# Project Two

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## Summary

Keyboards are incredibly expressive and versatile instruments, but any attempt to modify parameters other requires the musician to remove their hands from the keys. TouchKeys provides a solution to give the musician continuous control over two extra parameters without having to take their hands from the keyboard itself. Capacitive touch-sensitive stickers are placed on each key, and the placement of a finger on the sticker is translated from X-Y data to MIDI parameter controls then sent to a computer. Parameters controlled can vary from pitch shifting to provide an artificial vibrato, intensity of reverberation, or release length. These stickers add two more dimensions of control to the keyboard and allow a musician the ability to be even more expressive.(McPherson 2015)

## Analysis

*Buttons, Handles and Keys: Advances in Continuous-Control Keyboard Instruments* (BHK) authored by Andrew McPherson, is not a quintessential journal article, but it is an excellent example of interdisciplinarity in the computer science, engineering, and music fields. While it may not strictly follow the traditional scholarly article structure, it tells the story of a novel

innovation in musical expression while retaining many of the stylistic aspects of an article. Though the conceit of the article revolves around the TouchKeys product and substantially recounts the journey embarked upon by the author to create this product, the language used to describe the technology and the structure of the article itself is indistinguishable from any other journal article. Johns' rules for academic discourse convey a very strict set of guidelines for scholarly articles, and while BHK may not take exactly the same approach as Johns would, it holds the same amount of value in the field of computer science.

## Introduction

As any competent journal article should start, BHK begins with an introduction. Initially, a distinction is made between a button and a handle, both simple controls for a user that are fundamentally different in their expressiveness. Where a button allows only for a binary on state or off state, a handle is ambiguous and analog in the range of states it provides(McPherson 2015). Being able to understand the meaning of the title is the foremost concern for the reader, and McPherson explicitly understands this. McPherson then observes that the, "musical keyboard presents an interesting cross between buttons and handles"(McPherson 2015), and then goes on to describe how the melding of these two seemingly exclusive controls are fundamental aspects of the piano, organ, and other keyboard instruments.

Johns observes that the, "topic and argument should be prerevealed in the introduction,"(Johns) and McPherson follows suit. The introduction enumerates the history of augmented keyboards that add new parameters to the handle control and then states the main purpose of the article which is to explore, "advances in the design of keyboards featuring continuous control of one or more musical dimensions", and then to describe McPherson's implementation of a new "musical dimension". The introduction to BHK shows all of the signs of strong academic effort.

## Audience Assumption

McPherson assumes very little of his audience, but he trusts readers to be aware of the musical world and specifically the operation of keyboard instruments. Understanding of essential hardware and basic electronic instrument elements is also assumed, so terms like "MIDI" not being defined could be a detriment to a casual reader; however, for the most part, technical jargon is kept to a minimum and most specific terms are defined for the edification of the audience.

## Metadiscourse

Found mostly in the introduction, the phrase, "this article", is used to guide the reader through the act of parsing BHK. Johns implores that writers should provide, "'maps' or 'signposts'" that "assist readers in predicting and summarizing texts"(Johns). While self reference is not the most elegant method of structuring an article, it can provide helpful markers to bring a struggling reader back from an overwhelmed state. When McPherson wants to make a connection from one section to another that does not immediately proceed it, he either uses an aside, guiding the reader to , "(see the Augmented Instruments section of this article)"(McPherson 2015), or foreshadows that, "The Mappings section, later in this article, discusses possible relationships,"(McPherson 2015). Additionally, McPherson addresses the audience in predicting that, "we will see a greater adoption of new keyboard instruments in the coming years"(McPherson 2015). While not necessarily leading the reader to another part of the article, that passage inspires further thought about the potential applications of TouchKeys and allows the reader a clearer view of the invention itself.

## Hedging

Because the article discusses some very concrete topics with a tangible application, very little hedging is done on the part of the author. As a general rule, Johns suggests that writers, "take

a guarded stance . . . when presenting argumentation and results"(Johns). Johns understands that playing fast and loose with the presentation of results can over-promise the value of the data being reported. In one case of hedging in BHK, McPherson, introducing some basic configuration of TouchKeys, mentions that, "the length of time the finger is in motion may differ. . . In my experience, these mappings do not feel any less immediate,"(McPherson 2015). Understanding that the subjective feeling of touch and tone in music cannot be guaranteed, McPherson hedges himself against potential negative experiences of those using his invention.

## Absence From Text

While in many cases it might be professional for the author of an article to remain distant from the subject matter of the writing, in cases where personal experience is important information for the reader, using third-person language can come off as awkward or stilted. Though Johns would hope that an author would remain evacuated from the text(Johns), McPherson understandably takes many opportunities to reference himself as an important catalyst for the discoveries made in BHK. McPherson uses the personal pronoun "I" no fewer than twelve times throughout the main text of the article along with six instances of the possessive "my". It is completely understandable that when the author is creating his own prototypes and describing his own history that some personal pronouns would be used to assist the narrative. McPherson remembers, "In 2010 I modified a Moog PianoBar,"(McPherson 2015) as a part of a short anecdote about his personal history with this project. Were a passive voice used instead to relay this story, it would have been written, "In 2010, a Moog PianoBar was modified." Though the true stylistic value of each version is subjective, the passive voiced second version loses much of its validity and importance to the main narrative.

## Vision of Reality

When Johns defines the aspects of a well-grounded vision of reality, she understands that it is, "the most difficult of . . . requirements, for views of reality are often implicit"(Johns).

Judging just how solid an author's vision of reality is can be subjective and depend on the field the reader is a part of as well as the kind of results the article reveals.

### Use of Sources

## References

Johns, Ann M. "Discourse Communities and Communities of Practice: Membership, Conflict, and Diversity." Bedford/St. Martin's.

McPherson, Andrew. 2015. "Buttons, Handles, and Keys: Advances in Continuous-Control Keyboard Instruments." *Computer Music Journal* 39: 28–46.