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DESIGN EDUCATION | AFRIKA | 4TH INDUSTRIAL REVOLUTION

4IR, the photographic curriculum and the South African higher educational context: A case study

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Abstract

From inception, the Camera Picture, being a technological medium, has been inherently in a volatile relationship with innovation that required a constant re-structuring of the academic curriculum in the formal education of the practitioner to embrace the possibilities offered through new imaging technologies, a process which occurred over a period of decades, sufficient time to adapt and engage in a meaningful manner with the discourse of both making and teaching.

Then, seemingly as if all at once, the disruptive technological Digital Still|Motion Camera (DSMC) and Media Convergence created an apocalyptic watershed, the 4IR of the Camera Picture, which meant that what was known became obsolete almost overnight and the educational programme taught either embraced the possibilities on offer through 4IR or persisted with the structures in hand, facing an uncertain future, at best, not only within the educational context but in the professional arena as well.

As it stood, innovation and adaptation of the academic curriculum through strategic analysis combined with phased curricular implementation has always been at the core of the educational programme to ensure the vocational relevance.

However, re-curriculation is never a rash or quick decision.

Rather, it is a natural evolution and the outcome of years of academic struggle, of programme content development and testing, technological engagement and critical reflection on educational outcomes – all in the midst of socio-political, financial and academic pressures encountered at the Institution.

Consequently, in this working paper, a narrative case study is presented wherein the evolution of the Camera Picture as vocational academic programme taught at a South African higher education institution is described and contextualised as it responded to the challenges encountered, both inherent to African educational context and those from arising from 4IR, allowing for “the time to pause, reflect and engage in meaningful conversation” (Schwab, 2016) on the nature of this change through the lens of the practitioner as educator.

Keywords: 4IR, disruptive technological innovation, media convergence, photographic re-curriculation

Introduction

The fourth industrial revolution – a socio-economic construct defined wherein the fusion of the human self and the Technopoly foreshadows an augmented dystopian world of cobots, AI and nanotech, as if direct from Asimov's *I, Robot* (1950) – transhumanist; pure science fiction, or so it would seem, and hence, of little relevance and easily dismissed, I thought, given the shocking realities faced in sub-Saharan Africa.

From a socio-economic perspective, a conservative estimate indicates a substantial subsection of the population have not even entered mechanisation or the first industrial revolution, being mostly subsistence agrarian, with roughly 50% of the population having no access to electricity, “crucial for poverty alleviation, economic growth and improved living standards” (Ritchie & Roser, 2019a), where roughly 7.5% of deaths are from unsafe water sources and lack of sanitation, “a leading risk factor for infectious diseases [that] exacerbates malnutrition, and in particular, childhood stunting” (Ritchie & Roser, 2019b; WHO, 2019; CDC, 2014) and with, on average, 21.4% of the population undernourished (Ritchie & Roser, 2019c).

If the lens is directed to the context of Education in sub-Saharan Africa, the situation appears as dire as the socio-economic reality described. 39% of the population, on average, is illiterate (Ortiz-Ospina & Roser, 2016) and of those remaining, many have only basic literacy. In South Africa, the literacy statistics are confounding with “78% of South African Grade 4 children [who] cannot read for meaning in *any language*” (Spaull, 2017) and where the 2015 TIMSS/PIRLS evaluation placed South African Grade 9 learners last of the 39 countries assessed in terms of Mathematics and Science skills-and-understanding (Janse Van Rensburg, 2019). Furthermore, Gakusi (2008, pp. 9-10) comments that “the African education sector continues to face serious challenges of low and inequitable access to education, inappropriate curricula with low [qualification] completion rates, inadequate education financing including a shortage of resources allocated to the education sector and misallocation and misuse of [fiscal] resources, [a lack of] education system capacity with a poor link with the world of work”.

Hence, in such a socio-economic and educational context, thinking about automated drones, ‘big data’ analytics and quantum computation do seem inappropriate, to say the least. But, intrigued, given that in my discipline, the Camera Picture is technology dependant, I did start reading around the periphery of the 4IR debate, mostly to fathom predicted changes and the new skills and technology that would be required, both as practitioner and educator. This was done partly in order to ensure that the programme offering, and the teaching thereof, were to remain current and effective and partly to see what the trend forecasters thought might lie ahead.

In doing so, I realised that the collective focus on 4IR as a singularity, seemingly called into existence in 2016 by Karl Schwab, is misdirected. Rather, it is more appropriate to consider 4IR as an *evolution*, a continuum of the construct of the industrial revolution (IR)¹ as technological,

¹ The term Industrial Revolution is herein considered as a ‘catchphrase’, a construct that describes “acceleration in the processes of technical innovation brought about [through] an array of new tools and machines. It also involved [subtler] practical improvements in various fields affecting labor, production and resource use. The word “technology” encompasses both of these dimensions of innovation. The technological revolution, and that sense of ever-quickening change, began much earlier than the eighteenth century and has continued all the way to the present day. Perhaps what is most unique about the Industrial Revolution was its merger of technology with industry. Key inventions and innovations ... shape virtually every existing sector of human activity along industrial lines while also creating many new industries” (Wilkinson, 2020). Furthermore, as Buchanan (2020) explains: “The term Industrial Revolution, like similar historical concepts, is more convenient than precise. It is convenient because history requires division into periods for purposes of understanding and instruction. The term is imprecise, however, because the Industrial Revolution has no clearly defined beginning or end and is still proceeding in our own time. The term Industrial Revolution must thus be employed with some care [and, most

socio-economic and cultural agent-of-change. Following, if 4IR is reduced to the fundamental principles of *convergence* (UNIDO, 201; Davis, 2015; Meldrum, 2019; Ghandi, 2018) and *disruptive innovation* (Christensen, Raynor & McDonald, 2015), I realised that having embraced the impact of the Digital Stills|Motion Camera Technology (DSMC) on the Camera Picture² as discipline when we, as educators, focused the re-definition of the programme during the 2013 HEQSF qualification re-alignment around *media convergence* as basis of the curricular transformation (Ou, 2013, p. 57), we had, in effect, embraced 4IR. Therefore, I thought, cast in this light, I might be able to contribute meaningfully to the conversation on 4IR in a South African design educational context through a ‘thick’ description of the experience and the challenges we encountered.

Consequently, in this working paper, a narrative³ case-study⁴ is presented wherein the evolution of the Camera Picture as vocational academic programme taught at a South African

typically] to describe an extraordinary quickening in the rate of growth and change” and is therefore “merely one about the efficiency of discourse” (Mokyr, 2018, p. 2).

² A Camera Picture is a unique type of picture. While a picture is defined as an artifact that creates the appearance of a subject, a “visual representation of an [object] not present” (Peters 1977, p.,2), a Camera Picture is the outcome of an electro-mechanical instrument used to control light through a lens to form a visual record of a material object on a light-sensitive material. Peters (1977, p. 3) comments that since “the essential notation of the Camera Picture is by photo-mechanical or electronic means..[therefore] in the material sense, the [Camera Picture] consist of the ‘impressions’ or ‘traces’ which are left by light reflected or emitted by the perceivable objects which are in front of the camera lens. Looking at a Camera Picture makes us realise that the depicted object must have been present in front of the camera lens”. The concept of the Camera Picture include therefore not only the medium of Photography that isolate a single fleeting moment [of its existence in time and space] and presents it as a Still Camera Picture but also Cinematography, which is not ‘freezing’ time and space, but allows time and space to unfold in a Motion Camera Picture that simulates the human experience thereof.

³ In this narrative case study, I employed the Stoic Philosopher Epictetus (AD c. 55–135) construct of the *Theatrum Mundi* as a research methodology, in which the evolution of the Educational Curriculum over a 30-year period is described in various Acts, following the Ancient Greek Narrative Arc as method, as defined by Roman Grammarian Aelius Donatus and described by Ephraim Chambers.

The *Theatrum Mundi*, as constituted in *the Enchiridion of Epictetus* (108 AD), is a philosophical trope that describes the that each ‘man’ is designed to play a role in the world, consciously or not, and the world is the stage upon which this role is enacted, as Hoffmeister (2009) explains, “The idea that human life is like a play scripted and directed by a mighty producer (God, Fortune, Fate), a play in which each player is given an allotted role, goes back to Greek philosophy”.

The Ancient Greek Narrative Arc is described by Ephraim Chambers (1728) as follows:

Protasis, in the antient Drama, the first part of a Comic, or Tragic Piece; wherein the several Persons of the Play are shewn, their Characters and Manners intimated, and the Action, which is to make the Subject of the Piece, propos’d, and enter’d upon. The antient Protasis might go about as our two first Acts. Where the Protasis ended, the Epitasis commenc’d (Chambers, 1728, p. 900).

Epitasis, in the antient Poetry, the second Part, or Division of a Dramatic Poem; wherein, the Plot, or Action, proposed, and enter’d upon, in the first Part, or Protasis, was carried on, heightn’d, warm’d, and work’d up, till it arrived at its State, or Height, call’d the Catastasis (Chambers, 1728, p. 328).

Catastasis, in Poetry, the third part of the antient Drama; being that wherein the Intrigue, or Action set on foot in the Epitasis, is supported, carried on, and heightned, till it be ripe for the unravelling in the Catastrophe (Chambers, 1728, p. 171).

Catastrophe, in Poetry, the Change or Revolution of a dramatic Poem, or the Turn which unravels the Intrigue, and terminates the Piece. The Qualifications of this Change are, that it be probable, and necessary: in order to be probable ‘tis requir’d it be the natural Result or Effect of the foregoing Actions, i.e. it must spring from the Subject it self, or take its Rise from the Incidents; and not be introduc’d merely to serve s Turn. The Discovery in the Catastrophe, must have the same Qualifications as the Catastrophe it self, whereof it is a principal Part: It must be both probable and necessary. To be probable, it must spring out of the Subject it self; to be necessary, it must never leave the Persons it concerns in the same Sentiments they had before. Sometimes the Change consists in the Discovery; sometimes it follows at a distance, and sometimes results immediately from it, which is the most beautiful Kind. The Catastrophe made the fourth and last Part in the antient Drama (Chambers, 1728, p. 171).

⁴ A case study is defined as the first-hand “study of a phenomenon or a process” as it develops within a singular instance (Swanborn 2010, pp. 8-9); it is “the study of an instance-in-action” (Adelman, et al., 1980 cited in Cohen, Manion and Morrison, 2005, p. 181) that allows the “exploration and understanding of complex issues” (Zainal, 2007). The case study method is flexible in nature, capable of being utilised in a diverse range of contexts (Darke,

higher education institution is described and contextualised as it responded to the challenges encountered, both inherent to African educational context and those from arising from 4IR, allowing for “the time to pause, reflect and engage in meaningful conversation” (Schwab, 2016) on the nature of this change through the lens of the practitioner as educator.

Act 1: The Technikon NDip (Photography)

Formal higher education in the discipline of the Camera Picture commenced at the Institution as the National Diploma (Photography) in 1983, in the then Department of Photography and Graphic Design, following the 1979 re-framing for technikon higher education institutions to offer, in addition to Science and Engineering qualifications, qualifications in Commerce, Arts, and Social Sciences. The duly constituted and curriculated NDip (Photography) had the focus to prepare the student for a career in Professional Photography in line with international vocational offerings (Cooper 1994, pp.2–3; Smith, 2016; Hallet, 2008). The vocational curriculum offered instruction in the theoretical knowledge and practical skills required in commercial application of the medium with the primary outcome a professionally compiled portfolio of Camera Pictures which would enable the graduate to enter the labour market and complete any reasonable photographic assignment with confidence.

This was in complete alignment with the purpose of technikon qualifications “whose main educational task [was] to provide education and training in order to supply the labour market with personnel who possess particular skills and technological and practical knowledge that ensures that they practise their occupations effectively and productively” (Department of National Education, National Education Policy Branch, 1988, p. 22 *cited in* Raju, 2006, p. 5).

After 1994, various distinct challenges presented themselves to the Photography Programme.

The Higher Education Act (101/1997), which had as its purpose the transformation of the South African higher education system and its institutions, formulated an educational strategy focused on Outcomes-Based Education and Training (OBET). As Janse van Rensburg (2003, pp. 1-2) comments, it was “therefore, necessary for higher [education] institutions to follow a fresh approach in addressing critical skills that complement the formal education system”, with the key to implementing OBET being *modularisation* of the programme curriculum into short learning units designed to achieve one or more learning outcomes (Janse van Rensburg, 2003, pp. 2–3, Du Prè, 2000, p. 2). Unfortunately, this modularisation tremendously inflated the cost of the Photography Programme, as each module had a predetermined minimum course cost and associated laboratory fee.

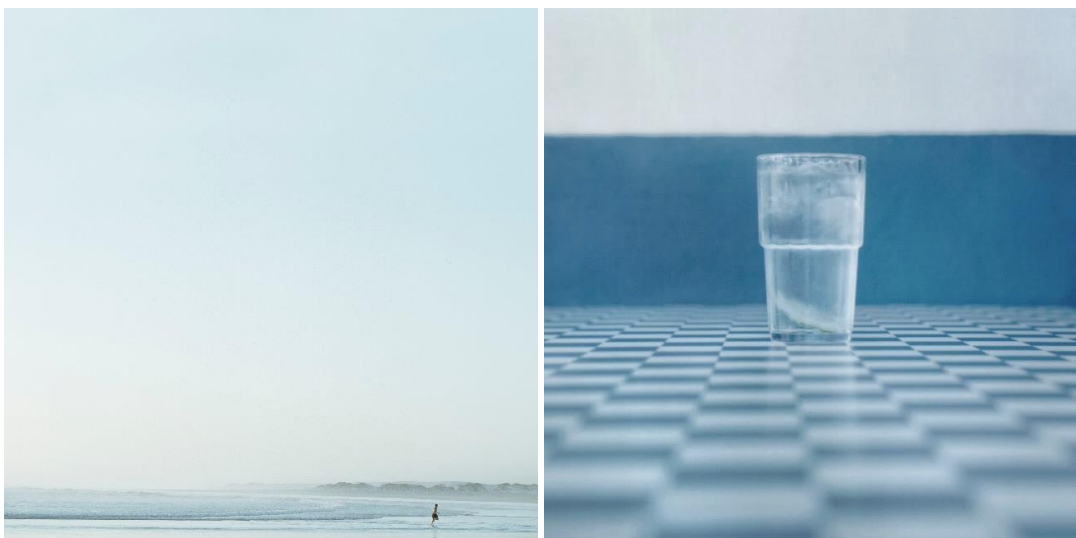
Simultaneously, the Photography Programme had to come to terms with the rapid developments in digital imaging technologies and the impact it had on the medium and its education. This required both investment in infrastructure and re-curriculation.

et al., 1998 *cited in* Iacono, Brown and Holtham, 2011, p. 57). Case studies can be exploratory, descriptive or explanatory (Yin 1994 *cited in* Iacono, Brown and Holtham, 2011, p. 57) and support most types of philosophical paradigms. McDonough and McDonough (1997 *cited in* Zainal 2007) suggest that descriptive case studies may be in a narrative form, it “a story about a real-world situation facing people or groups and how they addressed it. It includes a concise but thorough account of the facts of the situation and commentary to help the audience understand the causes of the problem, the forces behind the solution, the outcomes of implementation, lessons learned and connections to theories, concepts, policies and tools relevant to the situation” (ACSP, 2021)

National Development Grant (NDG) funding was secured and, through strategic alliances with key industry partners, allowed a Photography Computer Laboratory⁵ to be established and Digital Imaging Equipment procured at a fraction of the real-world cost.

In the curriculum, an Image Media Software (IMS) compulsory module in the Practicum was introduced that focused on the concept of a *Digital Darkroom* while key theoretical aspects of Digital Imaging Technology were included in the theoretical subjects, with learning units from Digital Sensor Design to Interactive Multimedia and the internet offered. The digital revolution had been embraced and the curriculum, in retrospect, was a critical revision and extension of the constituted technikon programme curriculum, with a similar pedagogy except with relevant content that addressed contemporary technological developments and aesthetics, the outcomes of which are best illustrated in a select portfolio of photographs from alum practitioners Jakob Doman⁶ and Carine Strydom.⁷

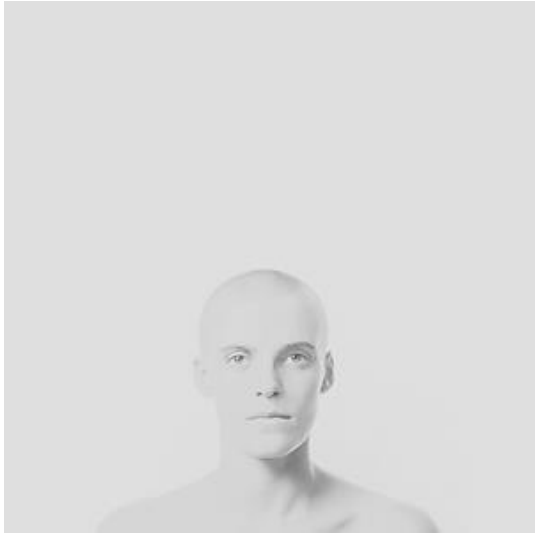
FOLIO | Jakob Doman©

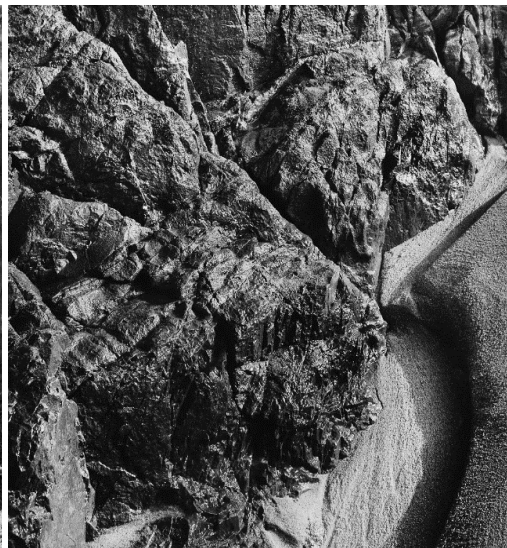


⁵ This replaced the senior student traditional black-and-white darkroom, which were renovated but the enlarger bays left intact where each now contained a digital workstation.

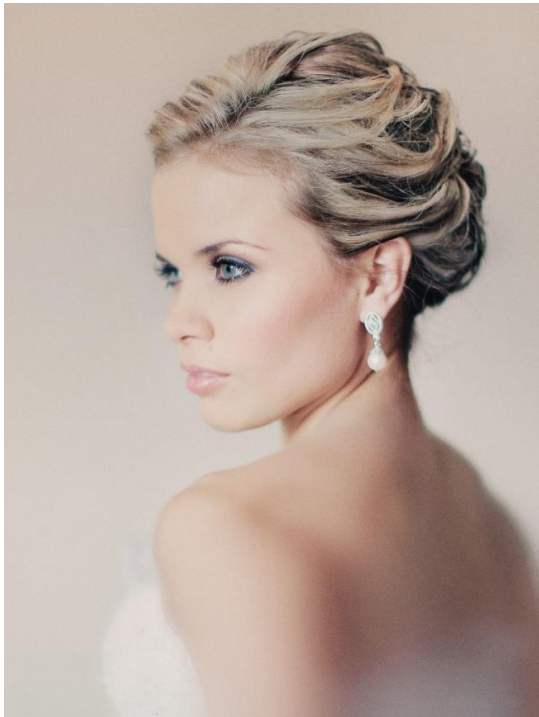
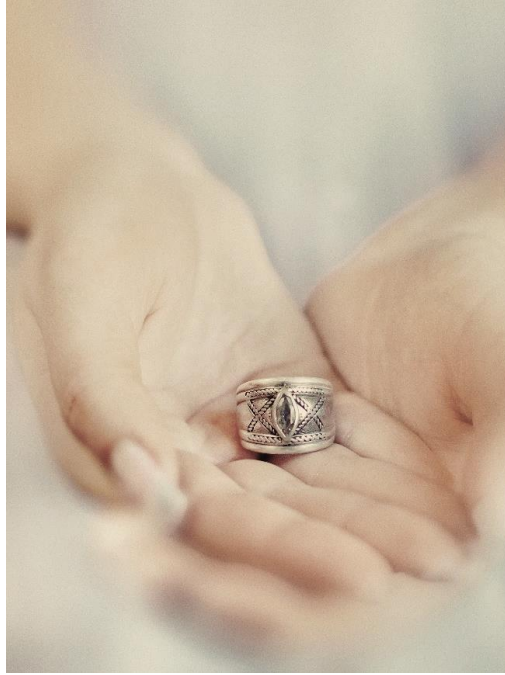
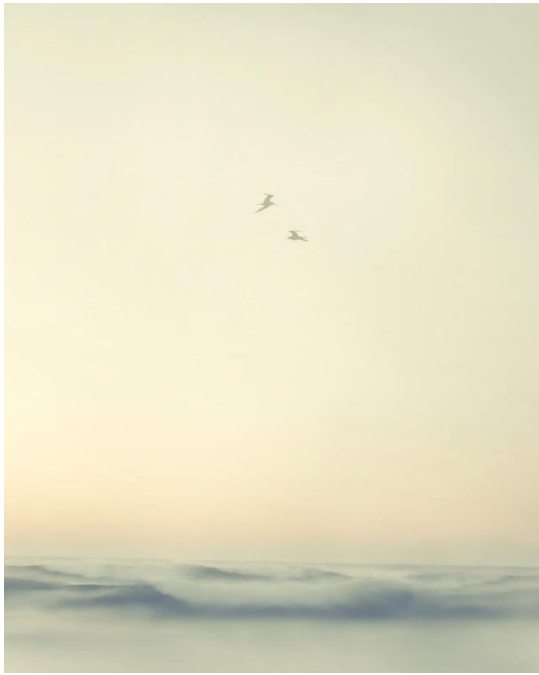
⁶ My background is grounded in “a combination of experience in the Commercial Advertising, Editorial and Fine Art arenas” for which I have been honored with Loeries, a D & AD – wooden pencil (London) and a silver Clio (New York Art Directors Club) Awards (Doman, 2021). In 2004, I was nominated for the DaimlerChrysler Award for South African Creative Photography with Angela Buckland, Stephen Hobbs, Brent Meistre, Zwelethu Mthethwa, Jo Ractliffe, Guy Tillim and Andrew Tshabangu. As an educator, I focus my interests on “the diverse disciplines of moral theology, applied aesthetics, digital image sensitometry, digital convergence and practise-based arts research methodologies. By creating a synergy from these seemingly disparate fields, I employ a multi-faceted and holistic educational approach that, hopefully, offers intellectual stimulation and creative awareness to students and colleagues alike” (Doman, 2021). When this fails, as it often does, I can be found taking solace behind a camera making some pictures.

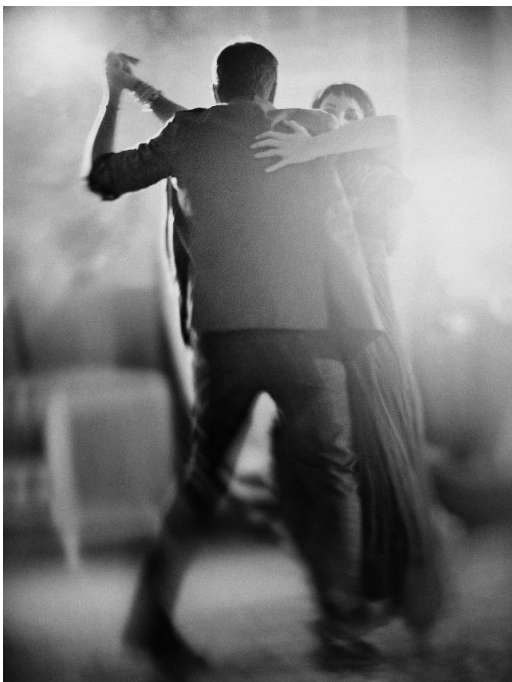
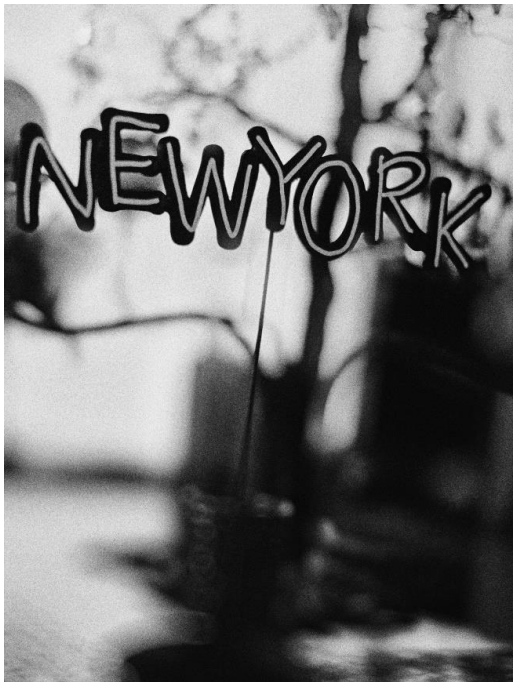
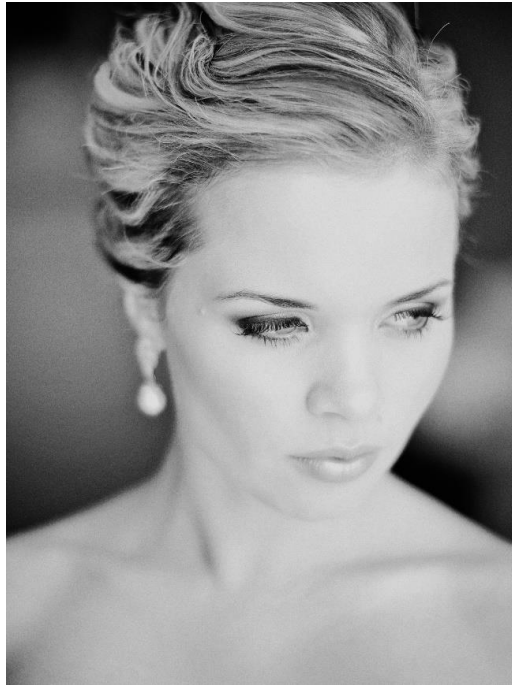
⁷ She wrote “I was born in a small town and then I grew up. Along the way I went to photographic school, where I received my degree. From my early days of mixing fixer in the darkroom, learning the zone system and processing 4x5 negatives, I realised that photography is my calling, my passion and the thing that will undoubtedly keep me sane. Through the years I lived in different cities and done work for well-known brands. I've won a bunch of impressive awards for what I do. I hope to continue to do what I do for some time still to come” (Strydom, 2019). Unfortunately, she lost her battle to cancer in 2019. She was my best friend and business collaborator (Cooper, 2016; Ludwigm, 2020). At the very least, she brightened up any day, especially if the assignments and work did not. We both *felt* successful, in-business, if not in life or love. Eventually, she joined the faculty at VUT as academic and we spent a handful of years working together teaching to the best of our abilities.

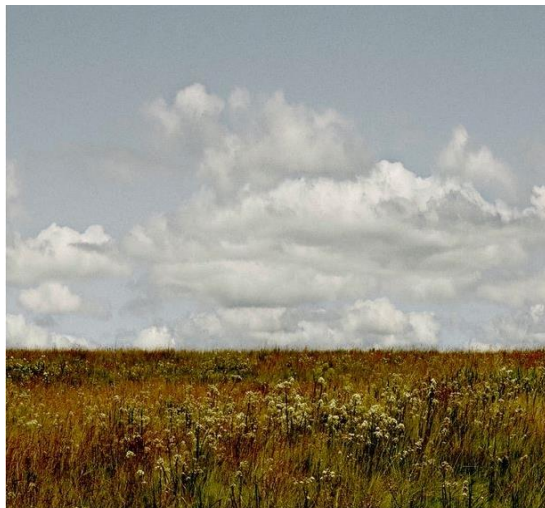


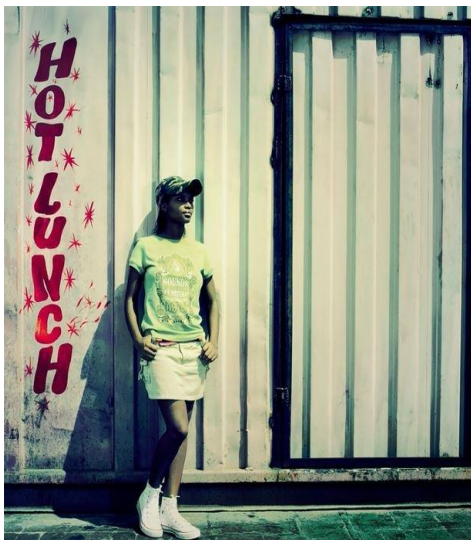














Act 2: The University of Technology NDip (Photography)

At the start of the twenty-first century, the call for transformation in higher education “precipitated a series of massive shifts in policy in education” (Menon & Castrillón, 2019, p. 8). The National Commission on Higher Education argued that “the profile of technikons posed several questions in relation to the restructuring of the higher education, [specifically] how the existing system of racially-divided colleges, technikons and universities be reconstructed into a more articulated and coordinated system” (Cooper, 1995, p. 243). In essence, the construct of a technikon had become a stumbling block since “no matter how widely Technikons were regarded by industry and commerce because of the suitability and relevance of their programmes, and no matter what the extent and quality of their [qualifications] were, they continued to suffer from the perception that they were inferior to [traditional] universities” (du Pré, 2010, p. 8) and in 2003, the Minister announced a re-designation to a University of Technology. Consequently, a re-structuring initiative commenced at the Institution, both in organisational structure and in the qualification matrix on offer. Departments were amalgamated, Faculties renamed to re-align with a new vision of ‘being a University’ while programmes were tasked to re-curriculate and re-conceptualise their qualification offering to align with the new ‘status’ of university. Specifically, the National Qualifications Framework facilitated through the South African Qualifications Authority (SAQA) established Critical Cross Field Outcomes (CCFO) for all higher education qualifications in South Africa (Menon & Castrillón, 2019, p. 8) with the “challenge of maintaining the required balance between generic skills and disciplinary skills [that] should be understood within the context of divergent approaches and perspectives on pressures internal to higher education to serve the needs of disciplines, as well as external social, economic and political demands placed on institutions” (Ntshoe, 2004, p. 214). This manifested itself in a “general move from a disciplinary curriculum to an interdisciplinary and transdisciplinary curriculum” (Ntshoe, 2004, p. 215), a mandate taken to heart in the newly formed Department of Visual Arts & Design. I re-entered Academia just as this highly charged transformation was effected and the Photography Programme tasked with re-curriculation to the broad NQF requirements while preparing students for the requirements of a career as professional practitioner. It was decided that the best way in which to resolve the dichotomy between vocational and the interdisciplinary neo-liberal curriculum was to introduce a critical/decolonialised pedagogy in the theoretical components of the curriculum and restructure the Practicum to reflect the changing context in which we functioned.

As it were, the collector’s market for Art Photography had come of age and, for the first time, photographers could make a living from their engagement *through* the medium, and I proposed a re-curriculation in third-year practicum outcomes that included a *longform Personal Project* module to be exhibited in a gallery-context for final evaluation and an Applied Commercial module,⁸ in which students receive specialised training in equipment, materials, processes and certain commercial techniques, i.e. advanced studio portrait lighting, large format portraiture, editorial portrait multiple strobe lighting techniques on-location, digital capture workflow, photographing architecture for publication, studio still – life: advanced lighting and the editorial photo essay, advanced post-production skills, i.e. multiple image compositing and retouching and advanced digital effects and colour treatments.

⁸ For the final presentation, we had individual handmade portfolios done by the *The Bookbinding Company* in Cape Town. These were in black leather with archival sleeves, the student’s name carefully debossed with an internal pocket into which each student had to place promotional *callcards* with either a single or series of images and their contact detail, exactly as was needed in the industry since Art Buyers and Art Directors often kept these pinned to their walls as visual reminder of who might be most suitable for any given project or assignment.

In terms of infrastructure, the digital revolution was well under way and it rapidly became apparent that in order to remain relevant to industry, further investment in digital technologies was required, that included high-end digital image acquisition technologies (20 MP+ Phase One Digital Backs & DSLR Camera Technology), an expanded Computer Laboratory Large-format Inkjet Printers to make archival giclée prints as the Art Photography context demanded large prints.⁹ The biggest challenge, however, was the transformation of the Photographic Programme to reflect the new South African context, which Luvalo (2019 *cited in* Masindi & Roux, 2020, p. 31) described as “(1) action to ensure wider access to black African students; and (2) Africanisation and decolonisation of the curriculum”.

As to the question of access, at the time, only a few African students had entered the programme at this stage. This could be ascribed to four possible factors, namely:

1. the lack of the perceived value in Technikon/UoT qualifications as “second or third choice after universities” (du Pré 2010, pp. 7-8) and even within the Technikon/UoT, Science, Engineering, Computer Technology and Management programmes were preferred career choice qualifications;
2. the lack of marketing of Photography as a career within both the local and broader national educational context with a perceived lack of respect in *studying* to become a photographer, prevalent in the African community where photographers were seen as a ‘cameraman’, not as a career which you went to ‘study’; the prescriptive entry requirements of Mathematics and Physical Science as Grade 12 subjects, a holdover from the analog Diploma, both of which are perceived as difficult subjects in themselves at school (Cooper, 2004, p. 8), with those having successfully matriculated with these subjects showing a preferred career choice for Science, Engineering and Technology programme qualifications;
3. the cost of the programme, which with the modularisation had escalated tremendously and that had made the programme one of the most expensive to attend in terms of tuition. In addition thereto, the costs of purchasing a camera and photographic materials to do projects, funds to be able to travel to various locations to shoot and re-shoot projects, to purchase suitable subject matter/props for commercial orientated projects, especially commercial studio still-life, and the expense of digital printing, both for project assessment and the final portfolio assessment at the end of the Academic Year, added a significant additional financial requirement which, despite some bursary funding being available through the NSFAS-scheme for qualifying students, did not allow for these ‘hidden expenses’ as the bursary provided tuition fees, accommodation and food allowance.

At the 2003 strategic discussions, wherein the above curricular changes were proposed and the infrastructure requirements indicated, the matter of social transformation was raised, and it was agreed to start an initiative to address demographic transformation from *within* the programme as a matter of urgency. To facilitate this, the Programme Co-ordinator liaised with Institutional Marketing and organised school visits in which matriculants were made aware of Photography as a Profession and student work showcased, while the entry requirements of Mathematics and Physical Science were amended and ratified to *highly recommended* to allow

⁹ I commenced with an extensive research project to calibrate and characterise any printing substrate to the visual response function of the Human Eye. In order to do this, a second order quantic polynomial function is applied. However, before this can be done, a computational model to map Digital Code Values to Visual Density is needed. This formed the basis of my M.Tech-degree, entitled, *A Method for the Sensitometric Characterisation of a Digital Stills and Motion Camera*. I did finish the math a long long time before the completion of the dissertation, and by 2008 we were making exceptional quality giclée prints on 100% archival cotton rag. It truly is WYSIWYG. If I were not going to run afoul of Institutional Policy, I would have released the function and computational model. Alas, the politics of innovation and technology transfer at an entrepreneurial university.

access for those who were interested but who may not have had or done well in these subjects. Furthermore, adjustments in the way the laboratory fee of each module was used made it possible to facilitate the payment for basic project assessment print requirements, including the final exhibition and printing and presentation, while a range of still-life products and backgrounds were acquired and stored, which students could access and use to complete the commercial studio projects.

Then, as to the second, the Africanisation of the curriculum, learning units on the role of African Photographers in South African Photography were introduced and many of the Photo Practicum project outcomes re-aligned to the rich and varied subject matter that Africa presented to critical enquiring minds.¹⁰ It was not perfect, but within a few years at least 50% of the programme were African students, many of previously disadvantaged backgrounds who, despite the challenges faced, were able to make it work. As the first decade of the twenty-first century drew to a close, the re-structured Photography curriculum was highly successful and the vision of a new South Africa higher education model within the programme were unfolding.

Students quickly realised that they were capable of producing work that rivalled and were on par with that produced by professional practitioners and excelled in showcase competitions such as the Fuji Profoto Awards, the Africa Photographic Awards and PIEA while participation in the annual Cape Town MOP, the Bamako African Biennale of Photography, Bonani Africa (2010) and the Museum Africa Student Showcase were highlights on the academic calendar.

¹⁰ During this time, my personal photography as practitioner were focused on street photography,¹⁰ which quickly had me end up in local townships¹⁰ and informal settlements. Not being extremely proficient in the various languages, I often requested some of the African students if they were willing to go with and translate and facilitate access, with the understanding that they had to bring a camera and produce their own work while we were there. These images were then either submitted as extra practical work credit, or if thematically suited, became the projects for the Personal Project module. The students responded with great enthusiasm as they realised that they had access to the most visually rich of subject material which those living in suburbia had not. Keen, all of the students embraced the change. As I became specifically interested in exploring the built environment as a socio-cultural expression of identity, I commenced a long-term project on Sharpeville as spatial construct in-and-through time. The project quickly took on a life of its own, with students requesting to go and shoot with and, not being able to fit that many into the car, VUT vehicles were booked and students taken to shoot just across the road. Before long, an Exhibition Project was launched which commemorated the 50th anniversary of the Sharpeville Massacre in 2010 and celebrated the township's unique role in the history of South Africa through photography. The exhibition had an immensely positive reception and was exhibited in the local community, nationally and abroad and resulted in a documentary feature produced by Sabido Productions, eTV's then prestigious international documentary unit, entitled Sharpeville Echoes for local broadcast and which featured on the History Channel.

This curriculum changed lives and to date, the most successful alums from the curriculum are Isaac Mofokeng,¹¹ Warren van Rensburg,¹² Jabulani Dhlamini,¹³ and Nocebo Bucibo.¹⁴

¹¹Isaac Mofokeng was introduced to photography in 1996 and quickly he became passionate about the medium. He studied Photography at Vaal University of Technology and commenced his commercial career in 2004, focusing his lens “on capturing the vibrant colours, cultures, spaces and people of South Africa” (Mofokeng, 2021). He has completed numerous advertising, commercial and editorial photography assignments which has seen him “deliver captivating work for various advertising agencies, media houses and corporate clients” in South Africa.

¹² Warren van Rensburg finished his degree in Photography at Vaal University of Technology in 2003. He has been working as professional commercial photographer even as a student and has produced work for “both for a variety of clients, both locally and internationally” (Van Rensburg, 2021), which include “Cell C, Converse, Vodacom, Steers. In Draft FCB, Grid, Hello World, Jupiter Drawing Room, JWT, King James, Lampost, Lowe Bull, Metropolitan Republic, Network BBDO, Ogilvy and Mather, Trigger, Terraplane, Urban Brew to name but a few. His Editorial Commissions have been published in Cleo, Clash (UK), Cosmopolitan, Dossier, ELLE, ELLE Decoration, Exceptional (UK), FHM, GQ, House And Leisure, Joburg Style, Lowveld Living, Masterclass (UK), Men’s Health, One Small Seed, SA Cricketer, SA Rugby, Sandton Magazine, Session, Skateboarding, SL, Sport and Street (Italy), This Is Fly (New York), Wanted, Y Mag” (Van Rensburg, 2021).

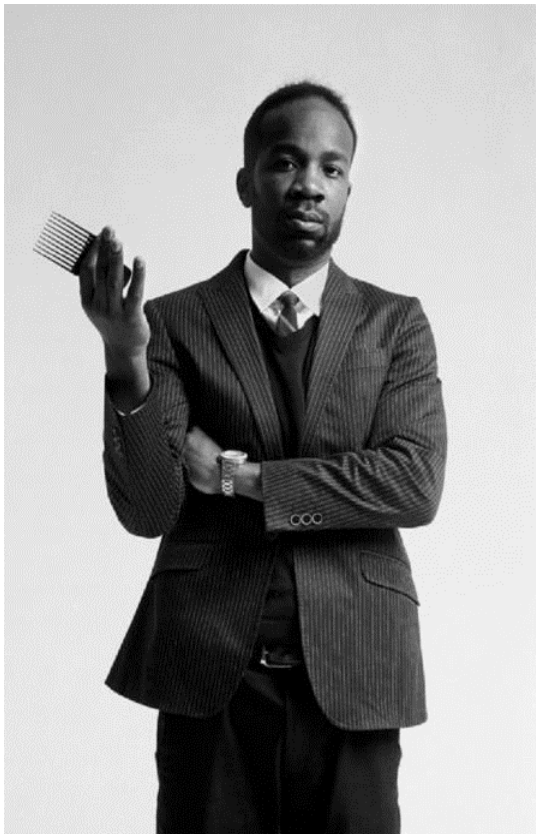
¹³ Jabulani Dhlamini lives and works in Johannesburg, South Africa. He studied photography at the Vaal University of Technology, graduating in 2010. In 2011, he received the Edward Ruiz Mentorship. His work focuses on the social structures of contemporary South Africa. In Umama, Dhlamini “pays homage to single mothers and explores the challenges faced by women raising children on their own in South African townships” (Dhlamini, 2021). For his Recaptured series, he returned to Sharpeville, in which he had found his voice as a student in 2008 working with his mentor and lecturer, Jakob Doman. And “interviewed and photographed several individuals who traced their movements and emotions on the day of the Sharpeville Massacre, relocating themselves within the collective memory” (Dhlamini, 2021).

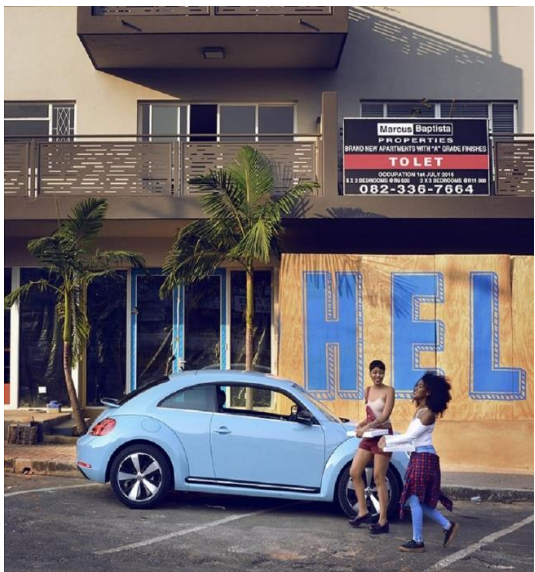
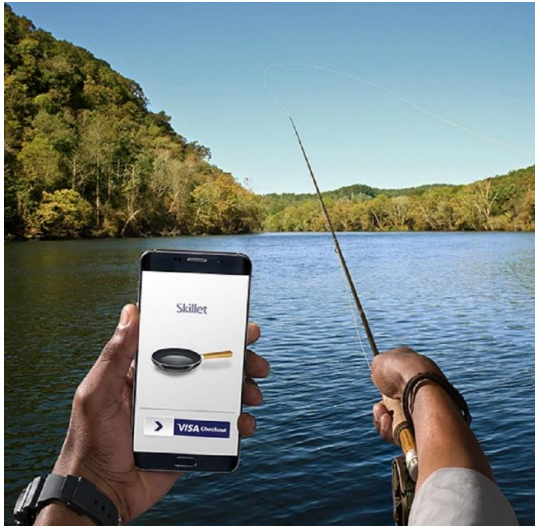
¹⁴ Nocebo Bucibo is a photographic researcher living and working in Johannesburg. She is currently a Development Studies, PhD candidate in the Research Chair, Department of Anthropology and Archaeology, Faculty of Humanities, University of Pretoria. She works as a photography lecturer at Vega School as well as at the Market Photo Workshop. She has worked on various photographic projects including the 20018/19 Market Photo Workshop Incubation program, the Wits Roodepoort/PARI project and the VUT Sharpeville commemorative project, *Sharpeville echoes*. She was a 2009 Sasol signatures finalist and SABS Young Design Achievers finalist in the same year. Her doctoral research critically examines the role photography plays in the (re)making of the Thokoza hostels. Nocebo holds a MFA from Wits University (with distinction), where she was awarded the Wits Institute Fellowship from 2017-2019 and is a member of the Golden Key Society (2019). Her master’s dissertation, entitled **A Just Image: South African Hostels and Contemporary South African Photography** which continued her work on Hostels from her BTech (Photography) – Project completed at VUT. She has a BTech (Photography) and National Diploma (Photography) from the Vaal University of Technology. In 2018 she had a solo exhibition titled: ‘iHostela Ngeliny’iKhaya: Regarding Photography as a Just Image’ at the Workers Museum in partnership with the City of Johannesburg. Some of the images from this project where part of a group exhibition, at the Turbine Art Fair (2018). Her body of work titled ‘Ikhaya’lam’ (2010) was exhibited as part of a group exhibition at The Lovell Gallery during the 5th Month of Photography in Cape Town (2012). This work was also exhibited at Constitution Hill as a solo exhibition (2014) and at the JOBURG Fringe, under Kwasuka gallery (Maboneng in 2015). A selection of images from ‘Ikhaya’lam’ have also been exhibited in a group show titled ‘Invisible Borders: Cultural Time Zones in Johannesburg and New Delhi’, Johannesburg Institute for Advanced Study and at the 2016 Pingyao International Photography Festival (PIP).





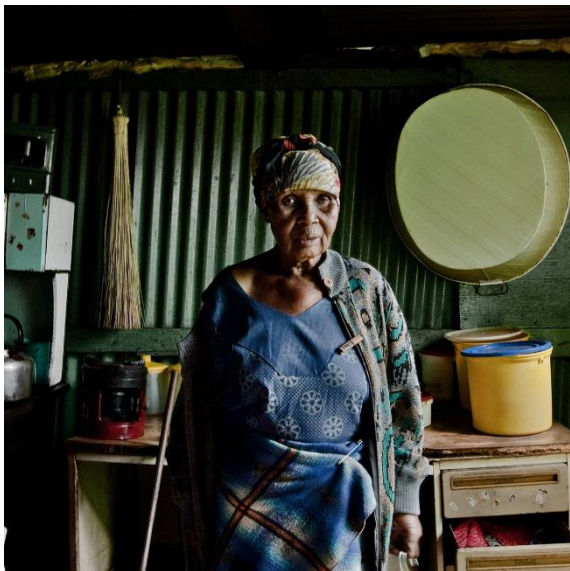






FOLIO | Jabulani Dhlamini© (from Sharpeville, recaptured)





Act 3: The revised University of Technology NDip (Photography)

By 2010, despite having met the strategic requirements specified,¹⁵ change, inevitably it seems, was once again in the wind.

Firstly, we were faced with the grim reality of South African higher education whereby economic concerns became fundamental to the Institution (Heymans, Styger & Van Vuuren, 2016, p. 261) and affected practical operations and to a certain extent, the curriculum we could offer. These were argued by Ntshoe (2004, p. 203) who explains that, “globalisation and marketisation had tilted the balance in higher education from internal, essentially academic concerns, to external issues such as institutional positioning and reconfiguration of missions to ensure financial survival with government departments, funding councils, and other agencies having developed strategic policies to reinforce the notions of a *market* culture and resource allocation, which changed HET into a quasi-market”.

The dramatic result of this thinking was that Executive Management started to question the financial sustainability of Departments/Programmes, especially the Creative and Industrial Arts, at an institution such as a University of Technology, despite the Photography Programme being fundamentally a Technological Medium and being funded at the same level as STEM qualifications (Naidoo 2007, Thathiah, 2013) and Seltzer & Bentley (1999, p. 17 *cited in* Thathiah, 2013, p. 55) arguing that “using knowledge creatively is central to realising economic and social value, and to developing individual potential to thrive. It is as important to overcoming exclusion as it is to competitiveness in the high-value, high-reward sectors of the economy. Creativity is vital to meeting the social, political and cultural challenges of the next century”.¹⁶

However, despite much debate, the message was clear – massification had become a popular means to address the problem of financial sustainability by “establishing targets for the size and shape of higher education” (Ntshoe, 2004, pp. 203, 211). Hence, all programmes were under pressure to grow significantly over the next five years to ensure their future.

Secondly, Digital Camera Technology had evolved to such a degree that it had, in almost all aspects, replaced analogue light-sensitive materials as the price-point of the technology rapidly dropped. With the shift in the student demographic attained,¹⁷ most of whom were funded by NSFAS and from disadvantaged backgrounds, meant that many did not have the financial means to procure a DSLR camera or meet the expenses accrued in the execution of the Practicum projects.

¹⁵ The Photography Programme having:

- increased its intake over the previous five years by 150% to ± 35 first-year students, far beyond the strategic projection required at the time;
- increased its NDip (Photography) qualification completion to roughly 50%, meeting the Institutional and National requirements;
- re-aligned its student demographic to equitable proportions in alignment with the call to transformation by the CHE; and
- implemented Africanisation of the curriculum where possible with reasonable success.

¹⁶ A sentiment echoed by the WEF 20 years later that had placed Creativity as one of the top three most important skills needed to survive and thrive during the 4IR, “Creativity will become one of the top three skills workers will need. With the avalanche of new products, new technologies and new ways of working, workers are going to have to become more creative in order to benefit from these changes” (Gray, 2016), which are crucial to economic growth and success in the twenty-first century.

¹⁷ Roughly 80% of the student complement were African at this time, a statistic we were proud to have achieved as it meant the measures both the programme and the Institution had put in place were working to address the matter of equity and access.

Therefore, paramount to increase access and student numbers was to reduce the cost to the students of the programme, *significantly*.

Working with the Centre of Academic Development, the modularisation implemented previously were rescinded and the NDip (Photography) Programme returned to the nominal four main subject offerings as duly constituted. This allowed for a significant decrease in tuition fees. Thereafter, NSFAS and VUT Management were approached and an agreement was reached to allow the acquisition of a basic DSLR in collaboration with an industry partner as part of the Practicum laboratory fee while many of the Practicum costs were included in the laboratory fee or addressed through meticulous selection of projects.

These measures allowed greater access to the programme and the programme grew exponentially despite the facilities and equipment held within the programme being insufficient for the volume of students that needed to use equipment to complete the curriculum as constituted and described.

We managed, but it became evident that the quality of work produced, both academic and practical, was in decline, which could be ascribed to:

- The lack of adequate facilities and sufficient equipment;
- Lack of access to suitable subject matter, i.e. working on-campus with subject matter of limited visual interest; and
- The increased number of students resulted in less individual attention from lecturers to students who in reality required more due to basic verbal and visual literacy of students entering into the programme being inadequate for success in the academic programme on offer.¹⁸

Hence, given the challenges, an alternate educational strategy was needed for the Photography programme, which, as it happened, coincided with the National HEQSF reform.

Act 4: The Dip (Photography)

In August 2013, following the promulgation of the Higher Education Qualifications Framework (HEQF) in 2007 that provided for the establishment of a single qualifications framework for national higher education, the revised HEQSF (Notice 1040 of, 2012; Government Gazette No. 36003 of 14 December 2012) was promulgated in terms of the National Qualifications Act, 2008 (Act No. 67 of 2008). The new HEQSF framework required higher education institutions to revise and align qualifications or develop new qualifications that met the requirements specified. This became a unique opportunity for the Photography programme to either re-invent itself, define a new niche and re-design the curriculum accordingly or to develop a new qualification to address the difficulties outlined above. Tentatively, we commenced strategic discussions on the future direction the programme might take.

¹⁸ This could be ascribed to the fact that expanding access allowed students who were not adequately prepared by the Secondary Educational system into Higher Education (Evans, Mendez & Acosta 2021, p. 18; Mohamedbhai, 2011, pp. 2-4; Gakusi, 2008, p. 8) and made it difficult for them to adapt to the academic rigour to meet the outcomes required. Students were struggling with successfully completing the theoretical components and the lack of visual literacy meant little to no understanding of what constitutes a good Camera Picture or the need and manner in which to produce such an image – given, it was our task to teach this, but the lack of the discernment made it extremely difficult to engage with the complex concerns within the medium.

The discussions were informed by the following three dynamics, driven, as it were, by 4IR: A rapid decline in commissioned commercial work in the advertising, corporate and editorial arenas (Clifford, 2010), which, in combination with the accessibility of digital photography¹⁹ (McAughtry, 2020) led to a significant increase in the use of stock-photography with “the quality of licensed imagery virtually indistinguishable now from the quality of images commissioned” (Clifford, 2010; McAughtry, 2020) at a fraction of the price, and that “the emergence of *web 2.0* in the first decade of the twenty-first century was itself a revolution in the short history of the internet [that] fostered the rise of social media and interactive, crowd-based communication tools” (Dentzel, 2014, p. 240) within a globalised creative economy (Malcolm, 2020). This shift in the market meant that the focus of the photographic curriculum needed to be re-aligned with developing markets in the digital communications industries which Schwab (2016) had alluded to in stating that “major shifts on the demand side are also occurring, as growing transparency, consumer engagement and new patterns of consumer behaviour, increasingly built upon access to mobile networks and data, force [professions] to adapt the way they design, market and deliver products and services”;

Technological advances in electronics, nano-technology manufacturing practises and photonics combined to impact on digital worldwide telecommunication networks and resulted in the super-integration of digital communication information acquisition, storage and display systems (Kumar-Pal 2008) that led to a cultural disruption in the media communications industry, termed *media convergence*;

Flew (2017) explains that media convergence “involves the interconnection of information and communications technologies, computer networks and media content, a direct consequence of the digitisation of media content and the popularisation of the internet. Media convergence transforms established industries, services, and work practices and enables entirely new forms of content to emerge”, to which Holliman (2010) added that Media Convergence is about integration and interoperability, while “the processes that facilitate media convergence are shaped by, while also shaping, social practices and cultural values; the ways that we produce and consume digital media to communicate”. As such, Media Convergence is a multi-dimensional construct with four dimensions (García-Avilés, Masip & Salaverría, 2012, p. 25):

- Integrated multimodal artefact;
 - Multi-skilled professional producer;
 - Multiplatform digital delivery; and
 - Active engaged audience;
- resulting in “the blurring of the limits between different professional media skills, formats [and] production strategies [as well as] between the roles of producer and consumer” (Domingo, et al., 2007);

The constant feature-driven improvement in high-end digital camera technology meant the arrival of the professional Digital Stills|Motion Camera (DSMC)²⁰ as 4IR Disruptive

¹⁹ The consequence thereof has been that, as de Castella (2012) remarked, “everyone now is a photographer; everyone now likes to record everything endlessly. It has become so easy, meaning that people don’t really think a picture has any intrinsic value” in and of itself.

²⁰ The advent of DSMC technology emerged in 2008 when Nikon introduced a DSLR with HD video capabilities that “quietly ushered in the convergence of stills and video” (Lesko, Britt & Patel, 2011, p. 1). Initially, the DSMC was designed for “Reuters and Associated Press as a single unit that [the] photojournalist could use to shoot stills and video footage for their respective news outlets” (Lesko, 2011, p. 2). But, photojournalist Vincent Laforet produced a film short which went viral and made known the “capabilities of this camera [technology] and the beauty of its cinematic film look” (Lesko, 2011, p. 2). A large part of the enthusiasm showed by the photographer for the new technology and medium resides in the fact that, unlike with conventional video technology, where the small size and resolution of the digital sensor therein creates a ‘plastic look’. The new DSMC technology captured video that had the appearance of film; a cinematic look that is achieved by the combination of the three

Technology²¹ (Bower & Christensen, 1995). The DSMC imploded archaic typologies of the Camera Picture as product, which when combined with media convergence, resulted in the emergence of a new 'hybrid' creative artefact in which it is possible to combine photography, cinematography, audio, graphics and text (Kraus & Steinmeuller, 2010, p. 2) wherein the message was communicated in the most appropriate medium, initially termed a Multimedia Production (MMP) (De Sola Pool, 1983, pp. 52, 212) or a New Media Production (NMP) (Flew, 2005) and eventually, a digital media Production (DMP). The DMP became the cultural embodiment of the phenomenon of 4IR Camera Picture that required an innovative future-ready curriculum to train multi-skilled media professionals that could produce integrated content for any digital platform using a variety of technological tools in the production process (Nwammuo & Nwafor, 2019, p. 57).

Thus, at the end of 2012, following an extensive Advisory Board discussion, we enlisted the assistance of Professor Emeritus Ken Kobrè, leading international educator on multimedia storytelling and videojournalism, for an intensive re-curriculation workshop during which we implemented a modified approach of the Clayton Christensen disruptive innovation model for product design (Bower & Christensen, 1995). As part of the outcomes, we requested that the BTech (Multimedia), a qualification that had been dormant in the Department, be re-integrated back under the auspices of the photography programme, which we intended to use as a testbed for developing a digital media production educational programme especially as the qualification allowed entry from any of the Creative Arts and we submitted a new qualification to the CHE, the DIP (Media Production), with the purpose of providing formal vocational higher education for a career in Media Production, grounded in practical media production skills and visual storytelling informed by a photographic visual sensibility wherein video and sound content in the curriculum would affirm the contemporary media relevance of the new qualification to prepare and enable an independent entrepreneurial media practitioner.

Our decisions were not perfect, and in the beginning, explorative. We promoted the new BTech focus to practitioners in industry and it had a reasonable reception in 2013 with about eight students. Structured weeklong workshops and classes in cinematography and documentary video production were offered by Eddie Stanley (Camerawork/Sound Recording & Design) and Charlene Stanley (Producer/Story Development) of the then Sabido Productions²² while Video Editor Karin Schonken handled the non-linear Video Editing training.

The first student to complete the new BTech (Multimedia) focus was alum [Herman Verwey](#), with his documentary production on hardcore wrestling:

aspects: shallow depth of field, the 180-degree shutter angle rule that incorporate appropriate frames per second to capture natural motion blur and an extended dynamic range. These aspects have meant that the 'plastic look' of the video-camera, so disliked by the professional, is no longer evident and a more realistic, although slightly different, image results (Lesko, 2012, p. 9; Lancaster, 2011, p. xviii; Kraus & Steinmeuller, 2010, p. 4).

²¹ A disruptive technology "displaces a well-established product or technology creating a new industry or market" and hence, the "practical application of the technology may not have been proven yet, often attract a small audience and generate performance problems" (Christensen, Raynor & McDonald, 2015; Cascio & Montealegre, 2016, p. 353; Bower & Christensen, 1995).

²² Sabido Productions was "a South African production company that commissions, produces and co-produces documentaries and feature films. Sabido Productions is committed to the business of producing powerful African content for international broadcast with a team that is experienced in all aspects of film-making; from the commissioning process to in-house development and production, Sabido Productions employs a dynamic and multi-faceted strategy to ensure that all content made by the company has an appeal to international markets and is supportive of local filmmaking talent and the African film and documentary production industry" (Sabido, 2013).



At the end-of-the-year strategic discussions, it was quite evident that:

1. The number of additional skillsets required to produce a digital media production was more than could be handled in a single academic year and required a foundation laid in an undergraduate programme
2. A substantial capital investment in motion production equipment was needed
3. Re-skilling of staff was an immediate concern
4. Additional specialist lecturer/s would be required to develop and present the envisaged DIP (Media Production) programme to its fullest extent.

The first concern was addressed in the submission of the new qualification, DIP (Media Production) to the CHE.

The need for capital investment was addressed, I believe, through discretionary funding secured from the Institutional Block Grant (TDG/RDG) of 2013/2014, which was the last time that “universities were able to use their funds at their own discretion...funds were not necessarily directed at teaching development initiatives [with] important categories of expenditure for teaching development funds are: 1) investment in human resources; 2) core infrastructure and 3) curriculum development and teaching support initiatives” (DHET (SA), 2013, pp. 330-332), as well as a substantial educational contribution of 30 DSLR cameras from Nikon to support the programme.

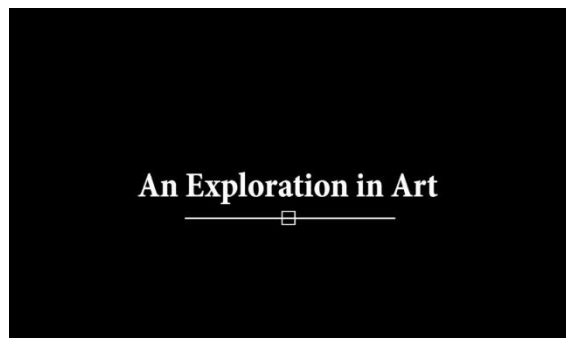
As to the concerns regarding staff, re-skilling was undertaken by staff at their own initiative who attended the workshops offered to students by the professional practitioners contracted in to assist and used online teaching resources to re-tool, while a contract lecturer was appointed to oversee the third-year academic programme for staff on research leave, who proceeded to work on a postgraduate qualification in the requirements for digital media production education, as noted, professional practitioners were contracted to teach specific specialist knowledge application components, either in workshops or on a weekly contact basis.

Unfortunately, in 2014 we were informed that our application for a new qualification was declined in the context of the programme mix on offer at the Institution. Rather, it was recommended by CAD that the National Diploma (Photography) be realigned into a niche Diploma offering unique within the broader photography and digital media educational context in South Africa and be based on visual storytelling through the creation of multi-modal creative artefacts that incorporated stills, video and sound technologies, and appropriate theory, to support this focus. This, it was suggested, were to commence with doing a 30% re-circulation of the programme on a yearly basis, which did not require Faculty Board or DHET approval immediately, to assess viability before the submission of the new DIP (Photography) and commencement thereof in 2017 and that after a successful cycle of the new DIP (Photography), we could apply to have it renamed to the DIP (Digital Media Production).

Hence, in 2015, we started adding a motion specific Practicum to second and third year, specifically a narrative motion portrait²³ DMP, with addition of relevant technical aspects to the Theory of Photography subject and media production aesthetic components to the Visual Communication subject. This proved quite effective, albeit not ideal. The Practicum learning unit was an ideal method for engaging students with all of the skills aspects required in making a digital media production, and students responded positively, even though it was a tremendous amount of work for an individual to complete. The following example by alum practitioner Nigel Stockl illustrates the typical outcome:



The biggest problem encountered was logistical; the fact that students took a long time to complete the project, most a full academic semester, given all the various technical and aesthetic skillsets that had to be obtained, despite the third-year contract lecturer showing them that it can be done in two days from pre-production to final export:



Following, in 2016, we revised the curriculum by 30% again and introduced in the Practicum subject a full semester of Digital Motion Production training with two additional learning units focused on production skills development – one focused on the technical production and asset acquisition skills and the other on non-linear video editing, which culminated in both years

²³ A portrait, though broadly defined as a likeness of a subject, is so much more than the mere recording of a face. Rather, it should be considered more as a intimate moment of engagement between subject and photographer that presents a moment of clarity, sometimes both accident and gift. A portrait is made both powerful and memorable when it challenges, amuses, enlightens or disturb our preconceived notions and ideas about the nature and identity of the sitter. The difference between an ordinary likeness and a truly striking portrait lies in the photographer's ability to see past the obvious and into a more intimate aspect of the identity of the subject. Though many photographers are naturally inclined to relate to the subject and bring out an aspect of their personality, many do not understand or see the emotional value of the subject's surroundings. In this, then, can the single image truly present a portrait, or is what is needed is engagement through time with the sitter to present a deeper portrait, an interview with the subject, " a-portrait-as-a-story". In this multi-modal portrait, the intent is to set the scene, introduce the character/s in their own words, evoke a mood and show aspects of a life lived with all its dramatic consequences as seen and experienced by the subject. A motion portrait is then an exploration of a person's life, their loves, their home and/or work, their essential nature, a collaboration between the subject and the practitioner.

with the motion portrait DMP learning unit, which we had revised to be completed as a cooperative learning unit experience.

It worked extremely well, especially as the second year functioned as introduction to basic skills and knowledge development and in the third year the level of execution had to approximate a Professional DMP Production standard. We felt ready for the new DIP (Photography). We had some in-house motion equipment, a strategy that enabled students to procure a DSMC as part of their studies and a curriculum that was enabling and functioned well in preparing students for the envisioned world-of-work.

At the onset of 2017, we deployed the new DIP (Photography), which was re-curriculated as follows:

Table 1: HEQSF articulation – NDip (Photography) to Dip (Photography)

EXISTING NATIONAL DIPLOMA: Photography CESM CODE: 0304 (030401 / 030402)	DIPLOMA: Photography CESM CODE: 0304 (030401 / 030402)
Existing subject specification	New subject specification
Visual Communication 1 – 3	Applied Media Aesthetics ²⁴ 1 – 3
Professional Practice 1 – 3	Professional Practice ²⁵ 1 – 3

²⁴ Despite the enormous and constant volatile changes that the digital revolution has brought about in creative practise, creative artefacts are created to communicate. They do so not only through content, but through a sensory evocation, their aesthetic appearance. Clive Bell (1914, pp. 7-8) has argued that the aesthetic appearance is a very specific attribute shared by all creative artefacts.

What quality is shared by all objects that provoke our aesthetic emotions? What quality is common? Only one answer seems possible – significant form. In each, [aesthetic attributes] are combined in a particular way whereby certain forms and relations of forms stir our aesthetic emotions. These relations and combinations of [aesthetic attributes], these aesthetically moving forms, I call significant form; and significant form is the one quality common to works of [creative expression].

Then, since we, as lecturers and practitioners, accept that the aesthetic appearance significantly affect the communicative potential of acts of creative expression, it is imperative that the student be educated to move beyond the basic judgment of ‘like’ – to move beyond an everyday reflexive judgment to an approach to creative problem-solving with educated judgment as to the affect the aesthetic has on the creative artefact. Therefore, within the programme, we embrace the discipline of applied media aesthetics as an indispensable tool for structuring the appearance of content to communicate, defined as per Herbert Zettl (2011, p. 4),

Applied media aesthetics is not an abstract concept but a process in which we examine a number of media elements, such as lighting and sound, how they interact, and our perceptual reactions to them. Second, the media content elements, in our case primarily photography, video and sound, are no longer considered neutral means of simple message distribution but essential elements in the aesthetic communication system. Third, whereas traditional aesthetics is basically restricted to the analysis of existing works of art, applied media aesthetics serves not only the analysis of the various forms of media productions but their synthesis – their creation – as well.

Applied media aesthetics therefore deals with the aesthetic, intellectual and emotional aspects of digital media practise. In this subject, there is a strong focus on understanding the craft of the camera picture in relation to its aesthetics, which will offer you the knowledge to effectively analyse, evaluate, understand and create visual/multi-modal messages, while engaging with aesthetics and the underlying principles of visual storytelling.

As such, applied media aesthetics, as subject supports the practical component of the programme in that:

- It broadens your visual frame of reference and develops your visual literacy.
- Develops a fundamental understanding of visual persuasion and digital media practise communication strategies.
- Develops a critical understanding of digital media practise production components.

²⁵ From your first engagement with Professional Practice, you realise by now that what you are studying is not a hobby, but a specialised media field aimed towards a profession. However, professional digital media production worldwide is not a regulated profession. This means that you can enter the market without any qualification obtained at an education provider. The challenge therefore is to enter the complex creative industries and media market of South Africa, and maybe the wider international market.

Professional photography is mostly an entrepreneurial profession that enables the individual to establish and manage their own business. Professional practice provides an overview of business related concepts that aims to

Applied Communication Skills	Applied Communication Skills 1 – 2
EDL	English Language and Literacy Support
Theory of Photography 1 – 3	Theory of Media Technologies ²⁶ 1 – 3
Applied Photography 1 – 3	Media Practice ²⁷ 1 – 3

safeguard the future professional Photographer against uninformed business decisions. The subject will deal with “real” issues that the photographer as one-man business will encounter from day one. The issues will hopefully engrain principles of good practice that will stand in good stead for the duration of the photographer’s business career. The aim is not to create an expert in the areas covered, but rather to equip the prospective business person with business savvy, or acumen, that is based on basic principles that guides “good practice”.

We will focus on current realities, debate these, search out current photography practitioners, financial experts, agents, retailers, associations, among others. By doing this we hope that current business thinking and doing, patterns and principles will emerge, and assist you with a sober mind-set when you do enter the marketplace. Survival is the underlying theme that permeates our discussions when we engage with current business realities. We need to debate personalised and geographic relevant business solutions for a volatile economic environment as well as an over populated photography and media industry.

²⁶ The photographer, during the heyday of chemically based imaging, was revered as someone with near magical powers. He (mostly he at the time) had a deep understanding of the appropriate chemistry, a choice of optics, tripod, flash powders among others, in order to render the best possible reproduction of the scene in front of the camera. Today, although technological advances have progressed dramatically, the photographer still uses an enormous array of technological devices to craft an image of the chosen subject matter for personal and public utility and enjoyment.

In theory of media technologies, the subject not only familiarises you with photographic technologies, but also introduces you to the plethora of media production technologies available to the digital media producer. The already complicated variety of technological choices increased exponentially as the medium entered the digital domain. As digital media producers, our choice of capturing technology and array of lens technology is complimented by motion and static stabilisation technology, artificial light source options for on-camera, studio and location scenarios, specialised devices and attachments for any of the previously mentioned technology, necessary electronic and digital connectivity options and computer hardware and software tools and peripherals for image processing, among others.

A craftsman needs to surpass the accepted norms of competency associated with the chosen tools of the trade. A revered connection between the tool and maker elevates the technology from mere object of technology into an invisible extension of maker. The student should not search for factual information about the technology at hand, but also search for specific tools that can become more invisible in the process of making. This is the aim of the subject at hand.

²⁷ Though technique is not to be regarded as an end in itself, consistent creative expression is only possible through the control and command of the technical aspects of the medium of creative expression. In mastering the various technical aspects, processes and skills, a greater variety of choices from which one may create visual artefacts that communicate the intended message is possible, enabling creative visual problem resolution and more effective communication with the audience.

Within the discipline, the different modes of production and content elements, whether photography, videography, motion graphics or sound design, have historical traditions and highly-technical specific requirements to accomplish distinct outcomes. As such, the programme aims to expose the student to as many different historic and contemporary methods and approaches as possible, allowing the student the opportunity to acquire a diverse array of technical skill which give the freedom to decide what will work to solve a given content requirement without being didactic.

Media practice as subject focus on the development of practical competencies that plays an important role in the structure of the photograph and digital media production. The focus of this subject is on learning to apply and synthesise skills in applied media aesthetics and with technology in combination with idea/concept development. Within the field of photographic practise, the learning will be deal with lighting on-location for a variety of subject matter and with the development of skills towards contemporary aesthetic standards through Adobe Creative Suite as digital ecosystem. In the digital media production practical component, learners will focus their energies on pre-production planning incorporating a storyboard and shot list, followed by visual and audio asset gathering and NLE editing and grading towards optimum output quality in order to create a digital media production meeting the minimum professional and technical requirements.

During the course, students will be expected to develop and eventually master the following skills:

- Creative use of camera controls towards achieving intended visual results
- Creative and effective use of visual design elements
- Lighting on location and in a controlled environment for a variety of subject matter
- DSLR motion capture techniques with various stabilisation options
- Visual storytelling principles
- Digital media production planning
- Digital image software skills towards contemporary aesthetic standards for stills, i.e. retouching, comping and creative tone and color control and grading for video towards optimum output quality
- Time-based non-linear editing software and principles

The newly articulated subjects supported the aim of the envisaged DIP (Photography/Digital Media Production), which was described as follows:

To equip learners with the knowledge, skills and entrepreneurial acumen to be creative digital media producers for the digital communications industry. These could include digital media productions for corporate, SMME, public relations, and NGO clients to be delivered on digital platforms such as WWW and social media such as Facebook, Twitter or Instagram.

The practical outcome the programme aimed to achieve is best illustrated in the work of alum practitioner [Marius van Rensburg](#) of MVR Films.

FOLIO | Marius van Rensburg©



DMP Production – Bouchard Finlayson Liquid Gold



DMP Production – Benjamin



DMP Production – Bouchard Finlayson Estate

-
- Basic sound recording and sound mixing that meet minimum professional standards and apply some creative application



DMP Production – The wedding of Caylee + Steve

Act 5: The Dip (Digital Media Production)

2017 arrived, and with the new digital media focus in the programme, we had a dramatic increase in student intake that doubled from 2014 to roughly 75 first-year students in the newly deployed DIP (Photography).

Then we got blindsided.

It was a year in which the challenges faced by the Institution, similar in nature to that Gakusi (2008, pp. 9-10) described in that “the African education sector continues to face serious challenges of low and inequitable access to education, inappropriate curricula with low [qualification] completion rates, inadequate education financing including a shortage of resources allocated to the education sector and misallocation and misuse of [fiscal] resources, [a lack of] education system and [research] capacity with a poor link with the world of work”, reached a critical point.²⁸

As a result, the shortage of funding allocated, combined with misallocation and mismanagement of funds allocated led to a lack of educational resources (Gakusi, 2008, pp. 9-10, Naidoo, 2007; Fengu, 2019a; Fengu, 2019b; DHET, 2017, pp. 3, 10) that combined with the “breakdown of governance, along with maladministration and pervasive corruption” (Pityana, 2020) caused fiscal distress where “in this unforeseen phase, increased pressure is put on their habits and practices of operation, and levels of anxiety and tension are raised” (Perlman, 2009, p. 201) and little to no capital investment in programmes were provided.

In an attempt to address the dire situation, new Institutional Policies were designed and implemented, some of which had a significant impact on the educational programme.

²⁸ These included:

- a) a general uncertainty regarding the ‘core business’ in contemporary South African public universities, with a “multiplicity of conflicting but coexisting narratives about what universities should do in South African society – producing excellent research, preparing a labour force or addressing societal inequalities – exposes a persisting tension surrounding the purpose of a public university [where] the current financial constraints had made income generation a primary concern across the sector” (Swartz, Ivancheva, Czerniewicz & Morris, 2018, pp. 567-568).
- b) significant shortcomings in governance and leadership that were destabilising and undermining the effective functioning of the Higher Education Institution (Mba, 2017; DHET, 2017, p. 3).
- c) restructured and reduced government/public funding while a significant increase in student debt accrued (Heymans, 2016; Naidoo, 2007; BusinessTech, 2016; DHET, 2017, p. 10).
- d) low student qualification completion rates which meant increased financial pressure as the New Funding Framework (NFF) formulas, implemented in 2004, are based upon qualification completion (Heymans, 2016, p. 260; Naidoo, 2007; Vossensteyn, 2004, p. 43).
- e) low institutional research output meant a lack of income from research and research-related industry funding (Mohamedbhai, 2011, pp.2-4; Naidoo, 2007).
- f) disruptions of academic programs because of the financial and academic exclusion of some students and the frequent closure of the campus as a result of political and/or student unrests (Cloete, 2015; Mohamedbhai, 2011, pp. 2-4; Gakusi, 2008, pp. 9-10).

Specifically, the requirement that Educators, Examiners and Moderators hold a minimum of a master's degree is ill-suited to vocational programmes utilising successful professional practitioners on a contractual basis, as these most often do not hold advanced postgraduate degrees, while at the same time, questionable public procurement policies and practices²⁹ (Ntshoe, 2004, p. 203) had an immediate and direct impact on the educational programme.

The most notable being that the professional practitioners, with decades of practical experience and numerous industry accolades, could no longer be used to facilitate educational outcomes resulting in a critical devaluation of practical knowledge that affected programme implementation and development and has led to a distinct lack of connection with the world-of-work and vocational validation of the outcomes achieved by students (Leask, Cronjell, Holml & van Ryneveld, 2020; Campbell & Rajaratnam, 2013). Furthermore, due to policy matters relating to capital asset insurance, students were no longer allowed to use Institutional camera equipment to work off-campus on Practicum outcomes whilst, at the same time, the procurement 'situation' meant that the acquisition of DSMC for students through the Institution was discontinued in 2019.

Reeling under the circumstances, the programme made do with the facilities, equipment and the infrastructure we had on-hand, adjusted the curriculum to projects that attempted to work around the limitations by working on-campus with various Academic and Service Departments while lecturers re-skilled on-the-fly and capital investment by the Institution for the acquisition of DSMC in the programme was requested, but given the fiscal challenges of being under administration (Pityana, 2020), none was forthcoming. Then COVID-19 landed, which left the programme effecting e-Learning with minimal Practicum time on-campus and on-equipment and ended the implementation of the very successful collaborative Practicum projects.

As before, we needed an alternative.

In the 2020 Advisory Board and Strategic Planning discussions, the situation was extensively deliberated and it was agreed that technologically, the programme could re-focus strategic undergraduate components towards mobile DSMC technologies and its use and implementation in SMME digital media practise entrepreneurial solutions in social media content production (cf. illustration 1) as an educational strategy.

Hence, once again, by focusing on disruptive innovation and using technological leapfrogging, this decision foreshadows a vocational future in the discipline that includes smart capture technology, autonomous aerial drones, computational photography, cloud-based team collaboration, algorithmic video editing and social-media specific content platforms (cf. Aldredge, 2017; B3M, 2020; Davidson 2014; Jirsa, 2020; Preimesberger, 2018; Shankland, 2018; Fox, 2015).

That is, the 4IR Camera Picture, incarnate, embraced.

²⁹ The Institution, under ministerial instruction, had been investigated by Prof. Pityana and Prof. Ralebipi-Simela, who commented that "at the heart of it is a morality that sees the university as a place to be exploited for its resources and giving as little as possible to make the institution sustainable...there is a pervasive and shameless sense from certain organised formations – including unions, students and service providers – that they have a right to milk the institution dry with impunity. In other words, not only did we not have any sense of public revulsion at the wholesale looting of the institution's resources, but local businesses, suppliers and local government were either observing as spectators and not lifting a finger to stop this or were also part of the problem in that they were paying kickbacks and successfully undermining [the Institution's] supply chain management system. In the process, we have found, the mission of the university got lost" (Pityana, 2020).



Illustration 1: Smart Technology DSMC (Beastgrip, 2021)

Conclusion

The Camera Picture, being a technological medium from inception, has been inherently in a volatile relationship with disruptive innovation that require the practitioner to constantly adapt to and manage technological change, constantly re-learning and re-skilling and re-educating in order to remain 'current', 'competitive'; *relevant*. As Scott (2017) commented,

The responsibility for establishing a personal visual language for work is perhaps the most important aspect in creating an honest and substantial foundation for a [media practice] in the twenty-first century within an over-populated marketplace. The [media practitioner] today is a conduit, a publisher, a writer, a marketer, a filmmaker and – perhaps most important of

all – a storyteller, that can fully use all the tools available to them to find, tell and disseminate their stories. In a digital age, these tools are more powerful than ever before but require skills previously less relevant to the photographic medium. The role of the [media practitioner] has changed from that of creator to creator and disseminator, and it is in that dissemination that the [media practitioner] has inherited the power of communication that they have for so many years cried out for.

Consequently, it is imperative that the formal education of the practitioner, as expressed in-and-through the educational curriculum, should not only speak to the multifaceted nature of the Camera Picture but need to be equally adaptive, open to re-definition and responsive to technological innovation experienced. This perspective is echoed by Adams Becker, Cummins, Davis, Freeman, Hall Giesinger and Ananthanarayanan (2017) and Albrectse, Devlin, Fadel, Serban and Shapiro (WEF 2017a) who indicate that a successful 4IR educational programme requires:

Future-ready curricula – Johnson (2001, p. 7; Alsubaie, 2016, p. 103) comments that “the goal of a successful educational programme and thus effective curriculum development should be to meet the needs and current demands of the culture, the society and the expectations of the population being served”. Therefore, curriculum development and the educational process should continually undergo review, revision, be updated and adapted “on a rolling basis based on insights and forecasting regarding the evolution of local and global labour markets and trends in skill demands with input from relevant stakeholders” (WEF, 2017a, p. 8);

Digital fluency – Apart from basic visual, verbal and digital literacy, “Technology should thus be embedded across the educational experience giving learners a deep understanding of how to apply and innovate [through] technology so they can play an active role in the shaping of the future [of their discipline]” (WEF, 2017a, p. 8);

Professionalised educators – Evident from vocational programmes is that the teaching of a skills-based profession should require educators involved “in their own professional development [and who] are given adequate opportunities to re-skill or continue their professional development over the course of their [educational and professional] careers” (WEF, 2017a:8);

Creativity culture – To advance a culture of innovation and entrepreneurship, creativity, by definition, “is the ability to create something novel and appropriate” (Amabile & Khaire, 2008), and flourishes with collaboration, when “when people of different disciplines, backgrounds, and areas of expertise share their thinking [as] sometimes the complexity of a problem demands diversity” (Amabile & Khaire, 2008), and an educational culture that “accept failure as an important part of the learning process” (Adams Becker, et al., 2017, p. 8) in achieving success;

Redefined pedagogical approaches – An emphasis on learning as a social-construct that requires “the mastery of content that engages students in critical thinking, problem-solving, collaboration in peer-to-peer or group activities and self-directed learning. To remain motivated, students need to be able to make clear connections between their coursework and the real world, and how the new knowledge and skills will impact them” (Adams Becker, et al., 2017, pp. 8); and

Blended learning design – “The affordances blended learning offers are now well understood, and its flexibility, ease of access and the integration of sophisticated multimedia and technologies are high among the list of appeals. The current focus of this trend has shifted to

understanding how applications of digital modes of teaching are impacting students. Many findings showcase an increase in creative thinking, independent study, and the ability for the student to tailor learning experiences to meet their individual needs” (Adams Becker, et al., 2017, p. 8).

Considering the criteria, most had already been engaged with within the programme with some degree of success. The biggest struggles ahead lie in:

- Developing time and space for the educators to re-skill and develop their 4IR professional DMP capacities, given the significant staff turnover experienced recently and the limited time in the academic timetable;
- The challenge to develop the visual and verbal student vocational literacy has become imperative, which, as Sharita Bharuthram (2012, p. 208) explains, is “one of the most significant challenges that African higher education institutions are currently experiencing, [that] many students enter higher education unable to read and write at the level expected of them”, a carry-over from the lack of literacy achievement during the formative years at school; and
- The transition to e-learning and blended learning which is a constant pedagogical challenge to contend with as the COVID-19 pandemic is addressed within a practical vocational educational offering.

But, as the educational narrative *described* hopefully illustrate, though the challenging reality in-the-trenches of African higher education are often quite different from the idealised educational narrative oft *proposed* in the literature, it is possible to adapt and innovate, if the programme, and the educators therein, are responsive and constantly striving to educate their students to be competitive in real-*contemporary* real-world practice.

Therefore, the strategic re-alignment *towards* 4IR Smart Technology, we believe, will again empower students at VUT, where on 19 February 2021, a new era in the education of “camera(wo)men”³⁰ in the South African higher education context was ushered in when approval and ratification were given for the application and name change of the Diploma: Photography to the Diploma: Digital Media Production.

And so, in a surreptitious manner, that which was, was no more and the future promised by 4IR embraced. And though 4IR is a threat to the unprepared, it is regarded as a tremendous opportunity for the Digital Media Production Programme at the Institution to innovate and educate professional practitioners under dramatically new marketplace rules *on our own African terms*.

Annotation

An initial draft presentation of the paper read and copyrighted to DEFSa was presented at the 2021 Vaal University of Technology – Faculty of Human Sciences – Research Seminar. The research seminar is an annual non-accredited developmental initiative for academic researchers to receive scholastic feedback before final presentation and submission to the intended publication or conference. Hence, the title and abstract thereof appears on the List of Abstracts of the Research Seminar at <https://www.vut.ac.za/wp-content/uploads/2019/04/List-of-Abstracts.pdf>. The 2021 Seminar Organiser, Dr H van Staden, granted

³⁰ “A person who operates a camera as for [photography], motion pictures or television” (Merriam-Webster, 2021)

permission for the re-publication of the title and abstract and noted the above, including that the full paper was not distributed, the communication of which is held by the 2021 DEFSa editorial committee and President-elect.

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