

Co-creation by Commenting: Participatory Ways to Write Quicklook® Reports

Eva-Maria Jakobs
RWTH Aachen
University
e.m.jakobs@
tk.rwth-aachen.de

Clay Spinuzzi
University of Texas at
Austin
clay.spinuzzi@
utexas.edu

Claas Digmayer
RWTH Aachen
University
e.m.jakobs@
tk.rwth-aachen.de

Gregory Pogue
IC² Institute
gpogue@
ic2.utexas.edu

Abstract – *The authors examined comments in revisions of 24 Quicklook® reports that were written to provide market feedback to entrepreneurs. Most Quicklook reports underwent a revision cycle, and the number of comments per draft varied considerably. Based on this analysis, commenting was frequently used to provide revision guidance from staff to the assessors who authored the Quicklook reports. The commenting activities focus on the overall objective to deliver strong arguments for an innovation from the market’s perspective. Therefore, the most comments address the Quicklook report’s most important sections: Potential Commercial Markets, Competitors and Benefits, and Potential Benefits. In particular, staff comments addressed co-creation, argumentation, the writing process, and text quality. We conclude by calling for further research into such reports in particular and entrepreneur communication in general.*

Index Terms – *Entrepreneurship communication, professional commenting, revision, Quicklook® report, TACR*

INTRODUCTION

Spinuzzi et al (2014) characterize entrepreneurship as the ability to communicate a technological invention to a market by starting a dialog with potential stakeholders [1]. To do so, entrepreneurs need information about the market as their audience. One important source is the technology assessment and commercialization report (TACR)—a professional communication genre providing innovators with feedback from potential stakeholders in their target markets so they can effectively pitch (present ideas) to stakeholders (e.g., investors, partners, or suppliers). To date, little research exists into how TACRs are produced or how professional communicators can support TACR writing. In this paper, we investigate the role of professional feedback (mutual draft commenting) in co-developing one type of TACR, the Quicklook®.

The study uses data collected in the Gyeonggi Innovation Program (GIP), an entrepreneurship program formed by a partnership between the University of Texas at Austin and Gyeonggi-Do Province in South Korea [1]. Through the GIP, entrepreneurs attempt to expand successful product ideas to the American market. To help these entrepreneurs better understand the US market and therefore improve their pitches, GIP managers contract investigators (market analysts) to gather feedback from potential stakeholders in target markets, then write Quicklook® reports to summarize and present the results.

Quicklook “is a market assessment methodology which aims to provide technology transfer manager with an early indication of the probable commercial interest in a new technology developed at the university or research laboratory” [2-7]. It delivers snapshots of a market’s receptivity for a new idea, process, or service.

Quicklook assessors

- assess technologies for commercial viability,
- analyze and validate markets for commercially viable technologies,
- determine the best commercialization strategies for technologies,
- create a written report with market and strategy recommendations, and
- deliver a concise and informative presentation of findings and recommendations.

The Quicklook process involves gathering first-hand knowledge and information through direct interaction with people—people whose knowledge is not yet in the public domain. The potential of a technology may be in a new market about which nothing is documented. Secondary research can be used to obtain information about the “general” market, but is of little use for obtaining information about a market that does not yet exist. In this case, the Quicklook would require interviews with experts in order to generate new knowledge about a potential new market.

The contracted expert has at least one month to produce his or her report. In a mature phase of the

Quicklook writing process, the assessor receives feedback from one or more GIP staff members, who comment iteratively on the drafts until an acceptable version can be released to the entrepreneurs. That is, although each Quicklook is presented under the name of its assessor alone, it changes due to staff feedback, which guides subsequent revision, often in multiple cycles. Both the contracted assessor and the GIP staff member have a professional background in business or related fields.

The paper investigates how experts (GIP staff member) use commenting to improve Quicklook documents. The study is guided by three research questions:

RQ1: How is commenting used in terms of frequency?

RQ2: How does commenting relate to the Quicklook document structure?

RQ3: For which purposes is commenting used?

RELATED WORK

For this study, literature is reviewed in two areas: entrepreneur communication and commenting.

I Entrepreneur Communication

Studies from business and marketing [3] highlight that the success of new product development (NPD) processes depends on how they integrate related skills as critical success factors, e.g., marketing skills in market demand forecasting. Based on their data collected in interviews with Korean companies, Song and Noh [3] state that a deeper understanding of successful NPD projects requires not only a cultural authentic NPD process model, but also research incorporating the perspective of communication. The last mentioned aspect marks a clear research deficit.

This research gap should be a topic for professional communication experts and research. However, to date in the professional communication literature entrepreneur communication is rarely investigated, with only a few researchers investigating the field (e.g., [1], [4]-[7]). In an entrepreneur education study, Hixson and Paretti [4] investigate how texts (the Business Model Canvas, BMC) can be used to mediate classroom activities. The findings indicate that BMC are an effective tool to guide activities such as collecting, organizing, presenting evidence, establishing conceptual relationships, testing and refining hypotheses. In the social interaction with their instructor, the students learn to act more professionally, e.g., by using a common language (BMC terminology).

Spinuzzi et al. [1] study the process of developing pitch decks in the GIP training program mentioned above. They investigate how entrepreneurs participating in the GIP use the Quicklook as a learning tool and intend to improve the quality of their product presentation (pitch slide decks). The process of creating and improving the pitch is described as document cycle and ongoing

dialogue amongst the involved persons (entrepreneur, mentor, and contracted analysts).

An important part of this process is the development of a strong value proposition. London et al. [7] examine how GIP entrepreneurs advance the value proposition during the document cycle. The value proposition can describe the characteristics of the innovation or propose how the innovation will co-create value with stakeholders. In the study, the value proposition transitions between the two mentioned options, addressing different needs in the ongoing argument.

II Commenting as professional activity

In contrast to entrepreneurship communication, commenting is an often-mentioned topic of the professional communication and writing research literature. Related studies consider the phenomenon that professional writing tends to take place in document cycles with feedback giving entities and revision loops [8,9]. In high-risk domains, document cycles are formal, highly regulated, and controlled [10]; in less restricted domains, they can be rapid, informal, flexible, and creative [11].

In the document cycle described by Spinuzzi et al. [1], the Korean entrepreneurs receive verbal expert feedback (from their mentors and by other involved persons, e.g., the contracted assessors) as well as textual feedback (via professional communication genres providing feedback, e.g., mentor-generated email, White Papers, and the Quicklook). The entrepreneurs use this feedback to refine their pitches for the potential market, e.g., by integrating the given information verbatim or closely paraphrased or by extending lines of arguments [1]. By doing so, the entrepreneurs not only improve their presentation, they also learn to understand conventions as responses to specific rhetorical exigencies.

In professional contexts, reviewing and commenting on a colleague's writing become a form of quality control that is often essential to creating a document that meets multiple organizational needs ([12], [13]) and accountability [14]. Controversial issues often concern stylistic choices [12]. However, conflict over content and rhetorical issues seems to be highly productive, it fosters to rethink argumentation from multiple perspectives, and to try out alternative solutions to problems [15].

How a professional document is reviewed and commented by others differs depending on factors, such as work culture. The results of Kleimann [16] indicate that the number and mode of comments differ depending on the work culture of a company or its subunits. In less hierarchical oriented contexts, reviewing serves as collaborative negotiation process, and as a chance to share knowledge and to learn from each other; commenting serves as problem-solving mean (more content-related comments, more questions). In rather hierarchical oriented contexts, reviewing tended to be seen as a

hierarchical requirement; the comments address more language related issues.

To our knowledge, no scholarship exists that examine Quicklook writing (as document cycle) or how commenting is used by experts to co-create Quicklooks.

RESEARCH METHODOLOGY

I Empirical Setting

Data collection: The study uses data from the GIP training program [1]. For the purposes of this study, 24 sets of Quicklook reports were selected, each set including multiple drafts. The data subset includes successful cases (entrepreneurs reaching the semifinals) of the fifth GIP year in 2012 (K5 data). The dataset did not include communications beyond the comments in the drafts (such as phone calls, emails, or comments in the shared groupware system).

Data preparation: Step 1: The raw text data of the 24 Quicklook sets were extracted automatically, cleaned up, and stored as .docx documents in a database.

Step 2: The drafts were ordered and numbered according to the date of creation.

Step 3: A software program using the Apache POI library was created to analyze a document by automatically identifying titles, subheadings, sections and related comments, and to enrich the data files with metadata, e.g., comment, name of a paragraph, length of a paragraph in characters, Levenshtein Distance between the current version of a paragraph and the version of the last revision. The Levenshtein distance between two words represents the minimum number of single-character edits (i.e., insertions, deletions, or substitutions) required to change one word into the other (e.g., than – then).

Step 4: For each set, the sections (and related paragraphs) of the drafts were compared with the Levenshtein distance (as edit distance) to identify drafts with revisions [18].

Step 5: The comments were extracted into an Excel file and enriched with metadata.

Step 6: The Excel files were used to create Word documents listing the extracted comments (i) for all Quicklook sets, (ii) per Quicklook set, or (iii) section-wise (e.g., all comments referring to the section *Potential Benefits*). The tables are structured as follows (from left to right): comment number (e.g., 27), case name (e.g., K5006), draft/revision number (e.g., R2), section number (e.g., 4), section title (e.g., *Executive Summary*), comment author (e.g., *Marc*), comment (e.g., *Incomplete sentence can you rewrite please*), comment position (e.g., line 1607-1652).

Data analysis: The data were analyzed quantitatively and qualitatively. The overview tables were used to answer RQ1 and RQ2. For RQ3, five annotators coded the comments of selected Quicklook sections (the section with the highest number of comments). The coding

scheme was developed iteratively: categories were applied deductively and partly developed inductively (close to and out of the material). The coding focused on the purpose of a comment and related categories and subcategories.

The presentation of the results of the qualitative analysis (types of comments) includes examples illustrating the findings. The abbreviations, e.g., [K5080_R3_6_Potential Benefits], are to be read as follows: [CompetitionYearParticipantNumber_DraftNumber_TACRSectionNumber_TACRSectionName].

RESULTS

IRQ1: Frequency of Commenting

The analysis of the data shows that Quicklook report writing is an iterative production process characterized by an intensive professional collaboration between report author and commenting GIP expert. The cases differ in the frequency of drafting and commenting.

Frequency of Drafting: In 22 of 24 cases, the report author revises his draft. The number of drafts (in total n=117) varies highly per case or Quicklook set (between 1 draft (n=3) and 14 drafts (n=1); on average 5.32 drafts per case).

Frequency of Commenting: In our case study, the objective of commenting is a more or less complete report draft, responding to all sections of the Quicklook document structure.

The GIP experts responded intensely on the text drafts of the report authors. Seventy-five percent (75%) of the Quicklook sets (n=18) received feedback by one or more GCG experts. Only 6 out of 24 reports were written and revised without external feedback.

Nearly one-third of all drafts were commented (n=38, 32.48%). In some Quicklook sets, the first feedback was the last; in other cases, the experts responded iteratively (up to four times).

In total, the corresponding GIP experts produced 329 comments. The comment distribution varies considerably per case (between 1 and 57 comments per case). On average, each case received 13.7 comments.

The commenting process seems to be very focused and effective. The review of the first and second draft is the most intensive. Nearly half of the comments (45.9%, 151 out of 329 comments) refer to the first draft; more than one third of the comments (34.04%, 112 out of 329 comments) react on the second draft.

II RQ2: Commented Structure Parts

In the next step, we examined how the comments relate to the document structure (which sections are commented most frequently).

The Quicklook report provides guidance by a pre-defined structure. The structure includes 17 section titles: *Title, University of..., Technology Assessment and*

Commercialization Report, Executive Summary, Technology Description, Potential Benefits, Competitors and Competing Technologies, Potential Commercial Markets, Potential Challenges, Potential Opportunities, Recommendations, Next Steps List, Appendices, Appendix one Interview Notes, Appendix two Contact List.

The results indicate that the GIP experts comment with a strong focus on the overall objective to deliver strong arguments for an innovation from the market's perspective. Their commenting tends to cluster in the Quicklook report's most important sections: *Potential Commercial Markets* (28.33% of all comments) and *Competitors and Benefits* (16.11% of all comments), followed by the section *Potential Benefits* (13.37%), *Executive Summary* (9.12%) ranks on position four.

III Comment Types

In a third step, we investigated the intention or purpose of commenting by GIP experts. The GIP experts use commenting as a mean to develop a shared understanding of market needs, to discuss facts, to check evidence, to shape arguments, and to foster clear and precise formulations that enable entrepreneurs to start their conversation with investors. We identified at least four major comment types:

1. comments related to co-creation,
2. comments related to argumentation,
3. comments related to the writing process, and
4. comments related to the text quality.

The first two types enhance the recommendation quality; the last two enhance the understandability. In the following, we give a brief description of the comment types and illustrate them with examples.

Comments related to co-creation

In the study, the terms *co-creation of value* and *co-creation of knowledge* are reserved "for more spontaneous, collaborative and dialogical interactions, where putting things together that others do not think go together achieves something new and unique in the process leading to competitive advantage. If both parties go further and trust each other in dialogue, the co-creation of knowledge might generate value in new ways, and cost efficiencies as well" [7, 17]).

The comment type focuses on the content and the function of the Quicklook, to help innovators to understand the market needs with respect to the innovator's idea (product, process, or service). The function of this comment type is identifying gaps and inspiring the report writer to do more research (e.g., to gather further data), acting critically and negotiating how to interpret interview results (and other findings), changing perspectives, thinking about alternatives, and asking the right questions. The comment type requires a good knowledge of the expert domain and the potential

market. The category includes sub-categories such as "need for more research" (see example 1 and 2):

(1): "Frank what I think is missing here? is more information on TiO2 It sounds like that is the primary competitive solution So some information on it would be helpful as well then as giving us a better understanding of what and how many companies are out there producing food coloring products that would compete with this."

[K5080_R3_6_Potential Benefits]

(2) "One thing I am trying to figure out is this there are incumbents with strong brand ID and there are the flood on lowpriced Chinese systems It looks like Simplecam would be priced lower than the established incumbents How is it priced compared to the flood of low priced Chinese cameras."

[K5119_R1_9_Competers and competing technology]

Comments related to argumentation

This comment type focuses on rhetorical issues and the function of the Quicklook to enhance the innovator's pitch. The function of this comment type is shaping arguments and evidence, enhancing the credibility of arguments, avoiding failure, and identifying missing citation. Sub-categories address rhetorical needs of the draft such as clarification (example 3), quantification in terms of numbers (example 4), or verification by evidence (example 5).

(3) "I believe this technology uses RFID transters and receivers not magnets."

[K5141_R2_Competers and Competing Technology]

(4) "Can this be quantified into the value this means to the customer."

[K K5006_R2_Potential Benefit]

(5) "Can this be cited for source."

[K5006_R8_Potential Benefits]

Comments related to the writing process

This comment type focuses on the further report production process. The main function is organizing the next steps (recommendations or instructions how to act). In our study, this comment category is often closely interlinked to comments related to the text quality. Sub-categories refer to parts to be deleted (example 6) and address activities such as structural revisions (example 7), citing (example 8), and rephrasing (example 9):

(6) "This can be dropped if above language is adopted." [K5006_R2_Benefits]

DISCUSSION AND CONCLUSION

(7) *"This is good info but belongs in the Market Section."*
[K5119_R1_Competitors and Competing Technology]

(8) *"These are really good feedback but all of them need citations as to who said each of these things."*
[K5132_R1_Potential Commercial Markets]

(9) *"Rephrase with less colloquialism for Korean readers."* [K5084_R1_Potential Commercial Markets]

Comments related to the text quality

This comment type refers to the overall text quality (example 10) as well as to certain composition levels such as formulating or structure. The function of this comment type is shaping the content organization (structuring content according to the internal logic of the Quicklook report), enhancing a clear and precise wording (e.g., in terms of terminology), shaping formulations, and discussing stylistic choices. Related sub-categories include structure, wording, missing redundancy (example 11), de-functional repetition (example 12), or clarification (example 13, 14):

(10) *"This has good information I have a couple of comments but this section is getting to where we would like it to be."*
[K5204_R3_Competitors and Competing Technology]

(11) *"fibers If that is correct maybe after your Dr Sung background statement starting off with a brief introductory paragraph just outlining the competitive solution landscape and then you can tie your direct comments as you have done below as offering illumination into those solutions It would give this section a little more clarity You talk more directly about PE in the benefits section You dont need to duplicate but maybe a brief recap of what we know about PE."*
[K5130_R1_9_Competitors and Competing Technology]

(12) *"These seem to be repetitive to what you just said above."* [K5204_R3_Potential benefits]

(13) *"Im not sure what they means."*
[K5006_R8_Potential Benefits]

(14) *"This is somewhat confusing Saying it is too wide comes across as a drawback I dont think that is what you intend."* [K5043_R1_Potential Benefits]

Commenting seems to be a powerful tool to enhance report quality. In our study, commenting fulfills different functions such as quality control, peer review, and co-creation at the same time. By doing this, professional Quicklook commenters are asked to play different roles and use related competencies. In our study, the contracted expert (the Quicklook author and assessor) is supervised by an institutional GIP member. Both have a similar professional background (business). Both are not experts in argumentation and composing.

The results indicate that the experts act with a high concentration on the overall objective of the feedback process to ensure a high quality of the report. They use commenting as a tool of co-creation to enhance the quality of arguments and evidence named in the report, to support the reader (e.g., by structural choices), and to shape the quality of formulation. By co-creating and giving instructions for the text production process, they support the report writer: By shaping the argumentation as well as the quality of formulations, they enable entrepreneurs to produce successful pitches and slide decks. If entrepreneurs reuse the content of TACR reports—as described in [7]—verbatim or closely paraphrased, the quality of report arguments and formulations is highly relevant. Commenting seems to shape the Quicklook report considerably.

How can these results be used for purposes of professional communication experts? A first promising option is to use Quicklook report writing and commenting as classroom activities addressing students of engineering and business. It helps engineering students to change their perspective from a purely technical point of view to a market-oriented perspective and to understand the market as audience for entrepreneurs. A highly relevant issue of such trainings is to sensitize them for the perspective of the market and potential investors. Quicklook report writing and commenting trains students of business to interact with others by co-creating market oriented arguments and/or to collect and structure market data guided by clear defined categories (e.g. *Potential Benefit*). Similar to the approach described in [4], Quicklook drafts and comments can be used as text tools to mediate training-related activities. Commenting can be used to shape the trainees' awareness for both content and surface quality.

The results can be used to optimize entrepreneurship-training programs by training experts who act as (contracting) assessors and/or by training professionals who enter the market as professional assessors. Communication professionals training TACR writing should focus on (1) the quality of TACR arguments and (2) the quality of formulations (making sure that clear, concise, and precise writing style can crystalize the message of the document). What we have learned is that

the writers of the Quicklook reports need—despite their professional background—additional training and/or coaching. It is one thing to interview the market and another to communicate the results to others as input for professional argumentations (in our case: the pitch). Hot topics concern the argumentation itself—in both qualitative and quantitative terms.

In conclusion, the results from this relatively small sample suggest different roles for experts' comments, although those different roles were not clearly signaled. Those different roles allowed the assessor to synchronize expectations with the Quicklook author along at least four distinct criteria. By examining these revisions, we have been able to more fully explore how such arguments are collectively crafted.

Although this analysis helps us to better understand how revisions yield collectively crafted arguments in this genre of entrepreneurship communication, more research is needed to validate this analysis across a broader dataset; to examine a broader range of communications genres that relate to this one; to further characterize the revision comments; and to explore whether such revisions follow a similar pattern in other genres of entrepreneurship communication.

Further research is needed to analyze the ratio between detected and real deficiencies of a professional document (e.g., which shortcomings of the Quicklook drafts were not detected by the GIP experts, and were therefore not commented; why they were not detected). To sum up, it would be helpful to learn more about the abilities and the strategies of business experts to reflect on the quality of professional documents and the quality of their content-, argumentation-, and/or text surface-related assessments (e.g., Which assessment strategies do they use? Which of these strategies are helpful and which are not? How is the document quality measured?). We believe that to answer these questions, further studies must include observations of ongoing document cycle activities along with data-driven interviews with both the document author and the commenting expert.

LIMITATIONS

This analysis was based solely on the revisions and revision comments in the drafts themselves. Since authors could potentially have communicated via other avenues (such as phone calls, emails, or comments in the shared groupware system), we may have missed communication within those avenues. Future research should be expanded to address communication along other lines.

In some cases, revisions did not include any new comments. We did not analyze those revisions since we were focused on the comments themselves. Future research might examine how comments are addressed in strings of revisions.

Further limitations result from the tool used for the

data preparation. This tool was necessary for the automated examination of the Quicklook data. However, due to its reliance on the Apache POI library, the tool has limitations that restrict its value. Specifically, it could not identify some comments (e.g., comments related to figures), so researchers had to manually check the data to ensure that all comments were included. For future research, better tools are needed to automatically identify all comments and extract the referenced part of the Word document for each comment.

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ABOUT THE AUTHORS

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Eva-Maria Jakobs is a full professor of text linguistics and technical communication at RWTH Aachen University, Germany. She is co-director of the Institute for Industrial Communication and Business Media, the HCI Center at RWTH Aachen University, and the study program technical communication. Main research fields are: technical and digital communication, text technologies, usability research, writing at work.

Clay Spinuzzi is a professor of rhetoric and writing at the University of Texas at Austin. He studies how people organize, communicate, collaborate, and innovate at work. Spinuzzi has conducted multiple workplace studies, resulting in several articles and four books.

Claas Digmayer is a research assistant at the HCI Center at RWTH Aachen University (Germany), department of text linguistics and technical communication. He graduated in technical communication and computer science at RWTH Aachen University. Main research interests are: usability, text mining, open innovation, interactive help features.

Gregory Pogue is Interim Deputy Director and Senior Research Scientist at the IC² Institute of The University of Texas at Austin, where he leads research and implementation programs surrounding technology commercialization, early venture creation and entrepreneurship.