Smash the Black Box – designing for creative mobile machinery

Anja Venter

Center in ICT4D, University of Cape Town
Cape Town, South Africa
anjaventer@gmail.com

Abstract

With the rise of the ‘visual web’ the visual design capabilities on feature- and smartphones are increasingly expanding. We investigate how young resource-constrained people in Cape Town, South Africa are using the free tools on their mobile phones to make instrumental visual designs. We suggest that an alternative space for production of, and learning about, electronic arts and design is offered by ubiquitous mobile phones among this group. We offer a discussion of this repertoire of tools in relation to professional design software, such as Adobe Creative Suite - describing the need for software that blurs the distinctions between professional desktop tools and casual mobile tools. We relate experiences from the participatory design and development of an open-source design tool for mobile in response to such a need, and find that many of these design processes are, in turn, hampered by limited developer libraries for visual design on Android. We posit that, in order to promote cultural diversity within the public domain, and in mobile-centric young people’s lived realities, it is becoming increasingly necessary to expand and democratize visual design tools for the mobile ecology, in order to explore local design needs and visual vernaculars.

Keywords

Visual Design, smart phone, South Africa, mobile creativity, resource-constraints, DIY

Introduction

Computing is a structural enterprise, but we are not structural creatures. How do any of us create lives, our own rich lives, in the constant presence of the reductionist properties of the computer? In this sense, computation is a colonization that we all face.

[1]

Mobile phones have often been hailed as the device that will connect Africa to the global information economy. [2] Yet, they are currently predominantly described as a means to consume information, and not produce it. [3] Diverse and inclusive participation in the cultural production of visual online content, as with other cultural production, is crucial in promoting cultural diversity in an increasingly globalized world. [4] As smartphones are becoming affordable to a larger portion of the South African population, this might signal an increase in such visual cultural production – allowing a new generation of visual creatives

a platform for networked artistic expression and instrumental visual design, a ticket to participation on the ‘visual web’.

The creative capabilities of the average smart phone or tablet user to produce electronic arts have recently exploded: app markets are brimming with new tools that enable the production of visual creations. These ‘consumer’ tools exist within a certain genre of ‘casual’ mobile creativity, restricting the user in its use – often imposing a certain style or workflow. I discuss a case study that investigates the media ecologies of a group of aspiring designers who operate within this mobile-first paradigm. Many have hacked these informal tools to produce instrumental designs. However, the institutions where they are studying Extended Curriculum Programs in Visual Design do not expand on these ‘mobile-first’ [5] visual design literacies. These institutions, like the majority of design schools, promote the industry standard packages of desktop design software, namely the Adobe Creative Suite. Although Adobe has adapted many of their packages to function well on mobile devices, these are intended as “companion apps” to the primary desktop design environment, excluding many resource-constrained young people who are mobile-primary users from using these tools to their full capabilities.

Unpacking these issues, we introduce the context and method of our study by first offering a representative narrative based on the lived experience of a participant. Thereafter, we situate the need for the expansion of design capabilities on mobile phones towards fostering a more inclusive creative landscape, by giving a short overview of Cape Town’s design industry as culturally non-representative. We then describe the establishment of Extended Curriculum Programs (ECPs) for visual design as contributing to growing the design industry, but due to capacity, only being partially successful in combating this hegemonic order.

Looking at mobile phone creativity, we offer a discussion that seeks to differentiate ‘casual’ creative tools, from ‘legitimate’ creative tools, as positioned by gatekeepers at these institutions. In response to this view of mobile tools as low-brow design tools, we discuss the development of Molio: the mobile portfolio, a creative app that attempts to blur these distinctions within the limiting affordances of the mobile phone. The app was ultimately deemed a failure, and was severely hampered by the embedded aesthetics of existing developer libraries for mobile design tools.
We argue that these developer building blocks can make it increasingly difficult for artists and designers to “open the black box” – as Bruno Latour would have described the “need to examine the practices whereby technologies and ‘facts’ are naturalized” [6] – on the tools that facilitate their creativity. In other words, students cannot see the inner workings or logic of creative tools beyond the mediated interfaces as authored by others – their creative tools are “black-boxed”. This naturalization of pre-packaged digital arts tools can limit innovation and alternative modes of image making, and ultimately threaten to colonize the shape and nature of electronic visual creativity by imposing a globalized design vernacular. [7] Resisting the agencies and structures that perpetuate this, we posit that, it is not only necessary but disrupt the colonization of digital tools for visual creation, but also to “smash the black box” and allow for the cultivation of young creatives who can build their own creative digital tools, particularly on and for mobile.

Context

Akhona flips through the photographs on his Samsung Galaxy S III, a special gift from his grandmother on the eve of his first day at the University. He is the first of his family to attend a University, and she was very proud. Perched on his bed, hunched over the phone, he scrutinizes each image carefully. The photographs are mostly of his illustrations, 3 years’ worth. He has to decide which picture he wants to use in a composition for his ad: he wants to advertise his services as a portraitist among his peers on Facebook. He desperately needs the extra money for materials; otherwise he might as well not bother with going to class at all. The lecturer gave him a final warning: he has to use gouache; he’s not allowed to use the cheap powder paints he’s been using as a substitute in class. He really hoped she wouldn’t notice, but she did. He can’t afford gouache at the moment, but he also can’t afford another embarrassing moment like that.

The photos document three years of illustrations and recent school projects. He laughs at an old portrait he did about a year ago – that was before he knew anything about drawing: the eyes look bewildered; the strokes are awkward and too carefully executed. Without a high school introduction to drawing and the arts, it was difficult to adjust, and he very nearly failed the June exams. For those first few months, he spent every moment he could on the computers next to their studio at the University, researching. Even those were hard to get used to – they didn’t have any computers at his high school. He practically only ever accessed the Internet from his phone back then. Whenever he didn’t know what the lecturers were talking about, he would run and Google it – there was lots to become acquainted with in this new world.

He lands on a photograph of a friend from class, Neo. She has long braids that are hanging over her face and wears a shirt designed by another friend of his, Sabelo. Sabelo has his own clothing brand called “Kasi-styles” – ‘Kasi’ means ‘the hood’; the township. The graphic is of a breakdancer mid-spin, but he is clothed in traditional beaded Xhosa attire. Akhona breaks out his pencils and his drawing pad, for the next hour he hones his gaze between the small screen balanced on his left knee and a piece of white paper, fastened to a wooden clipboard pressed down on his other knee, carefully observing the lines so that he can copy them. Pausing occasionally to sharpen his pencil, he ponders the possibility of fitting a tiny desk in the already cramped three-people-per-room shack. When he finishes he switches the phone to camera, and takes a picture of his drawing. He opens the image in an app called PicsArt, pushes the contrast, ups the brightness, so you can’t see the shadows on the paper. He crops the image slightly, so the composition is stronger. He uses his fingers to zoom in and then meticulously paints the word “Akhonart”, his latest design moniker, at the top. He saves it out, and Whatsapp’s a copy to both Neo and Sabelo – they would appreciate it. Sabelo might even feature it on his brand’s Facebook page. He closes the app, and opens another one called Studio Design, imports his picture. He adds text and social media icons to make it look ‘legit’ – “custom portraits between R50 – R300 ($4 – $25)”, “contact Akhona” – and lists his number next to the Whatsapp icon and his BBM (BlackBerry Messenger) pin next to the BBM icon. This takes a while: the app keeps crashing. He downloaded both icons from Google images to make the ad look more legit: hopefully that venture didn’t eat too much data. He then taps the share button, selects Facebook, and sends – he silently prays he still has enough data left on his bundle to upload the image, but is relieved when the image appears on his timeline. He thinks for a moment, and then opens Whatsapp – he hates broadcast messages when other people send it, but this is an emergency – he broadcasts the image to a select group called “Frendz”. Luckily he can Whatsapp for free with his service provider. He looks at his design again – if only he could be as quick in Photoshop already...

Akhona is a 20-year-old aspiring graphic designer from the township of Gugulethu – he is a participant in my research project that revolves around young aspiring visual designers, enrolled in Extended Curriculum Programmes (ECPs) for Visual Design. Through a Participatory Action Research method, I have followed the trajectories of 60 students across two such courses, for little over a year. I have utilized ethnographic methods (including participant observation and in-depth interviews with 33 of the participants) three iterations of Participatory Design workshops (Figure 1), as well as two user-testing sessions to collect my data. I obtained formal ethical clearance and participants provided written consent on condition that all personal information would be presented anonymously.

These participants come from a variety of backgrounds, but a large portion hail from low-income, low-resource
neighbourhoods; have often had negligible exposure to the formal skills associated with visual arts prior to applying for these courses; and, for the majority of their lives, have accessed the web directly from their feature- or smartphones.

Figure 1 Akhona demonstrates his method at a participatory design workshop, 8 September 2014

Akhona is a typical South African young person: his grandmother, their sole caretaker, earns around R2600 ($222) a month, working as a domestic worker for a family in one of the wealthier suburbs. This is slightly above the average median income for a single-income Black household which stands at R2 167 ($185) per month according to the most recently available statistics. [8] He went to school at an inner-city township-serving school where he wasn’t able to take Information Technologies, nor Visual Arts, as school-leaving subjects – putting him among the 99% of secondary school-going children in South Africa who do not have formal exposure to these literacies and skills at school. [9]

South Africa celebrated 20 years of democracy in the year 2014, sharing a birthday with Akhona. Prior to this, the country had in place a system of Apartheid: legislation and reinforcement that curtailed the rights, associations and movements of the majority Black (under apartheid, Black people were broadly termed “non-white” and specifically classified as either ‘black’, ‘coloured’ or ‘indian’) inhabitants of South Africa. [10] In effect, this meant that racial groups were segregated in public spaces, education, medical care, and most all other aspects of everyday life. [11] During this time, the artistic and creative voices of the Black majority were systemically suppressed, manifested in a lack of arts education at school level and limited support for Black artists. [9,12]

The City of Cape Town, located at the most Southern tip of the African continent – the first point of colonization in South Africa – remains one of the most economically unequal cities in the country today. [11] Geographically, the city is still divided in racially, and economically segregated districts, despite the promise of integration that democracy held. In the Central Business District (CBD) lives the wealthy elite of whom the majority is White, and along the periphery of the city, in slums and government housing called “townships”, live the Black working class.

World Design Capital For a Few

For the year 2014, the City of Cape Town was declared the World Design Capital, a title previously held by cities such as Helsinki and Seoul. According to the official press release, the World Design Capital is a “distinction awarded to cities which recognize design as a tool for social, cultural and economic development”. [13] This precarious title has been met with skepticism from critics and activists throughout the year 2014, with one such critic bitingly writing: “Cape Town is a pretty city. It is also a city using art and design as a means of bullshitting its way through its social and racial inequality”. [14] Many have had similar issues with what they perceive as a cultural and artistic palimpsest – ignoring the blaring absence of diversity in the Design industry, a “symbolic battlefield” reflecting an unequally designed social system. [15]

In a case study that perfectly demonstrates this “battlefield”, art-activist group Tokolos defaced a Rayban-sponsored ‘homage’ to Nelson Mandela titled “Perceiving Freedom” [16] which was installed as an official World Design Capital event. The piece was a giant pair of steel Rayban spectacles resting on the Sea Point (a sea-front suburb on the Atlantic seaboard) promenade, framing the far-away view of Robben Island. Robben Island is where the late statesman spent 27 years of his life, incarcerated by the Apartheid government, for his involvement in the Freedom Struggle. Tokolos called the piece “myopic” – criticizing the artwork’s representation of “freedom” as shortsighted – a commodity to be consumed. Their critique bit into Elion and Ray-ban’s co-opting of the Mandela legacy, further drawing attention to the fact that this piece (like the majority of public artworks in the city) was produced by a White male artist. [17]

This controversy touches on the conflict between the social and political role of design as democratic, sustainable and transformational with the profit-driven cosmopolitan notions of visual design and art as distinct leisure activities of the upper classes. [18] Ideological conflicts in the matter of public art in general, and related to the World Design Capital in particular, has drawn a great deal of attention to the limited number of Black African voices in the creative fields – a direct result of a schooling system that neglects the creative and technical literacies and skills that are necessary for a tertiary education in visual design. [12] beyond the basic introductions to often-stereotyped traditional ‘cultural crafts’.

In Arts Under Pressure political scientist Joost Smiers draws attention to the importance of diversifying the perceived modes of legitimate creativity, naming cultural diversity in the arts as one of the pillars of a democratic society – “A characteristic of democracy is that many different voices can be heard and many different opinions expressed. The public domain in any democratic society is the mental and physical space in which the exchange of ideas and an open debate about all sorts of questions can take place without interference from state agents, who may
have their own agenda, or from commercial forces whose only purpose is to sell as much as they can.” [4]
The ad-hoc creativity of young people like Akhona and his peers start revealing an alternative creative space - providing “novel means for civic engagement, bringing new voices into public debate” [6] through personal expression and visual creativity.

These specific young people have gained access to the courses that could potentially allow them passage into the exclusive inner circles of art and design; this in itself makes them exceptional. Yet such case studies allow us a means to re-evaluate the institutional training of these designers and the naturalization of their suggested tools.

**The South African Mobile-First Generation**

Although the South African Design industry places importance on formal degrees and accreditation, when we look elsewhere in the world these institutions of learning are being decentralized to online communities of practice and genres of participation. [6,19,20] They allow young people who have frequent online access, and access to communication technologies, to explore digital creativity in a casual capacity. To many of these young people, these creative activities offer a “first touch” [21] or introduction to instrumental (in other words, towards a productive or profitable goal) visual design, and possibly a means to leverage these literacies and familiarities into formal education. Customizing a WordPress blog can spark an interest in web design, Instagram can be a springboard into photography, and character customization in a free online game can cultivate an interest in digital game design or animation. For others, this informal skill development can offer a “Hackademia” allowing them a means to be functional, if not accredited, designers. [22]

In South Africa, the majority of young people access the Web from their mobile phones. [23,24] Few have frequent access to computers or stable Internet connections. But with increasingly quick and affordable online access from ever-cheapening smartphones, these young people are finding ways to participate in digital cultural production. [9] Kids like Akhona have made do with the technologies and resources at their disposal to familiarize themselves with these creative industries. They have also, often with great difficulty, managed to navigate the difficult application process and financial strain of formally obtaining a degree.

**Extended Curriculum Programs: Gatekeepers addressing the Bottleneck**

Akhona, like the other 60 participants in my research project, was enrolled in Foundation courses for Visual Design. These courses have appended a pre-first year to bring in-experienced and untrained young creatives up to speed with the formal skills deemed necessary to continue with the standard 3-year design course: serving both a diagnostic and remedial purpose. These courses are government-initiated and -funded, and specifically designed to offset the disadvantages of young people who have had negligible exposure to the skills and literacies that would allow for success in tertiary Visual Design education.

These programs have been met with varying degrees of success, despite compassionate course conveners who constantly work to evolve programs. At one of the field sites for this research, for example, the pass rate for 2013 was 10% - course conveners identified an external selection process as the main contributor to this staggeringly low pass rate.

In addition, students struggle with fees, transport, language of instruction, the foreign social and cultural environment, and gaining access to the epistemologies of their chosen programs. [25]

**Hegemony in Visual Design Education**

In the global North, studies conducted by researchers such as James Gee [26] and Brian Street [27] have suggested that academic success is to some extent related to enculturation earlier in students’ lives – which in turn has direct connections to race and class identities, suggesting that “the university privileged some cultural ways of being and knowing over others”. [25]

Within the Design courses I observed (which varied between the traditional visual design fields of Graphic Design, Industrial Design, Surface Design and Fashion Design), for example, the formal design principles set out during the formation of the Bauhaus are taught and hailed as the benchmark for good, clean design. Theorists such as Victor Papanek took issue with this widespread Bauhaus first influence over Design sensibilities in education. [28] For Papanek, the design student was a person with a unique set of skills and knowledge, which came from their situated lived experiences. Each design student would therefore be able to bring unique expertise toward designing solutions for their own local environment based on this situated and personal wealth of knowledge – formal education needed to compliment and naturally expand on what the student already knew. By assimilating all designers into an international school of design thought, or globalized parameters of legitimate design, we would be negating these valuable localized insights, dismissing unique cultural design vernaculars [28] and tools – reinforcing a hegemonic order for visual design where Northern tastes and aesthetics are seen as the ideal.
Very few ECP students complete the 4-year degree, and find work following their studies, indicating that these courses are only partially successful in allowing more young people access to the ‘spaces of appearance’ – as Hannah Arendt would have described “reality [as it] can be witnessed and its value judged by a ‘plurality’ of individuals who exchange the role of actor and spectator with each other” \[29\] – in design industry today. We suggest that an alternative space for production of, and learning about, electronic arts and design is offered by ubiquitous mobile phones among this group.

Casual versus Legitimate Design Tools

Although Akhona and his classmates are actively engaged in an emerging mobile-centric creativity, these modes of creativity are not recognized as legitimate forms of design. This dismissal is three-fold: firstly, with limits in processing power, mobile phones offer far less rendering “muscle” than their desktop counterparts. Secondly, the mobile platform is often seen as an accompaniment or an extension of the desktop environment in an ever-increasing convergence of computational technologies, not something that should be designed for, or on, as standalone platform; and thirdly, these tools are ‘casual’ by nature and do not contain the kind of customizability and uninhibited open creativity offered by material tools (such as pencils, paints and inks) and industry-standard design software such as Adobe PhotoShop or Illustrator.

PhotoShop and Illustrator offer maximum customizability, from canvass sizes and resolution, to which tools the user would like at hand at any given moment, and individual settings for each tool. For example, new brushes can be created, assigned properties and saved out for future use. Layers can be created, deleted, shuffled around, assigned effects, opacity, and assigned styles. Colour swatches can be picked from any image and saved out into a palette that can be named, additionally providing the user with the exact colour profile in a variety of industry mark-ups. Patterns can be created, defined and added to the library. Most aspects in the interface offer the user a way to edit, create, define, and save out their own personalized creative assets. These can then be saved out in working files, and any project can be picked up with the full scope of adjustments at a later stage. In addition, these programs have large online communities who provide each other with textures, fonts, brushes, elements and tutorials for sale or free download.

Mobile tools are usually intended as a means to publish on mobile, with few giving the user control over canvass size, resolution, or settings for print. Few offer the user access to the working files for later additions or editing. Creative tools for mobile are often connected with very specific brands with particular aesthetics – colours, filters, typefaces, shapes and elements are limited within each application. These are usually connected to a social network, where users rate these images within the paradigms provided by the brand. Some of these offer libraries (fonts, textures, frames, ‘stickers’, colour palettes, etc) that can be updated through the applications’ official store, but these are all brand-sanctioned, and not user generated.

Studio Design, for example, offers a selected variety of typographic styles that are minimally customisable – rendering most photographs overlaid with these to look similar. MyPicStory gives users a variety of frames to place their photographs in, and although there are often new frames for download, this gives young creative people very little freedom in customizing or creating their own frames beyond editable phrases.

Furthermore, these tools are often separated into distinct categories – photographic apps (abundant), drawing apps (less so) and vector drawing or design apps (scarce). These separations can and do often dictate to the user what the purpose of the creative artifact should be – a photo app creates a decorated photo, a drawing app allows for finger painting, a vector app allows for quick sketches and trac-
ing. A stark contrast to the kind of unbridled creativity offered by desktop programs.

**Molio – the Mobile Portfolio**

The ubiquity of mobile phones in South Africa, along with their increasingly sophisticated capabilities and rapidly dropping prices, make them the ideal digital creative tool for young people who do not have access to the traditional tools for visual creativity, nor the opportunity to formally study visual design. *Molio* was conceptualized as a design project that would allow for sophisticated design capabilities within the parameters of constraints offered by the mobile platform, disrupting the notion of mobile phone as an exclusively ‘casual’ or ‘accompanying’ tool.

**Iksetsetse – DIY in a mobile-first creative ecology**

In order to start conceptualizing *Molio* we first explored the existing creativity that was happening on mobile phones through in-depth interviews and two preliminary mobile-making participatory design workshops.

We found that users, in this mobile-first ecology, were equipped with a toolbox consisting of mobile camera, physical materials (such as felt-tip markers, pencils and paper), design apps (including MxPix, MyPicStory, Instagram, PicMix, Studio Design, Pixlr Express, VSCO Cam, and Android Photo Editor, to name a few) and social networking apps (*Facebook, Whatsapp* and *Mxit*), and produced a wide range of visual artefacts (Figure 2) for a variety of purposes.

These ranged from personal advertisements, branding for grassroots organizations and labels, decorated selfies, fan images, humorous memes, event flyers and visuals for musical projects.

Describing this, one participant said: “It’s ‘iksetsetse’…that’s Xhosa for ‘do-it-yourself’. We didn’t have all the things, the computer and the money…but you still have the ideas, so you just make it with what’s around.” Below follows a brief overview of some of these creative artifacts.

**Kasi clothing brands**

The emergence of clothing brands, deeply entrenched in a local *kasi* habitus [30] and particularly influenced by local *izikhotane* and international hip-hop subcultures articulates a distinctive style, which plays on a visual bricolage of “bling”, urban decay, and traditional African ‘tribal’ aesthetics. These items consist largely of t-shirts, hoodies, and caps. Young people come up with slogans or logos and sell them on a made-to-order basis. These are commonly run from Facebook, Black Berry Messenger or Whatsapp.

**Selfie-expression**

Decorated selfies allow young creatives to dialectically author and craft identities for themselves through symbolic embodiment in spaces of appearance – reflecting the view of the self that the author wants to project to their peers and the world. [31]

**Phonefolios**

In lieu of high-resolution digital cameras, computers and hard drives, mobile phones offer a way of documenting work. Participants back these images up directly onto *Facebook* through mobile upload, creating an ad-hoc cloud backup. These devices also allow for the carrying around of work as a means for display in co-located interactions.

**Subcultures and visual vernaculars**

Often images are authored as stand-alone electronic artworks, or visual poems, creating images that make sense of lived realities. Young people tell stories of crime, violence, poverty, love, hope, God, family, good, evil, and their everyday experiences which they share with friends over social networks or messaging services.

Yet, as discussed, many of these artifacts are severely limited in terms of available typefaces, colours, workflow, editing capabilities – curbing creativity on mobile platforms. Furthermore, many of these young people make their designs and artworks in relative isolation, where exposure is limited to their existing Facebook friends or Whatsapp contacts.

**Participatory Design as Intervention**

Borrowing from the Scandinavian tradition of Participatory Design [32], we looked toward uncovering local design vernaculars that originated on mobile phones in order to design a mobile exclusive, open source design tool in tandem with a larger social network that would enable sharing, mentorship, critique and community among young South Africans who were interested in the creative industries. The first tool would help with the creation of design artifacts, and the second would allow young people to network with these creations, find inspiration, and share ideas, resources and customized tools. This paper focuses on the development of this first application.

**Prototypes and Collaboration within the academic space**

Towards the development of the app I recruited a number of Honours Computer Science students and together hosted multiple workshops with participants. The result was the blueprint for an app which would include an integrated environment for both vector and raster editing; allow the user to prepare documents for print or web; include the option to produce custom libraries and save out custom tools, shapes, or textures; and work within a layered framework.

**Molio – Another Black Box**

By the end of the 2-month development period, the tool was a mutation of every other existing mobile visual editing app on Android, with added bugs. Multiple reasons contributed to this flop, but at the center of these awkward

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1 A local South African subculture where young people compete in displays of showmanship or dance battles as a display of wealth. Expensive material items are often destroyed during such displays to demonstrate the competitor’s lack of concern for such possessions.
This changing attitude toward the value of evolving technologies realm path into formal design industry, the formal educational Although formal design education offers a well built tools lies at the heart of finding and connecting young people are already using for artistic practice, explore a larger repetition of design tools, building on what basic developer libraries.

These limitations both indicate a gap to produce alternative tools and open-source libraries, which break out of the linear, limiting vision of what is possible on mobile (for example, the processing power of a mid-level smartphone today offers roughly 2000 times the computational ability offered by the Macintosh computers that ran the first iterations of Illustrator '88). Additionally, we believe that formal education should explore a larger repertoire of design tools, building on what young people are already using for artistic practice, and for their dominant modes of exhibition (social media). This will also possibly allow them to “smash open the black box” through exposure to programming languages such as Python, Java and PHP.

Among a mobile-primary generation of users, designing on mobile, for mobile, appears to be an emerging practice. For these young people, the development of local and custom built tools lies at the heart of finding and connecting with an online audience and expressing their voice in the public domain. The necessity to produce a design tool that allows for customization, crowd-contributions, and a natural evolution can take place 1.) Outside of the formal institutional aim to assimilate students into the traditional visual design principles and 2.) The commercial aims of profit within the mobile development sphere, remains critical.

Although formal design education offers a well-trodden path into formal design industry, the formal educational realm is increasingly struggling to keep up with the fast evolving technologies that enable the electronic arts. This changing attitude toward the value of formal degrees might benefit young people who are already hacking the formal skills that could make them functional, if not accredited, designers. This is not to say that these courses do not have significant worth – but just that they do not have the capacity to assist the majority of aspiring young South African creatives who may benefit from a more casual, networked, mode of digital Do-it-Yourself cultural production.

**Conclusion**

Mobile phones offer a powerful tool for visual creativity, offering a “first touch” of instrumental design practices for a majority of young South Africans through photography, sharing practices and casual image editing and drawing. Yet development and recognition of this emerging creative tool remains underexplored outside of ‘casual’ apps and basic developer libraries.

The prolific ‘hacking’ of instrumental visual design that is happening on mobile phones among select students enrolled in Extended Curriculum Programs indicates a potential democratization of visual design skills outside of formal design education, without access to desktop computers and fast, stable internet connections.

These practices might also start indicating what differentiates these students from others who did not attain access to these courses, supporting the notion that casual exposure can be leveraged into formal skills.

These emerging forms of creativity need to be further developed, hacked, networked and expanded if they are to graduate beyond the current ‘lo-fi’ mobile aesthetics of casual use.

Toward this, we call on open source communities, artists and hackers to develop visual tools that “smash the black box” of mobile creativity, allowing young people to play with and customize the tools that allow for open-ended visual creativity on their mobile phones. We also advocate for a shift in formal education where educators explore existing creative ecologies and allow young people to “smash the black box” on the technologies that enable their creativity, by including app development languages such as Java, Python and PHP in their curriculums.

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Author Biography

Anja “Nanna” Venter is an artist, designer and digital media researcher based in Cape Town, South Africa. She is currently a PhD candidate in Media Studies at the Centre in Information and Communication Technologies for Development (ICT4D) at the University of Cape Town. She likes comics, punk rock, animals and humans. www.nannaventer.co.za