from the system. As a result of the reorganization the responsibility for this chat service was transferred to the Library Services section and broadened to a chat service for the University Library.

In autumn 2013 the University Library set up a project to design a new, broadened VRS. A project group with members from all the sections that have user contacts was formed, since it was important to include as many stakeholders as possible in the process of finding a model which could be accepted by all sections. The project group worked during autumn 2013 and spring 2014 to present a model for the new VRS, which was then approved by Library Management in early 2014.

The idea presented by the project group was that the VRS should be organized in a two-tier "FirstLine" and "SecondLine" system. FirstLine should consist of a team working with VRS and SecondLine of the experts in the different sections. The aim was that FirstLine should eventually handle 80 per cent of the incoming questions and to be able to reach this goal the team should include librarians from as many different sections as possible. The VRS should furthermore work with a ticket tracking system, to ensure transparency and sustainability and to increase the potential/ ability for possibilities of information retrieval. The aim was to create a streamlined way to contact the University Library; several different communication channels should also be offered for users: e-mail reference, contact forms, chat reference and telephone reference -- i.e., a single point of contact for users. The main reason that telephone reference was included in the VRS was that the current telephone service was not functioning properly, since the library had tried to maximize staff hours through having librarians offering telephone reference while working at the physical reference desk. Such organization of work actually made it quite difficult to reach the University Library by phone, since librarians prioritized face-to-face-reference.

The concept of a team was very important when organizing and staffing the University Library VRS, and such a team should be given the mandate to design and develop the VRS. Another important issue was to facilitate good true valid collaboration between the VRS team and the experts in the University Library organization, the librarians in the larger University Libraries' network and relevant academic and administrative staff at Lund University. It was important that the team members should come from different departments and should have complementary skills, each team member having in-depth knowledge within her/his own area. In the team it should be each member's responsibility to share this knowledge with colleagues. Equally, all team members should acquire an overall understanding of University Library activities and the insight and skills to handle each user encounter with a pedagogical approach and service. The VRS was launched in August 2014 and the implementation of the service is discussed in this article.

Librarians' attitudes towards VRS

The literature highlights training, skills and enthusiasm of librarians as one of two key factors that contribute to success in providing quality virtual reference service (Carlson, Nicol & Crook 2013; Duncan & Gerrard 2011). It is not uncommon that library staff are reluctant to work with VRS, for several reasons. Carlson, Nicol & Crook for example point out the increased workload, risk-taking and time commitment required when learning new skills, as well as apprehension about how valuable the VRS will prove to be. The second key factor to success which is identified in the literature is users' willingness to use the VRS (Carlson, Nicol & Crook 2013: 162).

This article, however, will focus mainly on developing a service based on team development and collaborative learning, i.e. the staff perspective on delivering a VRS. Radford addresses challenges for future reference service excellence, predicting major changes mostly because of changes in technology and users' expectations, and states that the "future holds unique opportunities for librarians willing to take some risks" (Radford 2011: 16). Librarians need to take on a new attitude and respond to the need to adapt, to redefine the reference service, and to be "both change agents and managers of incremental change", i. e to have the ability to change.

Challenges related to how the service is organized are addressed in a large portion of the literature on VRS and might also explain why reluctance is experienced in many libraries that implement chat, text messaging or similar services. It is not uncommon that librarians are expected to offer VRS while working at the physical reference desk, which puts them in a difficult position when having to prioritize between physical and virtual users (Powers et al. 2010: 176). Multi-tasking physical and virtual reference work also tends to affect quality (Carlson, Nicol & Crook 2013: 163).

At the same time libraries are constantly being asked to "do more with less" and having a dedicated group working with VRS is not possible in all libraries. Organizing the staffing of a VRS *solely* on a voluntary basis, however, is not a sustainable model in the long run. Experiences from libraries working with designing an organization for VRS beyond volunteers have in some cases resulted in a two-tier reference model, where tier one is defined as helping patrons with general questions and instructions, such as finding information on a given topic, while tier two assisted patrons with in-depth, complex questions (Duncan & Gerrard 2011: 282-290). Carlson, Nicol & Crook also point out that even in times of budget restraints it is possible to create workable staffing models "if the librarians and their administrators believe that the VRS is and should be a priority to their library" (Carlson, Nicol & Crook 2013: 163).

Defining the team concept

According to Salas (2009: 909) "a *team* can be defined as a set of two or more individuals who adaptively, episodically, and dynamically interact interdependently through specified roles and responsibilities as they work toward shared and valued goals". The Swedish researcher in pedagogics Otto Granberg defines a team/work group as "composed by a number of individuals -- not too many -- with different skills, who together and with high interactivity solve integrated tasks, in order to achieve a common goal" (Granberg 2006: 194)[1].

Salas highlights the fact that team members often have different specializations and that it is thanks to the synergy of this diverse expertise that the team's capacity can be greater than the sum of the individual capabilities of the team members. The team-level competencies, i.e. knowledge, skills and attitudes, represent the competencies the members need in order to perform effective teamwork Furthermore Salas claims that five factors are necessary for teamwork: "team leadership, adaptability, mutual performance monitoring, backup or supportive behavior, and team orientation", and three necessary mechanisms, "shared mental models, closed-loop communication, and mutual trust" (Salas 2009: 910-911).

Team learning

According to Granberg (2009: 135) in good circumstances a team can develop a collective learning approach, in other words, peer learning, and can develop knowledge in close interactions with the context. The prerequisites for this are that the team should:

- identify, interpret and develop a common understanding of the task
- make the common collective competencies accessible to all team members; and
- develop strategies for how to perform tasks and solve problems.

---

[1] The authors' translation.

Granberg has summarized team and peer learning: individuals learn by interact with their context, and in a team the most important elements of the context are the tasks and the team members. A team can develop common values and attitudes in the process to create a common understanding of the task. If the team members share values and attitudes they can develop similar ways of thinking and a common strategy to act in order to solve the team tasks. And if the team members have developed strategies for the team's actions, based on the combined and different skills and knowledge of members, the individual team member may be able to make decisions and act on a basis larger than her/his own individual skills (Granberg 2009:139). The most important conditions for peer and team learning are that the team has a common understanding of the tasks, the team members identify themselves as parts of a team, and the team allows social interaction, in form of discussions, dialogues and collective reflection.

Collaboration beyond the team

Radford et al. (2013) address the importance of collaboration in virtual reference and point out that the extent of colleagues' willingness to help can be both a facilitator and a barrier. Their research shows that librarians are willing to collaborate both with other librarians and with experts outside of the library field, if they are confident that these experts are qualified. They point out facilitators and barriers to collaboration. Facilitators are both a perception of other librarians being willing to help, and having knowledge of someone who could help. Barriers to collaboration could, for example, be not knowing anyone who would be willing to help or feeling that colleagues would not want to collaborate. Radford et al. do conclude that collaboration is an essential part of sustainable VRS since this creates engagement, but they also point out that librarians should not restrict their collaboration to other librarians - other kinds of subject experts can add value.

Implementation of a VRS at Lund University library

In early 2014 all staff members at the University Library were invited to apply for a place in the VRS team. The importance of assigning team members on a volunteer basis in order for the team to succeed was pointed out by the project group, since it is of great importance that the librarians involved possess the skills and enthusiasm to make the service as friendly and effective as possible. The librarians involved need to believe that VRS has a value, since their attitudes will affect the service they give to the users (Carlson, Nicol & Crook 2013: 163; Duncan & Gerrard 2011: 281).

The invitation to apply resulted in a team with 12 members, which was enough to staff the VRS with two librarians at a time (weekdays between 9 am and 4 pm). One of the librarians was also appointed as team leader for the VRS. The aim of creating a team with as many different competencies as possible was quite successful - the members of the VRS team represented seven of the nine sections which employ librarians (the library has in total 14 sections, but five of these employ other non-librarian groups, e.g. economists, programmers and janitors). The team members had quite different work experience, but all had been working with end-users, either in the physical reference service or in a help desk, giving online support.

Creating a quality policy

One of the first tasks for the newly formed team was to develop a quality policy for the VRS. This was a process involving brainstorming, discussions and negotiations, giving team members the opportunity to build a common platform, based on principles both for a pedagogical approach and for good service.

The result is a quality policy which states that team members shall
- be able to support users in both Swedish and English
- have a pedagogical approach when communicating with users
- communicate who they are in different mediums (e.g. using a personalized account marked with their name when chatting with users; introducing themselves by name when speaking to users by telephone); and
- when communicating with users through email, begin the email by thanking the user for contacting the VRS and end the email with an invitation to get back if they have further questions.
- Users who contact the VRS before 3 p.m. on a weekday can expect to receive a first answer that day (contact made after that time will be answered the following weekday).

Team building

The new team met frequently before mid-2014 to team-build and to prepare for the implementation of the service. Except for discussing service quality, team meetings were mainly focused on learning more about communication with users through different mediums and learning about the tools. Since the project group recommended the use of a ticket tracking system, such a system also had to be chosen and implemented at short notice. For a system to be accepted by both the VRS team and the SecondLine, the team needed a ticket tracking system that supported learning and had a user-friendly interface. After a brief investigation of commercial alternatives, LibAnswers from Springshare was chosen, since the Library already had a licence and the tool had, for example, a public knowledge base alternative for building an FAQ, was integrated with a chat and was developed directly for library organizations, unlike many other commercial alternatives (which were suitable for organizations that were primarily pure IT).

During this intense phase each team member was given the task of presenting her/his own area of work, trying to focus on both the processes involved in these areas and on frequently-asked questions, in order to raise the degree of awareness of necessary competencies for those who had not previously been working with similar questions. This strategy was used as a way to encourage collaborative learning, to create an environment where each competency is seen as valuable and to create a team spirit of building a service together. For those areas of work where it was relevant, team members also made educational visits in order to better understand the processes and to put a face and name on the staff working there. As Radford et al. point out, two major barriers to collaboration are not feeling welcome to collaborate and not knowing whom to contact (Radford et al. 2013).
Educational visits were a strategy for trying to make colleagues feel willing to help by showing that the VRS team had an interest in their area. This was also used as a strategy for making it easier for the VRS team to investigate questions outside their areas of expertise through actively seeking help from colleagues with whom they did not have daily contact. To minimise

the problem of not knowing whom to contact, information about different competencies within the library was also gathered from team members and resulted in a list with names of staff, competencies and phone numbers.

After launching the virtual reference service at the end of August 2014 the VRS team has continued to meet each fortnight. Team members are encouraged to bring incidents from their VRS shifts and to discuss both the service encounter and the factual questions. Each meeting also has a theme (as for example "communication through emails", "access to electronic resources" and "library jurisprudence") which are based on suggestions from team members who express a need to learn more about the subject. In addition the team members participate in a professional training programme for all staff members working with both the virtual and the physical reference service[2].

Using VRS for work development

The team is also trying to use the interactions with users to track which services need to be improved and if improvement can be made with small inputs of effort. An example of such an improvement is that the team discovered that the University Library has a large collection of standards in external storage facilities, which are not searchable in the catalogue. These standards need to be ordered through the reference desk to be retrieved from external storage locations and, from feedback from both end users and from librarians at the Faculty of Engineering, it became obvious that students went to the University Library to look for the material, but did not understand how to place the order and left the library empty-handed. To reduce disappointment and confusion a cataloguer in the team then cooperated with a librarian working with the retrieval process. Together they went through the material and made a general record in the catalogue through which all available standards can be ordered. Information about how to place the order was also written in the University Library FAQ and the URL for the information was made available to the librarians at the Faculty of Engineering; this has both reduced the numbers of questions regarding standards and increased the requests placed for them.

Results

Following the use of LibAnswers in the VRS the team has been able to gather much quantitative data, which can be useful when trying to evaluate the service. For example it now can be seen that between September 2014 and February 2015 the VRS team received on average 1006 questions per month (emails, chats and phone calls). Because the VRS previously were decentralized (handled through joint inboxes at some sections and a ticket tracking system at others), it has not previously been possible to properly investigate whether the VRS team have had an increase in email questions. While phone call statistics are unfortunately poor, reactions from the librarians scheduled on the physical reference desk suggest that moving the telephone reference to the VRS has been a great improvement.

With regard to the chat service, a comparison of the period September 2014 to February 2015 with the same period of the previous year shows that the number of chats has increased on average 105.51 per cent.

---

[2] This professional training is described in detail in another paper presented at the CPDWL 2015 satellite meeting by Åsa Forsberg, "Sharpening the infodesk toolbox: peer learning through flexible modules to ensure sustainability in professional development".
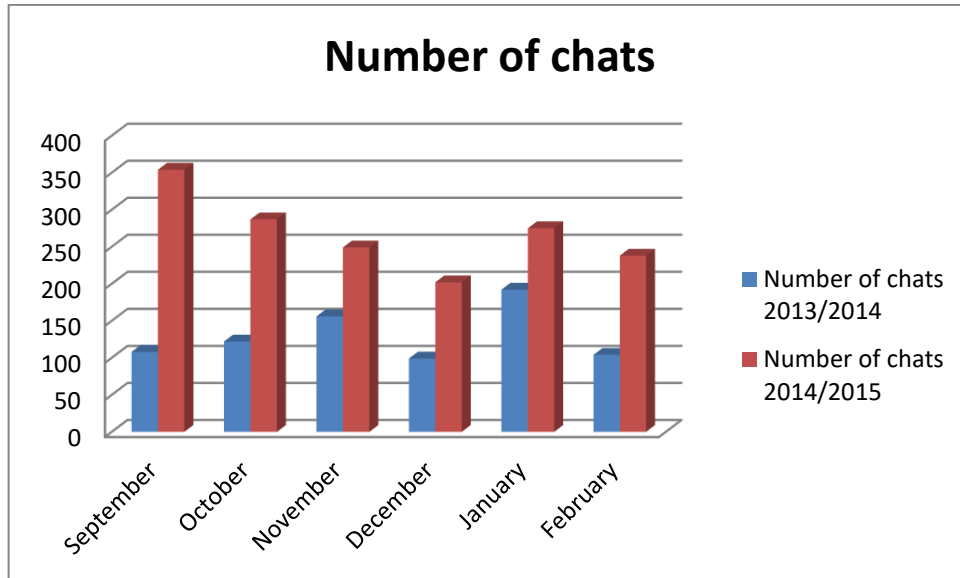
Figure 2. The number of chats during 2013-2014 and 2014-2015

Investigating patron satisfaction

During February 2015 an email survey was set up with the aim of investigating whether the new, reorganized service and the work on team learning have had any impact on patron satisfaction, as hoped. The main questions asked in the survey covered satisfaction with the service encounter, quality of answers and response times. The survey was sent out to all the users who had contacted the VRS through email since the launch of the service, i.e. 1515 unique email addresses.

Figure 3. The chat-rating interface

A rating function was also implemented in the chat service on 1st January 2015, where users who had left a chat were asked to rate the chat service with a mark from bad to great (this was

8

to find out if the satisfaction of service through different mediums differed). Between January and February 513 chats had this rating option available.

While the survey was answered by 24.42 per cent of the users asked, the rating frequency was slightly lower (19.88 per cent of the users chose to rate the chat service).

Service encounter

On analysis, the results of the email survey show a high degree of satisfaction, but the results are complex since the respondents could leave comments when answering the survey. Of those respondents, 95.42 per cent answered that the services they had encountered were good or very good.
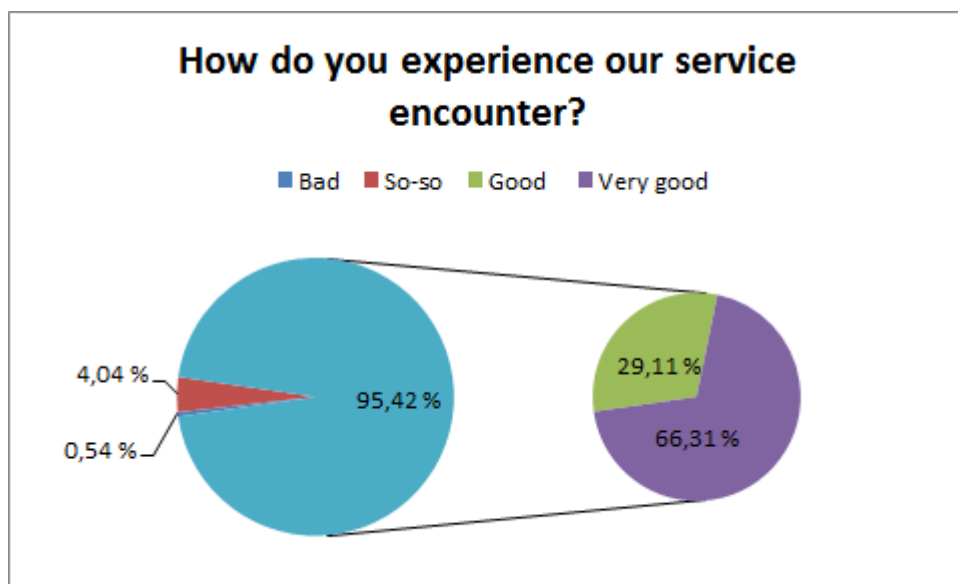

Figure 4. The result of how users responded regarding service encounter

Throughout the comments descriptions of the librarians as "helpful and friendly" repeatedly appears.

Quality of answers

Regarding the quality of answers, 89.48 per cent answered that they had received a very good or good answer to their question, while 3.23 per cent answered that the quality of the answer varied depending on which librarian they encountered.
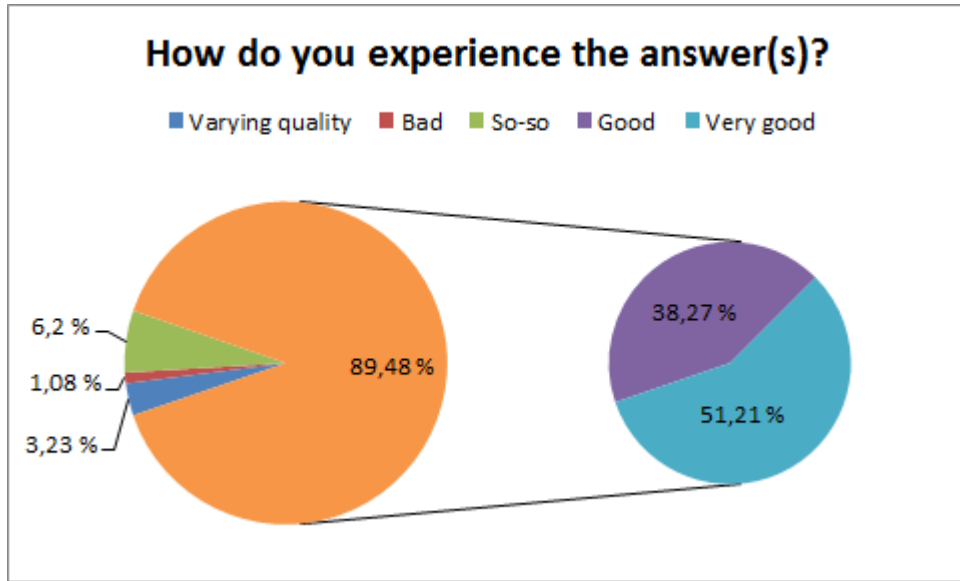
Figure 5. The result of how users responded regarding the quality of the answer(s)

From the comments collected through the survey the expectations of users can be seen. A striking example of this is from one respondent who writes "When I am chatting I don't want the questions to be sent to another section at the library. It is important that the person operating the chat can answer *everything*".

Response times

The results from the question regarding response times show that 94.6 percent of all respondents are very satisfied or satisfied.
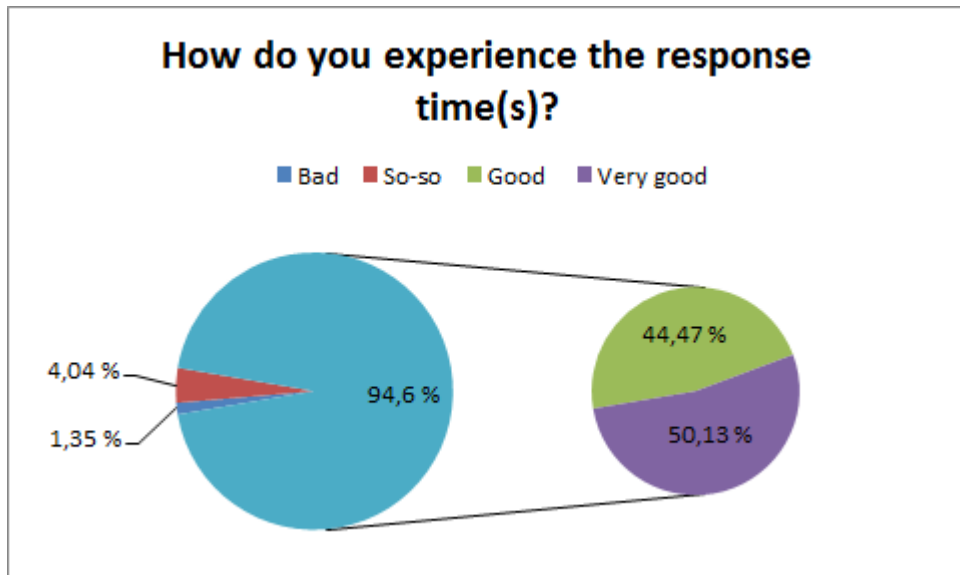

Figure 6. The result of how users responded regarding the response time(s)

Reviewing the LibAnswers statistics shows that the level of satisfaction is borne out by the facts, since the turnaround statistics for emails between the launching of the service and the

end of February 2015 show that a third of the emails are answered within ten minutes and in total 88.9 per cent within 24 hours. The remaining 11.1 per cent not answered with 24 hours corresponds to the number of emails sent on weekends and public holidays (e.g. Christmas), when the VRS team are off-duty.

0-10 minutes	10-60 minutes	1-12 hours	12-24 hours	1-3 days	3+ days
855	486	348	521	233	42
34.4%	19.6%	14%	21%	9.4%	1.7%

Figure 7. Table showing turnaround statistics

In addition, large numbers of users expressed satisfaction with the response times and commented on this in the survey. For example one satisfied user writes "I have received answers at the latest the day after, which is wonderful" and another one writes "Immediate response", while someone who had been sent to another section at the library writes "I filled the contact form on the web site and received an answer five minutes later. Great! Then I had to wait 2.5 days to receive an answer from section Y. So-so". A dissatisfied user comments on the response times by writing "The answers were quick. If they had been correct it would have been great".

Chat ratings

The data from the chat ratings also show a high degree of satisfaction with the service, with altogether 95.1% of the respondents rating the chat service as great or good (see figure 8 below).
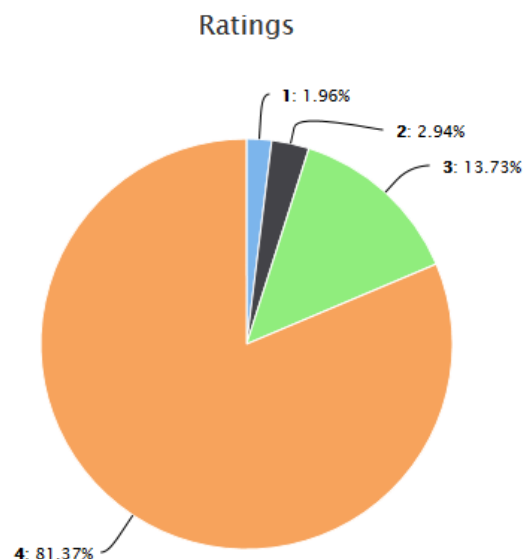

Figure 8. Chat rating statistics (clarification of the numbers in the figure: 4 = great, 3 = good, 2 = so-so and 1 = bad)

Questions answered by FirstLine versus SecondLine

When comparing the proportion of questions sent to other sections at the library it can be seen that the goal of FirstLine, of being able to answer 80 per cent of the incoming questions, has not yet been reached. The numbers are however increasing over time due to the fact that the VRS team has learned more and more about the areas outside their regular expertise; numbers nevertheless show some fluctuations which might be due to the nature of the questions they receive.
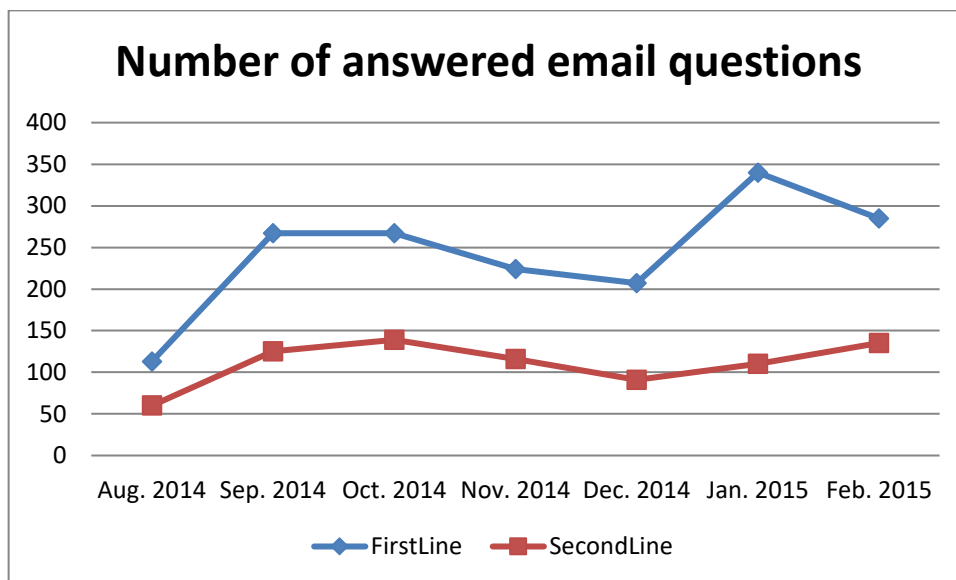

Figure 9. Number of answered email questions 2014-2015

When comparing the first months of the autumn term and the spring term (September 2014 and January 2015) we can for example see that the FirstLine have made progress of eight percentage points).
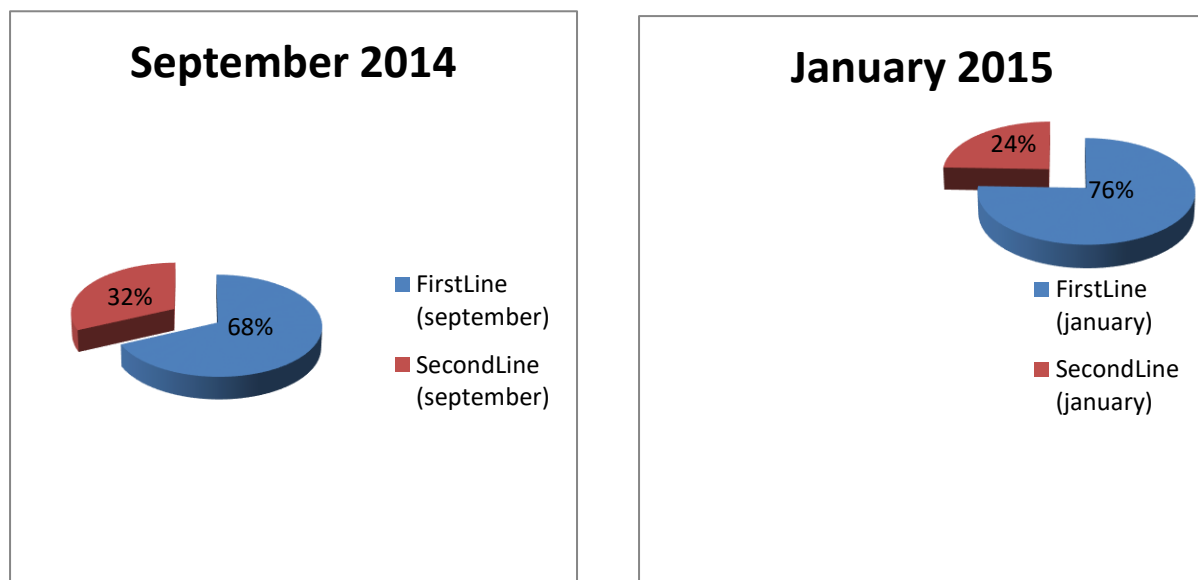

Figure 10. Percentage of questions answered by FirstLine and SecondLine in September 2014 and January 2015

Discussion

Results so far indicate that the implementation of the VRS team has been successful. In just little less than eight months the team members have developed a common understanding of the task, made the common collective competencies accessible to all team members and developed common strategies for performing tasks and solving problems. There is a high degree of mutual trust and knowledge-sharing in the team.

However, the process is still developing and there are difficulties to overcome. Professional development and contribution must continue. Users will never all be entirely satisfied although a large majority seem content with the quality of the answers they are receiving. However, both comments regarding receiving incorrect information and the percentage that answered that quality can vary indicate the need to continue to develop team performance and effectiveness. Another challenge is the expectation of some users that they will receive fast answers to everything (especially through the chat); these expectations can be stressful for the VRS team, who often need to be able to multi-task and operate several technologies (usually phone calls and chats) at the same time.

The functioning of the currently used ticket tracking system supports information retrieval and learning, and this must be developed to better support team members when they are searching for information under pressure. Team members must also be aware of their own strengths and weaknesses and continue to work with personal and team development, since the communication skills of the VRS team and their ability to deliver an accurate answer has a major impact on the individual user's perception of the University Library.

There are also risks that could affect the quality of the service. One risk is that of too frequent changes in team members. Since the launch of the reorganized VRS service a number of team members have left the team and others have joined and this has not yet constituted a problem; too large a change in team members may however have negative consequences. First, as team theory points out, there might be a limit to the number of staff involved before the positive effects (as in active participation) of constituting a team are erased (Granberg 2009: 135). Second, since the team members who have been working with the VRS service over time have developed general knowledge about the different sections at the University Library, a change of several staff at the same time could be considered a loss in service departments and sections of the library. Traditionally the work done in the reference service is not considered to be a core activity. This is especially noticeable when it comes to the traditional physical reference service, but it may be a challenge also for the VRS if the workload increases and/or the resources get more constrained.

A further challenge is to work in a way which creates participation and enthusiasm from the SecondLine. Although each team member creates a bridge of some kind from the VRS team to their own section, resistance to VRS still presents a challenge in some parts of the organization and there is a need to continue to work on the attitudes towards reference service in general. The reference service -- virtual or physical -- needs to become a service which the entire organization accepts as a service "we" are offering, instead of being a service "they" who are scheduled in either reference service have to deal with. As stated above, the reference service, either physical or virtual, has a very substantial impact on the user's perception of the University Library.

Conclusions and further directions

The VRS at the University library is both a necessary and an appreciated service. We believe that the creation of a team working collaboratively with a broad range of competencies, is one of the key factors behind this success and that the demand for online services in general will increase in the near future.

The VRS at Lund University Library was implemented less than a year ago. It will be thoroughly evaluated with both quantitative and qualitative methods during mid-2015. After the evaluation has been carried out and presented to library management a decision will be taken on whether the University Library will include the VRS in the library's selection of services or not. It is not very likely that the VRS will be phased out; the main question for the team will more likely be how to proceed with the experience so far.

This in turn raises a number of challenging questions. How do we work to keep up with our users' expectations? How do we work on keeping a team spirit, especially at times when team members are overwhelmed with additional responsibilities? How do we engage with each team member so that they continuously work to improve skills and competencies? How do we bring about a perception of reference service competency as a competency equal to and as valuable as other areas of expertise within the University Library? And how do we engage SecondLine in creating mutual understanding and goals?

The 2015 mid-year evaluation will consider these questions. To create a high quality VRS which is able to meet the challenges of today and of the future, librarians with the ability to change and with the skills to meet and communicate with users are needed. Recent work in Sweden points these out as core skills for librarians, today and in the future (Tapia et al.: 2009). The aim of this project is to find suitable workflow and team development that will prepare the library for the future, which offers unique opportunities for librarians willing to take some risks.

References

Carlson Nicol, E. and Crook, L. 2013. Now it's necessary: Virtual Reference Services at Washington State University, Pullman. *The Journal of Academic Librarianship,* 39 (2).

Duncan, V. and Gerrard, A. 2011. All together now! Integrating Virtual Reference in the academic library. *Reference & Users Services Quarterly,* 50 (3).

Granberg, O. 2009. *Lära eller läras: om kompetens och utbildningsplanering i arbetslivet.* Lund: Studentlitteratur.

Johnson, L., Adams Becker, S., Estrada, V., and Freeman, A. 2015. NMC Horizon Report: 2015 Higher Education Edition. Austin, Texas: The New Media Consortium.

Powers, A.C., Nolen, D., Zhang, L., Xu, Y. and Peyton, G. 2010. Moving from the consortium to the Reference Desk: keeping Chat and improving Reference at the MSU Libraries. *Internet Reference Services Quarterly.* 15 (3).

Radford, M., Connaway, L., Mikitish, S., Alpert, M., Shah, C., and Cooke, N. 2013. Conceptualizing collaboration and community in virtual reference and social questions

and answer services. *Information Research, Special Supplement: Proceedings of the Eight International Conference on Conceptions of Library and Information Science, Denmark, 19-22 August, 2013,* 18 (3).

Radford, M. 2011. Envisioning and creating Reference futures. In Radford, M. (ed.) *Leading the Reference Renaissance: Today's Ideas for Tomorrow's Cutting-Edge Services.* New York: Neal-Schuman Publishers.

Salas, E. 2010. Teams, in *Encyclopedia of Group Processes & Intergroup Relations,* John M. Levine & Michael A. Hogg (eds). SAGE Publications, Inc.

Tapia, P., Stjernberg, H., Ahlin, P., Forsman, D., Forsberg, A.-K. &, Petersson, C. 2009. *Rapport från Arbetsgruppen för framtidsfrågor*. SUHF Forum för bibliotekschefer