How do entrepreneurs hone their pitches? Analyzing how pitch presentations develop in a technology commercialization competition

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ABSTRACT

Technology innovators must pitch their technology and its business value to potential buyers, partners, and distributors: to make claims that will create interest in the appropriate audiences and offer evidence that those audiences recognize as credible and applicable. Such pitches typically involve a spoken presentation and a slide deck, both of which must persuade stakeholders. The pitch represents a rhetorically complex argument backed by many interconnected genres.

We examine how innovators in an entrepreneurship development program, structured as a competition, developed pitches in response to feedback. We examine pitch changes in terms of overall structure, individual claims and evidence, and engagement tactics. Our findings suggest that presenters found this task of adjusting their pitches to be difficult, partly because the training program's current feedback does not separate out these different aspects. We recommend developing a heuristic to better structure arguments.

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1. INTRODUCTION

Innovators who develop new technologies must learn how to *pitch* their technologies and their business value to potential buyers, partners, and distributors: to make claims that will create interest in the appropriate audiences and offer evidence recognized as credible and applicable in the businesses of the audiences. Such pitches typically involve both a spoken presentation component and a slide deck (generally PowerPoint or Keynote), which jointly must be persuasive to the intended stakeholders. As Spinuzzi et al. ([26], [27]) argue, the pitch represents a complex argument

backed by a large number of interconnected genres. Professional communicators (e.g., Galbraith et al. [9]; O'Connor [18]) and researchers from other fields (e.g., Beck & Wegner [3]; Clark [5]; Pollack et al. [20]; Yusuf [33]) have undertaken studies on how pitches are delivered, but few have examined how these pitches develop in response to rhetorical complexities.

That question of development, however, is critical for education programs in entrepreneurship. Innovators often have trouble learning how to make arguments that will serve them well as entrepreneurs: these innovators are often experts in their technical domain but newcomers when it comes to commercializing technology. For this reason, entrepreneurship development programs have sprung up (see Gibson & Conceiçao [10]; Park et al. [19]; Sung & Gibson [30]) to provide specific, grounded instruction in how to produce the arguments and genres that can interest the appropriate stakeholders. Through the pitch in particular, innovators make arguments that answer the questions of specific stakeholders in specific markets.

In this study, we examine the pitches of innovators in the Gyeonggi-do Innovation Program (GIP), an entrepreneurship development program managed by the Global Commercialization Group of the IC^2 Institute, The University of Texas at Austin. GIP is structured as a competition in which innovators develop their pitches in response to training and *Quicklook*® reports (technology assessment and commercialization reports; see Cornwell [6]; Jakobs et al. [11]). We examined the following research questions:

RQ1: What kinds of feedback did presenters receive in the Quicklook® reports and training?

RQ2: What changes did they make to individual pitch arguments between training and final pitches?

RQ3: Do these changes correspond with favorable judges' scores?

To investigate these questions, we analyzed four sets of practice and final pitches from a pitch competition, examining how the presenters applied information from Quicklook® reports to pitches. Below, we review the applicable literature; discuss our methodology; review our findings; and develop implications for better understanding the rhetoric of entrepreneurship.

2. LITERATURE REVIEW

Locke et al. famously declared that "markets are conversations" [15] or dialogues in which different partners must communicate. Marketing involves not just presenting a product to a new market, but also engaging in a dialogue with stakeholder in that market, as described by Ballantyne et al. [1]. From that dialogue emerges a *value proposition*: a claim about the value of that product to potential customers in that particular market [12], [13], [17], [18], [22], [24], [31], [32]. Marketing genres such as pitches must address this dialogue with the target market; they must go through a revision process of proposing, learning, responding, and refining claims. Done well, this revision process connects the interests of the pitcher and catcher, resulting in new co-created value [2], [13], [16].

Yet the research literature on the pitch has not explored this revision process well. The pitch ties the interests of the *pitcher*—K5016 and other entrepreneurs—to that of *catchers* such as investors, distributors, customers, users or other market partners. These catchers might then examine other materials such as specific business proposals, as Clark [5] argues. Pitches make claims about the technology description, development status, benefits, IP status, business model, markets, market interest, competition, risks and barriers, and team status (see Spinuzzi et al. [26]). Often, as in the GIP, pitches are performed orally and supported by slide decks, usually generated in PowerPoint (cf. Galbraith et al. [9]).

As Clark states, the business pitch has not been well studied in the research literature [5]. The extant literature describes how the business opportunity is "talked into existence," as Pollack et al. put it [20], by telling narratives about the opportunity, narratives that include personal, generic, and situational stories [18]. The literature focuses on how these narratives are presented via presentation skills and made persuasive through the presenter's charisma [3], [33] as well as the team's composition, participation and track record [33]. Also important is the presenter's ability to demonstrate accurate, detailed knowledge of various aspects of the pitch and to anticipate and proactively rebut the audience's objections [4], [20].

Such studies have not explored the revision process that leads from a draft presentation to the final pitch: the process that develops the narratives, elucidates the team's qualities, and allows the presenter to anticipate and prepare for questions. This process is inherently dialogic, a cycle of re-representations that allows the pitchers to develop the pitch by reusing and transforming utterances from others in the dialogue. Yet the reuse aspects of pitch development have not been studied until now. Even in the wider literature on value propositions, studies are in the exploratory phase, primarily qualitative interview-based studies of value (e.g., Kristensson et al. [14], Rencher [21], Rintamaki et al. [22], Skalen et al. [25]), they do not examine documentary evidence, processes or revisions.

This lack of focus on the revision process is problematic for technology commercialization programs and consortia such as GIP. Such consortia, according to Gibson & Conceiçao, attempt to "shorten learning curves and reduce errors" while "provid[ing] access to regional, national, and international markets, resources, and know-how" ([10] p.745; cf. Park et al. [19], Sung & Gibson [30]). Such programs implicitly emphasize understanding markets and developing value propositions that speak to the needs of the catchers; they typically provide actual market feedback appropriate for the market dialogue we discussed earlier. For instance, GIP contractors research a target market, identifying and interviewing potential stakeholders, then writing results in the form of what Cornwell calls a *Quicklook*® ([20]; to understand Quicklook® revisions, see Jakobs et al. [11]), a type of technology assessment and commercialization report that articulates market feedback. But when they help entrepreneurs formulate their arguments and revise them to address market feedback and needs, programs such as the GIP typically provide tacit, context-based support rather than explicit, systematic support. At the GIP, pitch decks and associated genres are described in templates; instructions on how to conduct the dialogue are conveyed through a team of mentors with different backgrounds, specialties, and experiences. Furthermore, programs such as GIP tend to take on entrepreneurs operating in many different sectors, pitching to markets with differing regulatory constraints, competitive landscapes, business developments cycles, and margins; this wide variation makes it difficult to systematize pitch development, and consequently the training process emphasizes contingencies and draws heavily on the situated judgment of mentors such as trainers.

Entrepreneurs can adjust their pitches in at least three ways: through *Design* (redesigning the innovative product or process to address market concerns); *Use* (repositioning the innovation for a

different market or a different use within the market); and *Argument* (refining or changing the pitch argument to make a better case for applying the present design to the proposed use). But for this pitch competition, adjustments based on Design or Use weren't possible: both required additional time, capital, and additional market research, and these entrepreneurs only had two weeks between receiving feedback and presenting the final pitch. So changes in Argument were the only practical ones, and the Quicklooks supported those changes both positively (by providing evidence) and negatively (by articulating market representatives' skepticism about the initial arguments). We therefore focus on changes to Argument below.

3. METHODOLOGY

To examine the process of the pitch competition, we collected primarily qualitative data for the sixth year of the GIP, including interviews, surveys, observations, and artifacts, and we analyzed a subset of these using an inductive coding scheme.

3.1 Research Site

To understand how pitch arguments evolved, we examined pitches from the sixth year (2013) of the Korea-based Gyeonggi-do Innovation Program, a program jointly run by the IC² Institute and the Gyeonggi-do Small Business Center. This training program is structured as a pitch competition, training innovators how to make the complex arguments required by technology commercialization pitches in global markets.

The authors' Institutional Review Board approved this study.

3.2 Data Collection

The 2013 competition involved over 200 applicants, of which 25 qualified to participate in the semifinals pitch. Here, we focus on four of the semifinalists (see Table 1). These applicants entered the program to learn how to commercialize their technologies in global markets, particularly, but not exclusively the US market. For the pitches and training, each firm sent a presenter, who was typically chosen based on his English skills and presentation skills. Below, we refer to the presenter when discussing the pitches, but we recognize that others in the presenters' firms contributed to producing and revising the slide decks.

We collected the following data:

Videorecordings of training pitches. Each presenter was videorecorded while presenting draft pitches to a pitch trainer. These draft pitches included slide decks as well as oral pitches that sometimes included product demonstrations (Table 2).

Videorecordings of trainer's feedback on training pitches. Immediately after the training pitch, each presenter received direct feedback from the trainer, which we videorecorded (Table 2).

Quicklooks. Shortly after they received the trainer's feedback, pitchers received Quicklooks summarizing the feedback that market representatives provided on the firms' innovations. We collected copies of each Quicklook®.

Videorecordings of final pitches. Each presenter was videorecorded while presenting their final pitches to a team of judges. These final pitches included slide decks as well as oral pitches that sometimes included product demonstrations. We also recorded judges' questions and presenters' answers (Table 2).

Copies of judges' score sheets. During and after pitch presentations, judges individually filled out preprinted score sheets to evaluate the pitches. We collected copies of each judge's score sheet for each presentation.

Table 1. Four of the 25 firms in the semifinals pitch

Firm	Description (from Quicklook® executive summary)
K6015	**Magnet**: "uses a combination of permanent magnets and an electromagnet to hold and release ferromagnetic metals such as iron, nickel or steel. Standard electromagnets require a continuous current flow to create the magnetic field to hold an object whereas [this] technology only requires a momentary electromagnetic 'pulse' to engage and disengage the magnetic field of a permanent magnet."
K6017	**Food waste processor**: "an eco-friendly food waste processor that acts as a recycler of waste food (input) to a dry, condensed, product used for fertilizer or animal feed (output). The target market is the food waste processing market including restaurants, schools and corporations."
K6010	**Tactile feedback bracelet**: "a bracelet-like device that is worn on the arm to transmit sound directly into the human body. It is a haptic (tactile feedback) device and uses actuators (tiny motors) to propel sound into the body."
K6008	**Modular float system**: "a modular floating system made up of individual pontoons. These pontoons can be easily connected to form a variety of floating platforms for everything from a boat dock to a marina to a bridge. This product was designed as an improvement to similar products in terms of durability, temperature sensitivity, ease of assembly, and tensile strength. [The company] achieved this by using a secret high density polyethylene (HDPE) mixture for the material and an innovative design for the connecting hardware."

Table 2. Videorecorded data, in minutes

Firm	Training pitch	Trainer's feedback	Final pitch and Q&A
K6015	16:42	29:51	1:00:20
K6017	13:07	31:02	39:29
K6010	13:10	59:52	45:08
K6008	14:52	35:15	32:37

3.3 Data Preparation

We textualized presentation and training data and stored it in a SQL database. In the database, we paraphrased spoken words, slides, and visible actions in training presentations and final presentations. We then paraphrased conversational turns in trainer's feedback videos and in the question-and-answer (Q&A) segments of final presentations.

We also examined specific Quicklook® sections based on the presentation and training data.

Finally, we summarized judges' score sheets in a spreadsheet.

3.4 Data Analysis

First, we closely compared presenters' training and final pitches to detect changes in spoken words, slides, and visible actions. We coded these changes (Saldana [23]), using open coding to develop emergent categories. This process resulted in 42 codes. For this analysis, we focused on 21 codes clustered in three code types (Table 3).

Table 3. Sample code types and codes

Code type	Sample code	Code description
Topics (specific issues)	Topic_ post_sales_ support	Discussing post-sales support as a service to strengthen the offering.
Argument (parts of the argument, e.g., claims, evidence, rebuttals)	Rhe_rebuttal	Acknowledging and rebutting a point from the Quicklook®
Engagement (ways to interest the audience)	Engagement_ story	Telling a story in the presentation

Next, we applied the codes to trainer's feedback videos, then used the codes to identify related feedback in the corresponding Quicklooks. These two data sets represent feedback that presenters received between their training and final pitch presentations. By coding them, we identified feedback that appeared to influence the final pitch.

We also compared training pitch decks to final pitch decks to identify slides that presenters added, deleted, moved, and revised.

Finally, we compared changes with judges' scores. We specifically looked for judges' comments that related to aspects of the pitch that had changed between the training and final pitches.

4. FINDINGS

Innovators entered this pitch competition to receive training and a chance at further, externally facilitated support for business development. In the span of this program, presenters went through the following:

Presentation skills training. All presenters attended a day of presentation training together. The training focused on engagement strategies such as using stories as well as oral presentation skills such as eye contact and maintaining appropriate volume.

Practice pitch. Within a week of presentation skills training, each presenter met with the trainer to run through the pitch presentation. The trainer had the pitches videorecorded. All presenters were male. Each employed a single presenter, only one firm, K6015, included a second presenter.

Trainer feedback. Immediately after the practice pitch, the trainer discussed the presentation, including the pitch deck structure, the pitch's argument, and engagement strategies that the presenters used or could consider using. When discussing the pitch's argument, the trainer referenced and showed portions of the Quicklook®, which the presenters had not yet received. (The GIP recognizes this arrangement as a programmatic weakness and plans to rectify it in future years.)

Quicklook®. Within a few days of receiving trainer feedback, the presenter received its Quicklook®, which provided market feedback that had been gathered on the innovation. Based on the market feedback, the Quicklook® identified perceived weaknesses in the innovation's intended market, business model, development status, intellectual property (IP) status, competition, and other factors that might affect its viability.

Final presentation. Within two weeks of presenting the practice pitch, each presenter presented his final pitch to 3-5 judges. Judges typically asked questions at the end of the presentation, but sometimes interjected questions during the presentation. Afterwards, judges individually filled out seven-page score sheets assessing the pitch. Judges had each read the Quicklook® beforehand and tended to base questions on concerns raised in the Quicklook®.

Based on the analysis below, we gained insight into the kinds of feedback presenters received during training; how they used that feedback to change their pitch arguments; and how the resulting arguments were received by judges.

4.1 What kinds of feedback did presenters receive in the Quicklooks and training?

For the four firms in this study, trainer feedback followed a regular pattern. After the presenter finished the pitch, the trainer applauded, then asked the presenter to sit by her. She first asked how the presenter thought he did. Next, she discussed positive aspects of the presentation. She then asked them to watch the video of the presentation with her on a laptop. As they watched the presentation, she paused at different places to identify weaknesses and make suggestions. During this process, she also referred to the Quicklook® they would soon receive; for all but K6015, she actually showed a printed or electronic copy of the Quicklook® and read key passages to the presenter. Finally, she concluded by praising the presenter for positive aspects of his performance. (This feedback pattern is sometimes called a "criticism sandwich.")

Through our coding, we identified three topics of feedback: structure, argument, and engagement.

4.1.1 Structure

By *structure*, we mean the collection of claims that made up the pitch, manifested in the title of each slide in the pitch deck. Pitch decks were based on a template of 20 slides that covered the standard claims of the pitch genre; these included technology description, development status, benefits, IP status, business model, markets, market interest, competition, risks and barriers, and team status (see Spinuzzi et al. [26] for more on these claims). The template was meant to guide presenters' arguments, ensuring that they addressed the same basic concerns in the same basic order (compare, for instance, Zachry et al. [34] on how the sections of the proposal genre are similarly maintained in order to guide arguments).

Three of the four presenters deviated from the templates by adding or deleting slides. These deviations were not necessarily problematic as singular actions, but by omitting expected claims, they resulted in arguments that US audiences could interpret as incomplete. For instance, K6008's pitch deck omitted two key

slides, “markets” and “development status”; the trainer advised the presenter to put these back in. The trainer also suggested adding video to show K6008’s product in different use cases. Similarly, K6010’s deck omitted “risks and barriers”; the trainer asked him to include it. Finally, K6015’s deck omitted the final “Questions?” slide; the trainer asked the presenter to insert it.

K6010’s presenter also misunderstood slides in the template. In one case, he renamed the “business model” slide as “business design” and used it to present the *product* design; the trainer explained the difference. In another case, the deck used a single slide called “Development and IP” to describe results; the trainer said that this slide was “mixed up.”

4.1.2 Claims and Evidence

Whereas the previous subsection (structure) examines the macro-level arguments that presenters made, this subsection examines how presenters advanced and adjusted specific claims and evidence in individual slides. These presenters were usually neophytes at making arguments for global markets (hence their participation in this training program). More importantly, they had not yet received their Quicklooks, so they did not yet know which claims the market representatives had found unconvincing. Since the trainer had seen the Quicklooks, and since she had more extensive experience with pitch arguments, she provided a range of argument advice to the presenters.

Based on the Quicklook®, the trainer suggested *rebuttals* for each presenter (see [26], [27] for more on rebuttals in the context of this program). Each Quicklook® probed the weaknesses of applying the innovation to a specific market, based on interviews with market representatives, so each Quicklook® identified problems that the presenter would have to rebut in the final pitch.

For instance, for all four presenters, the trainer showed how the Quicklook® identified additional risks and barriers. Based on the Quicklook®, she advised each presenter to address the risk or barrier with claims and evidence about “education.” She applied this broad term to a range of different purposes: establishing a unique value proposition; developing a market for the product; and creating value awareness. Thus “education” could be used to rebut a range of objections:

K6015: Market representatives had (inaccurately) claimed that the technology was simply a semi-permanent magnet; the trainer suggested “education” to establish the difference. “On Risks and Barriers, *education* is a barrier. You don't really have competition. One problem: people won't believe that! This is revolutionary, a game changer.”

K6017: The Quicklook® claimed that there was no market for this process in the US; the trainer suggested education to establish the market. “One barrier: low demand for US food based processes. ... People in America do not know. So that's your problem. It's a high up front investment. … I think the biggest issue ... is very large demand for food waste processing in the US. so how do you overcome that? … you can say, we have to *educate* the US population.” She suggested pasting in the risks, then developing a point-by-point education plan to mitigate them.

K6010: The Quicklook® identified the problem of product awareness, since the product was unique; the trainer suggested education to create product awareness. “So your biggest problem is *education*. You have to *educate* people. Industries.”

K6008: The Quicklook® identified the problem of product awareness, but for a market crowded with similar offerings; the trainer suggested education to establish differentiation. “That is your biggest challenge, *educating* the public. ... provide the video. Another might be, attend exhibitions. ... It doesn't seem like there's much to teach. …” That is, the presenter encouraged the team to take advantage of the public’s familiarity with this product class, then differentiate the product and its unique value compared to other products in the class.

Another example was that of *post-sales support*. For K6008 and K6017, the Quicklook® raised the question of whether the firm could actually support the product in the US (that is, accept returns, repair defective products, answer questions about the product, and document use). For these two presenters, the trainer suggested they use the term “post-sales support” and develop a plan to offer it.

Another tactic was to use *qualifiers* to limit claims about the innovations (see [26]). For instance, K6015’s program application had made an extraordinary claim: that this principle was “The First Discovery in the World.” Similarly, the technical description claimed that the “flow rule of magnetic flux” was a “world-first discovery.” K6015’s Quicklook® revealed that market representatives found these broadly worded claims to be implausible. The trainer advised K6015 to qualify and limit their claims.

Finally, the trainer advised three presenters to add evidence.

K6015: She advised them to provide third-party evidence supporting their claims about their discovery.

K6010: She advised them to add a comparison matrix that compared their technology to their competitors’ analogous technology.

K6008: She advised them to add a comparison matrix as well as figures representing their current percentage of market growth.

4.1.3 Engagement

Finally, we examine the tactics by which presenters tried to engage the audience by helping them to envision how the innovation could be adopted by the market. By *engagement*, we mean performed tactics for making the oral presentation itself more interesting, relevant, or illustrative. Common engagement tactics included demonstrations (including live demos, videos, and photos of the product in use), stories, and questions. Each presenter used engagement strategies; the trainer suggested alternate or additional strategies.

Demonstrations were a popular tactic. In their initial presentations, K6015 provided three live demonstrations, while K6010 (when asked) provided an extended live demonstration at the end of his presentation. K6017 provided an extended video showing its process of turning food waste into powder (a video that visibly disturbed the trainer, who said “eww” and turned her head). K6008 provided a CAD drawing of the product and six photos showing various use cases.

In addition, K6010 acted out a demonstration in the presentation. The presenter argued that his product, a bracelet that both emits sound and vibrates in time with the sound, could help hearing-impaired people to enjoy movies. To illustrate, he displayed a still picture from the movie *Jaws*:

The next market, hearing impaired people. You know this Jaws movie. When you watch this movie, just before attack, do you remember the sound? Da-dum, da-dum, dum! [Stamps feet in time, moving forward a little.) How will you feel? ... Hearing impaired the people, watching the Jaws movie. What will they feel? They just see it [moves right hand up along the figure of the shark] rising up [shrugs], that's all. That's why, if they can't get the feel of the music, that's all.

In her training feedback, the trainer praised the demonstrations, but also made suggestions. For K6008, she suggested bringing the actual product to show. (This product was plastic and about a meter in diameter.) For K6010, she suggested that rather than acting out the scene from *Jaws*, the presenter should show the actual video, omitting the sound so that the audience could experience the clip as the hearing-impaired do, without the musical cues to increase tension. She also suggested that K6010 proactively begin the live product demonstration rather than waiting to be asked.

Stories were less common. K6010's presenter opened the presentation with a story of watching another movie, *Transformers 3*, and thinking what it would be like for a hearing-impaired person to see the movie. K6008's presenter similarly told a brief story of how the innovation was developed.

Similarly, *questions* were also uncommon. K6015's presenter opened his presentation by asking the trainer how many electronic locks she thought were in the building and how much electricity they took to operate; the trainer praised this tactic. Although K6017's presenter did not use questions initially, he suggested using questions as an opener for the final presentation, and the trainer agreed that this tactic might be worthwhile.

At this point, the trainer had drawn on the Quicklooks and on her own observations of the presentations to provide three types of feedback: structure; claims and evidence; and engagement. In the following section, we discuss how presenters incorporated this feedback into their final presentations.

4.2 What changes did presenters make to the pitch arguments between training and final pitches?

Pitchers varied in the changes they chose to make. This variation was expected, since they pitched different innovations to different markets and received different sorts of feedback. However, we saw similarities in how they took up and addressed specific kinds of feedback in structure, claims and evidence, and engagement.

4.2.1 Structure

As Table 4 shows, presenters made various changes to the structure of their pitch decks, changes that suggested adjustments to the macro-level argument.

During the training, the K6010 presenter expressed worry about fitting the pitch into the allotted time (15 minutes), and the trainer mentioned time constraints to K6015 and K6017 presenters. Yet, based on the trainer's feedback, three of the four ended up with a higher number of slides. The changes they made to the structure reflected how they addressed the trainer's feedback:

K6015: The presenters responded to the trainer's and Quicklook's comments by radically expanding the "Technical Description" section and reducing the "Competition" section. They also changed the opener and added a final "Questions?" slide, as the trainer suggested.

K6017: The trainer's feedback did not focus on K6017's structure, instead focusing on the details of specific claims (see next subsection). However, the presenter made structural changes, deleting three slides that were part of the standard template: "IP," "Business Model," and "Competition." Instead, K6017 retitled the slides addressing market and market interest. These slides addressed the major criticism in the Quicklook®: is there a market for this innovation?

K6010: The presenter methodically addressed a range of the trainer's advice, including retitling slides on product design and adding a competitor matrix.

K6008: The presenter ignored two of four key changes the trainer suggested: to include a slide on Markets and to include a competition matrix. He addressed the other two changes by adding slides that further demonstrated the product and that addressed development status, application examples, and subsidiary accessories.

Table 4. Structure changes between training pitch deck and final pitch deck

Firm	Changes (+ add, - cut, Δ move)	+/- slides
K6015	+ Expanded "Technical Description" from 5 to 14 slides + Final "Questions?" slide - Reduced "Competition" from 10 to 8 slides - "A Question for You" slide Δ Revised live demonstrations and included them at different points of the presentation	+6
K6017	+ Retitled "Markets" and "Market Interest" slides as "US Market" and "U.S Market(Past/ Present/ Future)" and included much more content on these slides, focused mainly on educating the market - Deleted "IP" slide - Deleted "Business Model" slide - Deleted "Competition" slide	-5
K6010	+ Added a movie clip + Added "Quick-Look Report" slide (listing people interviewed for the report) + Added "Competitors comparison chart" slide + Added quotes from potential user (from Quicklook® report) - Deleted "Technical Differences" slide Δ Moved two slides on product design from "Business Design" to earlier in the presentation	+6
K6008	+ Added videos and diagram that describe the product's use + Added two "Development status" slides + Added two "Application Examples" slides	+13

	+ Added two "Subsidiary Accessories" slides	

As Table 4 shows, all four presenters changed the structure of the presentation. However, in addressing these changes, K6017 cut off key expected parts of the argument structure, while K6008 ignored two of the four pieces of advice the trainer furnished.

4.2.2 Claims and Evidence

Three of the four presenters responded to advice by revising claims and arguments in individual slides (Table 5).

Table 5. Argument changes in individual slides

Firm	Training pitch slide	Final pitch slide
K6015	Technology Description describes principle	Technology Description slides directly quote and rebut Quicklook® report. Technology Description slide describes "control of magnetic flux flow." Technology Description slide included verification letter from Korean Patent Office
K6017	"Risks and Barriers" slide included "Domestic: !" and "Overseas: ?"	"Risks and Barriers" slide included a subhead and three bullet points describing risks (from the Quicklook®) and a corresponding subhead and three bullet points describing their strategy to address these. (detail, evidence, rebuttal)
K6010	"Development and IP" covers "Difference," "Advancement," and "Marketability" "Competitors" shows three photos of products and a sentence explaining that these products were the most similar they could find, but not a close match.	"Development and IP" slide is renamed "Results" "Competitors" shows four photos of products without text; a second slide, "Competitors Comparison Chart," compares the technology to five others in a matrix. (evidence)
K6008	*(no changes to individual slides)*	*(no changes to individual slides)*

K6015 further addressed the market representatives' skepticism about the principle underlying their innovation. (The trainer emphasized this issue: "People won't believe that!") To address skepticism, they directly quoted criticisms from the Quicklook® report and rebutted those criticisms with evidence. They also reformulated their central claim: whereas their draft pitch and other materials had called the underlying principle a "new rule of magnetic flux flow," the revised pitch deck called it "control of magnetic flux flow," a more limited claim.

K6017 further addressed the question of whether there was a US market for the product. In particular, the presenter drastically revised the "Risks and Barriers" slide. In the draft presentation, this slide simply showed an exclamation point and a question mark (representing domestic and overseas markets respectively). The trainer pointed out that this slide was inadequate. For Risks, she counseled, "just use what's in [the Quicklook®]"; to rebut these, "you can say, we have to educate the US population." The revised slide followed this advice closely, acknowledging the risks and barriers identified in the Quicklook®, then claiming that these could be addressed through a strategy for educating the market.

K6010 incorporated the trainer's advice to develop a competition matrix as well as retitling a slide to make its claim clearer.

As noted, **K6008** received multiple suggestions for revising individual slides, including those that addressed business model, benefits, market, and competitors. However, K6008 did not implement those revisions.

4.2.3 Engagement

The trainer gave three of the four presenters concrete steps for improving engagement in their presentations. These three presenters directly addressed the trainer's suggestions, although they varied in the extent to which they took up the advice (Table 6).

K6015 changed the most. In the initial pitch, the lead presenter initially attempted to engage the audience by asking how many electromagnetic locks are in the building and how much electricity they use. The second presenter also provided live demonstrations of the magnets. The trainer approved of both tactics, but suggested that the lead presenter know the exact answer to the question he asked. However, K6015 learned that market representatives were skeptical of their claims, so in the final presentation, the presenters pursued a different engagement tactic that addressed this skepticism.

K6017, in contrast, did not change its engagement tactic at all. Its tactic was to show a short video in which food refuse was scraped into a machine, which processed the refuse in stages until it became powder suitable for fertilizer use. The trainer, who apparently had an aversion to seeing food waste being processed, turned her head during the video and said "eww!" but agreed that the demo was effective, so K6017 did not change it in the final pitch.

K6010, as we saw earlier, pitched its vibrating bracelet in part as a solution for the hearing-impaired community. In the training pitch, the presenter described how that community missed out on musical cues in dramatic movies such as *Jaws*; the trainer suggested using actual video from the movie to demonstrate. In the final presentation, the presenter followed this tactic, simulating what it's like for a person with hearing impairment to see a dramatic scene without these cues:

[slide: "Hearing impaired people!" and Jaws poster.]

K6010: this is a famous horror movie called Jaws.

[slide: A paused video from Jaws, showing two girls in the water.]

K6010: Now I want to show you a small part of the movie. [He plays the video, which has no sound.] Now, if I can't hear and I don't have a sound device, I'm watching them but I don't know why. [The girls float in the water, then the shark suddenly appears and drags one into the water. He pauses the video.] ... if you have seen the movie, you know the music. Ba-bum, ba-bum [he stomps his feet in time with the music.] How do you feel? The feel is terror. But the hearing-less people [don't get this cue]. So this product is for the hearing-less people.

Although K6008 and the trainer had discussed developing a new opener to engage the audience, his final presentation did not involve a new opener. K6008 did add some short videos demonstrating how his product was being applied in the region. He also brought a sample of the product, but he displayed it after the Q&A rather than during the presentation.

Table 6. Engagement tactics (stories, examples, demonstrations, questions)

Firm	Training pitch	Final pitch
K6015	Slide: "A Question for You": Presenter asks audience to guess how many electromagnetic locks are in the building and how much electricity they use. 5 "Technical Description" slides describing the principle	Deletes the question slide, does not ask the question. 14 "Technical Description" slides describing the principle; speaker emphasizes that "common sense" suggests that magnets work one way, but they work a different way; tells story of applying twice for a Korean patent because the Patent Office wouldn't believe the principle until it was demonstrated to them.
K6017	Video of food waste being processed into powder.	Video of food waste being processed into powder.
K6010	Speaker describes watching Transformers 3, thinking how it would be better if he could feel vibrations. Picture of Jaws movie poster; speaker ***describes*** how music adds tension to a scene, but that tension is not accessible to deaf people. Photo of product. After presentation, trainer asks to inspect the product.	Speaker describes watching Transformers 3, thinking how it would be better if he could feel vibrations. Picture of Jaws movie poster; silent video clip of scene, ***showing*** how lack of music means no tension in the scene. Photo of product; videos of product in use at trade show. At end of presentation, speaker passes out and demonstrates product.
K6008	CAD drawing of product and photos of use cases.	CAD drawing of product, photos and videos of use cases. Video of product assembly and accessories. Photos of accessories. Speaker holds up the product after the Q&A.

4.3 Do these changes correspond with favorable judge scores?

Each presenter changed the final pitch to some degree, based on the trainer's feedback. But was it enough? Did these changes correspond to judges' scores?

The question is not as straightforward as it might appear. As discussed earlier, *in theory*, a firm could address resistance from market representatives in at least three ways: *Design* (redesigning the innovative product or process to address market concerns); *Use* (repositioning the innovation for a different market or a different use within the market); and *Argument* (refining or changing the pitch argument to make a better case for applying the present design to the proposed use). With more time and greater resources, these firms might have chosen to adjust their innovation designs for the identified market, to take the design to a new market, or both. But due to the limitations of the pitch competition, *in practice* their only real recourse was to adjust the argument for applying the design to the identified market.

We can imagine, for instance, that with more time and resources K6017 might have adjusted *use*: the firm might have chosen not to pursue the US market, which seemed unreceptive to the food waste disposal process K6017 was trying to sell. However, at this point in the competition, K6017 could not reposition the process for a different market; the presenter could only strengthen the *argument* he had already made, even though that argument was unlikely to be accepted.

The judges, of course, had already read the Quicklooks and were familiar with the problems with design and use for each firm. They already knew where market representatives had found the arguments to be weak. In the cases of K6017 and K6008, the Quicklook® had recommended not proceeding. So as the judges watched each pitch, they were interested in whether the pitch rebutted the Quicklook's specific criticisms (with better-articulated claims and evidence) while maintaining the coherence of the overall argument (through the overall argument structure). In addition, they wanted to know whether the presenters could present compellingly to US audiences—a factor that included facility in English, but also included a general ability to connect (that is, a subjective evaluation that was not further characterized by subcriteria). Judges used score sheets to record their feedback along these criteria, but did not systematically weigh each criterion. Finally, each judge provided an overall score from 1 to 4 (with 1 being the best); these scores were holistic rather than being based on weighted scores from subsections.

Below, we discuss two sets of feedback from the judges: their questions during the Q&A session and their score sheets.

As Table 7 shows, judges probed concerns during the Q&A. In their score sheets, they consulted the Quicklook®, the pitch, and the Q&A. In each case, they examine how well the presenter iterated the argument to address concerns from the Quicklook®, but they also evaluated whether the design and use were insurmountable factors.

K6015: Judges asked questions to probe whether the technology was genuine (including whether it had intellectual property protection and whether it had been implemented in the Korean market) as well as whether the firm had a clear idea of the market in which it would be competing. Scores represented a split: two judges ranked it highly (1), while the other two ranked it lower (3). Comments on the score sheets reflected the concerns about the technology and market, but judges ultimately agreed with the

Quicklook® that the program should cautiously move forward with this innovation. Given the judges' questions and score sheet comments, K6015 made the right choice by cutting its original opener, which focused on electromagnetic locks.

Table 7. Judges' responses

Firm	Q&A	Scores (1 is high)	Score sheet comments	Accept ?
K6015	Is technology genuine? Are the applications feasible? Is the IP protected?	1, 1, 3, 3	Concerns with technical description; competitors' similar technology; technology seen as moderately strong; "Power saving not significant to electro-mechanical"; "[K6015] does not talk about how it compares to ... a US competitor"	Y
K6017	Plans for field testing; distribution partners; lack of certification; feasibility of market acceptance; business model	2, 3.8, 4, 4	No market; failed to explore alternative (service) model; slim to no chance of transaction within 9 months	N
K6010	Specific companies to sell to; consider the "kinky" market; patent protection	1, 1, 1, 2, 2	Significant or revolutionary technology; all five see chance of transaction within 9 months; "also, it should be explored in Adult market globally."	Y
K6008	Price; durability; business model; differentiator; applications	2, 3.5, 4, 4	No market pain; crowded market; no differentiator; "No real market data or validation."	N

K6017: Judges' questions centered on the feasibility of entering the target market. Ultimately, judges' scores were much lower. Although K6017 faced a difficult situation in that the firm could not change the Design or Use of the process, the judges' comments suggested that K6017 could have productively changed the Argument. Specifically, K6017 failed to explore an alternative business model: rather than selling expensive machines to restaurants—a "Solution to small problem with high capital cost," according to one score sheet—K6017 could have offered a far less expensive service model in which the firm would pick up food waste, take it to a central plant, and process it there.

K6010: Feedback was significantly higher, with all judges rating it either 1 or 2. Judges were engaged during the Q&A, discussing further uses beyond those the presenter had suggested. One judge persistently suggested that the firm also design products for the "kinky market" and described ideas along these lines (to the evident discomfort of the presenter). That is, judges actively *co-created* a new value proposition with the presenter (see London et al. [16]; Lusch & Vargo [17]), a sign of high engagement. In their score sheets, judges described the technology as either "significant" or "revolutionary" and agreed that it had a chance of a transaction within the next 9 months. One judge commented that the "Deaf community will buy this product TODAY," while another added that "it should be exploited in Adult market globally."

K6008: Judges gave K6008 scores almost as low as K6017's. Although the presenter had made his case that the modular float system was in use in Korea and surrounding countries, judges agreed with the Quicklook® that this product was not well positioned to enter a crowded market: it did not have a strong differentiator. One judge commented that "It seems there is a market need in Indochina but there is no market pain in the USA"; others argued that the company had not done due diligence by researching the market well. Some of these critiques closely resembled the advice that the trainer had given K6008 about revising the pitch slides (Table 7), advice that K6008 ignored.

5. IMPLICATIONS

5.1 Implications for pitch development, training, and research

Although many studies have examined how pitches are *presented*, few examine how such arguments are *developed*. We see this study as a first step toward better understanding how entrepreneurs develop these complex arguments, and particularly the contingencies that lead them to pivot (reposition) their offerings.

In particular, we have argued that in pitch competitions, entrepreneurs are limited in their ability to change their Design and Use, so they must focus on their Argument instead. This limitation, we believe, means that presenters must consider a more constrained set of pivots than they might in a different situation. We hypothesize that outside of structured competitions, entrepreneurs may deploy a broader repertoire of pivots.

Based on our analysis, we believe that pitch feedback in this program has tended to conflate different categories of feedback. In particular, the trainer and judges address (but do not separate) aspects of Argument (structure, claims and evidence, and engagement), and judges additionally address (but do not separate) aspects of Design and Use. We believe that pitch training programs could provide more categorized feedback by developing heuristics for separating these aspects; providing metrics for rating them; and providing concrete written feedback for each. We are currently working on such heuristics for the program under discussion.

Further, we have recommended supplying the Quicklook® to innovators at least a week before pitch training along with a "use"

or "interpretation" manual. Doing so would allow them to consider market feedback and begin incorporating it into draft presentations. It could also soften innovators to trainer suggestions, perhaps making teams like K6017 more likely to adopt them.

5.2 Implications for professional communication

More broadly, we believe this study has implications for professional communication. Professional communicators have recognized the complexity of the pitch argument (e.g., [26], [27]), but studies of the pitch in professional communication are still relatively rare, and accounts of their rhetorical decisions are rarer still.

Furthermore, we recognize that entrepreneurship involves rhetorical dimensions that go beyond spoken and textual arguments. Choices of Design and Use are *also* rhetorical (Evia & Patriarcha [7]; Spinuzzi [28]; Sun [29]). We could not explore those rhetorical choices here; we plan to do so in future studies, and we believe that this area is a fruitful one for other professional communicators as well.

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