

POSTPHENOMENOLOGY AND EDUCATION: FROM CYBORG STUDENTS TO IMMERSIVE CLASSROOMS

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Abstract

This analysis uses a postphenomenological lens to provide insight into the shift occurring within society at large. It focuses on the educational domain, and arguing for a reevaluation of instructive approaches. Philosophical research into technology and education is seemingly lacking, and so this article seeks to fill the present gaps. This analysis initially delves into the postphenomenological frameworks of technological mediation, intentionality, and dimensions, to clearly differentiate the embodiment and cybernetic relationships as they are understood within various texts. Following this the epistemic and practical dimensions of these relations are explored to then be juxtaposed with the descriptive argument of the overall cultivating cybernetic relationship between human user and technological artefact in contemporary times, using the smartphone as the core example case study. Finally, a normative argument is made considering the previous cybernetic insight, in that if the classroom setting is to evolve and adapt,

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it too must embed technology within the classroom, lessons, and overall educational engagement. It represents an equalizing technological balance of cybernetic student and immersive classroom where the intentionality of user, technology, and classroom blend together to continue the cultivation of our blossoming relationship with technology.

Keywords: Postphenomenology, cybernetics, education, technology, mediation

Introduction

“We shape our tools and thereafter our tools shape us.”

Marshall McLuhan

Technological change and innovation is in an upward spiral: the peak is unknown and perhaps will never actually be achieved. Attempting to grapple with these changes is and will continue to be paramount for an individual's and society's thriving and well-being. Very few today can avoid the power of the internet and smartphone and in fact many have sought to harness them for their own benefit.

Technological being is the status quo of our postmodern Lifeworld and adaptation is a necessary constant in such. The qualitative and quantitative changes brought forth through technology require a degree of mindfulness for a beneficial adaptation. Without adapting, one risks falling victim to the crushing power of technological change: being swept to the side of obscurity. Much of the work in the philosophy of technology and Science and Technology Studies aims to address these changes, adaptations, and realities we have cultivated through our continued development, implementation, and uses of technology, advising how best to understand and engage with such. They seek how to best shape the tools that shape us, and what to expect in their mediative roles. This article intends to add to these dialogues of technological design and adaptation into an area with little contemporary focus.

Not so much attention has been paid to the educational realm with such studies into technology, although that may change perhaps with the recent surge of ChatGPT usage. This aim of this article is to highlight one of the significant factors leading to the shift the educational environments are enduring and offer a potential way to address the challenges new technologies are creating. The notion of educational institutions needing to adapt

and update their style of engagement in this regard is not a novel idea. As a teacher of seven years, ranging from kindergarten to university, I have witnessed the accumulating need to rethink the approach of the necessary job of education, with countless others in the realm agreeing as well. A neo-Luddite approach, in which technological innovations are restricted or removed from the classroom, seems counterproductive to the realities of our Lifeworld. There are calculators, easy to find summaries of any book, and now an artificial intelligence capable of writing whole essays in every pocket. To shy away from such may only weaken the ability of future generations to cope and engage effectively and beneficially with technology. Instead, with an understanding of the technological frameworks at work within the phenomenological experience of a young learner, I will reveal an avenue to consider: I will be calling the “Immersive Classroom.”

In order for this all to be made clear, I will first be introducing the Post-phenomenological framework which I will use as the basis of this discussion. I will highlight two of its technological mediative relationships which will be juxtaposed to two nodes in the educational environment: student and class. The role of technology as a mediator of education is not a new phenomenon. Books, blackboards, and pencils all stand as historical examples which we humans have harnessed in order to educate and push younger generations further than the predecessor generation. Instead, by focusing on the total environment of a young learner in today’s contemporary Lifeworld, I will show that we are moving towards a more intimate relationship with technology, one which is making us increasingly cybernetic. This is not to say we are or will be physically infusing ourselves with technological artifacts, but instead our sense of agency, intentionality, and being, is one which is co-constituted by technology ever more than before, and more deeply than before. For the younger generations growing up with such a co-constitution, for example, with the widespread use of smartphones in their earlier years, such a state of being comes comfortably. It is due to this cybernetic state of being that classrooms themselves must adapt and become cybernetic as well – an immersive classroom able to engage with and hook into the young learner cyborgs.

Technological Mediations, Intentionality, Dimensions

Postphenomenology is a relatively new contender in the philosophy of technology. Taking inspiration from, and then quickly detaching from the technological determinism of Heidegger and his *On the Question Concerning Technology*, postphenomenological thinkers attempt to understand the relational and phenomenological nature surrounding technology. At the

core of this field is human-technology relations, as set out by Postphenomenology's founder, Don Ihde. This highlights the different connective ways technology mediates our experiences in our Lifeworld (Ihde 1990). There are a few different relations which mediate these experiences, and the two I will be focusing on are the embodied and background relations. From there I will dig into these mediational relations further by introducing the next level of each relation, in what Peter Verbeek describes as cybernetic relations, where the intentionality of the human user and technological mediator of the phenomenon begins to blur in an overlap of thought and action. Intentionality here should be best understood as a directed towardness the world: to think, perceive, and act in a certain way in relation to the environment one finds themselves in. Following this I will briefly describe the epistemic and practical dimensions of technological mediations as outlined by Kiran, since it will play an important role in the following two sections on user/smartphone cyborgs and immersive classrooms.

To begin, let's look at the embodiment relation of technological mediation (Ihde 1990: 72):

(I-Technology) -> World

In this relation the user (I) and technology merge to then go towards and experience the world. I, the user, embody a technology which is then used in an interaction. A pair of glasses, or a blind person's cane, stand as examples of such. Both artifacts are brought into bodily awareness, and become a kind of extension of the self, enabling a different perception that is then acted upon. The intentionality in this relation can clearly be assigned to either of the entities: human or artifact. A human user engages with and enacts their will toward the world through the use of this technology, which allows for and augments specific intentional actions. I intend to use a pair of glasses in order to see the world more clearly, and my embodied artifact enables and can even augment such an intention. The artifact, too, can have its own intentionality. It is a different kind of intentionality, but an intentionality nonetheless. To borrow from Verbeek's work (which will be engaged with more below), technological intentionality is the "specific ways in which specific technologies can be directed as specific aspects of reality" (Verbeek 2008: 392). So, in the case of embodiment relations, the technology has its own intentionality through its design, intended use, and implementation for specific reasons. Factors, such as semiotic affordances, can impart some influence on the human user, as if the technology itself is telling one how to use it: small nudges for what and how of use, although not in a determinant way. The pair of eyeglasses are shaped in such a way

that nudge me to put them on a specific way, and the specifics of the glass itself fit me. It intends to be used in this way (though not determined), and by this person. Embodiment relations see a play between the human and technological intentionality which can be distinguished quite easily. In a sense, embodiment relations allow for users to direct their intentionality toward the world through technological mediation, which also imparts its own intentionality into the totality of the experience. We intend to use a pair of glasses in order to see the world more clearly, and they intend for it to be so as well, showing what it offers: in this case, a clearer vision if used in this way.

The other relation of note in this discussion is the background relation, which sets the technological mediator on the other side of the equation (Idhe 1990: 108):

I -> (Technology-World)

In the background relation the technology is merging with the world, or environment, which I, the user in the equation, goes on to experience. A refrigerator or air conditioning unit stand as examples of this relation. These sorts of technology are off to the side, remaining outside our mode of awareness through the transparency of both the design (a desire to make such technologies quieter, for example) and widespread use (ubiquitous existence) such technologies have. They form the backdrop against which our realities are manifested. Refrigerators keeping food from going bad or an air conditioning unit to keep a room at a constant desired temperature are intentional actions of these technologies. I (most of the time) do not need to impart my own intentionality onto such, except to set the degree by which such technologies operate to manifest my own environment. Like the embodiment relation, there is an interplay between intentionalities. The intentionalities here lay at how I, the human user, wish to designate the technology for my own relation to my background and environment, to then experience it in the totality of the world within the mediational equation. What temperature to set, where to position a chair, how much to close the blinds are up to the human user to decide in their intentionality. However, each, in their own way, afford and advertise such, imparting their own sense of intentionality influence over the user, similar to that of the embodiment relation.

One can see how the embodiment and background technological mediations play an important role in understanding our Lifeworld and the push and pull that technological mediation has in influence of intentionality. However, such relations do not stop there. Whereas glasses and re-

frigerators have a clear line between artifact and user, both physically and intentionally, what happens when these lines blur? What occurs when one's thinking, actions, and being within the world are co-constituted by technology, beyond and deeper than what we have already discussed? The result is cybernetic relations, where embodiment relations become fusion, and background relations become immersive.

When the intentionality of an embodied action is a fusion between human user and technological artifact, it appears as such:

(I/Technology) -> World

The small, but significant, difference here is that where embodied relations had a combination of I and technology, there is now that fusion which brings both together to then impart and experience the world. An easy physical example of this is a pacemaker, a fusion of human and artifact that come together. While such a physical fusion is seeing limited current use, the fusion I will be focusing on here is that of the intentionality, as laid out by Verbeek (Verbeek 2008, 7: 391). The thinking and action made towards the world in this relation is unclear. The question is whether the user or technology holds primacy in the decision making and is the result of the intentionality of both fusing together. Assigning the total agency or intentionality becomes lost in the blurring lines between human user and technology. Did you want to click on that online advertisement, or did your comprehensive data enable your technological artifact to do so, by means of using effective targeting? But is not also your data *you* in some way? This is that blurring phenomenon between human and technology in fusion relations. In the following section I will be arguing for this fusion relation to be our current reality in regard to our smartphones which cultivates a certain overall attitude to technological being in such a way.

Much in the same way, an environment which cybernetically connects with technology becomes an immersive one (Rosenburg & Verbeek 2015: 22), as outlined as such:

I <-> (Technology/World)

There are two important notes to be made about the difference between background and immersive relations. First, much like the fusion relation, technology and the world, or environment, become intertwined together, to a degree much greater than the previous background relation. The second is the connection between the user, I, and the cybernetic environment, in which there is now a back-and-forth relational interplay. This is where the immersive environment is responding to, and being responsive with,

the user. It adapts to the user accordingly, and also imparts its own will. An example of an adaptive cybernetic immersive technology is a smart refrigerator which identifies what food is present and/or needed, and what the human user may enjoy eating or cooking, and then makes an order to the local supermarket, and advises what one could make. This framework will be used for the final section of immersive classrooms.

Before moving into cyborg students, and then immersive classrooms, I will be describing the epistemic and practical dimensions of technological mediation which play a key role in understanding how these relations help manifest our realities we all live in. As discussed by Kiran, technologies shape and reshape humans and environments through their mediation effects. There is a paradoxical two sidedness to any technological mediation that one needs to be considered, if one wishes to fully understand what is phenomenologically occurring (Kiran 2015: 123). When in the epistemic dimension, this two sidedness is expressed as magnification-reduction, and the practical dimension as enabling-constraining.

When one endeavors into an epistemic activity, in order to understand or know something, and uses technology to assist them, the technology is able to help magnify certain aspects to help focus the human user's intention. At the same time it reduces other aspects, which also assist with the focus of activity, putting such in the blind spot (Kiran 2015: 128). Its intentionality is this ability to assist in this way. One can imagine the magnifying glass as a good example of this magnification-reduction phenomenon. When one peers into a magnifying glass, there is something being magnified and being focused upon, while at the same time the focus on anything outside of the desired focus is reduced and blurred, put to the side and forgotten. One is thus entering into a new world which was manifested by the technological mediation. Attention and focus is finite, and technologies assist in directing such in the epistemic dimension of technological mediation.

The echoes of the practical dimension are similar to that of the epistemic. Enabling and constraining are also related to attention, but also capability – potential and actual. Technologies, and the kinds of intentionalities they give off, afford us the kinds of potentials and actualities they enable, while also constraining other kinds (Kiran 2015: 131). It does this through a user's understanding of its possibilities and affordances of such. The door of a refrigerator tells us where we should open it, while also constraining us to other methods we could use. We can see, with little to no effort, where to place our hand to open it, and without a thought in our minds of where else we could once the perceptual gestalt strikes us (not without conscious

effort, anyways). It does not determine an action, but nudges and influences us, constraining other possibilities we might imagine. The affordances of a directed and outlined pavement of a street do not restrict our ability to drive elsewhere, it just heavily hints at the best possible way to do so to avoid collision and accidents.

These dimensions will become important in the discussion of cyborg students. They will highlight the epistemic and practical expressions that are occurring, which can then be addressed in the immersive classroom inversely and adaptively. Intentionality stands as one of the most powerful forces in an individual and collective way of being, since it is the very basis of our directed being in the world. Technology is a key factor in how such intentionalities are realized, created, adapted, and acted upon in our Lifeworld. The dimensions reveal in what ways our sense of being and intentionality are influenced through the use of technology, either through magnifying and reducing, or enabling and constraining. Let us now turn to see how smartphones have cultivated a cybernetic relationship with us, blurring the lines between human and machine.

Cyborg Students – A fusion of intentionality

With a clear understanding of technological mediation and the various differing relationships which connect us and our environments, I will now move on to making my claim that the widespread and ubiquitous use of smartphones constitutes a cybernetic fusion relationship on the basis of intentionality. This shows a further intertwining and distortion between human and machine. This argumentation of cybernetic being stretches back as far as Haraway, who states “By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs,” when referring to the metaphysical and ontological changes technological being brings (Haraway 1991). The argument of cybernetic being made soon pushes this understanding further, given that smartphones were first popularized as early as 2007 with the first iPhone. It follows that this cybernetic phenomenon is more present and underway in younger people who began using such artifacts in their childhoods/early teenage years. Once the relationship is established I will highlight some of the epistemic and practical dimensional factors that require consideration when thinking of the immersive classroom. The following section will then provide the conceptual framework which will seek to balance out the cybernetic equation, creating a more beneficial learning experience.

As discussed in the previous section, a fusion relationship is one in which the human user and technology have melded into one agent towards and engaging with the environment. We and our smartphones are cultivating such a relationship, both with us and the smartphone partnership and with cybernetic technology as a whole. As was argued by Verbeek in another article, technology also has the power to moralize and normalize our thinking and actions (Verbeek 2011). By adding in a new entity into our being and environment, our attitudes and perspectives can shift. A speedbump forces one to slow down or risk damaging their vehicle, thus normalizing a behavior in a particular environment. In a much grander way, one cybernetic tool in wide use opens up our acceptance for others. What can be and is normal, is partially constructed by the technologies that make up our environment.

The smartphone is a handheld artifact which finds itself in nearly every pocket. It is a device which enables users to communicate and engage with our Lifeworld endlessly (until the battery runs out) and instantly (so long as there is data or Wi-Fi). It carries with it vast potential for epistemic and practical uses for users, among others. We engage with it as a means to an end, in order to achieve our various and varied goals and desires. The smartphone, too, acts upon us, as it vibrates or pings with notifications, and comes equipped with various smaller tools which enable a wide range of personalized activity. Its intentionality is its potentiality of tasks, and actuality of equipment to do so. The totality of smartphone intentionality comes to fuse with our own, thus producing the proto-cyborg. The extent to which contemporary life has become embedded with smartphone technology points to multistabilities (variations of use) which appear to be cultivating and establishing a cybernetic relation. Looking at a couple of these multistable variations of the use of smartphones will allude to this cybernetic relationship of intentionality, such as QR coded menus and wireless earbuds.

QR coded menus are the keys used to unlock the digitized menu in restaurants. Using this technology, restaurant patrons are able to freely access the menu without needing a physical copy handed to them. The normal intention of sitting down at a restaurant is to (usually) order food to eat. Walking through the overall phenomenological experience of a QR code menu will reveal a cyborg relation of intentionality of user and smartphone at play. At first, the smartphone, and QR code to scan it with, enact their intentionality over the user through their potentiality of connection. If one wishes to engage with their own intentionality of wanting to see the menu to make an order, customers abide by the intentionality given to them by

the technologies: they must blend. There is the very clear affordance of a QR code located on the table for all patrons to see, and the server may even indicate it as well to reinforce. Once scanned, the patron (and user) is able to have full control over their viewing of the menu on their miniature digital portal. The choice of food will be the result of the patron/user themselves, influenced in part by how the digital menu is constructed (and perhaps one day by the user's own data nudging towards an informed preference). The user themselves will choose what they want to eat, enacting their own intentionality, which is then passed over to the server (who may or may not be using smart technology themselves to record the order).

While the specific intentionalities in this situation are distinguishable, the QR code-smartphone-digital menu and user choice of order, the overall product is one which is blended. If one wishes to accomplish their goal of ordering and eating food at this restaurant, there must be a blending together of technological and human user intentionality. One might say such an experience does not happen if a physical menu is requested, which is true, but these QR coded digital menus are becoming more commonplace as their popularity catches on (for both patron and restaurant).¹ In fact, following the COVID-19 pandemic, some restaurants did away with a physical menu all together, requiring the technological intentionality altogether. The practical and epistemic benefits of using one's smartphone to have easy access to a digital menu while at a restaurant represents one such multistability of smartphone usage. Its embeddedness in the activity of ordering food, a cross-cultural and popular activity, is one which requires the blending together of human user and artifact intentionalities. The total intentionality undertaken in this phenomenological experience is one in which is a combination of the two. It is not merely a user relating to the world through the smartphone, as an embodiment relation would be, but instead the two becoming one, in order to complete an objective. The smartphone "wishes" to be used to scan and have its screen read, as it was equipped for such a purpose, and the user wishes to view the menu to order. QR coded digital menus are just one empirical example of the growing fusion we have to our smartphones.

Personalizing one's self-sound environment through the physical embodiment relation of user and Bluetooth-connected earbuds represents another multistability of smartphones that indicate a cyborg fusion relation

¹ May, L. 2022. How the Pandemic Gave QR Codes New Life and They're Here to Stay. *QSRweb*, 1 March 2022. Available at: <https://www.qsrweb.com/news/how-the-pandemic-gave-qr-codes-new-life-and-theyre-here-to-stay/> (accessed 18 June 2023).

of intentionality. Stacey Irwin's *Digital Media, Human-Technology Connection* is a rigorous postphenomenological investigation into earbud embodiment relations. It will be discussed here in relation to the intentional use of producing a self-sound environment. The smartphones which enable such, represents another example of a cyborg relation. As Irwin explains, "Embodiment is a crucial part of the earbud experience because earbuds are wrapped around the body and plugged into the body" (Irwin 2016: 81). Earbuds themselves represent an embodiment relation, where the human user brings this technology, typically now small earbuds that fit into the ear, into their bodily awareness, and it disappears into transparency as it is used. The world itself is shifted with the embodiment of earbuds, since users are able to create their own sound environment in a way that has not been seen before. Irwin states, "The atmospheric soundbed of the world is different from an earbudded soundscape. Both might be chosen and embodied, reverberating and permeating, but the earbudded one is personally selected so it is more exclusive of any random sound. Atmospheric sound encompasses all of the lifeworld sounds available at any given moment... But earbudded sound is almost always chosen and selected and individualized" (Irwin 2016: 88). The smartphone today carries the potentiality of enabling earbudded sound to create our own self-sound environment. Similar to that of the QR code menu, there is a blending and fusion of intentionality between human user and smartphone. The smartphone reveals its intentionality through its potentiality, which will be acted through the human user to create an actuality: their chosen, selected, and individualized sound environment. The use of Bluetooth earbuds furthers this phenomenon, since users are able to be wireless with their use of the technology, pushing the transparency of the embodiment relation for earbuds, furthering it into background acknowledgement. The intentional act of producing a self-sound environment was manifested through a combination of the human user's desire for individualized sound and the smartphone's intentionality through potentiality and affordances of use. Fusing the two together enables the cyborg to have near complete dominion over the sense of sound.

These two empirical cases of smartphone multistability show a clear fusion of intentionality, leading to this cultivation of cybernetic being, for both the smartphone and future possibilities. Those young enough to have had such powerful and ubiquitous technological mediation present even in childhood are bound to have psychological and metaphysical ease in such a state of being. In the years of understanding and creating their own sense of identity, belonging, and relating to their environment, the smartphone has

been there to assist them in such: being a part of such. Considering now the epistemic and practical dimensions of this relationship will yield the specifics to focus upon for the following section on immersive classrooms, and how best to educationally engage with these young cyborgs.

For cybernetic smartphone use, as with any technological mediation, there are the magnifying/reducing and enabling/constraining phenomena present. I will be identifying one aspect of both sides of both of the dimensions, to be used as the focus for the immersive classroom's adaptability and engagement.

When considering the epistemic dimension of user/smartphone cyborgs, what is magnified and reduced is the avenue by which epistemic inquiry is generated and addressed. What this means is that thanks to the quick and easy accessibility of things such as Google or ChatGPT, there is an understanding that answers to questions can be given with little to no effort on part of the asker. What is magnified is the extent of the power which such technological mediums hold for our ability to engage in epistemic activity; the extent to which it has us enter new worlds and realities through the domination of our attention. What is reduced is one's own epistemic abilities outside these worlds and realities it allows for entry. That is, if the magnifying domination is not understood or is not harnessed, the power and ease which smartphones have provided us in our fusion relationship can overshadow our own epistemic development and capabilities; or at least allow for an easier time for such to occur. This potentiality can lead to incomplete or self-serving epistemic attitudes, such as those in epistemic bubbles or echo chambers. Anything outside the magnifying scope of this epistemic domination brought about by smartphones becomes reduced, such as the actual role technology is playing in epistemic activity and others means and ends of epistemic inquiry. An immersive classroom will need to grapple with the magnifying power of the epistemic dimension of such technologies, in the way that information is quickly, easily, and comprehensively provided, while also considering what could be being reduced in such, like information not immediately and easily present, what could be being left out of such, and how/if to address it.

In a similar manner the practical dimensions of this relationship enable and constrain, in accordance with and towards this information power. If one desires to understand the framework or process behind some question or assignment, using our technological tools may at many times yield the quick and easy answer. It is true that one could ask ChatGPT to explain the process behind a mathematical concept, but the cultivating allure of obtaining answers and responses with the click of a button is enabled by our

smartphone technology. It also enables multiple potential avenues, since there are books, articles, videos, songs, and many other mediums available by which information is shared online. What is constrained, much like the refrigerator door handle, is other ways in which we might approach such problems. Anything outside the magnifying focus is reduced, and also constrained. Those multiple potential avenues may be constrained if one's results or data does not enable its presence. The affordances provided are strong and hard to ignore: the pavement is strong and unwavering. An immersive classroom will need to account for the enabling nature of technology, in order to afford certain avenues for answers to inquiry, such as having questions easily searchable online, while constraining other ways of engaging with content, in a creative and novel way.

Understanding how best to adapt to the epistemic and practical dimensions of cybernetic living will allow for education to engage with students in a way that does not diminish the power of technological being, but instead seeks to use it for its own beneficial ends. It does not shy away: it doubles down.

Engaging with and educating cyborgs – Immersive Classrooms

With new technologies come new manifestations of reality. New realities require new ways of adapting and engaging with them. Educational environments find themselves filled with the proto-cyborgs of user/smartphone intentionality fusion, and as was highlighted at the end of the previous section, new degrees and depth in the dimensions of the technological mediation require addressing, if education is to be effective and beneficial. The informed prediction that this postphenomenological analysis will yield is one which seeks to balance out the equation of technological power, rather than ignore or resist it. To start, let us briefly look at a simplified classroom mediation framework:

Student -> Learning Objective

Here, the students represent the subjects, the learning objective the object, and the connective tissue is everything surrounding the class which leads to the student connecting to the learning objective. This, like technology, is the thing which creates the subject and object in the equation to begin with. When a student enters a classroom, there is a learning objective sought after in that space and environment. What connects the two is the content molded and delivered by the teacher, which directs the student to an understanding of the learning objective. A book, practice exercises, video, lecture, the mediational tools to connect the two, vary from teacher to

teacher, class to class, and, sometimes, student to student. This simplified framework has been the one used for many classes for many years, however, technology has challenged its process.

Let us look at this same relationship but now with the lens provided by the previous section on cyborgs:

(Student/Technology) -> Learning Objective

The cyborg student enters the educational relationship already fused together with the intentionalities of the technology. The numerous multistabilities of postmodern living in our technological Lifeworld have made this relationship almost a necessity. The class content and learning objective are now dealing with not just a student, but the technology that has fused its intentionality with such. Thus, because of that, if the content or learning objective attempts to separate the cyborg, there is understandable resistance. In terms of their state of being, this is who they are, the technology molded by the world has turned back and molded us. So any content or learning objective that dismisses this does a disservice to the cyborg. Smartphones may be only the tip of the cybernetic iceberg of future developments of human and machine. This is but one reason why any educational environment which neglects the epistemic and practical power of technologies such as ChatGPT and Google (both accessed via the cybernetic smartphone) may prove ineffective at preparing future generations.

Instead of a quasi-Neo-Luddite stance of technology in education, the relationship ought to be addressed in the following conceptual framework – the immersive classroom:

(Student/Technology) <-> (Learning Objective/Technology)

In this relationship between student and learning objective, the technology balances itself out. The content, too, sees the change of immersive cybernetic environments, in which it is engaging back and forth between both the cyborg student and cybernetic learning objective. Both are now acting upon one another, actively adapting and molding each other, and ultimately differing on an individual and classroom basis. The learning objectives are themselves intertwined with technology, meaning that a learning objective is inherently technological in its being: what is learned is what the objective is, as well as the technology enabling one to achieve such an objective. A cyborg student is now immersed in the activity of education, in which they too play an active role in the cultivation, creation, and achievement of a learning objective, with technology being infused throughout. Engaging now with the cyborg dimensions cultivated by user/

smartphone fusion will show why this immersive classroom will consider the two-sidedness of the epistemic and practical issues discussed last section, providing pragmatic examples for each.

With the epistemic dimension, there was an understanding of the domination of attention due to the magnifying capabilities of cybernetic being with smartphones. An immersive classroom can jump onto this and use it as a benefit, using the technology of the class and individual student to enter the world of the content. By using the epistemic power of domination a classroom can create a degree of focus enabling students to engage deeply with their own learning, and reduce the noise of anything which does not pertain or add to the specific area under inquiry. Allowing students to have music via earbuds while independently working would reduce literal noise, in order to achieve focus, while only having specific screens available to reduce the distracting allure of other content. One of the biggest examples can be interactive lessons using a variety of different technological tools. This would enable students to engage in different styles of understanding, avoiding a constant singular approach. This will both open up new possibilities, and have students discover the ways which work best for them. In these ways, students can come to understand for themselves the epistemic dimensional power of technology, seeing it as a tool to be used to assist in magnification, and reducing in accordance with our own intentions, instead of falling victim to the domination outright. Self-reflective questions after each example would help students realize such for themselves.

With the practical dimension an immersive classroom needs to consider the enabling and constraining nature of technology, using both sides to its advantage and showing students it in action. Constructing content that plays on the enabling nature in a similar way to the reducing of before, an immersive classroom can afford the versatility of information mediums and avenues of learning and production. Rather than allowing the easy affordances of technology to provide the answer, an immersive classroom can generate its own structure of affordances. These are used in partnership with the students: creating an open ended and creative engagement. Students can work together in real time via technology on shared documents or use AI like ChatGPT as an assistive tool on some projects. What can be constrained is that which weakens the learning objective or classroom experience itself. This means the cybernetic learning objective must remain fluid enough to adapt and flow with the interests and production of the students, disallowing those afforded potentialities and actualities which would constrain a beneficial educational experience by tapping into the personal use and bias through technology. It needs to enable that which

aids education, and constrain that which does not. Through this cybernetic learning in the practical dimension, students can also come to see the enabling and constraining nature of technology, teaching them in a meta sense the powers and dangers of such, and how best they can harness it for themselves.

The central theme to this conceptual framework of the immersive classroom is to both capitalize on the benefits and reduce the risks of the cultivating cyborg intentionality of user/smartphone use, as well as to teach students themselves how they may best use the epistemic and practical dimensions of such for their own benefit. By immersing students in a learning objective embedded through technology, they will easily be able to “hook” into it and engage with it openly, comfortably, individually, and collectively.

Conclusion

The end point to which our technological molding will take us is unknown, although one can determine the general trajectories we find ourselves on. This article seeks to highlight one possibility of trajectory, in which we are becoming cybernetic, at least in terms of our intentionalities in the world. Our way of thinking and acting is being increasingly co-constituted by technology. For this reason, we must consider what this means and adapt accordingly. Our environments are being added to with new innovations, and with any change in the environment comes a change in us.

Through a postphenomenological lens, I argued that we are cultivating a cybernetic relationship through our smartphone use, and that younger generations have this cultivation already in place. They have been molded into a new kind of student with the entirety of the internet at their fingertips and they are well aware of such.

Like nearly every other realm, technology poses a challenge for education. It has changed the status quo. The environmental context is different, and so education itself must adapt and operate differently. A classroom full of proto-cyborgs must be engaged with in a different way than those who came before. Technology must be embedded throughout to balance out the mediational equation. Constructing an immersive classroom which seeks to connect with the technological being of students offer the opportunity not only to engage with students in a more creative and individualized manner, but also to instruct students on a deeper level about the power such a technological relationship holds. The “what’s” of learning objectives in a classroom must take a back seat to the “how’s” and “why’s”, since students learning for themselves will be essential, and technology will be the cybernetic partner in such a process.

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