

The Drummers in All of Us

ABSTRACT

People have used drums for a significant portion of modern history. With the advent of the digital age, drums are being reconceptualized as tools that the computer can now have access to in order to synthesize music. With this increase of usage of drumming has had over the years, the computer has treated them as a tool of software that can be used nearly everywhere. One specific context that has seen the usage of drums as a primary means to interface with software is within video games especially in the video game series *Rock Band* and *Guitar Hero*, where a player uses a drum controller to be able to play music with the game and other people. While these peripherals help to give a larger audience exposure to the art and styles of drumming, these drums are part of a larger ecology of computerized drum equipment that allows people to learn drumming by doing, but at the same time constructing different specialized drummers with skills exclusive only to the use of that tool. This is quite different than the usage and play of actual drum instruments. These findings are created from a semiotic analysis of the peripherals for these two games, situated among the ecology of the peripherals of the community of drum peripherals at large. These analyses reveal implications for the design of music peripherals and for the HCI community as well.

INTRODUCTION

Drumming has been a part of culture for a large part of human history. Drums have been used as a means of communication through large battles in human history. Drums have been used as a means to rally soldiers to the call of battle during wars, and have also been used to train them to march correctly and in unison with others. Drums have also been used as a means for humans to communicate with each other. Rural tribes of Africa use them as a means to communicate with each other in the tribe and also to other tribes. They would also be a means to celebrate occasions and commemorate religious activities as well. Drums have also been a tool by musicians to create music from which they can sustain themselves. Percussionist troupes have also used drums and other percussion instruments as a means to not only further the art of this technique, but also as a means to inspire other musicians to further the medium. Musicians have also used drums as a component of rock music as a means to structure their sound and create a means for constant tempo and for other musicians to be able to improvise off of. Drums have also been used to express certain situations from which people can easily respond to. For example, a rim shot is used to signal in modern comedies for when a joke has happened and for the audience to laugh.

The digital age has helped humans be able to not only work in new ways, but also to be more creative. The digital revolution has brought with it new knowledge on music synthesis, from which many different drum peripherals have been created. These new tools have allowed a larger audience to be able to work with drums and drum equipment in new and interesting ways. For example, the video games *Rock Band* (RB) and *Guitar Hero* (GH) allow players to play on a drum controller (peripheral) that allows the player to play rock music by matching the colors on the screen to the colored drums on the controller. Other drums, for example the drums manufactured by Roland, allow players to not only make music from the peripheral, but also to interface with professional music programs (e.g. Reason, GarageBand). These tools have changed the way many people have thought about music, opening up many different opportunities for people to not only learn music and drumming, but to profit from their use. With these tools, it is expected from these contexts that their use will continue to not only help these types of software survive, but to thrive. At the same time, while these compelling uses for these tools have demonstrated their continued use, it is my claim that they are segmenting and specializing these types of musicians from the world of drumming at large. To further this claim, I will give a semiotic analysis of two particular drum peripherals, the controllers for RB and GH, situated in the ecology of electronic drum peripherals. This analysis will break down four different types of segmentations these performers have from the larger community of drummers and percussionists. In addition, I will also describe how this analysis can provide implications for design and research for designers and members of the HCI community.

ELECTRONIC DRUM ECOLOGIES

Video Game Peripherals

Two of the main video game peripherals are for the video games *Rock Band* and *Guitar Hero*. The purpose of these peripherals are to interface with the video games of the same names. They connect to video game consoles

through either a standard USB connection or through a wireless connection to the actual console itself. Once connected, the player then follows a set pattern of colors approaching the player (green, red, yellow, blue, orange), where the player must play the corresponding drum in time with the pattern and the music coming from the console and is judged based upon how accurate the player is to the pattern from the game. Each peripheral also has a foot pedal attachment that connects to the back of the actual peripheral, from one which one can simulate the use of the bass drum pedal on an actual drum set. The RB peripheral allows the foot pedal to connect to the bottom of the unit, whereas the GH allows the peripheral to be “free floating” away from the actual peripheral. Each of the drum peripherals also is made out of a standard type of plastic, from which the player can use the “latches” on them to adjust the height of the drums accordingly. The drums on each of the peripherals have the same diameters (12”), and are color coded along the rims of the drums so the player knows which drum to hit when he/she sees a pattern from the game. Both drum peripherals also make remarkably similar sounds when a player hits any of them, resembling the sound one hears when one is playing on a standard practice pad. One difference between the forms of the two peripherals is the ordering of the colored drums. The RB peripheral has four colored drums (from left to right: yellow, red, blue, green, and orange as the kick pedal), while the GH drum peripheral has 3 drums (red, blue, green), 2 cymbals (yellow and orange), and a kick pedal. One other difference between the two peripherals is that the GH peripheral disassembles into more pieces (cymbals, foot pedal, stand, and drums), whereas the RB peripheral disassembles into fewer pieces (drums, foot pedal, and stand). Another difference between the two different drum peripherals is that the GH peripheral is a little bit heavier than the RB peripheral, so that players will not have the peripheral move away from them while they are playing on the drums themselves. Each peripheral comes with its own signature pair of sticks (just branded differently), though they are of similar weight, texture, and shape to 5A drum sticks, meaning that they are built a little more towards speed than towards power of the hit from the player. These drum peripherals fit into the larger ecology of video game drums, some of which are the ones manufactured from Logitech, the ION drum set, the Donkey Konga bongos, the GH5 drums, the Band Hero drums, Taiko Drum Master drums, and the Rock Revolution drums. All of these drums are used to directly interface with the corresponding games they were made for, but mostly differing in either the materials used in creating the peripheral, the number of attachments, or the artifact used to strike the drums themselves. The ION, Logitech, GH5, Band Hero, and Rock Revolution peripherals are all very similar in form, with the ION being made out metal and can be also used with popular creative music software programs. The Donkey Konga bongos are meant to be played with the hands, but are made with a plastic shell over the actual controller. This is also true for the Taiko Drum Master drums, except these are meant to be hit with a more cylindrical stick reminiscent of those used in Japanese culture.

Other Game Ecologies

While video game peripherals comprise a numerous amount of drum peripherals, they are not the only set of electronic drums consumers can buy or build. The drummer can also create homemade drum peripherals or spend a substantial amount of money on professional drums that can be used to directly interface with a computer for music synthesis. Two of the more well-known homemade drum peripherals are “the ultimate view” (ultimate) and the silent drum (silent). The ultimate drum peripheral is a rectangular layout that has special areas designated for different color combinations of the games mentioned earlier. This allows a player to play the charts from the guitar tracks of these games on the drum set itself. The foot pedal is then used as the guitar’s whammy bar. The ultimate is a thin peripheral comprised of metal, and is purely a shell over the electrical equipment underneath it which makes it function to the games as a guitar controller. The silent is a thin sheet of cloth that is hooked up to a camera and speaker system and is played similar to bongos. When a player places their hands on the silent and starts to play it, synthesized sounds come out, without the player having to actually have to strike the drum to create the sounds from the instrument itself, hence its name.

Another important set of drum peripherals that people can buy and utilize are professional drum peripherals. These are expensive pieces of musical equipment that not only allow a person to play them like drums, but can also synthesize music and other sounds through striking their “heads”. Four examples of these are drums from the following companies TrapKat, Roland, Korg, and Zen. The TrapKat is a drum synthesizer in the shape of a half-octagon that allows the player to not only play the different areas of the peripheral with their sticks, but allows multiple sounds to be played at the same time by playing different zones of sounds on the actual peripheral itself. The Roland HPD-15 is synthesizer that allows a player to play the different rubber areas of the drum with their hands (or sticks), capable of producing a wide variety of different sounds and is capable of interfacing with a computer and many different professional music programs. The Korg Wavedrum is a 13” diameter drum that is capable of producing thousands of different sounds and is capable of changing sounds based upon how the drum is

struck by the player, and is also capable of being placed on a traditional snare drum stand. The Zen drums are large units that contain many different sized drum heads on them that allow a player to play them in a horizontal and vertical fashion, but also have controls that can modify the sounds coming out of each of them. They can take a wide variety of different physical forms, ranging from a wooden-veneer rectangle to a sleek-looking blue boomerang, all full of different drum heads and controls.

DRUM PERIPHERALS AS STATUS SYMBOLS

The RB and GH drums, as part of the community of electronic drum peripherals, speak as status symbols of the performer who are playing them. These peripherals allow pretty much any person who has two hands to be able to pick up a set of sticks to be able to start jamming away on the drums themselves. The performer can even turn off the “fail” settings on the games to really sit there and jam on the drums to one’s content. These drums are also the standard equipment that come with these games, and pretty much anyone who has enough money to pay for the game can be able to play these. The other video game peripherals mentioned above cost more than these standard drum peripherals, showcasing how much money the performer has invested into being able to play these games. In addition, these drums enable the performer to be able to play the drum set, but at a much simpler level of sophistication. For example, these peripherals don’t naturally allow the performer’s hands to cross, whereas on a real drum set a performer’s hands are naturally crossed on the high hat and the snare drum. In addition, a player has only access to one bass drum pedal, restricting the styles of music the person can be able to play naturally on the drum set (unless the game associated with the drum set makes a simplified pattern of metal songs, for example, then this is not true, but even still doesn’t fully allow oneself to play all of the notes of metal songs). In addition, these drums don’t allow for rolls to be translated to the games they are associated with, which is an essential part of a drummer’s repertoire – a performer has to constantly think about using only single or double strokes to play the songs, making the performer much more like a robot synthesizer than a natural performer on a stage, which these games are trying to convey. In addition, the player has to hit these drums quite hard for the games to pick up the signal sent from these drums, taking out the ability for the performer to showcase different dynamic skills, like piano – everything must be sent to the games as a mezzoforte or louder for the game to pick it up. This type of play is very reminiscent of the cultural phenomenon of Animal from the Muppets, famous for not only playing the drums very loudly, but also very spasmodically. Success in these games is equivalent to playing on these drums like Animal does, and the games even reward the player in this way with the ANIMAL! achievement. These drums are also very rarely seen online (e.g. on YouTube) when gamers are showcasing their talents with these games, as these drums aren’t capable of performing accurately and reliably on the harder songs. These peripherals are given up for more expensive peripherals like the ION (about 100-150 dollars more) so that the performer can then be able to videotape oneself playing the games and then superimposing that on the actual video game footage in AfterEffects. The peripherals from RB and GH are then seen as a sign of being a new person to these games and the world of drumming, even if the person already has knowledge in these areas. These help to define different sets of users in this manner, which is quite different from the real world, where a performer’s skill is not just about volume and accuracy – it’s about showmanship and technique, two vital human qualities of the experience of drumming which these peripherals don’t take into account and also remove from the play of these games. These drums are also different types of fashion for the performer, as one can showcase their level of enthusiasm with the different cymbals and other attachments one can add to these equipments (like modding) to allow for a more personalized experience with these games, and also allow oneself to get closer to actually having a drum set-like experience. This is a little easier to do with the GH peripheral, as it is built to hold cymbals already, but the quad-tom-like RB peripheral is really more meant for just playing on those four drums and bass pedal. So if a player wants a better experience with these games and these tools, a player has to not only realize what they want, but also has to find the amount of money to shell out for these tools, which many gamers simply don’t have. In addition, these peripherals speak of the different types of play they should allow for. As mentioned earlier, the RB peripheral is more like a quad tom from a typical marching band. It is dissimilar in the fact that the drums are all the same size, and that the green tom is used as a symbol, which isn’t the case when playing the quad toms (these would use the yellow and red or the red and blue as “home” drums where patterns are played on and the others used for fills and offer effects). The type of play emphasized by the marching band is very technical and rhythmic in nature, and showcases the techniques and variable sounds that are a result of the player. But the actual drums aren’t used in this way and all have the same sounds. The GH peripheral also suffers from this, but also allows the player the freedom to play like a drum set and utilize the cymbals as part of their play, which are also incorporated into the game. This type of style is very closely related to the style of western rock, where a performer utilizes cymbals and one of the drums to keep time and the rest of the cymbals are used for effects and coloring of the sound (even though the GH peripheral

doesn't get the specific locations of these cymbals correct). With these types of play styles afforded from these peripherals, the performer can easily be mistaken for someone they are not, and are also clothed in these different types of play styles and is up to conversations with other players and observations of the actual play style of the performer if they play like the peripheral wants them to. These types of clothing then bring up another question: is the performer actually performing like the stars they are emulating on the screen through the usage of these controllers? If we were to think of these performances as technically accurate performances, then the answer is an obvious yes, as these are tools that help the games they work with reward the rhythmic accuracy of the performer. But if we were to think of the performance of these drums as actually like a real performance where one goes to a concert hall or a stadium, then the answer becomes an emphatic no: these tools take away a great deal of the complexity and beauty of drumming that allows performers to showcase their talents to wide audiences, while also being personas behind the actual peripheral/drumset itself. From outside this peripheral ecology, musicians and performers from the other ecologies see the "common sense" which simultaneously validates and mystifies them." [pp13 hebidge]. It is quite obvious that these are just simply tools to play with these games and these games only, and that members outside of the gaming community can come in and pick up how to use these instruments pretty quickly, whereas members inside the gaming community had to learn how to interface with these tools in the way the games were rewarding. These peripherals then become a marker of the "gamer", a person who spends most of his/her time in front of a television or computer monitor playing video games for most of their life. This is a sign of their identity they are happy to show but are also keeping dormant inside of them, but is a source of value in playing these games [pp3 hebidge]. These are the different types of "faces" the gamers hold onto while playing: the duality of drummer and gamer, and always risk the blurring of the boundaries so that they can be able to impress other gamers at certain times, while trying to impress girls and other musicians saying that they "know" how to play drums, when it is pretty obvious they only know how to match colors and respond to patterns [pp61 psmith]. These types of peripherals show which types of behavior are acceptable by the games and the people around them [pp64 psmith]. In dealing with these as fashion and extensions of the self in what a person can be capable of playing with these peripherals, we can see these as similar to technologies of the self, where one can inscribe their thoughts and feelings into the peripheral, but then externalize them to others to show the type of "face" they want others to see them as [entwistle]. Also, these drums exploit what people have seen as familiar when looking at the drums themselves, and these are used to help experienced drummers play the games, but to also bring in new people to these games [dourish pp1]. These fashions are also linked exactly to what type of class of performer the person is able to become while using these tools [davis pp9]. These cues are not explicitly stated, but are rather, undercoded through these peripherals themselves and through the usage of these games in the gaming community and from the outsider's perspective on these peripherals [davis pp11]. These artifacts create the behaviors mentioned above help to elicit these identities and different social strata through their use and materiality, and can contribute to their agency not only in the game, but in wanting to learn more about the world of percussion and it's "a technical and practical accomplishment which draws on accumulated social and cultural knowledge" (Entwistle, 31)" [pp4 maeve]. In terms of what the players can do in the games, these are the basic tools to get the performer noticed, but are only on the first step of becoming a star in the gaming world, and possibly recognized by the drummers in the real world community as well, similar to crane's observation that "'The right suit illight not YOll to places of power. But the wrong suit illight not get you anywherc at al.'" III" [pp2 – crane]. These are all the symbolic powers of the artifact in creating the different statuses of the players [crane]

DRUM PERIPHERALS AS MUSICAL INSTRUMENTS

The RB and GH drum peripherals are more than just status symbols and simple controllers used to interface with their corresponding video games. These peripherals are also musical instruments in and of themselves. The physical forms of these peripherals directly connote that they are to be used as musical instruments. Both of the RB and GH peripherals are directly composed of practice pads, along with the other ecologies of drum peripherals. These mean that these peripherals are means to directly practice the skills need to become a real drummer, and are used in large sessions of practice with actual musicians at an amateurish level. Real drum sets and real marching band equipment are both brought in when the performer is taking their skills from an amateurish level, the practice pads, to the professional level, the actual drum equipment. In addition, these peripherals can be played to produce multiple sounds on their own right, regardless if they are connected to a gaming console. These peripherals do have the sounds of rim shots, rolls, cymbals, and different toms due to the different sounds they make, but the performer has to interpret the sounds they are hearing and also with the other performers to realize the actual music coming from these instruments (even though these sounds are directly not close to real drums and cymbals). These peripherals also have some other similarities to other real drum equipment, increasing the believability of these

peripherals as actual instruments. They contain similar customization latches in use, but not in form, to allow the player to arrange the heights and locations of some of the pieces of the peripherals. They don't include simple wingnuts featured on metallic drum stands that allow a performer to feel the tightness in the stand and to be readily able to customize it in different situations (although the time needed to set up these peripherals is quite shorter than with real drums). This quickness emphasizes the practice nature of these instruments and the fact that they can be used as an instrument to make sounds that can be considered "like" percussion. These practice pads also have two other connotations to the actual drum peripherals: the sociality of the peripherals and the throwawayness of the actual peripheral. Traditionally, practice pads are meant to be used in solitude, and is used in smaller groups of musicians to not only have other musicians hear rhythm going on behind them, but to get percussionists to see and hear other types of music on top of their different types of materiality and form the differences in music created from them. This is true with these peripherals, as they can be used in more situations in solitude than with others (e.g. playing by one's self, playing online with friends versus playing in a collocated setting). In addition, practice pads are meant to be tossed aside once one is warmed up and ready to start playing on the real drum set or on actual drum peripherals. They are also meant as a substitute when one cannot be able to play at all. This situation is also present in the case of these peripherals, as the electrical equipment inside of them or the plastic modeling of them breaks down and is destoryed after some use (similar to drum heads, but much more expensive to replace!) But the peripherals can pretty much be replaced and thrown away, rather than still be continued to be used, in the case of real drums. With this notion of these peripherals as having properties of actual instruments, they also end up defining what amounts of fun and engagement people can have with them. First, as mentioned previously, the natural properties of these peripherals define certain types of preferred play styles with them. As such, if one doesn't have the skills in these other genres of music or cannot be able to perform in these genres, then that performer will not find that peripheral fun and engaging, and vice versa. In addition, since they are a small part of a system to be used with a game where all of the "musical" content is, the playing of these peripherals by themselves limit the types of sounds created by them and exclude all of the elements of the game and the experience of playing on a stage with real drums in front of an energetic crowd. In addition, the fun of these peripherals is also defined by how much time one can put into them to learn how to use them effectively as instruments and as tools within the game. So if one doesn't have time to put into these objects, then this interaction will not lead to the desired result of fun. In addition, with the usage of these peripherals in different social contexts, the performers who perform with them will end up having different meanings of these as tools capable of creating music, and depending on the different interactions people might have with others using these tools, one may or may not think of these as real instruments, or just mere objects that are an affront to real musicians ("Blumer goes on to argue that 'the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows' (1969: 2.)" [psmith]). As different musical tools, they may be used as a step to either want to play more music, or want to be engaged with other members of the gaming community. As such, the learning of this instrument is a "right of passage" for the performer to learn in order to journey further into either realm [psmith]. When learned correctly (or creatively), this instrument can be used as a tool to gain fans, reputation, respect, or just self-respect. This type of learning will help people to not only feel a sense of pride, but will help them to avoid any embarrassment about using the tools improperly, and also not be seen using these tools improperly. [psmith] These tools allow one to videotape or perform publicly for a select audience to be able to appreciate and interpret them in a meaningful way, similar and dissimilar to a real performance from actual percussionists. And these meanings that performers and the audience bring to the table when these instruments not only help to reaffirm that these peripherals are actual instruments being used in a performance not only for the game, but for the entertainment of the audience, it allows people to label these gamers as musicians and people worthy of attention and respect. These meanings and constructions will not help the musicians grow and reflect on their experience, but will help to be the "key role" that will allow them to move on in their social life and real life [pp 65 psmith]. On the flipside, these labels that are associated with these players may also end up being derogatory to them and be subjugated by them, as seasoned percussionists may enjoy playing these peripherals and may be labeled as gamers, whereas gamers might want to use these peripherals as a means to become percussionists by the world at large, but cannot due to the "obviousness" of these peripherals as nothing more than mere toys for games. [psmith 66] This is a wide issue that is up to the intersubjectivity of the audience and the performer themselves, and unfortunately, this is also an issue that is deep to the social world of the music field as well [dourish]. Also these peripherals are also worthy of being called instruments, as they help to complete the mise en scene of the game and the performance as well. The drums make actual sounds during the performance of the songs, and must be there in order for the songs to be completed for a "full experience" with the song, and an even more meaningful experience if the performer plays on harder difficulties and is rewarded for more intricate play styles. This experience is directly part of the mise en scene because it serves to fill the action of the songs and the performance, along with being a theatrical buildup to revealing the players' score and performance

in the song itself and is also the “convincing atmosphere” of actual play [lacey]. Also these peripherals serve as instruments, as they have a natural tendency to bring others to the game and become part of the audience. When one hears one playing on these drum peripherals, one knows that someone is playing one of these games and then is brought into the area where the musician is to not only see what is going on, but what the musician is actually playing [barzell maeve]. This is very interesting, as because this is a cue to different communities that is meaningful and can either create more interactions among strangers, or have this music be considered as noise that children make in front of their television, merely being a simple nuisance. These peripherals also bring up another important question: when do these instruments allow the performer to become visible, and also the music? Naturally, the music becomes viewable whenever someone is starting to play on it, as sound is being created during the actual play, and is being enhanced through the introduction of the tracks of the video games. The participant becomes recognizable when sound is being created, but then fades into the background during the play of the actual music, but becomes present again when star power/overdrive is activated, and then fading back and forth. This type of play is also reminiscent of actual rock music, where a portion of the time the drummer is there providing background sonical support for the song, and occasionally providing color with fills, making his/her presence known again to the listener and audience.

DRUM PERIPHERALS AS THE DRUMMER’S PERSONA

These peripherals are also speak to the drummer inside all of us, allowing the performer to bring out their inner persona, learn the basics of drumming, and also learn and attempt to bring the skills these to other drums and drum peripherals. Since the peripherals themselves are pretty simplistic and are a reduced set of actual drums, it is much less of a burden for someone who has no training to pick up the play of these instruments. All a person needs to do is then pick up the sticks and follow the advice of the tutorial menus, or just sit away and try to hack at the instrument to learn the specific charts to pick up the skills. After playing, one is closer to having an experience closer to that of an actual performer who is behind the drum set and actually creating music. In addition, when one looks at ones play during the performance, the tool and the proficiency one has with this tool gives information away about the performer. For example, the way one holds one’s drumsticks or the ways a performer moves their arms gives away if they have been playing for longer periods of time on the peripheral. For those with a keener eye, this is a cue to them that can be used as a means to start conversations about drumming, music, or games in general. In addition, these peripherals elicit these different types of connoiserushop such that one’s experience with the tool will either help them to want to play more and digest more music, drumming, and take lessons or find people with more talent from to get the appreciation for real drumming. The opposite can also be true, where the performer can have such a bad experience from the use or aesthetics of these peripherals such that the player can ostracise oneself from the gaming community, as these aren’t actually real drums that one can create muysic – one is just monkeying around and just following a set pattern, a criticism common to most of the music and simulation games on the market today (e.g. Dance Dance Revolution, IIDX, DJ Hero, etc.). From these tools, one can also see what type of player is expected from each of these peripherals, to complement the play styles mentioned earlier. The persona of the player who can play the RB peripherals is someone who has a little more skill in actual drumming, is light on their sticking, and can quickly move from drum to drum to be able to read the complex patterns the game lets the player read. The drums of this peripheral are all situated on the same physical level, such that it isn’t necessary to move one’s sticks to play a cymbal or other auxiliary percussion instruments. In addition, the peripheral also assumes the player is right handed, as the drums that are used for more of the fill and color effects, whereas the drums that receive the most abuse for keeping time are towards the left, as these are very similar to real drum sets. The peripherzl also assumes the player can move pretty fast, as the drums are literally placed adjacent to each other and are the same size. This means that the player behind them has fast wrists that can move from side to side and use these drums and have a lot of margin for error, so that don’t hit the rims very often while actually playing, which has the tendency to throw off the player. So this type of peripheral elicits the technical and flow and professionalism of the actual drummer who makes a lot of money. The GH persona elicited from the peripheral is one that is a little more wild than that from the RB peripheral. The presence of cymbals first opens up the possibility to the player that they are meant to go wild have fun hitting a lot of stuff, which is a common notion of what drumming and popular musicians do (which isn’t true). In addition, the form of actually having a drum set as the actual peripheral, while giving a more accurate vision of what playing behind a drum set, still allows a person to be wild, as more distance has to be covered by their arms and wrists during the actual play. The separation of the bass drum pedal from the actual peripheral as well also helps to encourage the wild nature, as when one is stamping on the actual unit, the pedal receives the energy from one’s motion and then causes it to start moving, even though the rest of the peripheral is stationary. In addition, the black nature of the GH peripheral also is darker, and more sleek, which

appeals to more of the wild side in the self, whereas the RB controller is made out of silvers and freys, remediating the marching and technical sides of drumming (and is also reflected in the play charts as well in the games themselves). The GH controller also appeals to the wild side in the drummer in all of us, since the plastic and rubber nature can actually sustain a lot of damage from players of most ages, and still be able to produce signals to the game about which drums are being hit. The RB controller, while made of the same materials, doesn't produce the same exact sounds and feels differently, more like an actual quad tom from marching band, which is heavy, painful to lift, and most of all, difficult to maintain properly and is always looked after to make sure it doesn't fall over. These also connote that the player of the RB controller is more refined and older, whereas the person playing the GH controller is younger, more wild, and ready to start banging away from day one. There is much more care taken into playing the RB controller. The RB controller is also corded, which means that the player is "locked into" play for a set amount of time and also has to bring the controller out of a closet in order to play. This dedication is also seen in the persona of the refined percussionist who plays marching music and is dedicated to practice time. This is different in the case of the GH controller. Because it is wireless, the performer can take it out and put it away at any time, allowing their inner rocker to come out during set periods of time, and then be shoved back into the closet during the rest of the time of their lives (this is also seen in the aesthetics of the games, where RB uses a refined stage show to showcase the player as the center of the crowd's attention, whereas GH is set in a whimsical comic world where the player can just hack away and be their inner rock demigod – kind of like Jack Black is in his movies – School of Rock). These play styles showcase very clearly what types of personas are meant to be playing behind these different peripherals, and the games reward these personas accordingly. The players are then subordinated to these types of play styles, and must adapt to them to not only learn the types of play preferred by the games themselves, but also the styles of play afforded by the peripherals themselves. So if one doesn't necessarily fit into either one of these two distinct and radically different personas, then the game ultimately dismisses their abilities by subsequently failing them and not allowing the music that the person wants to perform and listen to play through their TV or computer monitor. [pp2 hebidge] Then the player doesn't really have all that much of a choice if he/she wants to keep a conversation going with the game – either one can adapt one's play style to match that from the games and the peripherals, or one can remove themselves from this community and try to join a different community of percussionists/drummers/gamers, or just leave this community altogether [pp2 hebidge]. What is very interesting about this is that these go against what the games were originally intended to do, which is allow the person inside of each of us play rock music and join the thousands of other rockers in playing our music which defines us – essentially slamming the door on our identities that we have taken so long to compose over and through our experiences with the world and the people around us. These different ways of life that are rewarded by the games aren't always rewarded by the real world: for example, most neighbors will yell at garage bands who are trying to create music, citing reasons of annoyance and volume levels. These games are doing the same thing: if one doesn't have the music at its highest levels and one isn't striking these peripherals with all of their strength (granted its due to the limitations of the technology, but this just as important because it was designed in this manner). These are also the different types of values which are lauded in these two different communities and institutions of rock [pp6 hebidge]. It is also interesting to think of these personas as being capable of being brought out on a whim, just like popping in a DVD into our computer. These games and these peripherals allow us to instantly become these rockers and become our own movie star. As such, we are acting out our own role, which has been designed through the use of these peripherals, and some might say we are subjugated by them from the designers of these peripherals. [hebidge] These two different peripherals then become tokens of the hegemony between the game designers, musicians, and ordinary gamers. Gamers buy these games and are expecting to have a good time. They willingly consent to the loss of dollars on their end to be able to subscribe to this experience, and additionally shell out more money to be able to play online with others. The game designers of these games have crafted these experiences such that the experiences resulting from them appear to be quite natural and awesome, which they are while one is in the flow of the experience while playing with these peripherals. The designers have all of the materials and power to them to create these experience, without asking any gamers how they would want to play or how to live as stars within these worlds that are created. They have the power over the experiences gamers have and are placing their role as dominant master in deciding what rocks, what's lame, what's considered face melting, and what is considered just average. This is very similar to the ideas of Marx: "To understand this point we should refer to Maa: The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society is at the same time its ruling intellectual force. The class which has the means of material production at its disposal, has control at the same time over the means of mental production, so that generally speaking, the ideas of those who lack the means of mental production are subject to it. The ruling ideas are nothing more than the ideal expression of the dominant material relationships grasped as ideas; hence of the relationships which make the one class the ruling class, therefore the ideas of its dominance. (Marx and Engels, 1970) This is the

basis of Antonio Gramsci's" [pp15, 16 hebidge] The creation of this hegemony will continue to keep not only gamers attracted to what is being made, but this attention will continue to be the source of strong debate and redesign within this community [pp 19 hebidge]. These peripherals are also technologies of the self, as described by Foucault. 'Technologies of self', according to Foucault, permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct and way of being so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality. (Foucault 1988: 18)" [pp4 entwistle] They are these types of technologies as they allow these personas to be created for the player to reach a state of happiness and wonderment such that they will continue to keep playing and also get closer to the idol status of being a rock demigod that the games put the player in. These technologies are also allowing the player to be directly embodied within these characters and themselves, as not only does the player have to move their bodies to be able to use the instrument, but these peripherals allow the player to exhibit the "cultural "skills," abilities, and understandings that we responsively gain from the cultural world in which we are embedded." [pp9 dourish] These drum peripherals are also the storage of the tacit knowledge that is used by professional drummers and is exposed through the games and the usage of the peripherals [dourish]. The games reward the usage of the tacit knowledge to match the patterns in the most efficient manner. The more knowledge the player has about drumming, which is a learned set of techniques unique to this field and as tacit knowledge to those outside the field, can be quite astounding and making the games hard and the peripherals inaccessible to a wide audience, even though the games themselves are supposed to be opening rock music to any player. Each type of player can go back and forth through these peripherals, but they will attach different levels of meaning and values on them [pp 13 davis]. Since these peripherals can be seen as the drummer's clothing needed to be worn for each game, their experiences with the games will help determine what types of clothes they will be willing to wear to use for each time they play (even though both drum peripherals can be used with either game). In this light, these drums become then primary means for creating the experiences with the games they want to play, and will then subsequently attach the values and the experiences created from the play into this object and be brought to life again through subsequent play sessions with these peripherals. These drums, also as clothes, as expected from these games encourage the correct use of these peripherals with their games, also show the game's commitment to having the player use this particular peripheral with these games as a symbol of these games and the success of the player, and produces the image of the gamer that other gamers can latch onto at tournaments. This then becomes the proper status for the gamer to be the ultimate drummer at tournaments, and makes "visible [the player's] commitment to the life" [pp8 entwistle] that is evoked by these peripherals. Not only are these different levels of success within the games and the communities, but these are also showing the different personas being played by these instruments [lacey]. The player must also spend time committed to learning this persona and the skills needed to have success in these games, similar to how Goffman studied members in prison [psmith]. These peripherals are then akin to the props studied in this study, where these elicit the individuality of the performer and the personas embedded within their soul and the souls of the objects themselves. [entwistle]

DRUM PERIPHERALS AS QUESTIONS ON ART AND PHILOSOPHY

As these drum peripherals not only create and elicit different types of status symbols in the gaming and drumming communities, different types of musical styles, and different types of personas that should be playing these instruments, they also are creating a conversation about the art and philosophy of drumming. Traditionally, drumming has been thought of an art that used one's hands and/or sticks on analog cylindrical vessels that created sound upon striking. Now, with the creation of these digital drum peripherals, and the introduction of the electrical equipment inside of them, the lines are starting to become blurred as to what constitutes a drum and what the art of drumming is. As these different personas are created, the "type" of person who is able to become a drummer is much more broad as to the physical person who can sit behind the drum set, but only a certain type of person is actually playing the drum peripherals, as these peripherals end up creating only two different types of players. In addition, these peripherals also use the form of a traditional drum set, but their materiality isn't the wooden keel of the drum set, or the roughness of the actual drum heads themselves, but instead a simple combination of rubber and plastic combined with electrical equipment. While these drums end up functioning as drums when they are connected to the system that will display the patterns one is supposed to play, they aren't physically drums but yet still creating the sounds of actual drums as the musical track and patterns are being displayed on the screen. In addition, these drums are also drawing upon the implied cultural references mentioned by the construction of these drums. The RB drums, with their structure and aesthetic references to the metal stands and the rims of the drums speak of a more structured player, and one is much more refined and has more polished skills. The GH drum kit speaks to the ANIMAL inside all of us, who just wants to sit back and start wailing away on the drums. This is due

to the black aesthetics of the drums themselves, along with the inclusion of the cymbals and the different layerings of the actual drums themselves. These drums also ask the question if this is the direction of where the medium of drumming is going. Will it continue to stay an analog interaction, or will the introduction of these peripherals cause the medium of drumming to become a digital one for gamers only? For some, these drums represent “culture as a standard of aesthetic excellence: 'the best that has been thought and said in the world' (Arnold, 1868), and it derived from an appreciation of 'classic' aesthetic form" [pp6 hebidge]. Also, will the best of the drum peripherals only be a smaller set of actual drums, or will the drums of the future incorporate more and more attachments and more drums people have to buty to stick on top of their normal peripherals. In the case of the real drums, this is not the case, as the drummer can move freely from one instrument to another, and attach more equipment based upon the need to add/subtract different sounds and new equipment based upon the amount of surface one has available to them, or upgrade to a more sophisticated unit. One can do this with drum peripherals, but in the case of the games in which they interface with, they don't produce any additional sounds from the game, and the standard set of drums can actually change sounds based upon what the designers and the actual music deems fitting. This is the type of embedded ideology of the designers have placed upon these instruments to amkethem instruments of the game only, even though they contain mych more value than just this simple function [pp13, pp18 hebidge]. These drums also change the mise en scene of what a performance is[lacey]. Before the creation of these instruments, the performance of music consisted of actual drums in either a home-like or concert hall-like setting for much participants actually play the analog instruments. Now these instruments are changing what is acceptable for these types of interactions to include the usage of electronic equipment and gaming consoles that can be used to produce music of different generations that people can play thourhg the use of plastic and rubber drums. These drums can also be either montage with different sounds from the games or montage with different drums to produce a wide variety of color in sounds to create a new stance on what the art of drumming is, along with the fact that there is a technical (electrical) and gaming set of credentials needed to be considered a good performer [lacey]. With such, performers can be much more aware of what they are doing now, especially with their new personas while playing these instruments and the communities which are opened up by becoming these people. This new type of person must then be managed by the player to know when he/she has gone too far in becoming this person,as one may alientate oneself from other players out there, and may have to seek other bands to work with [entwistle]. These drums also end up changing the nature of what the actual maintence of what drumming is. With these peripherals, there is no tuning, no reskinning of the drum heads, and no changing of the sounds the drums make due to differences in air temperature. These peripherals then become automatically maintained by the games and the audio tracks themselves of the game, making the drum peripheral then a transparent tool to be used to transport oneself into the world of rock [pp5 bolter] and one's “active involvement and engagement [with the game and the tracks] and the interface” [pp6 bolter]. In actual drumming, the drum is a vehicle for one to become totally immersed in the sounds of the drums and the sounds created by the other people in the band, so one only has to focus on the phrases and sound on is making, rather than focusing directly on the patterns and minute actions that these games require the player to focus on. The actual drums are more fo a reflective interface [bolter], where the viewer is invited to reflect on her relationship to the work of art or on the process and the various physical and cultural contexts of production." [bolter]. So, ultimately, should these instruments be used as means to allow the player to focus on the technical side of drumming, or the flowing nature of the phrases and the community of sound the player is a part of? These peripherals are saying that technical play is much more desirable, and helping to show other designers that these are the types of behaviors that are much more desiriable for creating other drum peripherals in the future, which is more typical of a beginning drummer, but not of one whom has been playing for a longer amount of time with at least some experience (who then views his work with the drums as a means to provide sound without being interfered with or distorted by worrying about the technical and electrical sides to the notes he is playing [bolter]). Designers and players of these instruments will have to reflect on the direction they are wanting to take the art of drumming with these tools, as these peripherals are creating a convergence of different realities that are being brought into reality when the player presses the on button on their console [bolter].

CONCLUSION

Drumming is an activity that has been used by people for many years for many different reasons: for communication, for art, for performance, and for productivity. Currently, drumming has been taken into a digital activity that is used to interface with video games and computers as instruments of sound synthesis. With the creation of these tools, though, their production has also created a segmentation of users who are able to use these tools in different ways. These types of tools (homemade, game controllers, and professional) are not only making these users specialized, but are also changing the nature of what drumming is now and for the future. More

specifically, the drum peripherals from GH and RB are being used as a status symbol for the player, allowing them to only create a certain specialized range of sound, these tools are only giving the users a pre-selected amount of skills to interface with the drums, and are also changing the nature of the philosophy of what drumming is.

The above analysis has been performed on a very specialized set of tools used for entertainment purposes, but this analysis can also give insights to designers and the HCI research community about how people are using musical tools for fun and any other purposes they would like to have. Very simply, these tools only show a subset of the possibilities used to create music with these drums. As such, it is important to the success of artifacts like these that designers have some knowledge of music and some experience creating and playing music. If designers cannot have access to these tools, they should interview experienced drummers or conduct ethnographic observations to discover the nuances of drumming that can be used to create a successful tool. In addition, peripherals like these are also changing how people think about music and how it can be created. As such, designers and researchers should be well aware of how people consume and want to create music. With the nature of these tools changing very quickly, designers and researchers should be aware of how they will be changing how people view and define what music is, let alone decide how the music should be played and created for others to play. Also, with the creation of specialized tools such as these peripherals for music creation, these tools elicit and produce more passion and energy from the individual performers playing with these tools. When this situation happens, designers and researchers should be well aware of the different types of people they will be changing, but may end up causing new art forms and divisions of current artistic trends as well. As such, designers and researchers should spend time reflecting upon the choices used to construct and create these instruments for people's enjoyment and livelihood. These tools are more than just a means to create music – these tools elicit much more of people's experience and desires when they are brought out. These tools are also a means for people to practice their skills and be able to transfer them to other types of instruments in the same community, which the artifacts under study don't do so well. It is also important to reflect on what types of skills the artifacts we create will be giving to people, along with instilling them with the potential passion to want to venture outside of their artifacts and engage with other skills and artifacts in the same community. Another important aspect of these artifacts for designers and researchers to reflect on is to investigate not only how people bring their passions to these artifacts, but also what types of behaviors that will be elicited from these artifacts. While it is important to analyze how people will be utilizing the artifacts in the contexts they will be initially used in, it is even more important to realize how the experience of the artifact might change their views and beliefs. For example, after using these drum peripherals, some people may want to learn actually how to play drums or learn how to record professional videos for the use on the web. Designers should be prepared for some of these situations and give people the best possible experience to take away from these objects such that the experience can be built upon to create more rich and fruitful experiences from other people and artifacts later in later. Also, designers should also be aware of the potential shifts in thinking caused by the creation of their artifacts. For example, with the creation of these drum peripherals may have experienced musicians detest the artifacts and the people who work with them, as they aren't "real" musicians", and vice versa (with gamers thinking professionals are too highbrow to use their tools to play games and have fun virtually). These situations should be prepared for from a design standpoint as much as the better (i.e. expected) situations mentioned previously. Again it is important to reflect on what new skills your tools will be giving to people and how they might want to learn more/transfer their skills to other media – designers should be prepared to create such experiences that might not only enhance people's creativity, but instill passion for learning and fun to the point that people will want to go and do new things that they wouldn't normally do (e.g. play music in the "real" world, talk to new people about music, learn how to record and videotape music, help promote music, etc.). Above all, with these takeaways, it is important to realize how important the use of ethnography is in crafting the right experience. These drum peripherals were created after the western model of the drum set, and looking at how professional musicians play music and then that experience is transferred over to the gaming community. It would be a much better experience for this community had these peripherals been studied over time before being released to see how people would interact with them, such that an optimal experience can be created, without sacrificing the initial intent of the actual objects that are being remediated through these games. These peripherals, as mentioned above, make a very good effort at remediating the actual equipment professionals use, but from their usage they end up allowing people to specialize themselves and make themselves better drummers in only certain contexts. We will need to understand as much as possible from talking to and learning from people about what they want and need from such artifacts that create music and other artistic artifacts, open to everyone. Cognitive modeling of fun or experience in these types of situations will not help designers gain a holistic understanding of how music, fun, creativity, and other important factors in this problem space will affect people and what they do after their use of these objects. Another important step needed to help designers realize what they are doing with these peripherals is

the deep skewing of the use of these instruments for practice, which speaks to the fact of the contexts of use of these artifacts. These change the “game” of music into saying that drumming and these tools are really meant for personal and practice use, and shouldn’t be brought out into the public space, even though these objects are very portable. This type of analysis also helps the research community, as these objects will help us to see how they are useful to learning more about how these artifacts speak to embodiment and embodied interaction. From Dourish’s definition: “Embodiment is the propriety of our engagement with the world that allows us to make it meaningful... the creation, manipulation, and sharing of meaning through engaged interaction with artifacts.” [pp15 dourish]. These peripherals allow people to be engaged in the contexts of these artifacts that are extremely meaningful: they allow people to play and become with games, music, and creativity software. These artifacts are also starting to be used in a more social setting (a multiplayer setting in the case of games, and a potential audience in the other situations), that allow the performer to be able to learn more about their performance, but also how meaningful their performance was to other people. Designers should be aware of this type of interaction with these artifacts such that they can learn how to utilize this design in other contexts in addition to just music and gaming – other contexts do have much to be benefitted from this type of deep and personal interaction with the artifacts that craft engaging and enormous experiences such as these. Lastly, designers should also be aware of the political statements [crane] these artifacts are creating, whether they are explicit are not. These tools are speaking to potential users, in a similar way that clothing does, to say whom should be using them. As designers, we should be aware of these cues people find that allow them to engage in an interaction such as this and try to expose ourselves to these biases and cues to open our artifacts to as wide an audience as possible to allow for no one to be excluded from such deep and meaningful interactions.

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