

INTERACTIVE BOOKS – STATUS REPORT

INTRODUCTION TO GRAPHIC COMMUNICATION



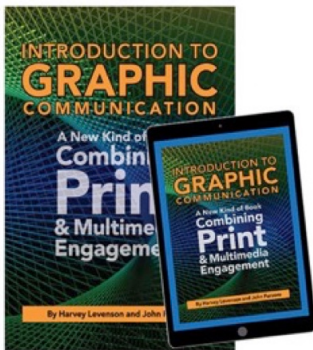
With an overview of:
THE SOUND OF BAMBOO:
Blowing Zen & the Spirit of Shakuhachi

Pending:
A Reflection of Black Education in the United States—
Stories of Successful Black Alumni,
Cal Poly, San Luis Obispo

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THE SOUND OF BAMBOO
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ABSTRACT

This paper presents a status report on reader and adopter responses to printed interactive books using Ricoh's Clickable Paper application. The paper describes how Ricoh's Clickable Paper app has taken a major step forward with the growth of adoptions of the first book, *Introduction to Graphic Communication*, the completion of a second book, *The Sound of Bamboo*, and a third book in process focused on Black history and African American journeys to success. The diversity of these topics shows how Ricoh's Clickable Paper technology is applicable for interdisciplinary fields such as graphic communication, the performing arts, and the social sciences.

A survey was taken of user and adopter reactions to the Clickable Paper application, with the major emphasis on the first book, *Introduction to Graphic Communication*, because it has entered its third year of use with adoptions to date by twenty-four schools. The second book, *The Sound of Bamboo*, focusing on music, is in its first year of adoption. Reviews to date are included. The third book is presently being written and scheduled for release in 2022.

Content Analysis is the research method used to quantify the qualitative responses received. Therefore, all readers can interpret the results in the same way.

In sum, the results are highly positive from students, schools, faculty members, and other readers of the Clickable Paper books. The scanning abilities of the Clickable Paper app received the greatest number of positive responses along with the value of the videos, and how the interactive *Introduction to Graphic Communication* book served an important need during the COVID-19 pandemic. Recommendations, for the most part, were not related to functionality of the Clickable Paper technology, but to cosmetic considerations and operational inconsistencies that some users experienced. The Clickable Paper app design

received the greatest number of recommendations for improvement, followed by some discomfort in viewing images on the small screen size of smartphones. Remedies are provided.



INTRODUCTION

Ricoh's Clickable Paper application has changed the "playing field" in education and training in the graphic arts.

Conceived by the Ricoh Corporation, and developed jointly by Ricoh and the Cal Poly (San Luis Obispo) Graphic Communication Department, Clickable Paper provides a multimedia experience combining the positive haptic aspects of print (ink on paper) with videos, sound, and electronic communication. (1)

Being in "the right place at the right time," but unbeknown to Ricoh when first developed, the Clickable Paper application clearly made communication an important addition to Ricoh's graphic communication product line. (2) It has significantly aided in online education and training at the time of the COVID-19 pandemic when schools were shuttered and companies relegated employees to working from home. Further, the application has addressed pedagogical approaches of concern in education for decades—*How do people learn best?* The Clickable Paper application addresses different learning styles: Some learn best by reading, some by viewing videos, some by hearing descriptions, and some by a combination of approaches. Ricoh's Clickable Paper addresses each of these learning styles.

While this paper focuses on the book, *Introduction to Graphic Communication* (www.igcbook.com), the first book to ever use the Clickable Paper application, two additional books will be briefly addressed, demonstrating Clickable Paper's broad viability.

Copyrighted in 2018, the initial adoptions of *Introduction to Graphic Communication* occurred in late 2018 and has continued to grow since then. Coauthored by Harvey Levenson, Cal Poly Emeritus Professor and former Graphic Communication Department Head, and John Parsons, Principal of Intuldeas and former Editorial Director of *The Seybold Reports*, to date the book has been adopted by twenty-four schools at many levels: high schools, technical schools, community colleges, and four-year colleges and universities. Also, a license was granted to a consortium of four universities in China to translate the book. (3)

The second book, revised in 2021, *The Sound of Bamboo*, shows how Clickable Paper can be used for hearing, learning, and teaching music, using the traditional Japanese shakuhachi flute as an example. The book's authors are Bob Berlin-Grous and Monty H. Levenson. Levenson is principal of Tai Hei Shakuhachi in Willits, California, and a renowned shakuhachi flute maker for over 50 years. Using the Ricoh's Clickable Paper application, renowned international players are heard and shown practicing their craft, and how the flutes are made is demonstrated. (4) The reviews have been highly positive, and testimonials received appear in the Appendix of this paper. See: (<https://shakuhachi.com/PG-TheSoundofBamboo.html>)

The third book, in process, is entitled, *A Reflection of Black Education in the United States—Stories of Successful Black Alumni, Cal Poly, San Luis Obispo*. In the book, readers will see and hear firsthand the journeys of successful African Americans, some well known, and their advice to young people for achieving their dreams. The book will also provide a historical account of African Americans in the United States by decade going back 100 years. Authored by Cal Poly alumna, Shereese Cutler, the book is scheduled for publication in February 2022, in time for Black History Month. Hence, the three books demonstrate the viability of Clickable Paper for

multiple disciplines: Graphic communication, the performing arts, and the social sciences.



RESEARCH METHOD

The research method for this study is Content Analysis

Content analysis is a popular method used in communications research to quantify qualitative information. (5) It is a technique for the objective, systematic, and quantitative description of manifest language. Manifest language is the everyday or common language that people use to describe situations, ideas, thoughts, and experiences. In this case, manifest language is the common language of students who evaluated the Ricoh Clickable Paper application used in the Interactive Book, *Introduction to Graphic Communication*, and the feedback provided by schools and instructors on how the book is being used in classes.

There are six considerations in using Content Analysis as a research method

- 1) It is a technique for objective, systematic, and quantitative description of manifest language.
- 2) Categories are used to analyze content.
- 3) Different people are able to analyze the data in the same way and get the same results.
- 4) The content involves a formal, predetermined, unbiased assessment of the data collected.
- 5) Reading “on the lines, “ not “between the lines.”
- 6) The results are expressed numerically.

The information provided by the students, and the school and instructor assessments, are presented in numerical sequence by category from the most to least referenced. Students assigned the book were asked to write evaluations, and several schools that adopted the book were asked about their teaching strategies as reported in published articles that appear in the Appendix. Even the printer of the book,

Yurchak Printing in Landisville, Pennsylvania, where the book was printed on a Ricoh Pro VC60000 inkjet press, provided an assessment included in this paper.



STUDENT RESULTS - OVERVIEW

Introduction to Graphic Communication Content Analysis of Student Assessments and Observations

- Positive Responses
- Recommendations and Remedies

Content Analysis of School Assessments

- Observations and Teaching Strategies

The following is a compilation of the responses received from students assigned to use the interactive book, *Introduction to Graphic Communication*. The two main categories appear in bold caps: **POSITIVE RESPONSES** and **RECOMMENDATIONS AND REMEDIES**. The subcategories appear in bold lowercase. A second level subcategory under “General” is identified with a bullet points. The numerical reference identifies the number of times that there was a response to the category. The organization is from the highest number of responses to the lowest number. For the purposes of this study, the higher the numerical reference, the more relevant is the response or recommendation by students.

STUDENT POSITIVE RESPONSES = 110

- Scanning – 25
- Videos – 23
- Navigation and the App – 22

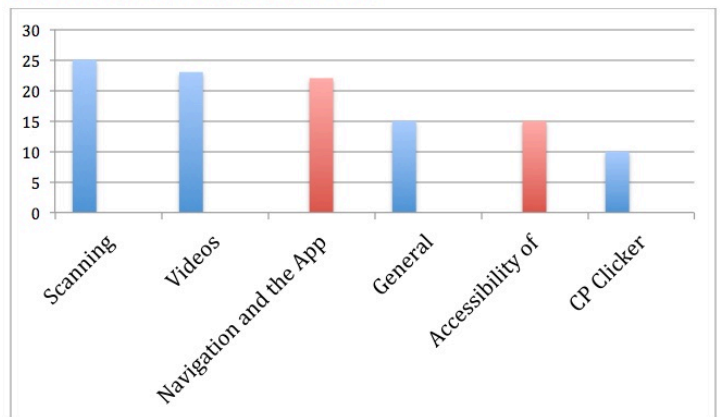
General – 15

- Overall Concept – 9
- App and Website – 3
- Interactive Communication and Errata Option – 3

Accessibility of Information – 15

CP Clicker – 10

STUDENT POSITIVE RESPONSES: N = 110



The three top categories with the most positive responses in the following order are Scanning, Videos, and Navigation and the App. The General category, Accessibility of Information, and CP Clicker followed. The General category encompasses the subcategories of Overall Concept, App and Website, and Interactive Communication and Errata Option. (The Errata Option provides the opportunity to communicate to the publisher any corrections, additions, or other changes that the reader might want to recommend.) Many observations addressing how Clickable Paper helped in providing instruction during school closures during the pandemic are included within the subcategories under General.

See APPENDIX A for Results – Positive Responses.

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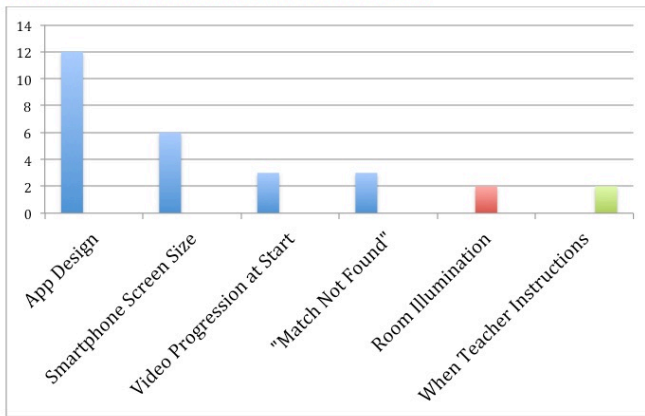
STUDENT RECOMMENDATIONS AND REMEDIES

The following categories represent issues or concerns expressed by the students, followed by a summary of the overall responses and suggested remedies.

STUDENT RECOMMENDATIONS AND REMEDIES = 28

- App Design – 12
- Smartphone Screen Size – 6
- Video Progression at Start – 3
- “Match Not Found” Notification – 3
- Room Illumination – 2
- When Teacher Instructions are Needed – 2

STUDENT RECOMMENDATIONS AND REMEDIES: N = 28



Interestingly, the recommendations are all either cosmetic or refer to operational inconsistencies that some users experienced. They are not related to how well the Clickable Paper technology functioned. For example, the Clickable Paper app design received the greatest number of recommendations for improvement, followed by some discomfort in viewing images on the small screen size of smartphones. Remedies are provided in Appendix C for each recommended improvement.

See APPENDIX B for Recommendations and Remedies detailed.

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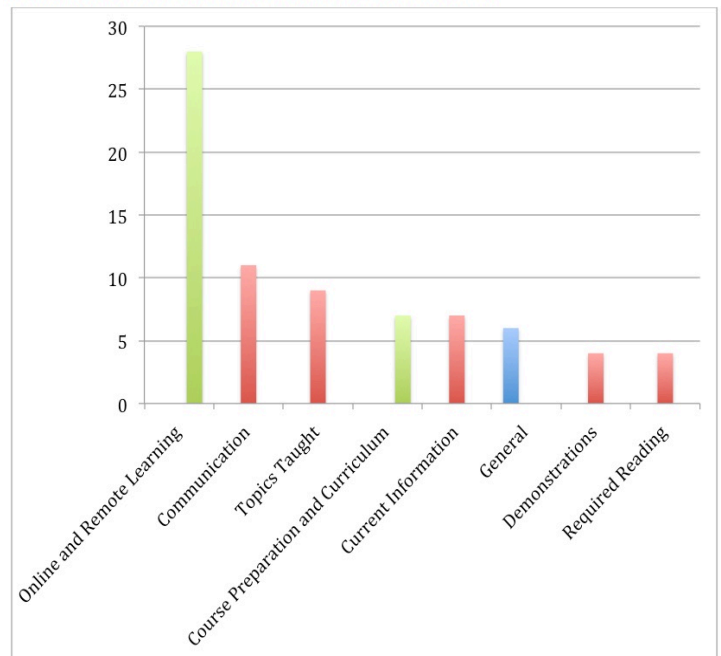
SCHOOL AND INSTRUCTOR OBSERVATIONS AND STRATEGIES

The following categories include a compilation of observations and strategies reported by schools and instructors (instructor names are kept anonymous) that adopted the interactive book, *Introduction to Graphic Communication*. The categories addressed appear in bold type.

OBSERVATIONS AND STRATEGIES = 76

- Online and Remote Learning – 28**
- Communication – 11**
- Topics Taught – 9**
- Course Preparation and Curriculum – 7**
- Current Information – 7**
- General – 6**
- Demonstrations – 4**
- Required Reading – 4**

SCHOOL AND INSTRUCTOR OBSERVATIONS AND STRATEGIES: N = 76



The numerical reference identifies the number of times there was an observation or strategy related to each category. The organization is from the highest number of observations or strategies to the lowest. For the purposes of this study, the higher the numerical reference,

the more relevant is the observation or strategy to the academic program using the interactive book.

See APPENDIX C for Observations and Strategies by Instructor.

See APPENDIX D for Observations and Strategies by School.

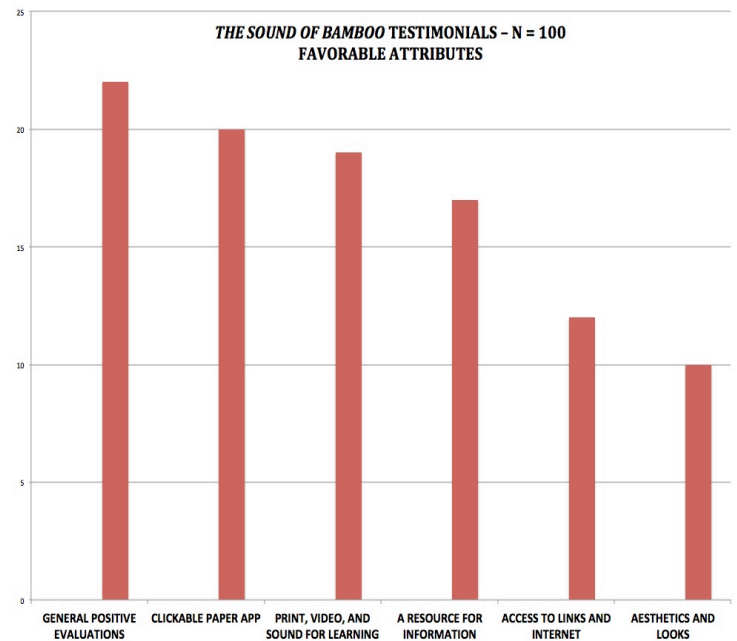
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THE SOUND OF BAMBOO

The Sound of Bamboo, published by Tai Hei Shakuhachi, demonstrates Ricoh's Clickable Paper as an Augmented Print application that brings to life a "Japanese experience" through music, culture, learning, and training via web pages, videos, and sound. The book provides an expansive overview of the shakuhachi, a traditional Japanese bamboo flute dating back to the 7th Century, and its close association with Zen Buddhism as a vehicle for meditation. It provides an example of how Ricoh's Clickable Paper application can be beneficial to today's music industry and academic programs for demonstrations and teaching. *The Sound of Bamboo* was reviewed by prominent shakuhachi players, worldwide, and received very high ratings for its effectiveness as a multimedia book stemming from a printed publication.

Readers of *The Sound of Bamboo* submitted favorable comments on the links provided via Clickable Paper, the overall appearance of the book, and the book's utilization, while also providing several general comments. The greatest number of observations related to how Ricoh's Clickable Paper contributed to the book's utility. There were no recommendations for improvements from this group. It is noteworthy that these are mostly musicians and artisans, as opposed to technicians. Therefore, it is not surprising that their comments were more subjective than that of a more technical group such as those already steeped in graphic communication technology. This further supports the appeal of Clickable

Paper to diverse interdisciplinary disciplines and professions.



See APPENDIX E for The Sound of Bamboo testimonials.

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YURCHAK PRINTING

It is appropriate to pay tribute to Yurchak Printing, Inc. in Landisville, Pennsylvania, for printing the interactive book, *Introduction to Graphic Communication* as well as *The Sound of Bamboo*. In the first instance, a book about graphic communication should be printed at the highest level of quality, as print quality also communicates something about that publication, as well as its contents. Printed on Yurchak Printing's Ricoh Pro VC60000 inkjet press, *Introduction to Graphic Communication* meets the quality expectation of a book teaching about printing, publishing, digital imaging, and related topics, as does the printing of *The Sound of Bamboo* meet the quality expectations of highly crafted musical instruments. (6)

See APPENDIX F for Yurchak Printing Observations.

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CONCLUSIONS

It is broadly apparent that distance and remote teaching and learning are here to stay at schools. Further, it is evident that distance and remote training for industry are here to stay.

What was learned as a result of the pandemic, when schools and businesses were forced to adopt remote communication, is that the technology works! As the pandemic is increasingly viewed in the “rearview mirror,” it is expected that schools and businesses will not revert entirely to the “old ways of doing business,” but to a hybrid approach of traditional and distance communicating including teaching, training, meetings, seminars, conferences, and so on. Some call this “the new reality.”

Digitization of media will keep growing, and Ricoh’s Clickable paper provides the haptic experience that many studies suggest is preferred by readers, and particularly for learning and training; a printed, tangible book that is held and can be marked-up as needed, with minimal eye fatigue. (7) It has long been advocated that printing is the most detailed, pervasive, meaningful, and influential form of mass communication, and has been for centuries dating back to 1456 and Gutenberg’s invention of the process for duplicating movable type. Add to this Clickable Paper’s accessibility to multimedia (videos of all types, expert presentations and lectures, websites, technology demonstrations, communication among and between readers and authors, chat groups, and more) and you have a medium, Clickable Paper that appeals to different learning styles—reading, viewing, listening, and discussions.

What’s next?

Look to e-ink, enabling not only changes in videos stemming from a printed book, but changes in the text as well—without having to reprint. Initially developed many years ago by MIT’s Media Lab and what was then the Xerox Palo Alto Research Center (PARC), developments in e-ink technology have accelerated rapidly over the past two years. (8)

The concept and promise of E-Ink (also referred to at the time as E-paper) was presented at the TAGA 2004 annual conference as the future “new frontier” in imaging on paper. One attendee asked the speaker when the technology would become a reality. The answer was, perhaps in 50 years. The development of this technology was updated at the 2005 TAGA annual conference, where the speaker said that the practical application of the E-Ink technology was about five-years out. (9) It has stalled since, leaving Ricoh’s Clickable Paper the only Augmented Print technology of its kind that is realistic, practical, and economical in today’s printing market. However, there has been a recent upsurge in E-Ink developments and its proposed application for newspapers. An article entitled, “Google Engineer Unveils Massive E-ink Newspaper Prototype, Paper,” appeared in the February 10, 2020 issue of *Input Magazine* in the Tech section. While the article describes a full-size broadsheet newspaper display, the technology is coming closer and closer to have the look, feel, and thinness of a traditional newspaper.

Look to e-ink as the next major advancement in the digitization of printing and a possible future application for Clickable Paper. A major paper on advancements in this technology is presently being prepared.

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APPENDICES

APPENDIX A

RESULTS – POSITIVE RESPONSES – 110

Results – Positive Responses is synonymous with raw data or metadata. They are the responses provided by the students in each category, though paraphrased for the purpose of brevity. It is organized from highest to lowest number of responses. Again, the higher the number, the more reflective are the observations of the respondents, i.e., the students.

SCANNING – 25

- I had no idea that the scanners were capable of demonstrating a much more different experience than physical books.
- I find it extremely useful that when clicking on certain areas of the book, it provides different links, other resources associated with those topics, and videos.
- The textbook scanner was pretty simple to use and navigate.
- With the CP Clicker app, it was extremely easy and quick to scan material in the textbook and its connection to the application.
- I was very impressed to find that there was so much content unlocked after scanning the opening spread of the chapters.
- Within two seconds, a whole side menu appeared with a ton of video content that explained the content of the book even more in-depth.
- Once scanning a page, all links were clickable and directed me to where it said it should take me.
- After scanning a page it only took the app a few seconds to load the interactive features, which is very convenient for a user trying to learn the material.
- The scanner worked fine.
- When I scanned the textbook, I immediately noticed how easy it was to scan the pages.
- It took about three seconds to scan, then it directed me to the “Page Hotspots.”
- I downloaded the app and scanned pages. They loaded videos that went over the course content for each chapter.
- Scanned relatively easily
- It is helpful for a textbook to have the scanning options that this book has.
- The scanning feature is beneficial for many reasons. For example, if students need further understanding on a topic, if students learn with visual and audio teachings better than reading the textbook, or if students want to further explore a topic, they can learn more with the scanning options attached to the book.
- The scanning ability is a great feature, as users can have access to a multitude of information.

- When I scanned the textbook with the app I was pleasantly surprised that everything loaded pretty quickly, since my phone is an older model.
- One thing I do enjoy about this app is the very simple camera-scan method.
- I was able to scan the page without a problem and begin watching videos immediately.
- All I had to do was scan the first page of each chapter and it gave me videos to watch throughout the chapter.
- The scanning portion of the textbook is very interesting. I think the overall idea is great.
- When I scanned the chapters, I was surprised to see all the different options available to me digitally in relation to this book.
- Scanning the pages within our textbook allowed us to reach additional details about the material, and give several examples and in-depth analyses about the topic.
- After finding the correct lighting for scanning the pages, the resources popped up quickly and were all clearly laid out on the screen. This was helpful as opposed to having all the videos in different hidden tabs.

VIDEOS – 23

- I was pleasantly surprised at the amount of video content that was there, and how easily navigable the module was.
- The videos were easy to access and watch, and the whole layout was very clean.
- The YouTube videos seemed to be the most helpful resource to students that have trouble understanding, or want to learn more, about what is discussed in the chapters.
- Videos come up that relate to the book's topics.
- The videos were easy to navigate and their content was good.
- The videos and the website added a unique element to and augmented the user experience of the textbook.
- One of the positives is that it provides video links and more information based on the page numbers.
- I had no problems navigating the interactive video links, and really liked how many resources there were for learning additional information.
- I can sometimes have a hard time staying focused on reading, but the videos were a lot more engaging with the use of their diagrams.
- Different videos about the Internet and telecommunications were suddenly at my fingertips.
- I love how they incorporate videos along with their lessons, because that is a huge learning tool, especially when students can't experience in person and hands-on learning during the pandemic.
- My favorite part is that the information is presented in a format that resembles a documentary. I believe this content is more digestible than it would be to just read it from the book.

- I did find the interactive videos to be more informative and interactive than just reading the book, and I would most likely use the videos out of everything on the app.
- I think the videos are pretty helpful and actually helped me better absorb the information I read.
- I was surprised to see how many YouTube videos were available with extra information.
- Since the videos are labeled with which page they are associated with, the organization is pretty clear and the videos are easy to find.
- The most useful part of the virtual textbook feature are the videos.
- The videos provide another platform to learn from or to review information.
- I did not know how some digital technologies, such as how my Kindle Paper White display works. The book's multimedia taught me about the positive and negative aspects of the technology.
- Sometimes I find that when I read too much at once in a textbook, I don't actually absorb what I am reading. But hearing someone else summarize and talk about the material helped me conceptualize everything.
- It added a "little bit of spice" to what would be the same routine for an entire academic term.
- I like the idea of being able to interact with our textbook!
- Overall, I really liked the idea of an interactive book, and it was very easy to use!

NAVIGATION AND THE APP – 22

- The app itself was fairly easy to navigate, as it downloaded onto my phone quickly and there were only a few "permissions" to accept before I could begin scanning.
- I found it easy to navigate.
- I could add each link section to a collection, or share it with others.
- I found that adding to a collection is quite useful because I can sort it into a category/folder so it is organized and the app saves it when I come back to it.
- The last link that came up when I scanned a page was to a website elaborating on one of the concepts from the chapter.
- I really like how interactive the app is and I think there are a lot more positives to it than negatives.
- The app itself was not difficult to use, and I had no trouble accessing any of the interactive features.
- After downloading the application on my iPhone, I scanned a chapter's first page, and I watched the chapter Introduction video. I then learned something new from the second video.
- You can access all the interactive videos for an entire chapter along with additional links, author contact information, and more from the overview page.
- I had a really positive experience with this app and I can't believe I have gone all my life not knowing about this app and its capabilities.

- I enjoyed how easy this app was to use, and I liked how there was a panel at the top of the screen that showed my most recent items.
- I didn't have any challenges using this app. If anything, sometimes I was just slightly overwhelmed by the amount of information the app provides.
- I found that the app was easy to find in the app store and download.
- Once in the CP Clicker app, the videos were easy to access and cool to watch while reading the chapter.
- I found the app to be very easy. There were helpful assistants on what to click and how to explore the app.
- I found the pages relatively easy to navigate.
- I like how everything remains in the app instead of taking me to another screen.
- I thought it was really cool that different icons from the book popped up on my screen and became interactive.
- There was a simple guided process to help the user allow certain features turned on to require the app to work properly.
- I like that the app had instructions and directions for every step while using it.
- The app is very easy to use in general.
- The app works and functions as it is intended to.

GENERAL – 15

Overall Concept – 9

- Cool idea!
- This book has taught me that there is always room for learning more.
- The design was user-friendly and easy to navigate.
- From a learning standpoint it keeps everything simple and clear, without adding any useless or distracting visuals.
- Everything is clearly sectioned off, and the major points each have their own unique links.
- I found it helpful following the chapters in the physical book as well as having the digital resources.
- I liked the experience of seeing the textbook directly on my device.
- Some of the positive experiences I had with the interactive learning were the new abilities to multitask.
- I was able to learn about the history of telecommunication while cooking a grilled cheese sandwich and tomato soup for dinner.

App and Website – 3

- I did not find any challenges with the app and the content.
- The app is a very interesting feature of this book.
- I found this website to be very straightforward and easy to use.

Interactive Communication and Errata Option – 3

- As for all the other links such as “Errata” and “Join the discussion on LinkedIn,” they were easily accessible and had no problems.
- I liked the Errata feature that allowed readers to recommend changes or improvements in the book and information in the book. I’ve not seen that with any other textbook. It was helpful.
- I really enjoy the use of the “Errata” section and “Email the Authors.” Those two things are unique and a good use of the app for the book.

ACCESSIBILITY OF INFORMATION – 15

- The categories were well-organized and easy to access.
- The content was pretty easy to find. It popped up on the screen where it was easy to notice.
- I didn’t have any problem looking through the resources provided.
- I also really liked that it provided the LinkedIn feature because that can help build connections and learn more from experienced people in the field.
- It can allow students to find internship or job opportunities.
- The content was accessible for me, and it was easy to correlate the videos with the pages in the textbook.
- While scanning and gaining access to the digital content throughout the textbook, it was interesting and easy to find the content.
- I was able to click on two different images, and each image led to about six links. Some of these links included YouTube videos, web links, demos, and contact information. I went through all of the links and they all worked, and included a lot of helpful information.
- The content that it brings up is a very helpful aid to the textbook material.
- The book has links to useful YouTube videos.
- The interactive images were easily accessible, and I could easily move through the different sources.
- I was sitting in a darker room when I first scanned the page, and I assumed this would prove to be a challenge. However, the lighting was not an issue. Even in a poorly lit room, the interactivity worked quite well.
- The speed at which I could access the information was relatively quick since it focused on giving links to access the material online.
- The content was very easily accessible.

- It was easy to find the different content that pertains to a certain part of the chapter.

CP CLICKER – 10

- When looking at the user experience of the CP Clicker app, I found it was pretty easy to access the content from the textbook.
- When clicking on each of the virtual features, I thought the side bar that popped up with external links and resources was very helpful.
- The scanner worked perfectly fine with the CP Clicker.
- Starting with my experience with the textbook clicker, it was relatively easy to use, and all the links and resources worked fine.
- I was able to go through the digital content of the textbook using my mobile device, and the CP Clicker app.
- The CP Clicker app was fun to use with our textbook! It was easy to learn and was very straightforward.
- My experience with the CP Clicker app was positive.
- I first used the CP Clicker app to scan through the content in the book. I found it really easy to use, and the content was easily accessible.
- With the CP Clicker app, it was fairly user friendly and easy to navigate.
- The Clicker app for the *Introduction to Graphic Communication* textbook was fairly easy to access, and actually offered a lot more supplemental information than I thought it would.

APPENDIX B

RECOMMENDATIONS AND REMEDIES – 28

RECOMMENDATIONS

App Design – 12

- The app itself seemed a little outdated, but still usable.
- Using the textbook app was pretty easy to use but it wasn't that nice to look at and felt outdated.
- They could definitely make the links look better and more enticing to click on.
- I wish they would improve on the design of the app.
- The app is not the most visually pleasing.
- The CP app could most definitely be improved by looking more simplistic and modern.
- The app design and looks is its biggest downfall.
- The app seemed a little outdated.
- The app is not very aesthetically pleasing.
- While I was able to navigate the app, it could be improved with more engaging visual design and better shortcuts.
- A simple, sleek design for this app and the interactive book would make more sense for its purpose.
- The app is not pleasant to look at.

App Design – Concerns and Recommendations

A big surprise was that the major recommendation by students was that they didn't like the looks of the CP Clicker app design. Oddly, that had nothing to do with the functionality of the app or with the interactive benefits that the app provides. This is likely a generational matter where the younger segment of the population is very design-sensitive with tastes that differ from older segments of the population.

REMEDIES

Ricoh will be advised of this with the recommendation that the CP Clicker app be redesigned with a more modern look.



RECOMMENDATIONS

Smartphone Screen Size – 6

- Text, the tools, and the words are harder to read on a small smartphone screen.
- I typically like to look at webpages on my laptop rather than my phone. The iPhone screen is fairly small and I feel like it's a bit difficult to navigate webpages.
- I find that when I try to do school work on my phone it can be hard to focus or stay on track due to the screen size.

- The only problem with access is that it requires the user to have a smartphone with a camera.
- The information seems to not fit for a mobile device. I feel if the user used an iPad or something a little larger the experience would be much more enjoyable and easier to use.
- It would help to be able to transfer that content to my laptop which would be a much nicer viewing experience than from the small screen of my phone.

Smartphone Screen Size Concerns and Recommendations

Viewing images on a smartphone screen size was the second largest concern in the analysis of student responses. While the functionality of the Clickable Paper app works on smartphones, many students expressed the preference of being able to view the interactive content on larger screens. Certainly, those who used tablets to view the content did not have this concern.

REMEDIES

We realize that being able to view the interactive images on a larger screen provides a desirable convenience. We also realize that most students have smartphones and may not have tablets, as some are quite costly for students already on tight budgets. Therefore, we explored the availability of low cost tablets that would likely not represent a cost burden to students. This is what we found and tested.

We found two Android mini-tablets (7-inch screen) from well-known and popular sources that work well with the Ricoh CP Clicker app. They are:

- **Hyundai Technology HYtab available at Office Depot/Office Max – Cost: \$49**
- **onn. Tablet Gen 2 surf available at Walmart (Sam’s Club) – Cost: \$49**

We purchased and tested both devices and found that the Ricoh CP Clicker app loads easily from any app store, and functions properly. The 7-inch screen addresses the smartphone screen-size concern while also providing many tablet features of much more costly tablets such as email, web surfing, and more—at an affordable price.



RECOMMENDATIONS

Video Progression at Start – 3

- There were a few technical problems with some of the videos. Each video seemed to have been played either all the way through or partially when I clicked the link. It was like it left off where another student last paused the video.
- Sometimes whenever I would try to watch a video I would click resume, but it would take me to the end of the video despite not watching the video beforehand.
- One odd thing I noticed was that when I clicked on a video lesson, it asked if I wanted to resume or start from the beginning even though I had never watched it before. If I were to press resume, it would play the video towards the end, not even the beginning.

Video Progression at Start – Concerns and Recommendations

On occasion, when a video is opened it may not be set to start at the beginning. The preference is that the app should have a built-in mechanism that sets videos at the beginning when being viewed for the first time.

REMEDIES

When videos open at any point other than at the beginning, the remedy is to simply click on “Start From Beginning,” or slide the viewer from wherever it is on the screen to the beginning. The “Resume” option allows continuing to view a video where it might have been stopped during a previous viewing.



RECOMMENDATIONS

“Match Not Found” Notification – 3

- Occasionally when clicking, the menu did not appear on the screen with the interactive content. Instead, I received a “Match Not Found” notification on the screen.
- I also had to make sure the page was extremely flat so the app was able to pick it up.
- Immediately when interacting with the textbook itself, it's hard to hold open to scan the page.

“Match Not Found” Notification – Concerns and Recommendations

When first using the CP Clicker, the tendency is to move the Clicker away from the page a bit too soon.

REMEDIES

Users of the Clickable Paper app should be informed that they must hold the CP Clicker scanner over the page for a brief moment until the page loads and opens. Then the scanner can be moved away from the book and the page interactive options will remain open.



RECOMMENDATIONS

Room Illumination – 2

- It took my phone a while to be able to pick up the page. It did not recognize the page for a long time, but once I went into a lighter environment, it worked.
- The only obstacle I encountered was that the app was not able to find a match for the page I was scanning because it was not completely lit up in my room. The app did tell me to try capturing the page in a well-lighted location. This was helpful.

Room Illumination – Concerns and Recommendations

Some readers might have attempted to use the CP Clicker to scan pages in uncommonly dark rooms or in rooms that cast shadows over the page being scanned.

REMEDIES

Typically, room illumination is not a problem unless the room lighting is very dim or if shadows are cast over the page being scanned. Readers can successfully use the Clickable Paper app in normal or even slightly lower than normal room lighting.



RECOMMENDATIONS

When Teacher Instructions are Needed – 2

- My only issue was that I couldn't determine when I was supposed to watch each video. Was I supposed to watch all at once without reading? Did each video correlate to a section in the chapter? That is part of the experience that I wish was clearer.
- Initially, I was super confused by what I was supposed to use the virtual resources for. The sources were all labeled, but I didn't know what to use them for.

When Teacher Instructions are Needed – Concerns and Recommendations

While much of the Clickable Paper procedures and applications are self-explanatory or intuitive, there are times when instructor intervention or explanation may be necessary. Two examples are noted above, though there may be others related to how the instructor wants the interactive aspects of the book used.

REMEDIES

In the first session during which the interactive book is being used, the instructor should clarify what is expected of the students in using the book: When and how to use the videos, how to relate the videos to the printed text, how to use the other menu items that appear at the start of each scan. It would be helpful to the students if such instructions were included in the class syllabus.

APPENDIX C

OBSERVATIONS AND STRATEGIES BY INSTRUCTOR

For Online and Remote Learning - 28

Delivering instruction remotely due to COVID-19
Book is a remote virtual laboratory project on “augmented printing”
Prominent industry professors and experts
Will learn how younger users respond to interactive technologies
Technologies of online and distant communication are likely to continue
Widespread COVID-19 requiring remote teaching
To quickly adapt to 100 percent online
Bridging the online learning gap for his “hands-on” learners
Online and video platforms to observe technology
Online and remote learning transitional time
Enables accessing videos, websites, demonstrations, and chat groups
Supports online teaching
Chat rooms and websites
Online instruction
Key source for teaching online or in the classroom
Facebook, LinkedIn, and Instagram portal of knowledge
Interactive media to enhance the learning experience
Related videos and other interactive elements
Virtual classrooms were enhanced by the textbook
Book provided an additional link to the school’s virtual lectures
Provides immediate smartphone or tablet access
Scan the cover to reveal a link to virtual classroom to join the lecture or lab
Lab online functionality simulated lab sessions
After COVID-19 virtual classrooms will be the new normal
Book used to address COVID-19 and need for online interactive teaching
Popular in light of COVID-19 for online teaching and learning
Books provided resources for online teaching and learning
Perfect for online as well as in-class teaching

Communication - 11

Interaction between and among students and their teachers
Connect the world through mobile devices
The experience of interacting with this book
New meanings and channels to effective communication
So students are still learning and remained engaged
Method for fostering student engagement online or in the classroom
Augmented Print can tell additional stories
Extends print into other ways of communicating
Interaction between and among students and faculty
Communicate with the book’s authors
Interaction between students and instructors from a printed book

Topics Taught - 10

Learn what print is all about

Teach history

Teach modern printing techniques and trends

Current technologies

Book's combination of print and digital media

Print-to-web technology

Teaches applications and technologies

Videos of technology at work

Teaching all facets of the print world that this fabulous book covers

All graphic arts industry segments are covered in the interactive book

Course Preparation and Curriculum - 7

Syllabus and exam questions

Simplifying the process of course preparation

Assists in teaching

Redesigning the curriculum

Immediate shift in teaching methods

Meeting state standards

Continue using the book once we return to face-to-face learning

Current Information - 7

Book updates

Renewed as newer technologies emerge

Learn from prominent industry leaders

Lectures by prominent industry experts

Up-to-date information

Can see experts talk and watch technology being used

Students enjoy the videos and interactive lectures by industry experts

General - 6

Concept of clickable paper

Different learning styles

A lifesaver during the pandemic

Being promoted for corporate training

Meshes with Printing Industry of America's *Print is Everywhere* campaign

The book has greater learning impact than their smartphones or tablets alone

Required - 4

Required reading

Required for graphic arts program

Required textbook for first year students

Required for introductory printing class

Demonstrations - 4

Share demonstration videos of graphic communication technology at work

Learn about this technology by simply using the book

Book serves as a laboratory

Show students how print and digital can work together

APPENDIX D

OBSERVATIONS AND STRATEGIES BY SCHOOL

School Observations and Strategies are synonymous with raw data or metadata. It is the observations and strategies provided by several of the approximately 30 schools and instructor adopters. The statements are paraphrased for the purpose of brevity.

Arizona State University (ASU) Graphic Information Technology Program

- *Introduction to Graphic Communication* is a wonderful book for our introductory printing class.
- It gives historical context and connects with modern printing techniques and trends.
- Easy to navigate chapters and pages that link via scan to online resources.
- I recommend the book to anyone who is eager to learn what print is all about!
- ASU ordered the book for its introductory print class as required reading.



California Polytechnic State University—San Luis Obispo (Cal Poly) Graphic Communication Department

- The book is a common thread for delivering instruction remotely due to COVID-19 and mandatory campus closures.
- The book provides the opportunity to share demonstration videos of graphic communication technology at work such as prepress, press, post press, and related technologies.
- The book includes video lectures by prominent industry professors and experts.
- The interactive Clickable Paper book is good for teaching and learning because it allows interaction between and among students and their teachers.
- The book comes with a free syllabus and exam questions, thereby simplifying the process of course preparation.
- Cal Poly is using the book because it is not only about technology. *It is technology* and provides the opportunity for the book itself to be a remote virtual laboratory project on “augmented printing,” where students learn about this technology by simply using the book.
- This is important to a university that promotes project-based experiential laboratory learning.
- The book serves as a *laboratory*.
- The book serves the younger generations growing up to connect the world through mobile devices, along with physical products.
- The experience of interacting with this book can be translated easily to other printed products such as packaging, signage, newspapers and magazines, general commercial printing, and other graphic related products.
- With ongoing book updates, unlike traditional textbooks the book never becomes outdated.

- The digital content, such as demonstration videos, online lectures, and so on, can be updated and renewed as newer technologies emerge.
- With students using this book, I will learn how younger users respond to interactive technologies using videos, sound, two-way communication, along with the benefits of traditional reading.
- Students who have a broader skillset that the book provides will be able to quickly adapt to new technologies that have emerged as a result of the pandemic, and will become more successful after graduation, as the technologies of online and distant communication are likely to continue.
- The book’s connection between physical graphic products and dynamic digital content brings new meanings and channels to effective communication.



Cuyahoga Valley Career Center (CVCC)
Graphic Imaging Technology

- As a High School Career Center, the interactive book, Introduction to Graphic Communication, assists in teaching.
- In redesigning the curriculum, the book helps CVCC ensure that current technologies used in the industry are reflected in the classroom.
- The widespread COVID-19 virus has impacted and disrupted industry and education alike. The book helps schools to quickly adapt to 100 percent online teaching and learning.
- The book provided an immediate shift in teaching methods to ensure students were still learning and remained engaged.
- The book was instrumental in bridging the online learning gap for his “hands-on” learners.
- The book provides a variety of online and video platforms to observe technology at work and to learn from prominent industry leaders.
- The book was instrumental in meeting state standards.
- Online learning is likely here to stay, and the interactive book is an excellent method for fostering student engagement online or in the classroom.
- The book is a MUST HAVE resource, and exactly what was needed for the Graphic Imaging Technology students at CVCC during this transitional time.
- I will continue using the book once we return to face-to-face learning.



New York City College of Technology

Communication Design

- The book supports online teaching.
- This PRINTED, ink-on-paper, book provides access to videos of technology at work, lectures by prominent industry experts, chat rooms, websites, and interaction between and among students and faculty.
- Students can even communicate with the book's authors — all from a printed book interfaced with a smartphone or tablet having the Ricoh Clickable Paper app.
- The visual elements of the online offering are powerful tools to use when leading online instruction.
- Of the three books that I use to develop, update, and instruct, *Introduction to Graphic Communication* has become the lead book; my key source for teaching online or in the classroom.
- I am considering developing a Facebook, LinkedIn, and Instagram portal of knowledge that will integrate the teaching and production value of the book.



Ryerson University

Graphic Communications Management

- For Ryerson's Graphic Communications Management program, *Introduction to Graphic Communication* is a required textbook for first year students.
- The book has a lot of excellent, up-to-date information about the printing industry that no other intro textbook on the market has right now.
- Ryerson also noted the book's use of interactive media to enhance the learning experience.
- The interactive features are also really excellent to show students how print and digital can work together in the publishing world.
- The printed book provides access to related videos and other interactive elements on smartphones and tablets.



University Of Houston

Digital Media

- The program's use of virtual classrooms was enhanced this month by the textbook, *Introduction to Graphic Communication*.
- The book provided an additional link to the school's virtual lectures and lab sessions, via Ricoh's Clickable Paper technology.
- We can add online functionality at any time, e.g., additional videos,—even things we didn't consider when the book was being written.
- The book is required reading for students at the University of Houston's Digital Imaging program.

- In addition to the links to related video and other online resources, the book now provides immediate smartphone or tablet access.
- To use the Clickable Paper feature, students simply scan the cover of the book to reveal a link to the virtual classroom, where they can join the lecture or lab in progress.
- Thank goodness for the Augmented Print functions in *Introduction to Graphic Communication*.
- Using Ricoh’s CP Clicker app, my students can see experts talk and watch technology being used.
- The book sure was a lifesaver when we couldn’t use laboratory equipment during the pandemic.
- In the aftermath of COVID-19, virtual classrooms are becoming the new normal. The Clickable Paper link is an additional benefit for those who need to join the session with their smartphone or tablet.”



**Western Michigan University
Graphic and Printing Science**

- Western Michigan University’s Graphic and Printing Science program is using the book to address COVID-19 and the need for online interactive teaching
- Difficulties caused by COVID-19 limited entrance of faculty, staff, and students to the physical facilities. The book’s online and distance teaching and learning features, rapidly provided faculty with resources for online teaching.
- The book provides for videos, web links, chat rooms, and interaction capabilities among students, interaction between students and instructors, and more—all from a printed book.
- The book has become particularly popular in light of COVID-19 and the move by nearly all schools to online teaching and learning.
- The book is also being promoted for corporate training.
- We focus on teaching all facets of the print world that this fabulous book covers.
- It is perfect for online as well as in-class teaching.
- The topics of business, art, and science of print, color management, data analytics, variable data printing, and mailing and packaging are vital components to our ever-evolving program, and covered by the interactive book, *Introduction to Graphic Communication*.
- The book also meshes with Printing Industry of America’s *Print is Everywhere* campaign,
- My students enjoy the videos and interactive lectures by industry experts.
- The students like it because it has greater learning impact than their smartphones or tablets.



Multiple Universities and Industry Sources

- Praised the book's combination of print and digital media.
- An impressive example of print-to-web technology.
- I love the concept of Clickable Paper.
- I intend to reference the book in my career as a digital marketer.
- *Introduction to Graphic Communication* shows how Augmented Print can tell additional stories as opposed to what is printed in the book.
- It extends print into other ways of communicating.
- The book teaches applications and technologies from design and prepress to press to post press, as well as industry history, industry segments, color management, workflow, digital printing, best practices, and more.
- Using a mobile device, the book enables accessing videos, websites, technology demonstrations, and even chat groups directly from printed (ink on paper) pages.
- The book appeals to different learning styles.
- Seems to have become the go-to book for teaching graphic communication and related topics across education levels and for industry training.

APPENDIX E

THE SOUND OF BAMBOO TESTIMONIALS

The following are testimonials from prominent shakuhachi musicians, researchers, and teachers, each of whom received review copies of *The Sound of Bamboo*. They are presented as direct quotes to emphasize the compassion and innermost feelings of these artists and practitioners. Their sentiments are highly favorable.



I believe that everybody reading *The Sound of Bamboo* would agree that it is a remarkable achievement. The extensive amount of time and energy it took to conceive, design, edit, and layout this interactive edition is clearly evident. The book is an invaluable resource for all members of the world shakuhachi community. The great effort it took to produce is something I personally appreciate and respect very much.

The innovative Clickable Print technology is truly groundbreaking in that goes way beyond traditional books by providing information in a many different forms. The effective use of this modern IT technology was developed in a long collaboration by Ricoh Japan and USA. It links the printed word to a wide variety of multimedia content on the Internet via hyperlinks embedded in the book. A vast amount of research went into creating this publication. It is a great resource for shakuhachi players and enthusiasts with which I am very impressed.

Shakuhachi composers and players endeavor to provide the listening audience with a wide range of deep emotions and passion conveyed through their music. I believe this book truly had the same spirit motivating its creation. It comes from a sincere intention as that of a shakuhachi maker using raw natural bamboos to create a unique musical instrument that people love and appreciate. I can feel this intentionality throughout the pages of this book.

I have been playing the Western silver flute since high school, and began studying shakuhachi at the age of 29. This transition led me to the Shakulute, a hybrid instrument incorporating both types of flutes. For myself, this was clearly a case of West meets East. I want to express my sincere appreciation for being featured as a Shakulute player in *The Sound of Bamboo*.

Kozan Tanifuji

Shakuhachi Player, Teacher, Performer, and Recording Artist. He began studying Tozan-ryu shakuhachi under Kozan Takayama, and later under Ginzan Suzuki. In 1991, he achieved the rank of Daishihan (Grandmaster). In 2004, he was awarded the title of shin-Tozan-ryu Chikurinken, the highest possible rank in the world of shakuhachi. Mr. Tanifuji began working with the shakuhachi headjoint for silver flute devised by Monty Levenson. He gave it the name Shakulute and is currently the foremost Shakulute player in Japan. Since 2009, he organized annual "Shakulute Gatherings" held in many regions of the country. Kozan Tanifuji's Japanese website.

The Sound Of Bamboo--Blowing Zen and the Spirit of Shakuhachi offers an exciting and wonderful new pathway into the culture, history, and music of this remarkable bamboo flute.

When I began my own shakuhachi journey in the late 1960s, there was virtually no written material in the English language about the shakuhachi, save a couple of journal entries. Through

the 1970s and beyond, as more people outside of Japan began to study and appreciate shakuhachi music, the instrument gradually became part of our globalized musical world and numerous articles, books, and recordings appeared internationally.

Now we are treated to this stimulating new resource. Bob Berlin-Grous' thorough and articulate overview of the shakuhachi ethos and Monty Levenson's updated insights into the spirit of bamboo and instrument making come together to create a most welcome and refreshing understanding of "the shakuhachi life."

But wait, there is much more! The new Ricoh clickable print technology transforms what would be a mere book into an animated, ever-evolving interactive source of expansive knowledge and information. I really enjoy it and look forward to watching it grow over time.

Ralph Samuelson

Shakuhachi Player, Teacher, Performer, and Recording Artist. He was trained in the classical tradition of the Kinko School of shakuhachi by the late Living National Treasure Goro Yamaguchi as well as by Shudo Yamato and Kodo Araki V, both in Japan and in the graduate world music program at Wesleyan University. He is an international advisor for the Seoul Institute of the Arts in Korea and is senior advisor and former director of the Asian Cultural Council.

As players of the shakuhachi, most of us have a deep interest and respect for how the instrument arrived into the 21st century through hundreds of years of history and evolution. *The Sound of Bamboo*, incorporating Ricoh's Clickable Paper technology, is not only a book, but a living document that mirrors the necessarily ever-changing nature of the instrument.

The two sections of this text by Berlin-Grous and Levenson are excellent resources for pulling together all aspects of what it means to practice the shakuhachi. The first section contains moments of intellectual and contemplative density that allow for reflection and discovery through multiple reads. The second section is an indispensable resource for orienting makers and players toward techniques and questions emerging from decades of expert experience in constructing instruments.

It highly international in scope and unafraid of forward-thinking use of materials and technology. The book is ultimately, though, about the art and practice of the shakuhachi as underscored by the extraordinary calligraphic/visual works by Karhu and Taniguchi woven into the text.

It is a must have for all players and enthusiasts of the instrument, if anything because it allows itself to evolve, just like the instrument has over centuries.

Kojiro Umezaki

Shakuhachi Player, Teacher, Performer, Composer, and Recording Artist. Associate Professor of Music at the University of California, Irvine where he is affiliated with the Integrated Composition, Improvisation, and Technology group (ICIT) and holds a degree in Electro-acoustic Music from Dartmouth College. A core member of Yoyo Ma's Silk Road Ensemble, Ko Umezaki performed on "Sing Me Home," winner of the Grammy Award for the Best World Music album in 2016.

The Sound of Bamboo, utilizing ground-breaking technology, is an essential reference for all things shakuhachi.

When I started out on the path of bamboo, I searched high and low for anything and everything on the subject. All I could find were some bits and pieces. Now, we have it all in one place. The book is a marvel, so well-written and documented, one could spend a lifetime capturing its essence, as its authors have obviously done.

A unique aspect of this volume is Ricoh's innovative Clickable Paper technology. I am not a big fan of e-books. I'm old school in that I love the feel, look, smell of paper. It has substance and no batteries are required. That said, the inclusion of internet search technology helps link us to key sites and resources to further our understanding of the subject at hand. It might prove to be indispensable in the future.

I cannot recommend *The Sound of Bamboo* enough. It is truly a godsend.

Barry Daido Houun Weiss

Shakuhachi Player, Teacher, Author, and Zen Priest. Houun-sensei was awarded a Shihan (master shakuhachi teaching license) after studying with Kurahashi Yodo in Kyoto and Tokuyama Takashi in Tokyo. He is presently living at a Zen temple in Japan and continues to focus on both his Zen practice and shakuhachi. A ordained monk, his teacher is the venerable Harada Tange Roshi from Bukkokuji Temple in Obama City, Fukui, a soto-shu (Dogen) temple. Currently Houun works with Takahashi Suiko, a komuso from Ichikawa City, they have been active in helping to rebuild Ichigetsuji-do, now located at Manmanji Temple in Matsudo City, Japan.

In putting together the material for their interactive book *The Sound of Bamboo*, Monty Levenson and Bob Berlin-Grous have created a tremendous resource for all of us who share an interest in the shakuhachi. This book is the product of many combined years of experience in playing, teaching, making and ultimately, thoroughly understanding the shakuhachi and its music.

The contents of the book are well organized, and the text is very well written. Moreover, owing to the prodigious on-line links included on virtually every page of the book, it becomes a multimedia storehouse of musical examples, visual art and illustration, written history, biographical information, and so much more.

In buying this book you are really buying a thoughtful and comprehensive encyclopedia of all things shakuhachi. I am grateful to the authors for the work they were willing to do to share their combined knowledge and experience with us.

Patrick Genchoku Johnson

Shakuhachi Player & Teacher. Director of the North American branch of Kokusai Shakuhachi Kenshukan (International Shakuhachi Training Center) based in Tokyo.

The Sound of Bamboo is a remarkable achievement and very welcome resource for anyone interested in the shakuhachi, and entertaining as well. With great photos, music examples, wonderful sumi-e brush paintings, and with interactive "Clickable Paper" (thanks to Ricoh Company) to expand information on individual points of interest. An enormous amount of information is covered.

Monty Levenson is a very articulate writer and uniquely positioned as a shakuhachi maker/player to address many of the “where-does-that-amazing-sound-come-from?” questions that occur to anyone who has heard (or tried to play!) this extraordinary traditional Japanese bamboo flute.

Highly recommended!

John Kaizan Neptune

Renowned Shakuhachi Virtuoso, Flute Maker, Composer, Author, Performer, and Recording Artist residing in Kamogawa, Japan.

The Sound of Bamboo is a wonderful resource for all things Shakuhachi. The strength of the work lies in the wholeness of it: one sees the instrument in all its facets, richly contextualized. Here you can find sections on the history of the instrument, its repertoire both ancient and modern, the sound in all its subtlety, construction methods both traditional and contemporary ... all made fully three-dimensional by a thoroughgoing immersion in a Japanese cultural context and Zen philosophical context, a sensitivity to the nuance of sound, and an awareness of how the bamboo elicits a reverence for its origins in nature.

All this comes about through the authors' and editors' diligence in finding and referencing the most telling touch points, made possible through the multidimensionality of the Clickable Paper platform, putting a variety of media and avenues further exploration at your fingertips.

Bart Hopkin

Musician, Instrument Designer, Composer & Arranger, Ethnomusicologist, Author. Editor & Publisher of the quarterly journal "Experimental Musical Instruments" (1985-1999).

I have lived almost half of a century in a monastery, but I am not a monk. Rather, the 'monastery' is actually a correctional facility that is part of the Federal Bureau of Prisons where i have been an inmate since 1973.

I consider myself very fortunate to have been introduced to THE SOUND of bamboo by Monty Levenson by way of shakuhachi. That was in 1987. Fast forward to now, 2021. Bob Berlin-Grous and Monty, with contributions by many others, have written and gifted to the world an incredible book: *The Sound of Bamboo*. While the book itself is finite, the journey it takes you on and the world it introduces you to is, in deed, infinite—the ever-expanding world of Shakuhachi, a world of sounds and silences, of listening and hearing. This volume is not only a book about shakuhachi and bamboo, it is also a book about our own selves; a book about life, its own self.

I am reminded of the very first time i actually heard the sound of bamboo, the sound of a shakuhachi, being played. It was in an album by the incomparable John Kaizan Neptune entitled : 'Words Can't Go There'. Now you have the opportunity to travel a path opened by *The Sound of Bamboo* which is paved with words, but takes you way beyond them.

Veronza Bowers, Jr.

Shakuhachi Player, Recording Artist, Composer, & Author. Teacher of Buddhist meditation and licensed practitioner of Asian healing arts. Member of the International Shakuhachi Society, the Spiritual & Cultural Council of Native Nations, & honorary elder of the Lompoc Tribe of Five Feathers.

It would be a mistake to think of this as just a book. In reality, it is an entire library about every aspect of the shakuhachi. Through the magic of Ricoh's Clickable Paper technology, almost every page has curated links to a variety of content. When you read about a piece of music on the page, the clickable paper app will let you immediately go to a YouTube video of someone playing that music. Or an article on lacquer. Or Japanese history. Or a temple you're reading about. The Clickable Paper is not the clumsy QR codes that take up space on the page and impact the book's appearance. This technology is invisible. All you need to do is aim your smartphone or tablet at the page, and the links are there for you to click. It will take me years to get through this book, and I'm looking forward to every page!

Bruce Alter
Shakuhachi Player

The Sound of Bamboo is incredible—insightful in so many ways and spiritual in its vibration. Regarding the new technology—Clickable Print Technology—I think it's amazing! I admit to being something of a geek, growing up on Star Trek and the like, utilizing the book in that manner is like arriving in the future via some incredible device. For me, it is the way all books on music and culture should be produced.

For example, a book on shakuhachi can be incredible well-written, informative and intriguing (as is yours), but one might consider it incomplete without hearing the sound of instrument and seeing those devoted to its practice. Whereas as separate CD or DVD might prove to be a decent addendum, it's much more immediate and effective to be able to point at the page as you read it and immediately be taken to a world which amplifies the subject in the moment with additional text, sights and sound. The book becomes a true medium for transportation to a different place.

Also, the technology makes it easy for people who have invested in the book to get immediate updates (like those you just posted), revisions and additions.

That all said, I think it is a stunning achievement and a much-needed doorway to better, more in-depth cultural and arts education. Thank you for devoting so much time, energy and heart into producing something that has the potential to enhance the lives of so many of us!

Michael Patterson
Shakuhachi Player

I am new to shakuhachi, but a lifelong musician and a classically trained vocalist. This book and the wealth of internet-linked resources that come with it are overflowing with great stories, history, physics, art (beautiful images!), culture, music, and sound. As a new and eager "player," I am so glad and feel just plain lucky to be learning from *The Sound of Bamboo*. I will be for a long time—a resource that will last (and get updates online!).

Kyle Curley
Musician, UX Researcher, and Shakuhachi Player

The Sound of Bamboo is a compendium for all things shakuhachi. Finally there is one place to go to learn the vast history, mythology, philosophy, spiritual, and technical aspects of the mystical bamboo flute. Complete with beautiful artwork and hyperlinks for the digital age, Bob Berlin-

Grous & Monty Levenson have written the perfect book for shakuhachi and world music enthusiasts.

Adam Wells
Shakuhachi Player & Zen Practitioner

I have not finished reading *The Sound of Bamboo*, but what I have I love. It's like a never-ending book. Being able to access sound clips and extra material is awesome. Makes it so much easier than constantly trying to research. This is a new experience for me and I do love it. Thank you, I think it is quite brilliant. Gassho.

Joe Pittelli
Shakuhachi Player & Zen Practitioner

So far, I got about a third of the way through the *The Sound of Bamboo* and love it. I have to say that Chapter 2: The Culture: The Japanese sense of sound was the best article I've ever read on the subject and goes far beyond merely shakuhachi.

Bob Sedivy
Shakuhachi Teacher and Performing Artist

You did a great job, Monty. Worth the wait. The Clickable Print works great making the book much more content heavy, and slower to work through, so I haven't finished it yet. But what I have read to date I like very much. Thanks for the link to the updates. It's like the book that keeps on giving. Cool!

David Kent
Shakuhachi Player

I have been enjoying reading *The Sound of Bamboo*. I find the Clickable Paper technology to be a fascinating approach to the issue of re-prints and re-issuing of materials. The post-publication updates are great. I really like the book and am glad to have a copy of it.

Devon Osamu Tipp
Shakuhachi Player

I have been enjoying *The Sound of Bamboo* book. Tons of information. I love the artwork. The Clickable app is working just fine. It's great to have both a physical book to work with, and the mass of information on the internet. The book really is a leap forward by mixing print and internet. Good mix! More people should have it.

Nancy Mullin
Shakuhachi Player

I am thoroughly enjoying *The Sound of Bamboo*. The book stands fully on it's own, even without the Clickable Print technology. However, Ricoh's innovative app linking the printed page directly to the internet in a matter of seconds complements the text with an amazing wealth of related musical, cultural, and historical information. Indeed, this is a book that not only reads well, but sings and dances!

I find this combining of opposites—21st century technology with the ancient Zen shakuhachi tradition—most remarkable and informative, to say the least. Ricoh’s high-tech, user-friendly CP app, paired with the shakuhachi’s low tech and high challenge to the user (to this writer at least) yields a wonderfully rich experience every time I pick up this book. With hundreds of hyperlinks augmenting the text reminds me of the continued surprises and discoveries that come with learning to blow the shakuhachi; one is never quite certain what sounds may emerge. A deep bow of appreciation.

Don Boone
Shakuhachi Player

APPENDIX F

YURCHAK PRINTING'S OBSERVATIONS

- Facing the crisis of having to move to online teaching and learning due to COVID-19, schools at all levels have had to learn to adapt to keep students engaged in the learning process.
- The book provides quick access to teaching materials that could immediately be used to motivate students to embrace online learning.
- Items such as syllabi, course packs, supplemental reading materials, educational videos, and interactive media had to quickly be produced and distributed to schools on all levels.
- Augmented print provides the benefits of learning, not only through reading, but through videos and audio presentations, and interaction between and among readers as well.
- Ricoh's Clickable Paper allowed us to convert a fully printed book (ink on paper) to one that was not only meant for reading, but for video demonstrations and guest lecturer presentations as well, using mobile devices.
- The concept of the book is that people learn in different ways. This book, driven by Ricoh's Clickable Paper app, provides multiple learning opportunities through multimedia approaches.
- When COVID-19 hit, interest in the book skyrocketed and became part of the answer to teaching and demonstrating the technologies of graphic communication online, while also providing the advantages of reading a real book.
- *Introduction to Graphic Communication* is a treasure trove of knowledge, both historic and futuristic.
- Yurchak Printing is also providing fulfillment to expedite getting books to schools and students. Orders are received through an online portal and processed within 24 hours.