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The Efficient Team-Driven Quality Scholarship Model: A Process Evaluation of Collaborative Research

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Keywords

collaborative research, teams, process evaluation, SWOT analysis, scholarly productivity

Cover Page Footnote

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Abstract

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Keywords: collaborative research, teams, process evaluation, SWOT analysis, scholarly productivity



Introduction

The Efficient Team-Driven Quality Scholarship (ETQS) Model is a collaborative research and writing system providing support, timesaving strategies, and synergy with the combined abilities of team members. The scholarly research and writing process can be an arduous and drawn-out process, competing with other work responsibilities, along with research interruptions. The ETQS Model was developed as a framework to expedite the scholarly research and writing process utilizing a collaborative team-approach. The ETQS Model was originally labeled *Power Publishing*, later renamed to highlight an efficient team-driven structure to produce quality scholarship.

Librarian and other faculty researchers need to meet research and publication goals but face competing time drains, interrupted projects and momentum, and other obstacles that interfere with scholarly productivity. The literature offers a description of common obstacles, success factors, and strategies to address challenges faced by researchers. This study evaluates the effectiveness of the ETQS Model to promote four success factors for productive library and information science research, writing, and publication. These factors include:

- research time and momentum,
- research skills and experience,
- self-confidence in the research process, and
- a research community with peer-mentoring support and collaborative opportunities.

ETQS consists of four aspects:

- a team-driven collaborative design,
- a condensed timeline,
- built-in quality controls, and
- concurrent scholarly research processes.

Literature Review

The ETQS Model connects established approaches to research productivity to provide a new paradigm. As background, the review of the literature covers multiple areas including obstacles to and success factors for research and publication success, collaborative and team research approaches, productive research and writing methods, condensed research timelines, other models with some comparisons to ETQS, and the process evaluation method.

Obstacles & Success Factors

Expectations for scholarly research activity have increased within the library and information science (LIS) profession.¹ Multiple authors in the LIS and other fields have studied the obstacles to faculty research and publication, while others have investigated factors that promote or predict faculty research success. These factors often are mirror images. LIS studies by Kennedy and Brancolini, Hoffmann, Berg, and Koufogiannakis, Kilobase and Clyde, Swanepoel, and Lessick et al.² and broader faculty studies by Clapton, Amsberryaugier, Griffin, and Lee³ identify barriers to research productivity and all note research insufficiencies of time, training/education, experience, skill, confidence, commitment, research community/mentoring, and institutional support/resources. Time constraints are often cited by survey participants as one of the top challenges to research and publication, citing the conflict between workload and the time and energy needed for scholarly work.⁴

Hadré et al. designed a study to measure what motivates faculty to research and what factors increase productivity. The study queried faculty from a variety of disciplines at research universities across the United States. The primary takeaways of the study were that research effort and teaching load are the "two strongest predictors of productivity."⁵ Teaching load is a negative

predictor in that it creates a time barrier to research.⁶ McGrail, Rickard, and Jones' study regarding interventions for increasing scholarly publication discuss the problem of continuing project and writing momentum.⁷ Chase et al. discuss the experiences of nursing faculty making time for research; acknowledging the "various distractions that can derail productivity and decrease efficiency.". They evaluate the challenges specifically related to time management, implicating the largest barrier as environmental distractions involving "time drain" including procrastination, attending to interruptions, and lack of discipline.⁸ Such insights are also pertinent to LIS, which, like nursing, is a service oriented and female dominated profession.

An article by the Social Sciences Feminist Network Research Interest Group also studied faculty research, teaching and service workload disparities by gender and marginalized faculty groups. Overall, compared to female faculty, male faculty spent more time on scholarly research activities but "the differences were not statistically significant." In contrast, both female and male marginalized faculty spent more time on service and teaching, activities less favored in the tenure and promotion process.⁹ However, Guarino and Borden did find evidence of "a gender imbalance in faculty service loads," negatively impacting women faculty's productivity in research and teaching, and possibly leading to promotion and salary disparities.¹⁰ Service and other academic "invisible work" can reduce faculty time that could otherwise be used to increase research productivity.

Collaborative and Team Approaches

In 2015, the National Research Council reported on a "dramatic shift toward collaborative research."¹¹ Cheruvelil et al., Nygaard, and Hellström et al., assume collaborative research teams are not only necessary, but also advantageous for scientific and research endeavors.¹² Hall and McBain's and Pickton's articles study the impact

of groups and collaboration on library research productivity and developing a successful culture of research.¹³

Addressing the efficacy of a research community, including research collaboration, team approaches, and peer-mentoring, Lee and Bozeman study the assumption of collaboration increasing publishing output.¹⁴ They maintain that collaboration alone is not assurance of increased effectiveness and there is a need for more examination into the factors that contribute to barriers. Cheruvelil et al. emphasizes the need for researchers to be committed to a common purpose, approach, and performance goals.¹⁵ While collaboration should lend to mutual accountability, there is still a need for strong leadership, member cooperation, engagement, and sensitivity to the needs of others in the group.

Productive Research & Writing Methods

Many writing-for-success articles take a variety of approaches to increase productivity. McDonnell suggests the "1-hour workday" where he schedules daily one-hour writing sessions dedicated to the production of his scholarship.¹⁶ Mills, Hill, and Saunders offer two methods for achieving productivity. One, based on Silvia's book *How to Write a Lot* suggests establishing clear goals, setting priorities, and monitoring progress.¹⁷ The other method cited widely across the literature is the Pomodoro Technique where the task of writing is divided into twenty-five-minute intervals separated by three to five-minute breaks. Belcher provides a detailed workbook to guide authors on a scheduled plan for producing academic journal articles in twelve weeks.¹⁸

Increasing scholarly productivity is reliant on effective strategies for time management. The editorial board for the *Western Journal of Nursing Research* discuss time management strategies they employ that directly relate to research success. The most significant of these include scheduling

uninterrupted research time, declining activities that do not directly relate to intended research goals, and giving as much attention to research as other work obligations.¹⁹ In addition, all acknowledge the need for planning, prioritizing, setting goals, delegating, organizing, and teamwork as essential factors in a time management strategy to effectively produce quality research in a more efficient manner.

Fennwald conducted a study specific to library scholarship in which he examined factors that explain the rate of publishing among his colleagues. He finds that the most significant barrier to writing and publishing is time. Librarians employed a variety of methods to overcome the time obstacle such as designating a day of the week to write or dedicating time over the summer break. A specific model for writing was not identified in the study. Fennwald concludes personal factors such as commitment to the profession and institutional support explain librarian productivity and success in publishing.²⁰

Condensed Timelines

According to *Parkinson's Law*, time and productivity are related.²¹ The law states that work expands according to the time allotted to complete the task. Zao-Sanders also notes, "we often spend more time on a task than we should, influenced by the time that happens to be available (circumstantial) rather than how long the work should really take (objective)."²² Studies by Latham and Locke, Bassett, and Bryan and Locke test the validity of Parkinson's Law using various field and lab assessments.²³ Findings demonstrate that work effort depends on workers' perception of the difficulty of the task. For projects with a longer period to completion the "work pace will slow to fill the allotted time."²⁴ Conversely, if the time to complete the project is reduced, work pace will increase to complete the project by the deadline because "those with shorter time limits will set harder goals than

those with longer time limits."²⁵ Selecting a reduced timeline for a research project can be a useful method to increase research productivity.

Other Models

Numerous intrinsic and extrinsic factors motivate faculty researchers. Known obstacles impede researchers including lack of formal or informal institutional and academic community support. To mitigate such obstacles, institutional program initiatives and models can provide collaborative structures for faculty to gain research experience, mentoring, and increase research productivity.

Swanepoel explores a "maximum immersion" strategy in which all employees at a university library participate in an ongoing research project. Swanepoel sets clear conditions for success, which includes undertaking a research project that is beneficial to all participants, the library, and preferably, to the university community. The Swanepoel project allocates responsibilities and tasks, keeping in mind the strengths and skills of the individual researchers, and divides the group into project sub-teams to accomplish tasks and implements accountability procedures. Uniquely, this study comprises all library employees including those who traditionally do not participate in research activities at the university level. This inclusiveness allows new skills to develop, leading to more informed library personnel. Swanepoel does not include a time-based approach and focuses on library-wide projects. However, Swanepoel's program does provide a solid framework for collaboratively accomplishing a librarian-led research project.²⁶

Pickton describes steps and programs to cultivate a research culture within academic libraries and provides evidence that both institutionally led approaches and library staff efforts facilitate research at the University of Northampton Library. The Northampton example is based on

an institutionally driven research culture that promotes librarian and staff research projects, encourages management support, training and support groups, peer-mentoring, funding options, collaboration, and forums to share research.²⁷

Senior librarians at the Royal Melbourne Institute of Technology (RMIT) University Library discuss a model for voluntarily increasing the scholarly work being produced by their librarian staff.²⁸ The inexperience of new, but enthusiastic librarians led to the formation of the “Get Published Group.” Like other research support groups, membership was voluntary for all librarians and meetings consisted of sharing individual research successes and listening to peers or experts give insights and advice on the research and publication process. As a discussion and learning group, RMIT’s model effectively increased the confidence and knowledge of librarians early in their career and allowed them to make strides in writing, publishing, and presenting.

Process Evaluation

The process evaluation method utilized in the present article and discussed in the methods section is used in library science and various social science fields. It allows researchers to assess whether a program, process, or model is effective and which segments work well or need improvement. Various techniques and tools used to gather process feedback include interviews, evaluator and participant reflections, document reviews, as well as others. Powell, Stufflebeam and Coryn, Weiss, and Patton describe process evaluation and analysis techniques.²⁹ Bess, King, and LeMaster’s work provides a useful and detailed application of the method in the social sciences.³⁰

As described by Powell, process evaluation is used to assess the strengths, weaknesses, and

means to improve a process or system.³¹ An examination of a processes’ strengths, weaknesses, opportunities, and threats, commonly known as a SWOT analysis, provides one such evaluative tool from the perspective of those involved in the process or using the system. SWOT analyses can be simplistic or complex.³² SWOT analysis and implementation are reviewed by Steiss, Nelke and Ray, Webb, Bess, King, and LeMaster, Leigh, and Schooley.³³ Studies by Andrews et al., Bess, King, and LeMaster, Galas et al., Nam et al., and the Oregon Health Authority provide examples utilizing the process evaluation method with the SWOT framework to provide situation analyses of programs, projects, and processes.³⁴ Originally used for corporate and organizational planning, SWOT analysis has been adapted and modified for a variety of projects and fields outside these arenas as reviewed by Gürel and Tat, Ghazinoory, Abdi, and Azadegan-Mehr.³⁵

The ETQS Model: Efficient Team-Driven Quality Scholarship

As mentioned earlier, the ETQS Model is based on a team-driven collaborative design, a condensed or pre-set timeline with concurrent research processes, built-in quality controls, and scholarly research processes and guidelines.

Team-driven Collaborative Design

The design includes a team of researchers, each with responsibilities and roles. Although any number of researchers could be on a team, four to ten people is optimal. In this case study, the team consisted of eight members who coauthored this article. The project is managed by the team leader who initiates the project, sends out a call of interest to colleagues, and sets the initial meeting. At this meeting, the team leader proposes the research project and leads the team in a discussion about the project including any issues, critiques, methodology, impacts, etc. The

team leader in consultation with the team, provides direction, ensuring the team keeps to the timeline and goals stated in project meetings. This individual also assigns or asks for volunteers to take on tasks as needed and ensures that all members have responsibilities at each phase of the project. Team members agree to the commitments of meetings, work, time, and energy agreed upon by the team (for example: all team members must attend or call-in for 75 percent of all meetings). Each member should actively participate by accepting or volunteering for project tasks, contributing to meeting discussions, providing their perspective on the research and writing process, noting inconsistencies and/or errors, and looking at both individually assigned tasks and the entire project.

The team-driven collaborative design aspect motivates team members, encourages continued project momentum, and provides solutions to barriers that hinder research. The team-driven

collaborative environment allows the workload to be distributed among the team leader and members based on individual experience and interest. It provides collaborative learning by allowing the team to learn specific skill sets from each other. For example, a researcher who is especially adept at creating visualizations can complete this project task and teach other team members.

A Condensed Timeline and Concurrent Research Processes

In most individual projects, the research process includes the exploratory, research design, implementation, and results phase. The final phase includes writing the article or report. All research, individual or collaborative, may involve reiteration processes and “writing as you go,” but it is generally a sequential process where each phase includes specific tasks that must be accomplished before moving on to the next phase. Table 1 depicts these phases and tasks.

Table 1. The Sequential Research Process³⁶

<i>Exploratory Phase</i>
Identify problem/study objectives
Develop research question/problem statement
Review the relevant literature and draft a literature review
Identify and define key variables or concepts
Describe assumptions of the study
Develop theory, model, or process to be studied
Identify possible journal, format, and submission timeline
<i>Research Design Phase</i>
Develop the research design
Decide on the research methods, research measures, and data collection strategies
<i>Implementation Phase</i>
Implement methodology
Collect data
Analyze data
Evaluate data
<i>Results Phase</i>
Report on results writing article
Revise
Submit

The ETQS Model uses a different paradigm by adding the team research component. The sequential tasks or sub-tasks are completed by individual team members, but in some instances are concurrent assignments.³⁷ The ETQS Model purposefully groups interrelated and independent research and writing tasks in order for the work to be completed by setting a specific time-

line for completion using a team-driven approach, which includes writing, reviewing, and revising throughout the process. As much as possible, ETQS research tasks and the resultant article are developed in tandem. When team members are committed to the timeline, time distractions are minimized, and the project is completed on schedule. Grouped tasks are shown in Table 2.

Table 2. The ETQS Research Process

Exploratory Phase
Preliminary work Completed by team leader before project begins Identify problem/study objectives Develop research question/problem statement and preliminary research design Write these sections of the article as assigned to team members Revise Beginning of project; work collaboratively on these tasks Subcommittee or team member Review the relevant literature and draft a literature review Identify and define key variables or concepts Describe assumptions of the study Develop theory, model, or process to be studied Write these sections of the article as assigned to team members Revise Subcommittee or team member Identify possible journal, format, and submission timeline
Research Design, Implementation, and Reporting Results Phases
Second phase of project; work collaboratively on these tasks Subcommittee or team member Develop more of the research design Decide on the research methods, research measures, data collection strategies Write these sections of the article as assigned to team members Revise Subcommittee or team member Implement methodology Collect data Analyze data Evaluate data Write these sections of the article as assigned to team members Revise
Last Phase of Project; Work Collaboratively on These Tasks
Revise Have one team member edit for “one voice”



Get outside review Revise Submit
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At the beginning of the project the team delineates the research objectives, meeting agenda, team member task assignments, on-going tasks outside team meetings, and article section objectives for each week within the context of a set timeline or calendar. A sample template reflect-

ing the team’s intended plan is provided in Table 3. The team leader’s preliminary work and the work of the team for the set timeline are outlined. Other project planning systems can also be used to set predefined goals and deadlines while tracking the process.

Table 3. ETQS Process Model Template

	Research Objectives	Meeting Agenda	Team-member Task Assignments	On-going Tasks Outside Team Meetings	Article Objectives
Preliminary Work	<ul style="list-style-type: none"> • Identify problem/study objectives • Develop research question/problem statement • Review some current literature • Identify and define key variables or concepts • Describe assumptions of the study • Develop working model • Call for colleague interest in project 	Not applicable	Team leader	Not applicable	Draft prospectus

<p>Week One</p>	<ul style="list-style-type: none"> • Describe assumptions of the study • Refine model • Decide on the re-search methods or design • Decide on research measures • Decide on data collection strategies • Begin looking at possible journals for submission 	<p>Introduction</p> <ul style="list-style-type: none"> • Overview of re-search project and team model • Commitment and team-member responsibilities • Team-leader role • Discussion about questions, concerns, issues • Outline of tasks and timeline 	<ul style="list-style-type: none"> • Transcribe meeting discussion notes • Literature review team • Research on possible journal • Timeline narrative and timeline • Preliminary model diagram • SWOT analysis for each team member 	<ul style="list-style-type: none"> • Review literature • Develop timeline • On-going Discussions 	<ul style="list-style-type: none"> • Problem statement • Draft preliminary abstract and intro • Literature review • Model • Method • Draft works cited page
<p>Week Two</p>	<ul style="list-style-type: none"> • Participant observations - Notes from meetings and emails • Content analysis (looking for themes) • Situational analysis (SWOT) • In-house survey – questions and reflections • Interviews - meeting open ended and guided questions • Continuing looking for possible journal for submission 	<p>Research Tasks:</p> <ul style="list-style-type: none"> • SWOT analysis one discussion <hr/> <ul style="list-style-type: none"> • Draft article feedback 	<ul style="list-style-type: none"> • Transcribing meeting discussion • Literature review team • Research on possible journal • Timeline narrative and timeline • SWOT analysis for each team member 	<ul style="list-style-type: none"> • Reviewing literature • Collecting data • Begin analyzing available SWOT information • Collect data • Draft article feedback (Google docs) 	<ul style="list-style-type: none"> • Data collection process as part of article results section
<p>Weeks Three and Four</p>	<ul style="list-style-type: none"> • Collect data • Analyze data • Evaluate data and describe/discuss results 	<ul style="list-style-type: none"> • SWOT analysis two discussion 		<ul style="list-style-type: none"> • Draft article feedback (Google Docs) and revise 	<ul style="list-style-type: none"> • Results • Discussion



	<ul style="list-style-type: none"> Describe the limitations of the study Prepare summary or conclusion Develop future research questions/agenda Decide on journal for article submission 	<hr/> <ul style="list-style-type: none"> Draft article feedback 		<ul style="list-style-type: none"> Continue collecting data Continue analyzing available SWOT information Reformat works cited to confirm to journal format 	
Week Five	<ul style="list-style-type: none"> Describe the limitations of the study Prepare summary or conclusion Develop future research questions/agenda Revise article introduction Revise article abstract 	<ul style="list-style-type: none"> Draft article for feedback 		<ul style="list-style-type: none"> Draft article feedback (<i>Google Docs</i>) and revise Final data collection Team member edits in one voice Team members and team leader finalize journal submission 	<ul style="list-style-type: none"> Limitations of the study Conclusion or summary Future research
Week Six	<ul style="list-style-type: none"> Article is reviewed by another colleague 			<ul style="list-style-type: none"> After review and edits are made as needed, the article is submitted to the journal 	

Quality Controls

Limiting the research timeline prompts questions about quality and the need for more effective revision processes, but more time spent on a

research project does not itself guarantee quality or rigor.³⁸ ETQS quality control is achieved by working in a collaborative environment where each team member’s concerns, questions, and issues are addressed. Working in a team ensures



that the research and writing is reviewed by multiple people and is improved through “group thinking.” Additionally, at least one outside review of the final article is sought prior to submission. A quality checklist or journal rubric such as those provided by Glynn³⁹ or Desrosiers,⁴⁰ may also be used.

Scholarly Research Processes and Project Guidelines

Conceptualizing the problem and/or topic as well as clearly stating the research question is critical to any research project. The selected topic and research method should be workable within the ETQS expedited model, with focused ideas that have clear parameters in order that the project can be completed within the determined time frame. Early in the process, the journal to which the research will be submitted is selected so that the team can craft the article in the appropriate format. Issues to consider include the scope of the journal, requirements and restrictions, research methodologies accepted, journal research agendas, checklists, and/or rubrics.

When team members prepare the literature review, the focus should be on the most current and relevant materials. Concentrating on the research statement and gaps found in the literature is helpful. The review of literature within an ETQS project is intended to be relevant but selective. The goal of ETQS is to focus on topics that will benefit from an expedited research and publication process such as literature reviews, case studies, project descriptive studies, group projects, and evaluative studies. Some research may require the development of a survey instrument, institutional review board approval, and the collection and analysis of data. However, long-term projects such as these can benefit from the ETQS Model in the data analysis and/or final writing stage.

Evaluating the Model

The researchers, eight team members in total, assessed the usefulness of the ETQS Model by using it to create the present article. ETQS was the research topic and was also evaluated as to whether it was a viable research and publication model for this team. Thus, two key research questions were answered during this research study.

Research Question #1: Using the process evaluation research methodology, what ETQS Model strengths, weaknesses, opportunities, and threats were observed by team members for each model facet? Model facets examined include:

- Using a team-driven collaborative design,
- Using a condensed timeline,
- Building-in quality controls,
- Supporting a scholarly research process, and
- Leveraging model efficiencies.

Research Question #2: As implemented, did the use of the ETQS Model effectively help team-members overcome selected obstacles and/or provide them with a supportive framework and environment for research and publication productivity? Obstacles and supports examined include:

- Setting time aside for research,
- Increasing research skills and experience,
- Increasing self-confidence in the research process, and
- Creating a collaborative research and writing opportunity (including a research community, peer-mentoring, feedback, etc.)

Methodology

The process evaluation method used to evaluate ETQS allows researchers to evaluate whether

processes, programs, and/or plans as implemented are effective, how well and what aspects work and what aspects need improvement. The evaluators provided analysis throughout the process and described if it worked. Various techniques and tools used to gather process feedback include interviews, evaluator and participant reflections, document reviews, and SWOT analyses.⁴¹ In the present study, a combination of participant reflections and SWOT analyses are used.

Based on the literature review, the team concluded that the need for research time, lack of collaboration, mentoring, and other barriers to academic scholarship productivity were issues for other researchers as well as the team. Additionally, the tasks of researching and writing across interrupted time spans decreases momentum and productivity. Qualitative evaluations of the ETQS Model were collected through two SWOT assessments during the project. The ETQS SWOT assessment is based on SWOT evaluation designs from Bess, King, and LeMaster and Leigh.⁴² SWOT analyses indicate participants' perception of ETQS Model features described as a strength, weakness, opportunity, or threat to the ETQS process. By coding and tabulating the number of responses, a ranking was derived as to what was considered the greatest

strengths, weaknesses, opportunities, and threats of the model in the present project.

In the last phase of the project and prior to the distribution of the final working draft, each team member provided answers to a five-point Likert reflection questionnaire covering 1) the ETQS Model's effectiveness in overcoming obstacles and/or supporting factors for research and publication, 2) future use of the model, and 3) the effectiveness of each aspect of the ETQS Model. The results were analyzed according to themes to see where the model was successful, what needed improvement, and where the model might be useful in other research projects. Based on these themes, a coding template was created to track team member's views of the model throughout the process. An obvious limitation is that the methodology is evaluating a single case study. Additional studies where ETQS is used would be necessary to further test the model.

Results

Addressing the first research question, Table 4 summarizes the major strengths, weaknesses, opportunities, and threats of ETQS features, and the factors considered by team members to improve research productivity.⁴³

Table 4. ETQS Model Features SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> ➤ Team-driven collaborative design ➤ Supporting a scholarly research process ➤ Leveraging efficiencies ➤ Providing a collaborative research & writing opportunity 	<p>Weaknesses</p> <ul style="list-style-type: none"> ➤ Quality controls - (Quality controls did not initially address all quality concerns brought on by the condensed timeline and early ambiguous parameters.)
<p>Opportunities</p> <ul style="list-style-type: none"> ➤ Team-driven collaborative design ➤ Increase research skills and experience ➤ Providing a collaborative research and writing opportunity 	<p>Threats</p> <ul style="list-style-type: none"> ➤ External scheduling conflicts and work-related time constraints



Using the SWOT information and team member reflections, the second research question was answered. The ETQS Model as implemented was effective in helping team members overcome selected obstacles and/or provide them with a supportive framework and environment for research and publication productivity. Specifically, the model was effective in helping team members: set aside time for research, continue project momentum, increase research skills and experience, and increase self-confidence in the research process. Additionally, the model effectively created a collaborative research and writing opportunity, providing peer-mentoring support.

Four questions were posed in assessing the ETQS SWOT results.

1. What are the strengths and how can the team build on these factors?
2. What are the weaknesses and how can those be mitigated?
3. What are the opportunities and how can these improve ETQS in the future?
4. What are the threats to ETQS and how can these be minimized?

In the following discussion section, these questions are addressed along with a review of the ETQS process and team reflections.

Discussion

Strengths

Team members considered four ETQS model features to be major strengths. These included the team-driven collaborative design, supporting a scholarly research process, leveraging efficiencies in the process, and providing a collaborative research and writing opportunity. Many of these features considered to be strengths revolved around team efforts; sharing the work

among members, supporting a scholarly research process as a group, and providing an opportunity to research in collaboration; all with the goal of improving research productivity.

Weaknesses

Team members considered ETQS built-in quality controls the major weakness of the ETQS Model. These control measures included collaboration and improvements through “group think,” team reviews of research and writing, and seeking an outside review. However, as the project progressed, perceptions of this weakness declined slightly. By the end of the project, team reflections showed that six out of eight team members agreed that quality control features were effective. The initial quality control concerns pertained to the model’s lack of initial conceptual development and concerns that key items would be missed because of the condensed timeline.

While the ETQS Model had been broadly outlined at the start of the project, the model still required further development and refinement during the research process. This resulted in ambiguity, confusion, and delays before there was a fully detailed model. These issues were discussed during early team meetings and were a consistent theme within individual SWOT analyses.

Additionally, the idea of using ETQS both as the topic and research model was concerning to some team members. They considered it problematic since the model needed additional development. Some members were so concerned, they considered discontinuing their participation. The other members however, encouraged and convinced them to continue, noting their critiques would benefit the project. Indeed, their feedback was instrumental in clarifying and improving the model for both the current project and future applications. After these discussions, one team member commented, “We are more

confident about the quality of the article thanks to everyone's input and we've a better understanding of the process and the goal."

Instead of the team having to "figure out" the exact direction and next steps, more detailed foundational and summative work by the team leader is needed prior to the start of the project. Before utilizing the ETQS Model, the project and prospectus should be clearly defined, providing solid direction, explanations, and organization. Without this, the team falters and struggles as a group.

Team members had various section writing assignments but figuring out the best way to edit with multiple authors was a challenge. The team experimented and floundered with various editing plans such as individual member edits then combined by the team leader or group table-read sessions, all of which were both ineffective and inefficient. After several sessions, the team began using the collaborative *Google Docs* applications to organize project records and combine individual edits which then were resolved during team edit meetings.

Even with an improved editing system, assigning different writing projects to different members resulted in a juxtaposition of styles that led to some confusion and awkwardness in the final written piece. When that was recognized, it was decided that one person should go through the article and conform the different writing styles to one voice. After this, the article was reviewed again by members of the group who judged that their meaning was correctly interpreted and that their individual points of view were still reflected within the entire piece.

Opportunities

The team-driven collaborative design, increasing research skills and experience, and providing a collaborative research and writing opportunity were all considered major opportunities for improving research productivity and overcoming

research obstacles. A team member in the second SWOT analysis states, "This is an opportunity to learn from colleagues. . . new librarians [can] gain knowledge about the process of research and publication, and they feel more confident as the project proceeds." Collaborative and learning aspects provide motivation and structure to the research process, for both the new and more experienced researcher. It is the strength and opportunity presented by the collaboration and team aspects that were key to clarifying the ETQS Model, improving the parameters of the literature review, helping identify key findings, and enhancing the research process and writing. ETQS promotes collaborative research and peer/mentoring, improving research skills and increasing confidence to take on future research initiatives.

Threats

Team members considered external scheduling conflicts and work-related time constraints to be a major threat to the model. This manifested in several instances. Some team members voiced their concerns that not enough time was allotted to work on or complete the project and that the timeline might impact quality such as in the literature review. To address this concern, additional areas and resources were added to the literature review, but this also delayed the process. Additionally, although team members were willing to work, they were not always given assignments for each project week which resulted in more delays.

The original designated project period seemed ideal as a group, but individual members encountered time conflicts that were out of their control. This was further complicated by having to extend the timeline, conflicting with additional obstacles such as the school term and member illness. These issues disrupted the timeline, hindering team momentum and interrupting article completion. The start of the school year caused further delays which resulted in the

article draft not being ready for final editing until the spring semester. Future timelines should be designed with this knowledge.

Initially, the plan was to hold only six meetings, but to complete the project, an additional four full-length meetings were required. While the team-driven collaborative design was considered a major strength, one team member noted that the collaborative design may be a threat, stating, “people will keep revising and the article will never get submitted.” This, along with the issues of a condensed timeline, increased this concern. Hearing these concerns helped keep the project on course by learning to revise sections more efficiently and using *Google Docs* for collaborative comments/editing. As the project and article progressed, these concerns were mitigated.

Team Reflections

Near the end of the research project, team members reflected on the effectiveness of each of the ETQS factors. These reflections confirmed the SWOT assessments but also provided different results in several other areas. Making time for research, increasing self-confidence in the research process, and providing peer-mentoring were considered minor or not mentioned at all in the SWOT analyses. However, in the final team reflections, each of these factors received favorable ratings of strongly agree and/or somewhat agree in providing effective research support.

In the SWOT analyses, external scheduling conflicts in the face of a condensed timeline was considered a major threat to the project but in the final reflection, team members deemed the condensed timeline as somewhat effective. In all factors, team reflections indicated that at least six or more of the eight team-members strongly agreed or somewhat agreed that the factors were effective, even for areas considered a weakness or threat in the SWOT analyses. As the team

moved forward in the project, issues that were at first viewed as weaknesses or threats to the process were mitigated by open discussion, collaboration, and correcting problems. The collaborative nature of ETQS lends itself to the resolution of difficulties encountered in research projects.

Increasing Model Effectiveness

Once ETQS is used in a library or other organizational setting, continuing to use the system should lead to a more effective model. Several team members commented that they looked forward to using ETQS in their future research projects. The continued use by the same or some of the same team members would help to adapt and refine the process. A team becomes better aware of the “sub-teams” that might be needed for such areas as the literature review, data collection, editing, etc. The team also becomes aware of each member’s abilities and interests. Providing opportunities for team members to take on new tasks for different projects is beneficial, especially for new librarians, providing additional experience and knowledge in other research processes.

Evaluating and revising university and library retention, tenure, and promotion criteria to encourage scholarly collaboration would also add to model benefits. Some academic departments give greater weight to sole- or dual-authored works while other fields typically publish more multi-authored research. A study in 2014 however showed that 64.5 percent of the LIS research articles studied were multi-authored works.⁴⁴ For academic libraries, encouraging this type of collaborative and multi-authored research would make the model more beneficial to scholarship and publication efforts and also provide a mentoring opportunity for junior library faculty. Librarians with research ideas could readily include team members to participate and complete research projects.

Project Issues and Adjustments

Throughout the previous sections, project issues faced by the team are described. However, it is useful to summarize the roadblocks or problems encountered in implementing the ETQS Model. Table 5 highlights the original process goals impacted by these issues, the solutions and adjustments made, and the results. In retrospect, most of the problems resulted from less than optimal model implementation rather than the model itself. This transparency will assist future ETQS teams to avoid similar issues and/or make modifications earlier on as needed.

The process of solving project issues was aided by creating and maintaining a non-threatening team environment throughout the project, en-

couraging all members to offer candid, respectful and professional input along with being open to critiques and suggestions. Open rapport and providing a safe environment to share viewpoints is especially important where teams include both junior and senior faculty members. Meeting notes attest that members felt free to voice their concerns and issues. With trust established, it was easier to identify project issues and make needed adjustments. Good rapport improved the entire project and remained a vital component of ETQS project success. Once problems were identified and evaluated in a “round table open discussion” actionable goals were devised, and the work was assigned to or taken on by members. The “group-think” environment provided a good foundation for brainstorming and planning solutions, allowing the team to “divide and conquer” problems.

Table 5. Project Issues and Adjustments

Goal	Issue/ Problem	Impact	Solution/ Adjustment	Result
Project Plan: Provide a clearly defined project with solid direction, explanations, and organization	Project and model initially lacked full conceptual development	Quality control concerns, ambiguity, confusion, and delays before there was a fully detailed model	Encouraged candid input from team members Discussed and further developed the model	Extended timeline
Project Plan: Use the ETQS Model as both the topic and research model	Team members disagreed as to the benefit of using ETQS both as topic and research model	Discussion and concerns about this issue took up a good deal of initial meeting time	Team decided to continue as planned but encouraged members to voice all concerns and suggestions	Member viewpoints clearly improved the model, project, and resulting article
Literature Review & Quality Control:	Members were concerned that literature selectivity with the	Important literature might be missed	Additional resource suggestions were provided after first	Literature review section was improved

<p>Include only the most current and relevant references in the literature review and be selective to stay within condensed timeline</p>	<p>condensed timeline would diminish project quality</p> <p>Literature review areas and parameters were initially unclear</p>		<p>literature review drafts</p>	<p>Team members found that having to revisit literature review parameters was disconcerting</p> <p>Extended timeline</p>
<p>Team Member Assignments:</p> <p>Assign all members responsibilities during each project phase and between team meetings</p>	<p>Although willing, there were weeks when some team members were not assigned responsibilities</p>	<p>Did not fully utilize team members which impacted the timeline</p>	<p>Brought to the attention of the team leader and members</p> <p>Extended timeline</p>	<p>Extended timeline</p>
<p>Timeline:</p> <p>Follow and maintain a pre-set and condensed timeline</p>	<p>Time delays were caused by having to spend more time to develop the model, writing article sections, and scheduling conflicts</p>	<p>Project delayed</p>	<p>Added additional team meetings to complete the project</p> <p>Team commitment allowed team to continue meeting to complete the project</p>	<p>Extended timeline</p> <p>Completed the project within a year but not within the initial period outlined</p>
<p>Collaborative Writing:</p> <p>Write and revise throughout the project with “one voice” edit at the end of the project</p>	<p>Multiple authors and writing styles</p>	<p>Experimented and floundered with various editing plans:</p> <p>individual edits combined by leader or in team meetings</p>	<p>Used collaborative Google Docs applications to organize project records and to combine edits before team meetings which were then resolved during team edit meetings.</p> <p>One team member did final</p>	<p>Record-keeping and editing became more streamlined which helped the team maintain project momentum</p>



			<p>"one voice" editing</p> <p>Draft reviewed by colleague</p> <p>All members proofed final submission</p>	
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Conclusion

What Was Learned

The effectiveness of ETQS is based on three major components: accountability, team critique, and organizational team building.

Accountability - The collaborative design promoted group and individual accountability. Members wanted to support and meet team goals and not disappoint the team. Interestingly, during discussions, the team felt that each member contributed equally except when it came to their own individual contribution. Many voiced their concern that they had not put as much work and energy into the project as others, but the leader and other team members disagreed.

Even when the project was interrupted, the team-driven collaborative aspect continued to motivate the team to complete the project. While the original completion time objective was not met, (i.e., have an article ready for submission after six meetings and prior to the beginning of the regular school term), the article was completed and submitted within one year of the project start. The ETQS Model provides accountability and motivation to finish a project.

Team Critique - In order to be successful, the team learned to readily accept others' viewpoints, suggestions, edits, and trust in member's abilities and input. It is important to be open to

critiques, with the goals of improving and expediting the project. Likewise, team members must be open to giving critiques and suggestions. This give-and-take can be uncomfortable at times but is vital. A collaborative environment where all team members feel safe to voice their honest opinions without risking embarrassment or other repercussions establishes "psychological safety" and enhances team effectiveness.⁴⁵

Organizational Team Building - ETQS strengthened collaboration and relationships within our organization and could prove beneficial in other institutions. The process established a foundation for cooperative work, collegial interaction, collaborative authorship, improved morale, and investment in the organization. Additionally, ETQS provided a means for team members to better recognize the skills brought by each individual member. The model promotes a think-tank culture within the library where various ideas are evaluated and discussed, leading to library improvements. While it is advantageous to use ETQS with a group with established collaborative skills, this model also provides opportunities to build collaborative teams, increase organizational synergy, and change the environment for the better.

Other Applications

While this model was found to be useful in this single case study, additional use of the ETQS



Model in other projects and by other researchers is needed to provide further evidence of model outcomes and effectiveness. However, in reviewing the experience from team members and the current case study, there are derived insights for other applications. ETQS can encourage ongoing contributions to the scholarly community by providing a paradigm of research that emphasizes collaboration, compacted and/or preset timelines, and quality scholarship. This same model is applicable to many types and sizes of libraries, institutions, and teams. The ETQS method would benefit highly structured organizations, where individuals may not typically work together on a regular basis, as well as, organizations that emphasize collaborative workflows. The model can provide a safety net of community research support for those who have not published or who are new to the field. In these instances, the ETQS Model could encourage individuals to consider cooperative research and publication. The model could also be adapted to collaborate with colleagues at two or three different institutions. Additionally, the model could support teams of individuals to be involved in library research and scholarship in places where it is not a requirement to publish such as community college and public libraries. Furthermore, the ETQS model could potentially

encourage librarians to collaborate with non-library researchers and faculty, providing more opportunities for cross-disciplinary publication.

The collaboration model used in this study provided benefits to the organization as a whole; researchers investigating, discussing, and making improvements, in addition to increasing the institution's scholarly research output. The model could be used on an on-going basis as new projects emerge within a library research group. New ideas could be submitted, discussed, and ranked with a call to colleagues to work together using ETQS.

In this case study, the ETQS Model offered an effective and efficient framework for collaborative research. It helped the team establish a commitment of time for research and research momentum. It gave team members new research skills, experience, and self-confidence in the research process and provided a collaborative research and peer-mentoring opportunity that effectively promoted scholarly research. As the ETQS Model is used by other researchers, in other institutions, and in different settings, additional evaluations of the model's effectiveness will be useful.

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