

Title:

The Embodied Menstrual Awareness (EMA) Toolkit

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I dedicate this research to the following who carefully supported me over decades of lived experience as an OB-GYN patient with menstrual complications. First-person phenomenological and qualitative experience is the background, motivation, and argument for this dissertation, “because one can only validly think about what one has in some way lived, the rest being nothing but imagination”.¹ Thank you, Professor J. Victor Reyniak, Professor John Shepherd, Professor Frédéric Debiève, Professor Colin Davis, and Dr. Arjun Jeyarajah. Dr. Reyniak (1936–2008), I promised you I would do this ...

For Kiera

"Of all that is written, I love only what a person hath written with [her] blood.
Write with blood, and thou wilt find that blood is spirit". ⁶

Thus Spoke Zarathustra, Friedrich Nietzsche, 1883.

Abstract:

Ethically, it is important to respect young people's rights to access knowledge and awareness about their reproductive physiology. Research findings indicate that globally, menstruation is a neglected public health, social, and educational issue that requires urgent prioritisation, coordination, and investment.

The United Nations Convention on the Rights of the Child (UNCRC), and the UK government's Department for Education draft ² "PSHE Joint Roadmap to Statutory RSE, 2020",^{3, 4} stipulate that menstrual awareness is a legal, adolescent human right. However, there are currently no dedicated PSHE Association accredited resources for schools to meet this statutory requirement.

The "Embodied Menstrual Awareness" (EMA) Toolkit is a group-based, "Co-Designly Practice" (CDLY P) toolkit for increasing menstruating adolescents' understanding of their menstrual cycle in PSHE, RSHE classes in UK Secondary schools. Developed for Key Stages 4 or 5 (age 15-18), a series of practice-based workshops demystify female anatomy and the three stages of the menstrual cycle. A simplified version of the Sympto-Thermal Method, the EMA method tested the viability and efficacy of pencil-on-paper data visualisation as tool for understanding and tracking ovarian and uterine cycles – establishing their link to menstrual flow and connectedness to physiologically embodied changes.

Through Co-Designly Practice heuristics, experiential learning, and reflexivity, co-researchers generated their own design probes to visualise, encode, and track their menstrual cycle and uniquely affective data (rhythms, flows, and frequencies). This supports notions of embodied cognition, a phenomenological, "as lived" understanding of menstruation, and encourages long-term care of the self, reproductive healthcare engagement, and agency. The value of this research is an encoded, paper-tracking diagram by each co-researcher for learning about their uniquely mutable menstrual cycle. Here, diagramming, graphic elicitation, and geometry are visual framework and interlocutor for menstrual awareness and wellbeing.

The EMA Toolkit sensitively explores anthropological-historiographic and enculturated understandings of menstruality to allay menstrual-related taboo, stigma, fears, and shame.

Terminology:

Thematic in this dissertation, is a critique of linguistic terms and their impacts on phenomenological sense of self, creative self-expression, recognition by others, and access to social agency, rights, and freedoms.

Heteronormative terms are "female" (female-sexed) and "male" (male-sexed). A menstruator is anyone who menstruates. Whilst using vernacular terms "female", "women", and "girls" as they appear in existing texts, I sensitively acknowledge and respect gender diversity: transgender men, transgender women, intersex, genderqueer, or non-binary, and cisgender. I therefore bracket gendered terms in my writing, e.g., "female", "women", "woman", "girl", "male", "men", "man", "boy" to acknowledge those who identify as transgender or non-binary.

Within the research study workshops, we consistently used an individual's preferred name and pronoun (she/her, he/him, them/they).

Co-Designly Practice methodology is egalitarian and dialogic; in the research study participants (including myself), are referred to as "co-researchers".⁵ Randomised numbers (or letters) replace names to protect privacy. Subsequently, numbers (or letters) merely indicate a different person is talking and the sequence in dialogue. Co-researchers' anonymised comments interweave throughout this dissertation.

The Embodied Menstrual Awareness (EMA) Toolkit:

The Embodied Menstrual Awareness (EMA) Toolkit is a group-based series of workshops, lesson plans, discussion points, and exercises to increase menstruating adolescents' understanding of their menstrual cycle in schools. Using arts-design "co-designly praxis" co-researchers learn to track their uniquely singular, menstrual phenomenology.

Developed for use in Secondary schools between Key Stages 4 or 5 (age 15-18), and potentially, the Royal College of Nursing's Women's Health, community programmes. The EMA Toolkit aligns with the UK Department for Education (DfE), Physical, Social, Health, and Economic (PSHE), Relationships and Sex Education, and Health Education (RSHE) guidelines and the Royal College of Nursing's RCN Toolkit.

Section 1:

The Embodied Menstrual Awareness (EMA) Toolkit:

Introduction:

Firstly, I position myself as researcher in an immersive, slow, longitudinal study of menstruality. “A vital sign”⁷ of health and wellbeing, I establish the significant need for a heuristically pedagogical, self-tracking, and visual means for menstruators to better understand their signature menstrual cycles. Situating this research within contextual menstruality, I identify a gap, (a polyvalent space, an omission, or intransigent refusal) of resources for menstrual awareness and embodied cognition.

A global issue, I survey menstruation across international development, non-governmental organisations (NGO), UK public policies, and DfE national curriculum education settings – monitoring broadly thematic changes over the last ten years. As basis, I use international human rights legislation of rights of access to sexual reproductive health (SRH) knowledge-awareness and WHO/UN⁸ qualitative and quantitative statistical research and findings to support my critique, argument, and hypothesis.

Corollary to my doctoral research, this dissertation includes the development of my research methodology, Co-Designly Practice (CDLY P) in my professional practice as an educator in the field within the UK, DfE national curriculum. Co-Designly Practice posits a non-hierarchical, non-colonising, and intersectionally conscious⁹ “epoché”,¹⁰ a lifted-up, multivalent moment, suspension, and pause. Subsequently, the research study cohort tested the Embodied Menstrual Awareness (EMA) Toolkit and its Co-Designly Practice method. Using epistemic, evidence-based fact, the EMA Toolkit posits a responsive, transferable (iteratively updating), digitally replicable, and scalable model for ‘co-researcher’ phenomenological, embodied menstrual awareness, reproductive health engagement, and agency.

I then introduce my hypothesis, research aims and objectives, and methodological approach.

1.0 Positionality:

According to Jasmine Gani and Rabea Khan ‘researcher’, ‘participant’, and ‘designated cohort’ “positionality statements” “may constitute hidden power moves” as they restate and reify “imagined” assumptions and judgements.¹¹ *Quod erat demonstrandum*:¹² from a ‘female’, ‘light, mixed-race British’, ‘lower-income background’ with five (ordinary level) O-levels and three (average) A levels, I have a master’s from Yale University and a first, undergraduate degree from Ravensbourne University.

In my life there is an x and y axis, axiology¹³ of arts-design education and advocacy. The point where x and y axes intersect is called “the origin” – of live phenomenology, the experiencer, the place where one always is; frontline or hereabouts.

Previously, I was full-time Lecturer, then Professor at the School of Visual Arts in New York. As core faculty in the field of visual communication for almost ten years, I taught design and perceptual psychology; critical theory and research methods; and contextual studies across the undergraduate, graduate, postgraduate, independent study, evening, and summer programs. Simultaneously, as *Brightness (1996-), I have specialised in visual communication: design, arts practice, research, Co-Designly Practice (CDLY P) pedagogy, and advocacy – within the research and educational field, the cultural milieu, and the development sector.

The other axis, advocacy work includes print design, ID, exhibition/installation design, web, film, and art projects with organisation such as the UN,¹⁴ designing advocacy materials and/or exhibitions across three World Summits: The European Commission/UNFPA Reproductive Health Initiative for Youth in Asia (RHIYA) at the Global Compact Leaders’ Summit; UNICEF’s Summitry Works: Words into Actions, for the UN’s Fourth World Conference on Women (FWCW);¹⁵ the UNFPA International Conference on Population and Development (ICPD);¹⁶ and the “You; Your choice; Your World” Population Issues Briefing Kit;¹⁷ amongst numerous campaigns, exhibitions, and websites for UN/WHO-affili-

ated international aid agencies, NGOs, and non-profit institutions. These include PlaySafe; PAX, SPEAK-UP, and ASK anti-gun violence school programs; Doctors Without Borders, Reos; the CDKN (Climate and Development Knowledge Network); the Municipal Arts Society and the Landmarks Preservation Conservancy; Snug Harbor Cultural Center; the US Department for Environmental Protection (DEP); ¹⁸ and the AIGA (the American Institute of Graphic Arts).

I have a joint D&AD Award,¹⁹ and as Class Action, a Cooper Hewitt National Design Award, an AIGA Award, and an ID Magazine Award. Group shows include work done towards this PhD: 'RED: A doctoral research, photographic post-card journal' (online here: rb.gy/w09syh) ²⁰ in 'Unfolding Narratives' at LCC, UAL (2024); a selection of images were in a group piece: 'PINK' at Yale University Art Gallery in 'Shelia Levrant de Bretteville: Community, Activism, and Design, a retrospective' (2024); and in 'Reinventing, rethinking, and representing menopause: beyond the interdisciplinary paradigm' (2018), at the Alison Richard Building (ARB), Centre for Research in the Arts, Social Sciences, and Humanities (CRASSH), at Cambridge University. Previous shows include: the DIA Center for the Arts, the New Museum, the SVA Gramercy Gallery, and as Class Action, the Cooper Hewitt Museum and the AIGA Gallery. In addition to presentations at numerous events and symposia, I am also a peer-reviewer for the International Journal of Art & Design Education (iJADE), National Society for Education in Art & Design (NSEAD), Wiley Online.

Throughout my doctoral research, I was a part-time, DfE Early Years Foundation and Key Stage 1 (age 4–7) Primary school teacher. With a frontline-embedded and experiential 'research mentality', my professional practice ²¹ fomented, iteratively developed, and rigorously tested my research methodology: Co-Designly Practice.

I am always in research modality and live praxis; this research, as 'becoming' is riverly discursive; a Heraclitus' River of fast-flowing currents, waylaying eddies, and contrary vicissitudes. The context of my doctoral study was "uprooted and ungrounded". ²² Covid-19 uncertainty, Lockdowns, and school closures cancelled my research study across a school term of PSHE classes at Bullers Wood School for Girls Secondary School in Southeast London. Unfunded and fee-paying, my research became exhaustively protracted trying to recruit a medical expert, external advisor amid a global pandemic with suspended government, education, healthcare, and social services public institutions and their directly experienced extenuating consequences. My professional practice as a Key Worker teacher became traction, within which, I took time to think about and work-out a heuristic methodology. I have included this professional practice (in Section 5) to show my workings, apropos in "a bubble" "held in suspension", "set-aside", and "epoché" ²³ during a global pandemic.

This dissertation is writ with/in body. An embodied 'body of knowing' (a bruised tenderness) that is phenomenological and qualitative. After a near-fatal traffic accident, I experienced decades of 'adversarial' gynaecological complications ²⁴ affecting menstruation (including endometriosis, adenomyosis, polycystic ovary syndrome (PCOS), heavy menstrual bleeding, miscarriage, and later, a high-risk pregnancy). Experiences in clinical settings in New York, London, and Brussels; diagnostic tests, ameliorative or restorative procedures such as medications, surgeries, and operations – taught me how little I understood ²⁵ female physiology and the practical advantages of understanding basic anatomy, the menstrual cycle, the endocrine and hormonal hypothalamic-pituitary-gonadal (HPG) axis, female reproductive health, and fertility.

As urgent imperative, the EMA Toolkit is designed to be first-person singular, ontologically processual, but significantly, "co-designly" inclusively intersectional and reflexive. This builds engagement and communities of support for embodied menstrual awareness, reproductive health (RH) understanding, enactive agency, and collective advocacy.

1.1 Research context:

A UK Department for Education (DfE), Physical, Social, Health, and Economic (PSHE), Relationships/ Relationships and Sex Education (RSE) and Health Education (RSHE) (abbreviated as PSHE, RSHE) ²⁶ toolkit is usually quite basic – an overview of a statutory, national curriculum topic with a series (or choice) of interrelated, guided lesson plans. The EMA Toolkit developed as part of this PhD is more comprehensive. It uses pencil-on-paper tracking and heuristic reflexivity as means to understand the three stages of the menstrual cycle: the menstrual phase, the follicular phase, and the secretory/luteal phase. By developing visual data literacy about what is ‘typical’ during menarche, adolescent, and adult menstruality, we can understand female ²⁷ reproductive health as live/d, uniquely embodied, and know when to seek medical advice. There are also group-based “discussion points” and interactive, “co-designly” arts-design praxis about basic anatomy, embodied awareness, and menstrual taboo.

I situate this work in a discussion of academic literature on the topic of menstruation, both quantitatively and qualitatively, from necessarily cross-disciplinary and culturally heterogeneous perspectives:

A contextual survey analyses menstruality through various scopes and registers, starting with the self—a self that is philosophically phenomenological (physiological and subjectively embodied), sensory-perceptual, and psychological. I identify the menstrual cycle as a nested, nonlinear dynamical system ²⁸ (dynamical homeostasis), set within a pluriversal ‘complex’ of affecting systems. These contextual ecologies, such as bios, the built environment, intersectionality (structural socioeconomic and demographic factors), and colonising biopolitics and biopower, are both milieu and epigenetic affect for qualitative issues of female corporeality and societal subjectivity. Familial and secular or religious community kinship ‘parent’ tacitly relational understandings about menstruation and taboo aetiology. ‘Understandings’ that are fluidly anthropological-historiographic, enculturating, and acculturating (for example, reflected in largely pejorative, period vernacular). I then question the ethicality of problematising menstrual awareness as “a risk to be managed”, positing international human rights of access to reproductive health (RH) and RH knowledge awareness. Subsequently, I use WHO/UN findings to support my critique, argument, and hypothesis. Examining female RH clinical healthcare, menstrual cycle modification, and fertility, I analyse digital apps (FemTech) versus analogue tracking. For example, in discussing menstrual tracking, I compare analogue Fertility Awareness Based (FAB) methods with FemTech menstrual tracking apps (via a case study of the Natural Cycles app). I then correlate algorithmic encoding 1’s + 0’s with Upper Palaeolithic menstrual and lunar cycle calendar “notational mark-making”. ²⁹ In the research study, these case studies informed “co-researcher” methods, praxis, and data visual probes for menstrual pedagogy via (practice-based) Co-Designly Practice methodology.

In extensive study of over a decade, I closely tracked: the research and educational field, the development sector, and cultural milieu, the areas covered include: –

1. Menstrual pedagogy in UK DfE schools; government changes to PSHE, RSHE statutory requirements, guidelines, recommendations, and public debate about this.
2. Academic and clinical research in the medical sciences about menstruation. (Additionally informed by a background of extensive, lived experience as an OB-GYN patient in RH settings.)
3. International development sector field data relating to adolescent RH initiatives based in RH ethics, human rights (OHCHR), and international law, (supported by access as an UN Consultant).
4. Professional practice as a frontline, UK DfE teacher – developing and testing “an arts-design lens and prism” praxis *with* children: Co-Designly Practice (CDLY P). CDLY P is a methodology for child-led inquiry for Key Stages 1-5 (ages 4-18) in schools and works *with-in* the national curriculum. (<https://www.lscovell.com/co-designly-practice> password: PhD) ³⁰

Research links: Co-Designly Practice arts-design interplay with – visually heuristic, menstrual-data tracking to – reproductive anatomy awareness with – experiential, embodied cognition (of internal interoceptive, external exteroceptive, and proprioceptive phenomena) ³¹ to – understandings of the historiographic, cultural anthropology of menstruation to

– female menstrual RH advocacy, agency, and wellbeing. (<https://www.iscovell.com/doctoral-research> password: PhD)

Dr. Sai Gnanasambanthan was medical expert, external advisor in the development of the EMA Toolkit. Dr. Gnanasambanthan is a Consultant in Obstetrics and Gynaecology at Epsom and St Helier University Hospitals NHS Trust, (previously) Specialist Registrar in Obstetrics and Gynaecology at King's College NHS Trust.

Information in the toolkit references the Royal College of Nursing's 'Promoting Menstrual Wellbeing'³² and their 'Women's Health Pocket Guide'³³ RCN Toolkit and the Royal College of General Practitioners' (RCGP) Toolkit. This was cross-referenced with continuously updating medical and clinical research via: the Royal College of Obstetricians and Gynaecologists (RCOG); the Faculty of Sexual and Reproductive Healthcare (FSRH) and their Hatfield Vision Manifesto;³⁴ the WHO, UN, and UNFPA Communications for Development (C4D's) and their "Menstrual Hygiene Management (MHM)"³⁵ and "Water, Sanitation and Hygiene (WASH)" initiatives.³⁶

In addition to: the International Convention on the [Human] Rights of the Child (UNCRC);³⁷ the UK Department for Education's national curriculum, their pastoral and safeguarding guidelines; and those of the PSHE Association; and Ofsted.

1.2 The gap:

Thinking she had sexually transmitted, venereal disease – and would die a shameful, slow death, Jennifer Thornly committed suicide. Age fourteen, she was unaware she had started to menstruate. In 1935, Rev. Dr. Chad Varah conducted his first funeral as an Assistant Curate in Lincoln, burying Jennifer in so-called ‘unspeakable shame’ in ‘unconsecrated ground’. The exclusion of “sinners, criminals”, “heathens, pagans, and those damned by suicide”³⁸ from Christian cemeteries was (previously) a form of purgatorial “excommunication” or attempt “to facilitate damnation”.³⁹ Profoundly affected by this experience, Varah became a lifelong advocate and practitioner of sex education for less educated youth. And, in 1953, he founded the Samaritans, the world’s first crisis hotline providing telephone support for individuals’ contemplating suicide.^{40, 41, 42}

1. “I was the first in my class; I hadn’t told my mother because I didn’t know what was happening. I really thought I was dying – like in films when they cough up blood into a handkerchief, then die later. I was nine, this stress went on for two years and I never told anyone. I had my first heavy period during a school trip abroad. It was horrifying, and I just wanted to go home”.

2. “Something similar happened to me, my sisters, mother, aunts, grandmothers ... We just didn’t talk about it”.

1. “I even forged a letter from my mother saying I was ‘very, very seriously ill and couldn’t do PE’ [...]. I dropped-out of the school netball and swim teams, and barely passed my [exams]”.

3. “I remember being afraid of having my first period. The concept of bleeding; I didn’t want to bleed”.

Research study co-researcher discussion.

For 51% of the population, menstruality is disproportionately neglected as menstrual health "disorders" are common. In 2024, the Royal College of General Practitioners (RCGP) note they make up 12% of all (UK) referrals to gynaecology services. The prevalence of heavy menstrual bleeding in adolescents is up to 37% with over 70% of adolescents experiencing dysmenorrhoea (painful periods with cramping), 29% of women (almost a third) have severe dysmenorrhoea. 30% of menstruators experience severe pre-menstrual syndrome (PMS), with 10% meeting the criteria for premenstrual dysphoric disorder (PMDD).⁴³

Reflected globally, in their 2015-2023 joint monitoring programme, the WHO and UNICEF report: “... menstrual health and hygiene needs are being overlooked due to limited access to information, education, products, and services, as well as inadequate facilities and inequalities”.⁴⁴ There are three gaps in menstrual education: pre-menarche in Primary schools, post-menarche in Secondary schools, and within local communities. This research addresses post-menarche menstrual pedagogy in UK Secondary schools, as according to Ofsted, PSHE education in preparation for puberty and post-puberty is “weak”, “poor”, lacks expertise, and is “not yet good enough”.⁴⁵ A longitudinal study, ‘the gap’ has altered, subsequently I have updated earlier research data, highlighting and tracking changes throughout the dissertation.

Adolescence is a period of intense physical and psychological transition from childhood to adulthood. The median age at menarche (first period) is 12.43 years in the US and other high-income countries (HICs). Only 10% of adolescent females are menstruating by age 11, but 90% are menstruating by age 14, and 98% by age 15. The age at menarche tends to be older in lower-income countries (LICs).⁴⁶

“Within 1 year of menarche, menstrual regularity approximates adult standards in most girls, although there is considerable variation in the time it takes for menstrual cyclicity to mature. Average menstrual cycle length is 21–45 days in 75% of girls 1-year post menarche; by 5 gynaecological years, 95% of menstrual cycles last 21–40 days, and about 75% of cycles are ovulatory, over the next several years, the mature menstrual pattern is established with approximately an 80% ovulatory rate”.⁴⁷

The United Nations Convention on the Rights of the Child (UNCRC)⁴⁸ and the UK government’s DfE draft ‘PSHE Joint Roadmap to Statutory RSE, 2020’,^{49, 50} stipulate that access to menstrual awareness is a legal, adolescent human right. However, there are currently no PSHE Association accredited resources to meet this statutory requirement.⁵¹ Designed for use in PSHE, RSHE education within the DfE Secondary school curriculum, the Embodied Menstrual Awareness (EMA) Toolkit robustly supports Secondary schools meet certain requirements of ‘Statutory guidance on re-

relationships education, relationships, and sex education (RSE) and health education',^{52, 53} and, significantly, 'New RSHE guidance, 2024'⁵⁴ is "adding several new subjects to the curriculum, and more detail on others. These include: [...] menstrual and gynaecological health including endometriosis, polycystic ovary syndrome (PCOS) and heavy menstrual bleeding" (material discussed in the EMA Toolkit).

The EMA Toolkit developed as part of this PhD contains a series of menstrual pedagogy lesson plans and workshop activities that are free and downloadable. As a not-for-profit and unfunded research project, the toolkit is intended to be Creative Commons (CC by NC DD: attribution, non-commercial, and no derivatives). Designed for visual, "co-designly" interplay, there are tear-sheets of grids, geometries, fold templates, and physiological outlines – for drawing 'corporeal cartographies' and '(re)mapping territories'. There is a choice of projects to do, and working in groups, co-researchers further design probes, toolkit materials, and exercises using the core information provided.

Practice-based workshops using the EMA Toolkit demystify female anatomy, the three stages of the menstrual cycle, menstrual blood, anthropological-historiographic understandings, reproductive health (RH), self-care, and RH agency. Co-researchers evaluate the usefulness and efficacy of pencil-on-paper⁵⁵ data visualisation as a tool for understanding and tracking ovarian and uterine cycles – establishing their link to menstrual flow and connectedness to physiological (embodied) changes. Through Co-Designly Practice heuristics, experiential learning, and reflexivity, co-researchers generate their own paper tools to visualise, encode, and track their menstrual cycle and uniquely affective data (rhythms, flows, and frequencies). This supports notions of embodied cognition, a phenomenological, "as lived" understanding of menstruation, and encourages long-term care of the self, reproductive healthcare engagement, and agency. The value of this research is an encoded, pencil-on-paper diagram designed by each co-researcher for learning about their uniquely mutable menstrual cycle. Here, diagramming, graphic elicitation, and geometry are visual framework and interlocutor for menstrual awareness and RH agency.

1.3 Menstruation as a "vital sign":

Globally, there is an absence of guidance, facilities, and materials for pupils to manage their menstruation in low- and middle-income countries (LMIC's).⁵⁶ In their "Committee Opinion" paper (reaffirmed, 2021), the American College of Obstetricians and Gynecologists (ACOG),⁵⁷ additionally highlights this as a higher-income issue, as "young girls and their [parents and guardians] frequently have difficulties accessing [information about] what constitutes normal menstrual cycles or patterns of bleeding". The ACOG identifies the menstrual cycle as "a vital sign" as environmental factors including socioeconomic ecologies, nutrition, and access to healthcare, may influence the timing and progression of puberty. Within the U.S. Department of Health and Human Services (NIH), there is consensus among endocrinologists, obstetricians, gynecologists, epidemiologists, paediatricians, researchers, nurses, and midwives that the menstrual cycle is as much a "vital sign" as heartbeat, blood pressure, pulse, or temperature as an indicator when assessing a woman's overall health. I question why this is not common knowledge. As a "vital" signifier, "a number of medical conditions can cause atypical uterine bleeding characterised by unpredictable timing and a variable amount of flow".

According to Lawrence Nelson of the National Institute of Child Health and Human Development (NIH), regular menstrual cycles are evidence of hypothalamic and pituitary stimulation and coordination – to support ovarian function and elicit appropriate ovary response. The hypothalamic-pituitary-gonadal (HPG) axis is a complex, nonlinear dynamical homeostatic, neuroendocrine system that governs menstruation and is sensitive to nuanced fluctuations in health. Generally, regular menstrual cycles indicate good health and bone mineral density, whereas atypical menstrual cycles might be the first sign something is amiss.⁵⁸ "Recognition and accurate diagnosis are undermined when clinicians and patients believe that 'anything goes' [re:] menstrual cyclicity and that it is OK (or even cool) to not have menstrual periods".⁵⁹ Furthermore, Nelson believes even subtle irregularities in the menstrual cycle could have significant, long-term consequences affecting vitalism and longevity.⁶⁰ In addition to its role in reproduction, the ovary functions as a pivotal endocrine gland responsible for producing steroid and glycoprotein hormones that have cascading and systemic effects. Sex steroids (androgens and oestrogens) help accrue and maintain bone mass and ovarian function, and hormone cessation results in significant bone loss (and possibly osteoporosis).⁶¹ Subsequently, the menstrual cycle is a window into the unique biology of each woman.⁶² Attention to menstrual irregularities and earlier medical

diagnosis of causal conditions lead to interventions that are “vital” for good health.⁶³ My research advocates for young menstruators learning about their own (singular) “fifth vital sign” and having the menstrual literacy to chart, track, and pro-actively engage with RH medical practitioners.

1.4 **Scaling up; the vector: UK Secondary schools, UK nationally, globally:**

Potentially: UK Secondary schools > potentially: UK nationally (via RCN Women’s Health) > potentially: globally (via WHO/UN CSE school educational programmes).

“The only things that can ever be universal, in a sense, are scaling things”.

James Gleick, *Chaos: Making a New Science*, (1987).⁶⁴

A global issue, my research designed a scalable, digitally replicable, and transferable model: the EMA Toolkit. The toolkit is ‘agile’ – intended to be “co-designly” adapted anew with each use via Co-Designly Practice. With its basis in phenomenological ‘lived’ experience, the toolkit acknowledges intersectionality and supports creative expression of “differantal” (qualitatively different)⁶⁵ experiences and identities. From the onset, I applied the WHO, Department of Reproductive Health and Research (2011), “Beginning with the end in mind: planning pilot projects and other programmatic research for successful scaling up”.⁶⁶ A structural and aesthetic argument of geometric recursion, the design of the EMA Toolkit uses the golden ratio as grid and framework for conceptual, exponential scaling-up. Germane to a Secondary school PSHE, RSHE programme in a localised, UK community; exponentially, it has the potential to be a part of the DfE national curriculum, possibly included in the RCN’s Toolkit, and post-PhD study, adapted for UN/WHO-affiliated, NGOs and international aid agencies CSE school programmes. (Christian Del Sol, Public Information Media Specialist at UNFPA very kindly wrote my doctoral research letter of recommendation.)

According to UN literature, “Globally, research findings indicate that menstruation is a neglected public health, social, and educational issue that requires urgent prioritisation, coordination, and investment”.⁶⁷ “Since document analysis has found an overwhelming silence on menstruation, and a thematic analysis of the existing allusions and references revealed an inadequate framework for addressing menstrual issues”.⁶⁸

Initially, I based my research on the gap identified in “UN General Assembly Resolution 50/130”, World Summit, (1994)⁶⁹ An unresolved issue, UN Communications for Development (C4D’s) tend to focus on dialogue: radio stations, community meetings, and school programmes etc.; there is a gap in visual resources for “the pivotal role of communication methods in the successful implementation of development programmes” and “as an integral component in the development of projects and programmes”.⁷⁰ This gap is pervasive throughout female reproductive health advocacy, education, and clinical practice, and is reflected globally. As axis for the most up-to-date, comprehensive, and international statistical data; the WHO’s “Make it visual, principles for effective communications”⁷¹ (2024), ratifies this earlier assessment.

My research addresses this gap by creating a visual toolkit for use in female, menstrual advocacy. While the cultural ethnology of menstruation may vary with context, age, ethnicity, cultural norms, and behaviours; this lack of visual information is nonetheless a widespread, significant, and clearly identified issue. Subsequently, I cross-reference my research as pertinent to this gap. Furthermore, I use human rights claims and WHO/UN-affiliated research data since, “Menstruation is a human rights issue”.⁷² Dr. Natalia Kanem, UNFPA Executive Director (2022).

Human rights “internationalism”, centred on group rights, sovereignty, and social justice have an alternative history; one that is narratology of competing rights claims and counterclaims, all based on our common ‘humanity’.

Stefan-Ludwig Hoffmann, *Human Rights and History Past & Present* (2016).⁷³

Hoffmann draws attention to “the self-evidence of individual human rights, which stand above the rights of states”,⁷⁴ region-specific sovereignty, patriarchal, religious, and cultural traditions, and taboos. In *Nongovernmental Politics*, 2007, Michel Feher describes a nongovernmental NGO facilitation approach,⁷⁵ whereby there is legitimacy via international and egalitarian human rights, and, therefore, ethical humanitarian support is justifiable. NGO’s use these means to objectively engage with (e.g., UK) governmental (i.e., PSHE, RSHE) practices, institutions, and ideologies. NGOs

can be independent or affiliated with the WHO/UN, but crucially, they are largely grassroots. In the last two decades, UN programme research, groundwork, facilitation, and implementation are almost entirely via subcontracted, specialist NGOs. NGOs allow for a grassroots, multivalent space for lively and dialogic debate, access to knowledge awareness, and community-led engagement to generate (co-design) alternative social praxes. For example, between 2003-2006, the European Commission and UNFPA's joint, seven-country Reproductive Health Initiative for Youth in Asia (RHIYA) collaborated with 80 local and international NGOs. To reach adolescents aged 16-24 required extensive community advocacy efforts involving community gatekeepers: parents, teachers, and religious and political leaders. Their approach included (sensitively) questioning norms, gathering quantitative, qualitative, and ethnographic research data to facilitate social change, whilst introducing a considered, community-participant and stakeholder self-reflexivity.⁷⁶ Quantitative results were 2.5 million peer education contacts, 650,000 clinical or counselling consultations, 74,000 referrals, 13,000 advocacy events, and 676 youth-friendly 'corners'⁷⁷ or service centres were established.⁷⁸ I worked on this campaign for RHIYA, likewise, the EMA toolkit has a "NGO facilitation approach".

1.5 Western development sector approaches:

More than 300 million women worldwide are menstruating at any time.⁷⁹ An estimated 500 million lack access to menstrual products and adequate facilities for "Menstrual Hygiene Management (MHM)".⁸⁰ "To effectively manage their menses", women and girls require access to "Water, Sanitation and Hygiene (WASH)" facilities, affordable and appropriate "menstrual hygiene materials", information on good practices, and a supportive environment.⁸¹ The WHO/UNICEF Joint Monitoring Programme 2012, defines menstrual hygiene management as:⁸²

Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear.

In *Managing the Monstrous Feminine: Regulating the Reproductive Body*, Jane Ussher writes "Surveillance of the fecund body starts at menarche, with menstrual blood as sign of contamination, requiring careful concealment and adherence to strict hygiene management".⁸³ Likewise, I critiqued Western development sector approach to menstruation – in clinical logos: 'whiteness', "cleanliness", "sanitary", and "hygiene" integral to the terms and global initiatives of WHO/UN: MHM and WASH. What does this communicate semiotically; that menstruation is soiling, dirty etc.? Semiology is the concept of the bilateral (two-sided) sign which consists of 'the signifier' (a linguistic form, e.g., a word) and 'the signified' (the meaning of the form).⁸⁴ How could linguistics be 'dialogic relay' to sensitively respect individuals and possibly, their various apothecic sacral traditions and structural beliefs?

Ten years later, in the 50th session of the Human Rights Council Panel discussion on "Menstrual hygiene management, human rights, and gender equality" (2022),⁸⁵ WHO called for three actions:

Firstly, to recognize and frame menstruation as a health issue, *not a hygiene issue* – a health issue with physical, psychological, and social dimensions, and one that needs to be addressed in the perspective of a life course – from before menarche to after menopause. Secondly, to recognize that menstrual health means that women and girls and other people who menstruate, have access to information and education about it; to the menstrual products they need; water, sanitation, and disposal facilities; to competent and empathic care when needed; to live, study and work in an environment in which menstruation is seen as positive and healthy not something to be ashamed of; and to fully participate in work and social activities. Thirdly, to ensure that these activities are included in the relevant sectoral work plans and budgets, and their performance is measured. (My italics.)

The UK Schools PSHE Framework, 2000, states: "Schools should also make adequate and sensitive arrangements to help girls cope with menstruation and with requests for ["sanitary"] ["protection"]". Again, in the use of certain words,⁸⁶ these directives perpetuate further dissonance, stigma, abject disgust, fear, or phobia (body dysphoria). Amongst the plethora of suggestive metaphors, innuendos, and euphemisms (false deixis)⁸⁷ how is it possible to reframe menstruation outside of language (patriarchal linguistic bent)? This research sets out a heuristic method to evaluate if visual arts-design praxis could posit an alterity. In their 'Period product scheme for schools and colleges',⁸⁸ updated in May 2024, like the WHO, UK Government guidance self-corrects:

When talking about periods ... you should avoid using words most negatively associated with periods like:

- sanitary (such as sanitary product) - may be associated with uncleanness
- female hygiene - this could imply that periods are in some way unclean
- poverty - using language associated with poverty may discourage pupils and students from using these products
- affordability - using this word or ‘struggling’ may imply that the products are only available for those who cannot purchase the products themselves
- shame - this may discourage openness and reinforce the idea of stigma and embarrassment ⁸⁹

In response to “period poverty” petitions, ‘the Period product scheme’ (2020-2025) ⁹⁰ provides free menstrual products for young people at state-maintained schools and DfE-funded 16–19 education organisations in England. These include “period pads, environmentally friendly period pads, reusable period pads, applicator tampons, non-applicator tampons, menstrual cups, period pants, pantyliners, and tights”. This followed a 2018, Scottish government initiative (including colleges and universities), in response to a survey finding that “one in four struggled to obtain menstrual products”. ⁹¹

Considered a strictly personal, intimate matter to do with ‘private parts’ and ‘sexual apparatus’, menstrual taboo silences discussion. Unfamiliar with the correct anatomical terms; uterine, cervical, vaginal, vulval, clitoral, urinary, and anus interrelatedness or proximity cause a ‘mixing-up’ of body parts, functions, and secretions. People lack basic knowledge about their reproductive physiology, fertility, and the menstrual cycle. ⁹² They reach menarche without awareness of menstruation ⁹³ and the information they receive post-menarche is incomplete, inaccurate, and sometimes only imparted once. ⁹⁴ Mothers tend to be the primary source of information, and this is based on their own experiences. ⁹⁵

“It’s like there is a blank triangle inside me”. Her light, tentative pencil drawing of “the female reproductive system (actual size), and without reference”; is a blank, white, upside-down triangle. “There’s a gap; I just don’t know ...?”.

(Research Study discussion about anatomy lessons at school.)

Karen Houppert writes in *The Curse: Confronting the Last Unmentionable Taboo: Menstruation* (1999), ⁹⁶ “After a while it becomes psychologically disorienting for [young] women to look out at a world where their reality doesn’t exist”.

In many countries, menstruation is considered egregious and concealed, while pregnancy is announced, welcomed and celebrated as a “proud event”. ⁹⁷ With pregnancy, ‘she’ acquires value, serving as “a vessel” ⁹⁸ for (re)production of genealogical heirs. This is paradoxical as menstruation and pregnancy are contiguous. Similarly, focus on hygiene, STIs, fertility and unintended pregnancy in the educational and development sector implies women and girls’ health only matters when it has sociological and economic implications, rather than as a cause in its own right. ⁹⁹ To offset socioeconomic bias, WHO, UNFPA, UN Women, and UNICEF run grassroots-local and youth-centric “youth participation and leadership empowerment”, Comprehensive Sexuality Education Programmes. Here, introducing Co-Designly Practice methodology could further seed grassroots, community-led initiatives with visually communicative outcomes. ‘A cultural probe’, the EMA toolkit is “co-designly” practice-based, heuristic, and iteratively processual, whereby it is ‘redesigned’ and ‘updated’ anew with each use to reflect local cultures and subcultures, visual vernaculars. Later survey and analysis of qualitative data would evaluate if ‘visual literacy’ (cogency) was enhanced by a sharing of situated cultural identities – to positively influence ownership, awareness, peer-to-peer support, practices, and outcomes.

1.6 Menstruation as an issue of public policy:

Restricting women’s bodily autonomy is a pervasive form of patriarchal control, both at the government level and within the family. Women’s empowerment depends on the protection of their sexual and reproductive health and rights, including access to healthcare and education, and the right to make their own informed decisions about their bodies.

UN Women, (2022) ¹⁰⁰

“In 2021, just over half (57 percent) of the world’s women were able to make their own informed decisions about sex and reproduction”. ¹⁰¹ I question if these decisions were verifiably informed; if so, when, how, and by whom?

Recognising international, child and adolescent human rights of access to information; in jurisprudence (and as a matter of procedure), global public policy needs to be more than simply hygienic “managing of menstruation”. Compulsory, comprehensive menstrual and sexual reproductive health (SHR) education programmes that are impartial, evidence-based, and informative should also be practically engaging – while acknowledging menstrual taboo is pervasive, patriarchal bio[s]political bio[s]power. Coinciding with menarche and young adulthood, being part of the national curriculum in schools engages an optimal cohort and has the widest reach. Furthermore, an informed approach becomes mainstream. *Parrhesia* (to speak freely) about menstruality in class with peers, family, and healthcare workers is crucial for learning about, supporting, normalising, and destigmatising menstruation.

1.7 The UK, Department for Education (DfE), Physical, Social, Health, and Economic (PSHE) and Relationships, and Sex, and Health Education (RSHE) in schools:

PSHE is a non-statutory subject, but all schools should make provision for personal, social, health and economic education (PSHE), drawing on good practice. [“Best placed to understand the needs of their pupils”,] schools are free to include other subjects or topics of their choice in planning and designing their own programme of education.^{102, 103}

However, since the Government made Relationships Education at Key Stages 1 and 2, Relationships and Sex Education at Key Stages 3 and 4, and Health Education from Key Stage 1 to 4 (collectively known as RSHE) compulsory in September 2020, many aspects of PSHE education are now on a statutory footing in all schools in England.

The Government provides funding to various bodies, principally the PSHE Association, to support the teaching of PSHE.¹⁰⁴

Since beginning this research in 2013, the PSHE, RSHE has changed name, positionality, and policies a multiplicity of times. Reflexivity and context-responsive revising and updating of (any) government policy is positive, particularly educational policies. However, sometimes, various updates coexist online with older statutory policies, recommendations, and guidelines. Nuances between what is “statutory”, “recommendation”, or “guidance” causes further confusion (or possibly intentional ambiguity or obscurity). This entangling complexity reflects an ethos of conflicting values, claims, and stakeholders. Politically aligned mass media, NGO advocates, and activist lenses and agendas continuously scrutinise and publicly critique PSHE in schools, for example:

“With no [UK Government, DfE,] PSHE ‘gender expression’ guidelines for schools, there is [Head and/or teacher] anxiety in schools about parental pressure and public, media scrutiny”.

“e.g., A Daily Mail investigation has uncovered ...?”¹⁰⁵

“Yes, exactly”.

Informal interview with the Head of Corporate Partnerships for “City to Sea”, “Plastic-free periods”.

PSHE, RSHE “focuses on exploring the emotional, social, and physical aspects of growing up, having relationships, engaging in sex and learning about human sexuality and sexual health”.¹⁰⁶ Previously, in the three sentences about menstruation in the PSHE framework (2000) guidelines, they recognised that “the onset of menstruation can be ‘alarming’ for girls if they are not prepared” and note about a third of girls in the UK have not discussed menses with their parents and 24% receive no preparation at all before their first period. Integral to education about puberty, they advise programmes should include a specific understanding of menstruation and menstrual wellbeing, support, and ongoing care. However, again, a gap or silence is evident - as there are only partial guidelines or materials for imparting this knowledge. (This explains my supplementation of the PSHE, RSHE national curriculum with the UN Convention on the Rights of the Child (UNCRC).) The UK government’s “statutory guidance” is undermined as some independent, free schools, academies, and faith-based schools can opt-out and parents/guardians can choose to withdraw their children from classes.¹⁰⁷ The quality of lessons in schools that did teach [RSHE] was graded “inadequate”, (“of concern”, with “serious weaknesses” or “requir[ing] special measures”) in 40% of classes inspected by Ofsted in 2012.

In their 2018 survey, Public Health UK found “Women of all ages cited school as the place where they gained most of their knowledge [about menstruation]”. This information, taught in a single GCSE biology lesson is “basic and out of touch with their lived experience”; they are “unaware of what to expect or how to manage their reproductive health needs”.¹⁰⁸ Across Plan International’s UK focus groups in 2018, “participants did not have a good understanding of

their own bodies and there was difficulty relating abstract anatomical information with their own physicality; this finding was echoed by nurses and healthcare professionals". The focus on "knowledge is disconnected from girls' own bodily experiences, and that including discussions of life experience and social context throughout a variety of classes is critical".¹⁰⁹ Furthermore, "15% of young people said they were taught nothing at school about menstruation".¹¹⁰ In a confusion of uncertainty, shame, and taboo, Plan International UK reported "[n]early half (48 per cent) of girls aged 14-21 in the UK are embarrassed by their periods". "It is essential to make sure that teaching materials emphasise the fact that everyone's period and experience of menstruation is unique, help identify healthy and unhealthy symptoms, and include the positive aspects as well as the challenges". The EMA Toolkit as 'an intervention' supports these recommendations, including "a shift in focus from the biology of menstruation to the more personal, subjective, and immediate aspects of the experience".¹¹¹

The government states that "all schools should make a plan for PSHE, drawing on good practice"¹¹² and that PSHE education is "an important and necessary part of all pupils' education".¹¹³ According to the 'Joint Roadmap to Statutory Relationships and Sex Education (RSE), 2020', the following subjects became compulsory: 1. relationship education in Primary schools, 2. relationship and sex education in Secondary schools, 3. and health education State-funded Primary and Secondary schools.¹¹⁴ Controversially, (and the impetus behind this research) there is no mention of the words "menarche", "menstruation", "period", or "menses" (outside of GCSE and A Level Biology curricula). Paradoxically, "The statutory guidance on RSHE and health education outlines, young people have the right to factually accurate, impartial information on all choices in relation to fertility and pregnancy, and this includes abortion and the law surrounding it".

In 2024, the Children's Commissioner, Rachel de Souza reported "Girls who previously took PSHE were more likely to say there were things they did not learn about that they wished they learned about (58%) compared to boys (48%)".¹¹⁵ Using dialogic parrhesia and constructive "co-designly praxis", gaps can be identified and addressed. During the research study, a co-researcher response was "This is answering all our questions".

"This [(EMA toolkit)] is exactly what we need, the Joint Roadmap to Statutory Relationships and Sex Education, 2020, requires that we cover SRH education yet gives us no resources. Like every school in the country(!), we are confused and at a loss about what we should do to meet this "statutory requirement". This is very reassuring for us, something that really empowers our students, helps them track their own menstrual cycles, and understand its connection to physical and emotional changes. We will help you as much as we can in this important work".

Deborah Carter, Deputy Head and Head of PSHE at Bullers Wood School, Kent, and a member of The Board of Governors at Bromley Safeguarding Children Board (BSCB) at Bromley Council.

In 2021, nearly two million girls in the UK missed a part or full day of school or college because of their period, 13% missed an entire school day at least once a month.¹¹⁶ I question why this issue is continuously overlooked¹¹⁷ and how it links to UK Government PSHE, WHO/UN (CSE) data suggesting that strategies for menstrual support should not only provide RH information, but also enable young menstruators to build their self-esteem, self-reliance, and increase their decision-making capabilities. To build critical thinking skills, self-care, self-advocacy, and RH engagement and agency; I argue that there needs to be awareness about the overarching, affective, and complex issues at work.

It is essential that preventive and early intervention should be seen as the cornerstone of multi-agency working to ensure pupils' right to education and to protect their health and wellbeing".¹¹⁸ "Approaches to public engagement have become more nuanced in recent years. Instead of appealing to a generic 'public', those working in academia and engagement have sought to build relationships with specific audiences and co-produce outputs with defined groups".¹¹⁹

'Public Engagement: Engaging with Healthcare Practitioners as Medical Historians' Symposium, The Centre for Research in the Arts, Social Sciences and Humanities (CRASSH), Cambridge University (2020).

Research question:

Could Co-Designly Practice (CDLY P), pencil-on-paper tracking, data visualisation, and encoding (using diagramming, geometry, and graphic elicitation), increase menstruating adolescents' embodied understanding of their menstrual cycle in schools?

Aims:

- i. To add to the field of knowledge by developing and testing an educational toolkit designed to increase menstruating adolescents' understanding of their menstrual cycle in Secondary schools. For use within the UK Department for Education (DfE), Physical, Social, Health, and Economic (PSHE), Relationships, Sex and Health Education (RSHE) curriculum, Key Stages 4 and 5 (age 15-18).
- ii. To examine how visual communication can be better utilised in menstrual reproductive pedagogy, care of the self, and reproductive health (RH) agency – by generating expressive content and forms of diagrammatic information.
- iii. To support a learning environment that enables participants to freely explore menstrual-related issues in anthropological–historiographic and contemporary contexts.

Objectives:

- i. Contributing to knowledge by testing the transferability and efficacy of a prototype methodology: “Co-Designly Practice” (CDLY P). Developed in my professional practice within the UK DfE national curriculum, CDLY P has a shared framework of social design and arts-design praxis.
- ii. To use this methodology to test my hypothesis in CDLY P visual communications: 1. as heuristic, design probes; 2. as visual register for tracking and understanding their menstrual cycle; 3. as potential visual interlocutor between the co-researcher and their medical practitioner.
- iii. To use these means so individuals can understand their anatomy, the menstrual cycle, and learn to chart their uniquely mutable ovarian and uterine cycles – establishing their link to menstrual flow and connectedness to fertility, sexual reproduction, pregnancy, and childbirth.
- iv. To build on and share embodied cognition specific to menstruation. Whereby arts-design praxis, graphic elicitation, diagramming, and geometry can structure, creatively express, or encode the physically embodied, phenomenological “lived experience” of menstruation.

Methodology: Co-Designly Practice (CDLY P)

The EMA Toolkit uses Co-Designly Practice (CDLY P) methodology, developed in my professional practice as a DfE Primary school teacher *with* children and *within* ‘the Early Years Foundation Stage’ and ‘Reception, Key Stage 1’, UK national curriculum. CDLY P is a transferable method for child-led inquiry across Key Stages 1-5 (age 4-18) in schools. The International Convention on the Rights of the Child (OHCHR) considers everyone under the age of 18 “a child”. Young people are those aged 10-24 years; this group combines adolescents: aged 10-19 years and youth: aged 15-24 years.¹²⁰ The EMA Toolkit is intended for ages 15+.

Primary research was practice-based in “the primary data of experience”,¹²¹ iterative, and helically reflexive. CDLY P mobilises “arts-design praxis as lens and prism” for “différental” (qualitatively different), heuristically experiential, and reflexive learning. Co-Designly Sensi” (CDLY S) moves from somatic sentience – to sense-certainty¹²² – to sense-making. “A mixed method design is useful to capture the best of both quantitative and qualitative [investigative] appr-

oaches”.¹²³ Serendipitous mixing of methodologies is illuminating, as each (re)configuration offers different levers, levels, and scales of dynamics of practice. In their practice, “[p]ractice theories are a kind of ‘modest grand theories’ as they offer [...] frameworks of categories and assumptions for developing substantial theories on specific practices”.¹²⁴ Interdisciplinary theory-building used methods such as phenomenology, visual communication literacy, and Co-Designly Practice (building on aspects of co-creation, co-design, and Superstructuralist¹²⁵ educational pedagogies), to develop a visual, social design, and practice-based toolkit for school-based communities of practice (COP).¹²⁶ The COP, a “communit[y] of inquiry and action evolve and address questions and issues that are significant for those who participate as co-researchers”. CDLY P is a learning method designed to be “co-designly” adapted by “co-researcher” (children, adolescents, or adults).

Intrinsic to group-based CDLY P, hermeneutic phenomenology works with-*in* individual, (phenomenological) understandings of sense-based phenomena and experience. An idiographic approach, I prioritise these subjective (but simultaneous) realities - over the more group-based anthropological and sociologically grounded ethnography. Based on the work of Georg Wilhelm Friedrich Hegel, Edmund Husserl, Maurice Merleau-Ponty et al. phenomenological theory is concerned with the study of experience from the perspective of the individual. (Hermeneutic) phenomenological research studies in an educational setting generally embody participants’ “lived experience”, perception and feelings. Since CDLY P is a socialisation of knowledges, any relationality acknowledges the incommensurability that (always) exists between phenomenologies. “The embodiment of incomprehensibility; indeed, impossibility – everybody lives from the self, even though that self never exists”, as a separate, circumscribed, bounded self.

Practice evaluation led to synergies, expansions, and areas of potential synthesis among these theoretical and methodological approaches.

1.8 Research study intended cohort:

For the most pervasive reach in menstrual education, this research identifies the Secondary school, PSHE, RSHE, Key Stage 4 and 5 (age 15-18) cohort. PSHE, RSHE classes present the most practicable space for this learning as PSHE is statutory and across (silo) subject disciplines.

In 2021, 18.8% of pupils left further Education at 16 and 40% of 19-year-olds did not have a “level three” qualification;¹²⁷ indicating significant difficulty engaging with Further Education beyond 16. From a physiological standpoint, postponing learning to track menstrual cycles until Key Stage 5 (16-18), whilst approaching cyclic maturity (typically around the age of 23) would be optimal, but with a lower threshold reach.

In the research study, I intended to further assess and evaluate the rigour and cogency of Co-Designly Practice, *in situ* within a Key Stage 4-5 (age 15–18) PSHE, RSHE setting at a local Secondary school. Unfortunately, I had to cancel an already organised research study at Bullers Wood School for Girls, with 30 self-selecting students, over a term of PSHE, RSHE classes. This was in response to COVID pandemic disruption, successive lockdowns, and acute PSHE staff shortages at Bullers Wood, plus post-pandemic industrial action by the four main teaching unions.¹²⁸ These extraneous variables created mitigating factors. Therefore, there was a secondary (non-optimal) sampling of a more stratified and diverse cohort. The research study was moved to University of the Arts (UAL), London College of Communication (LCC), and open to UAL students, alumni, and faculty.

1.9 Research study actual cohort, sampling method:

Volunteer participant co-researchers were self-selecting with no-one excluded or not invited to the study. The cohort included 16 undergraduate, masters, and postgraduate research students, recent alumni, and/or staff from UAL. Although all female, there was a wide gamut of menstrual phenomenology from age 19 to perimenopausal and post-menopausal. There was a richly diverse, international mix of ethnicities, cultures, and religious backgrounds. This allowed for a more rigorous testing of the toolkit and further Co-Designly Practice reworking with creatives, in an intensive Social Design and Data Visualisation academic discipline setting. Via the Royal College of Nursing’s Women’s

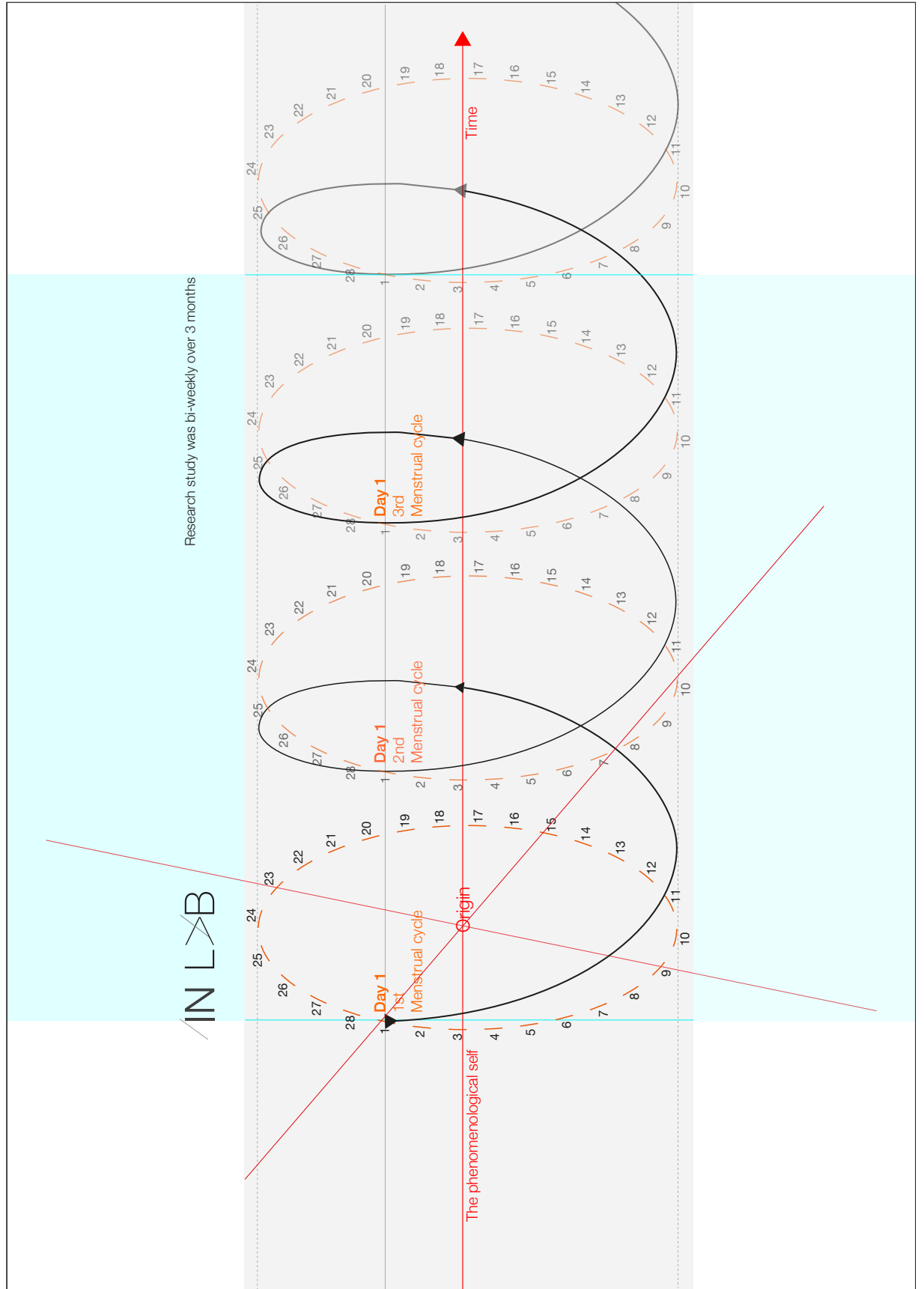
Health Forum, the EMA Toolkit has potential for use across a wider, reproductive-age cohort. Subsequently, the research study intended to further iterate two versions – one for schools and one for +50% of the UK population of reproductive age. Research study workshops aligned with ‘the PSHE’s Joint Roadmap to Statutory RSE, 2020’ guidelines and newly revised national curriculum (in addition to DfE safeguarding and pastoral care guidelines).

Dissertation overview, structure, and central argument:

The menstrual cycle is central to this thesis; as a continuously repeating, cyclical structure, it is helical in time (Fig. 1). An individual’s menstrual cycle is partially controlled by genetic factors,¹²⁹ is epigenetic (uniquely mutable),¹³⁰ and can subtly vary in length (longevity) from cycle to cycle. A “slightly irregular menstrual cycle” constitutes an 8-20-day variability that fluctuates with age, with the highest variability in women under 25 years (as irregular cycles are common during early adolescence), and between 40-49 years.¹³¹ In the diagram (based on a hypothetical 28-day cycle), the helical structure will shorten, stretch, and become irregular in response to an individual’s internal (interoceptive) and external (exteroceptive) embodied responses. Within a pluriversal, ‘live complexity’ of nonlinear dynamical systems (a system of systems); the menstrual cycle, as a helical structure in time, is a nested, nonlinear dynamical system.¹³² It is a homeostatic system (a nonlinear dynamical homeostasis), that is continuously recalibrating with epigenetic responses to age, genetics, behaviours, and contexts.¹³³ Subsequently, each menstrual cycle is a uniquely mutable ‘signature’: responsive to and attuning with, nonlinear and dynamical ‘cosmologies of complexity’ (Fig. 2, 3.) I argue that menstruality can be better understood as embodied and holistic by tracking one’s own menstrual cycle using the Embodied Menstrual Awareness method, (a simpler version of the Sympto-Thermal Method of menstrual tracking) and that menstrual tracking produces useful data to help support reproductive health literacy, RH, fertility, and wellbeing.

Section 1: is an introduction and overview of the research hypothesis, aims and objectives, and methodology. Section 2: situates menstruality in anthropological-historiographic, acculturating and enculturating contexts and explores menstrual taboo aetiology. Section 3: establishes the intrinsic centrality of phenomenology; the embodied, experiential self as subject: subject to, the subject of who, where, why, and what? An “I” who is qualitatively different within an ontologically existential (but experientially shared), ‘live complexity’. As nonlinear dynamical systems, we can understand how a menstrual cycle, a washing machine cycle, or a cyclone have traction and can be irregular, but ‘systemic’ and pattern based. Section 4: explores digital/AI futures, impacts, and consequences in healthcare; specifically menstrual tracking accuracy, accountability, and ethicality. Section 5: explicates the development of Co-Designly Practice methodology using arts-design praxis as lens and prism for learning within the UK, Department for Education (DfE) national curriculum. Section 6: Discusses menstrual cycle modification, fertility awareness based (FAB) menstrual tracking, and the development of the toolkit with case studies of two PSHE, RSHE toolkits. The concluding section is an analysis of the research study, co-researchers’ responses, and our combined reflexivity about the hypothesis, research aims and objectives, and methodology with a critical evaluation of the EMA Toolkit.

Fig. 1. Scovell, L. (2024) 'Diagram of research study, tracking three (hypothetical) 28-day menstrual cycles'.



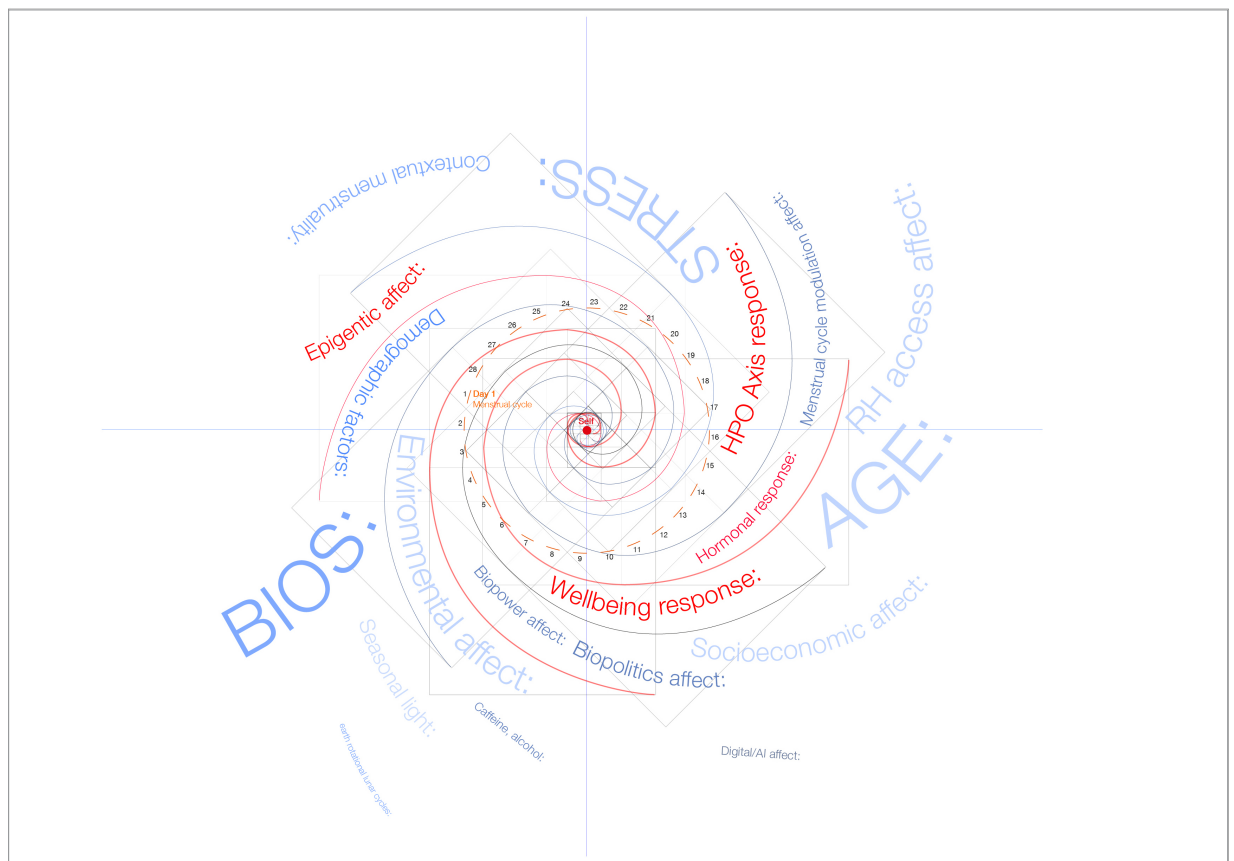
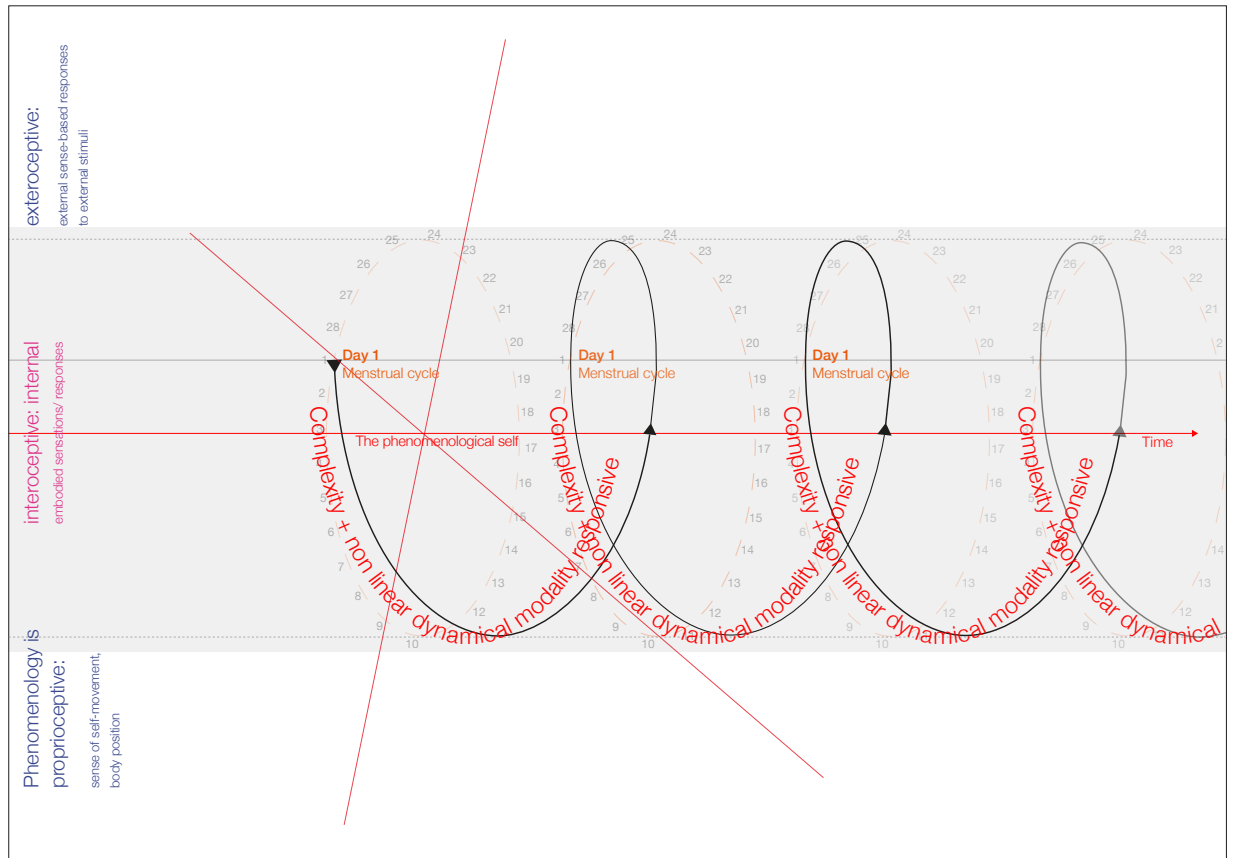


Fig. 2, 3, Scovell, L. (2024) 'Illustrate variability in complexity and nonlinear dynamical (modality) responsiveness'.

Section 2:

Contextual ‘menstruality’: menstrual taboo aetiology, anthropological-historiographic, and acculturation.

Introduction:

- 2.0 Adolescent menarche:
- 2.1 Menstrual blood: form, composition, and creation:
- 2.2 Word etymology, deixis, and poiesis:
- 2.3 Parrhesia:
- 2.4 Menstrual taboo and obloquy:
- 2.5 A histrionic toxin and bio[s]hazard; menstrual blood ‘toxicity’ or ‘potency’?
- 2.6 Flow, flows, flowing, flow-er, flo, [fluere, fluxi, fluxus] ...
- 2.7 Hysteria and pathologising discourses:
- 2.8 “The modulation and scaling of tender points”.
- 2.9 Blood, soil, faeces, urine: the first paint
Red hand stencils, handprints, and drawings:

Conclusion:

Section 2:

Contextual ‘menstruality’:

menstrual taboo aetiology, anthropological-historiographic, and acculturation.

Introduction:

“There is huge power in women’s refusal to be shamed”.¹³⁴ Suzanne Moore, The Guardian (2018).

In this section, I discuss menstruality, starting with adolescent menarche and an analysis of menstrual flow: hue, composition, and creation. I link this to period etymology, “false deixis”,¹³⁵ *poiesis*, and the concept of *parrhesia* (freely speaking truth), and menstrual obloquy: *ob* (against) and *loqui* (to speak). I then discuss menstrual taboo aetiology via anthropological historiography and acculturation, and social stigma. Considered a histrionic toxin and bio[s]hazard, I examine menstrual blood toxicity and potency. I link Freudian analysis of the subconscious with superstitious beliefs, “hysteria”, and pathologising discourses that misconstrue premenstrual molimina and premenstrual dysphoric disorder. I then discuss how menstrual blood is weaponised as ‘territorial’ ‘threat’ and ‘protest’ and was archetypal in Upper Palaeolithic fertility rite celebrations. These examples inform three sections of the EMA Toolkit: Menstrual blood, Menstrual cycle “modulation and scaling of tender points”, and the cultural anthropology of the menstrual cycle.

2.0 Adolescent menarche:

[...] was quite shocked about the amount of blood. From what I had said, and what she learned at school, she really thought it was [(equivalent to)] ‘like a scratch with blood on your thing’ that randomly appears and heals up very quickly”.¹³⁶ Anon, comment by a friend.

In *The Psychology of Women: A Psychoanalytic Interpretation, Volume 1: Girlhood* (1944), Freudian psychoanalyst Helene Deutsch characterises the onset of menstruation as “trauma”,¹³⁷ “being torn and dismembered internally”,¹³⁸ and “connected with ideas of horror, danger, shame, and sin”.¹³⁹ And that no matter the girl’s preparation, “female castration complex”¹⁴⁰ during puberty reawakens “the childhood genital trauma”,¹⁴¹ feelings of “anger, shame, depression, feelings of inferiority, and guilt”. “Approaching adulthood and sexuality is experienced as a threatening danger”,¹⁴² as menstruation is associated with [adult] “cruelty, uncleanness, bad odours, and reactions of disgust”.¹⁴³ However, Deutsch reports “by the close of adolescence, the narcissistic-passive-masochistic ‘feminine core’ of personality is normally stabilised”¹⁴⁴ – reflecting “the deep-rooted need of woman to be fecundated from outside in order to be creative”.¹⁴⁵ Her unquestioning¹⁴⁶ use of Freud’s work, casting¹⁴⁷ adolescent tendencies and uncertainty as “narcissistic”, “passive”, “feminine masochism”, and “feminine masochistic trauma” feels labelling and judgemental. Deutsch ‘problematises’ menstruation and her prioritising of patriarchal, and therefore, inferred descriptors further deep-roots and proliferates negative and somewhat pejorative conceptions. In *The Psychology of Women*, she comments:

The most important event of puberty is menstruation. A biologic sign of sexual maturity, the first genital bleeding mobilizes psychic reactions so numerous and varied that we are justified in speaking of the “psychology of menstruation” as a specific *problem*. The intermingling of biologic hormonal events and psychologic reactions, the cyclic course of the somatic process, and the periodic return of menstruation, make it one of the most interesting of *psychosomatic problems*. (My italics.)^{148, 149}

A more recent, literature review and self-report survey of the psychological impact of menarche on adolescents describes it as “a memorable” and “significant”¹⁵⁰ developmental event. Menarche heralds “womanhood” and fertility with no male equivalent. Although frequently perceived negatively, menarche is simultaneously reported as a positive, “integrating” experience.¹⁵¹ Factors influencing the psychological impact of menarche included age at the time of the first period, social environment, amount of preparation, knowledge and awareness, and cultural factors.¹⁵²

A healthy developmental event during puberty, menarche is a normal biological process for reproductive function. Whereas psychoanalytic discipline considers menarche: a significant “psychosomatic” event, “a psychic trauma”, or “problem” during the psychosexual development of feminine identity.^{153, 154} Empowering adolescents via menstrual

pedagogy with self-knowledge and embodied cognition: awareness, understanding, and self-trust in their experiences, seems pivotal to allaying juvenile fears and strongly deflect a menstrual lifetime of societal projection. Autonomy leads to emancipation from various menstrual taboos and self-silencing.

2.1 Menstrual blood: form, composition, and creation:

"Reds, rrrreds, the rrrrreddest rrrrrreds that shouuuuuut".

Carlo Carrà, Italian Futurist in *The painting of sound, noises and smells manifesto*, (1913).

Menstrual blood is discursive in colour and frequently changes in hue and consistency. Subtle fluctuations (in any order), from an oily, oxidised brown to ochre-red, a bright, smarting scarlet red, to a raw vermillion, then crimson, sanguine-red, carmine or cardinal, claret red, to a dullish ache puce-burgundy, or maudlin mauve, to a tender pale, pinkish-blush. The composition of menses varies according to the nuanced phases of menstruation. It usually starts with an opaque liquid, a thicker stage follows, then a clear, watery liquid. Note (above) how linguistic word descriptors alter perceptual (felt) understandings – 'the sense' of blood. During the research study, in the EMA Toolkit section "Bloody hell!", we discussed at length words as moderators: as a sign/signal signifying and concatenating with constellations of significations.

"What about fire alarm red?"

"No, it's warrior red!"

(Research study participant co-researchers)

"This colour Period doesn't seem to be usable as there is no Pantone code(?)" ¹⁵⁵

'Menstrual washing' or 'red washing' is a marketing tool. "Period" Pantone Color ¹⁵⁶ was a "PRWeek Global Award Winner 2021 for a Global Creative Idea". ¹⁵⁷ Swedish-based brand INTIMINA "which offers the first and only range of products dedicated exclusively to all aspects of intimate and menstrual health" and Pantone Color Institute collaborated to create "Period", "an energizing" and "dynamic warm red", "encouraging period positivity to serve as the visual color identifier for the Seen + Heard campaign". "[... A] bold and daring red shade that matches the color of a healthy menstrual flow [... and] leverages the power of color to attract attention to INTIMINA's mission of supporting the normalisation of periods, getting them seen and heard". ¹⁵⁸ However, construed as "a stunt", "Period" is synonymous with INTIMINA. Pantone considers its colour formulas to be their intellectual property, and they cannot be freely used. ¹⁵⁹ ¹⁶⁰ A basis for litigation, corporations sue other corporations for colours trademarked using the Pantone codes. ¹⁶¹ By asserting "colour language" ownership and licencing, Pantone has copyrighted and monetised (blood) red; a pre-existent, rudimentary, and elementary (primary) colour. Furthermore, their 'menstrual washing' standardisation of 'a certain red' as "healthy" is pathologising. It communicates a lack of basic knowledge and experience of the ever-changing, reddish hues of menstrual flow. As a bold, "adventurous", "courageous" red; ¹⁶² a revolutionary symbolic or "a fake feminist move", ¹⁶³ there were calls by activists Cromoactivismo to "liberate red" ¹⁶⁴ from corporate territorialisation, "cultural appropriation of color", ¹⁶⁵ and trope (reductionist 'wash').

"Pantone no! tinte político sí!" (No to Pantone! yes to political shades!) and "El color no es inocente" (Color isn't innocent). ¹⁶⁶

Cromoactivismo slogans and "poetic activism of colour". ¹⁶⁷

Red, by default, is the strongest colour. It has the longest wavelength of all the visible light and is a visual-perceptual advancing colour (positive chromostereopsis). ¹⁶⁸ An individual that is blind from birth can recognise red through their skin. ¹⁶⁹ Instinctually, it is a sensory-neurological blood pressure and temperature stimulus. ¹⁷⁰

The content of menstrual flow varies from one individual to another, from one cycle to the next. Menses contain red blood platelets, discarded tissue, and secretions from the uterus, cervix, and vagina, such as: 1. Uterine tissue: the thickened endometrial lining of the uterus, blood from capillaries in the endometrium, and blood clots; 2. Cervical secretions are mostly water and electrolytes such as sodium or potassium. This ionic solution helps keep the pH low, inhibiting unhealthy bacteria. (The pH level of menstrual blood is similar to ordinary blood (7.2). pH level is a measure-

ment of how acidic or alkaline a substance is. The pH scale is from 1 to 14. pH1 means the substance is very acidic, whereas > pH7 is alkaline; pH 7 is neutral, like pure distilled water. A typical vaginal pH level is between 3.5 and 4.5 (the same as tomatoes or beer); ¹⁷¹ and 3. Cells from the mucus lining of the vagina and healthy bacteria that make up the vaginal flora (the vaginal microbiome).

The thickness of the endometrium determines the volume of menstrual flow, for example, the hormonal contraceptive pill thins the uterine lining, making menses much lighter. The contraceptive pill, a hormonal implant (a contraceptive device implanted into the arm, or (uterine) intrauterine device (IUD)) suspends menstrual cycle ovulation (the releasing of an ovum (egg) each month). However, there is usually a withdrawal bleed (breakthrough bleed) for a few days – something that simulates a period.

Imagine the uterus as an orange, with the lining as the rind: fluffy, living tissue that serves as plush bedding for a potential embryo. Each month, triggered by a drop in the hormone progesterone, the lining sloughs off and grows anew, complete with delicate, spiralling blood vessels. This process repeats itself swiftly, scarlessly, without a trace of injury, again, and again, as many as 500 times in a woman's life. How the body [coordinates this] is extraordinary, ... ¹⁷² Hilary Critchley, University of Edinburgh, (2021).

Saima Sidik writes in MIT Technology Review, “Periods are rare in the animal kingdom. The human body goes through the menstrual cycle to prepare the uterus to welcome a fetus, whether one is likely to [materialise] or not.”¹⁷³ In contrast, most animals prepare the uterus only once a fetus is already present”. ¹⁷⁴ The menstrual cycle is a circuit of continuous “wounding and repair”. ¹⁷⁵ After ovulation, ¹⁷⁶ levels of the hormone progesterone plummet. This sudden decrease triggers an acute inflammatory immune response – akin to fighting an infection. “Inflammation injures the endometrium”, and “over the next [4-6 ...] days, the damaged tissue sloughs off and flows out of the body”. As the bleeding starts, the endometrium begins to “scarlessly” ¹⁷⁷ heal.¹⁷⁸ “Over the course of about 10 days, this endometrial tissue quadruples in thickness. No other human tissue is known to grow so extensively and so quickly – not even aggressive cancer cells”.^{179, 180} As the tissue heals, it becomes a formidable environment – one that can shield an embryo (a foreign entity in the body) from an immune system conditioned to reject interlopers. ¹⁸¹

2.2 Word etymology, deixis, ¹⁸² and poïesis:

“Such a word awakens new and independent words, organises masses of our words from within, and does not remain in an isolated and static condition; it is not finite but open; [...] able to reveal ever new ways to interpret”. Mikhail Bakhtin, ‘The Persuasive Word’ (1929).¹⁸³

Words have power, emotional valence, and affect. Linguistic relativity (the Sapir-Whorf hypothesis), mentioned in Section 3 and Section 5, is a concept paradigm in linguistics and cognitive science whereby the structure of a language influences (affects) the speakers’ cognition and therefore worldview; ^{184, 185} Lacan’s “[t]he unconscious is structured like a language”. ¹⁸⁶ And, according to linguist and neurologist Eric Lenneberg in his *Biological Foundations of Language*; this language is biolinguistic, a natural phenomenon[ological], and “an aspect of *his* biological nature, to be studied in the same manner as, for instance, *his* anatomy”.¹⁸⁷ (My italics.)

Anthropologist, Judy Grahn’s statement can be inferred linguistically: “Menstruation, because of its relation to the moon, was the most likely earliest source of the sciences of geometry, mathematics, and formal measurement”.¹⁸⁸ Diachronic (“through”, “time”) linguistics looks at language as evolving with/in history. ¹⁸⁹ Diachronically, “menarche” (the first menstruation) is from the Greek words *men* “month” and *arkhe* “beginning”. “Menstruate” stems from the Latin: *menstruare*, *menstruum*, from *menstruus*; being “menstruous”. Greek *mene* (moon), moon +ation. Old English: *mona:blot* “month-blood”, “monthly” (*mensis* “month”) (Middle English: *menstrue*, from French: *menstrue* ¹⁹⁰ and “lunation”). The word “menses”, meaning “monthly menstrual flow”, links linguistically to our collective measure and sense of time. In Scottish, *mense* means with “propriety, grace”. “Period” is “the period of menstruation”, often referred to as a “monthly cycle” or “time of the month”. Period: from *periodus*, “recurring portion, cycle”, also means “a complete sentence”. Periods are a “cycle, circuit, period of time”, “a going around”, from *peri* “around” (see *peri-*) + *hodos* “a going, travelling, journey; a way, path, road”.¹⁹¹

Grahn also traces the morphology of periodicity to *r’tu* meaning “menstrual”, suggesting that ritual began as menstrual acts. Ritual comes from the Sanskrit *r’tu*; the root of *r’tu* is in “arithmetic” and “rhythm” “*Rita*, means ‘a proper course’.

Ri, meaning birth, is the root of red".¹⁹²

"... Ritual, ritualis, ritus, rite - the root rit is in arithmetic and rithmus, (isthmus uteri), rhythmus, rhythmos, rhythm ..."¹⁹³

In German, the word for menstruation is *regel*, in French it is *regle*, and in Spanish it is *las reglas*; meaning "measure" or "rule" as well as "menstruation", cognate with "regal", "regalia", and "rex" (king). "Regulation", status, orderliness, ceremony, law, and leadership are semantically relative.¹⁹⁴

However, menstruation is commonly viewed as 'a curse', 'a malediction', literally in Latin: *male-dictio(n-)*, from *maledicere* speak evil of. *Maledicere* combines the Latin words *mal*, meaning "badly" and *dicere*, "to speak" or "to say".¹⁹⁵ Knowledge claims to do with religiosity and the supernatural can proliferate fears and misunderstandings that are difficult to justify epistemically.

2.3 Parrhesia:

Primordial and taboo subjects: menarche, menstruation, fertility, childbirth, menopause [...]; "a society that still doesn't[...] allow women to voice unspeakable truths [...]".¹⁹⁶ Menstruation is the "ultimate taboo".¹⁹⁷

Racheal Frazer, Perinatal Psychologist, (2018).

In his 1983-4 lectures, 'The Courage of Truth', Foucault discusses the Cynic philosophy of *parrhesia* "truth-telling". The *parrhesiastes* is the one who uses *parrhesia*, the one who speaks the truth: a truth ("her" truth), the truth in "free spokenness".¹⁹⁸ "*Parrhesiazomai*" discourse is dialogic. Prerequisite is the equal right of speech "*demokratia isegoria*" with equal political rights to participate "*isonomia*".¹⁹⁹ So, to speak we need egalitarian equality; a "courageous" and "true" democracy. In biopolitic, biopower relations, I question *what truth* and *whose truth*? Who gets to speak; say what is what, the name, and the value of things? In "the bareness of life"²⁰⁰ it is not the qualitative (in plural quantitative), phenomenological experienter.

"We speak of trees, colours, snow, and flowers; and yet we possess nothing but metaphors for things ..."²⁰¹ Friedrich Nietzsche's (1873) comment is at the heart of menstrual taboo: shy, indirect euphemism; innuendo; double entendre; colloquialism; slang; and "false deixis".²⁰² The "Bloody Hell!" section of the EMA Toolkit starts with a discussion about terms for menses. Together, we list all the names we can think of, comparing them to a taxonomy of internationally used terms. A ten minute "discussion point" prompt asks "How do these terms relate to everyday and socio-cultural anthropological menstrual taboos, shaming, and stigmatising? Some critics view these terms as patriarchal (from a male point-of-view and perspective). Is it possible to reclaim, mod, hack, or hijack this terminology for use on our terms? Alternatively, could we use something other; a new vernacular (lexicon, vocabulary, linguistic, or lingo)? What about a visual language instead? (Later on, we'll explore what this could look like.) Class brainstorming about possible strategies to use in our [Co-Designly Practice] toolkit".

However, contrary to feminist discourse, the cultural anthropologists Thomas Buckley and Alma Gottlieb argue "the universal" of the menstrual social taboo often "bespeak[s] quite different, even opposite, purposes and meanings" that are "ambiguous and often multivalent".²⁰³ In other words, there is ethnocentric: contextual reframing, acculturation (co-opting), and/or a patriarchal inversion of archetypal and primeval matrilineal beliefs about menstruation. Furthermore, should we trust anthropology or archaeology ("interpretive archaeologies")^{204, 205} are non-subjective? The post-processual movement, (circa late 1970s, early 1980s) is an archaeological movement elucidating the subjectivity of interpretation. Post-processualism consists of "very diverse strands of thought coalesced into a loose cluster of traditions".²⁰⁶ Within the post-processualism movement, a wide variety of theoretical viewpoints are embraced, including structuralism, neo-Marxism, and phenomenology.²⁰⁷ Deutsch's claim, "Society may change, but the meaning of the unconscious is immortal"²⁰⁸ interprets as [... the unconscious is "immortal", but meaning (sign, signal, and reflexivity), is a moment-by-moment-flow, discursivity, and sometime collision or confluence"].

2.4 Menstrual taboo and obloquy:

A taboo is a social or religious custom prohibiting or restricting a particular practice or forbidding association with a person, place, or thing.²⁰⁹ From Tongan “*tabu*” “set apart, forbidden”; in his *A Voyage to the Pacific Ocean* (1784),²¹⁰ Captain Cook introduced “*tabu*” into English. The Polynesian term for menses is “*tupua*” meaning both “sacred” and “menstruation”,²¹¹ or non-secularly “marked thoroughly”.²¹² In Oceanian societies, it is believed menstruants emit mana, a totemic supernatural power (force) ‘of the universe’. An impersonal, amoral (good and evil), supernatural power; mana manifests in extraordinary and dangerous phenomena and abilities.²¹³ Ethnologist Marcel Mauss and sociologist Emile Durkheim saw mana as having “intrinsic” or “sacred” content in “reciprocal” “gift” “exchange” and “relational” “kinship”.²¹⁴ In Mauss’s *The Gift*,²¹⁵ exchange of mana (“a talisman”, “honour”, “authority” as “a supernatural thing”) was “total social fact”. Possibly to do with dual exogamy; marriage-rite contracts and transacting of “property” – such as acquisition of “the abalone shells that a girl at puberty wears”.²¹⁶ Whereas anthropologist Claude Lévi-Strauss described mana as a “floating signifier”²¹⁷ “represent[ing] undetermined quantity of signification, in itself void of meaning and thus apt to receive any meaning”.²¹⁸ Paradoxically, mana is power, “taboo” identifies and names this power (potential), but in doing so, ‘contains’, ‘isolates’, ‘owns’ and ‘controls’ it. The menstruant, a temporal conduit of mana is, therefore, “taboo”.

In Freud’s *Totem and Taboo* (1913), taboo is simultaneously “‘sacred’, ‘consecrated’, and ‘uncanny’, ‘dangerous’, ‘forbidden’, and ‘unclean’”.²¹⁹ “Taboo status” is applied to “physical states of menstruation, puberty, or birth, and to all uncanny things, such as sickness and death and what is associated with them through their power of infection or contagion”.²²⁰ In *Managing the Monstrous Feminine: Regulating the Reproductive Body* (2006), psychologist Jane Ussher writes “Menarche marks the point at which a girl becomes a woman, when childhood innocence may be swapped for the mantle of monstrosity associated with abject fecundity. The physical changes of puberty – breasts, pubic hair, curving hips and thighs, sweat, oily skin, and most significantly, menstrual blood – stand as signifiers of feminine excess, of the body as out of control”.²²¹ “Women’s corporeality is inscribed as a mode of seepage”.²²² The psychoanalytic female body is “a lack”, an “absence” ‘with complexity’. Lacking not only a phallus but self-containment as a secretory, leaking, uncontrollable seeping, a formless flowing, entrapping viscosity. In *Volatile Bodies: Towards a Corporeal Feminism*, Elizabeth Grosz notes “she” is not like a cracked, porous vessel, or a leaking ship, but an elusive “formlessness that engulfs all form, a disorder that threatens all order”.²²³ Likewise, in ‘Powers of Horror: An Essay on Abjection’, psychoanalyst Julia Kristeva²²⁴ describes the protean nature of “the abject” that breaks with and transgresses boundaries of containment, fixity, and stability: “flows that cross the perimeter of the body, such as blood, vomit, sweat, and semen”. Menstrual flow, frequencies of disorder, messiness, abnormalities and irregularities, leaks, and stain cause “abject revulsion”, stigma, shaming, and social revulsion. I question if this acute psychological response is a combination of: primordial, archaic, and archetypal imprint, and is therefore, inherently collective unconscious (i.e. red/blood = threat/danger); is a ‘not knowing’ fear-based suspicion about portent, potent supernatural forces (shared as superstition); is subjectively perceived (consciously and subconsciously); and/or, is a socially conditioned, learned response in patrilineal populations?

We discussed this in the research study:

1. “I wanted to make a print of my cat’s paw and the only non-toxic paint I had was bright red. I gently pressed his paw into the wet paint. Seeing his paw suddenly ‘bloodied’ in an instinct of fright-flight, he flipped the paint tray ‘blood spatter’ up the walls. He raced screeching around my pristine-white apartment, red clawing-up and tearing down the silk-chiffon curtains. Anything for help! Clearly, with so much ‘blood’ spewed across the room I had inflicted a terrible injury! I think it was some sort of acute response; a reactive, amygdala response”.
2. “It’s like our reaction to spiders or snakes, there was no sharp bite or cut pain, just the seeing of ‘blood’”.
3. “It’s all about ‘the blood’ and horror of that”.
4. “Sometimes, I feel alarmed too. When there’s a lot of it and you’d forgotten”.
3. “It’s like you go back to your desk and sit quiet, a little in shock”.
4. “With your jersey wrapped around your waist!”

(Co-researchers in a research study group discussion. In these discussions, a shared openness and humour was able to defuse and depathologise sometimes complex feelings.)

2.5 A histrionic toxin and bio[s]hazard; menstrual blood ‘toxicity’ or ‘potency’?

“The fact that an opinion has been widely held is no evidence whatsoever that it is not utterly absurd ...” ²²⁵
Bertrand Russell (1929).

In his ‘Facts connected with the menstrual discharge’ in *The Natural History Encyclopaedia* (circa 79 CE),²²⁶ Pliny the Elder inculcates “Menstrual discharge [...] is productive of the most monstrous effects” of the “most dreadful and unutterable nature” ... “Caterpillars, worms, beetles, and other vermin, will fall from ears of wheat”, fields of crops and medicinal plants “die instantly”, “wither and dry up” at the “noxious”, polluting “menstruous female” touch or gaze, “fruitfulness” inverts into “barrenness”, animals miscarry, bees abandon their hives, and the “virulent” and “evil” menstrual fluid neutralises all spells of the magicians. Menstrual blood signals the cyclical loss of fecundity and is winter antithesis to spring fertility. In cataclysmic, ‘supranatural’ events, the same ‘evil power’ makes the land infertile: bare or barren. Histrionic and irrational fears were a refraction of contextual, parochial ignorance about female physiology and reproductive processes. Pathological ‘assigning of blame’; a psychological projection, expressed the anxious uncertainty and precarity of the period, powerfully linking human and ecological fertility.

And what if it is nature that produces the structure of the mind? Are we not all nature? And nature, as pluriversal complexity, is ‘out of (our) control’. (Researcher notes during research study.)

Similarly, “Menotoxin” could also be pathological projection of existential fears to do with WWI, II, and the Nazi Holocaust; the Great Depression; Hiroshima, Nagasaki, and the threat of the atomic bomb; the Vietnam War; the Oil Crises; and/or the discovery of manmade climate change. (Just as speculatively), it was conjured by libidinal tension in the workplace, whereby (typically unmarried) younger women began to work alongside (married) men. From 1900-1979, Menotoxin ²²⁷ was a hypothetical toxin found in the sweat and menstrual blood of women. In 1900, Alexander Ferenczi speculated about a substance that accumulated in the female body and after 28 days led to self-poisoning. ^{228, 229} There is no evidence-basis for the existence of Menotoxin. Apparent positive results published by immunologist Béla Schick and others in 1920 were based on inadequate control groups, insubstantial statistics, and confirmation bias. ^{230, 231, 232} Schick’s journal paper, ‘The Menstrual Poison’ reported anecdotal evidence of flowers wilting and yeast dough “failing to rise”. In his 1923 paper, ‘A Phyto Pharmacological Study of Menstrual Toxin’, published in ‘the Journal of Pharmacology and Experimental Therapeutics’, Pharmacologist David Macht built on Schick’s flawed research. ²³³

A lack of awareness is behind menophobia and ambiguity about the toxicity and potency of menstrual blood. Menstrual fluid, like blood, semen, and some bodily fluids, contains bacteria, and (as with unprotected sex), there is a risk of transmission of Human Papillomavirus (HPV), ²³⁴ Hepatitis C can live outside of the body for up to 3 weeks, ²³⁵ and Hepatitis B for at least 7 days, ²³⁶ while the HIV Virus can survive in dried blood for up to 6 days. (The concentrations of HIV virus in dried blood are typically low to negligible.) ²³⁷ However, there is also evidence of “magic”, “spell” and “potion”; ²³⁸ menstrual blood-derived stem cells (MenSCs) are a source of mesenchymal stem cells (MSCs). ²³⁹ MenSCs are attracting attention since their discovery in 2007 in regenerative medicine. There is capacity for “plasticity of pluripotent biological characteristics, immunophenotype and function, differentiative potential, and immunomodulatory properties”. ²⁴⁰ This is an exciting area of possibility in stem cell research in the medical sciences – as harvesting and implantation are significantly less invasive than using adult stem cells from bone marrow (multipotent stem cells) and less ethically controversial than using embryonic totipotent stem cells. ²⁴¹ In research, transplanted menstrual blood-derived mesenchymal cells (MMC) “significantly restored impaired cardiac function” and “began beating spontaneously after induction, exhibiting cardio-myocyte-specific action potentials”. ²⁴² Menstrual blood shows heart repairing stem cell properties ... this success rate is about 100 times higher than the 0.2 to 0.3 per cent of stem cells derived from human bone marrow. ²⁴³

Before we understood human antecedent genealogies in terms of sperm and ovum, many cultures believed the fetus formed in the womb by the clotting of menstrual blood. Anthropologically, menstrual blood was the primary life force, the procreative and generative principle. Fertility rites are often commensurate with menstrual and birth rites and blood is central. Menstruation is related to beginnings; it is rooted in our cultural as well as our biological beginnings. ²⁴⁴ At the heart of menstrual taboo is “the two-faced nature of blood”, ²⁴⁵ a substance that signals both life (eros) and death (thanatos) drives - a primal connection to the ultimate [psychological] split between life and death. ²⁴⁶

Anthropologically, blood initiation rites are segue into adulthood. In some cultures, circumcision and penile subincision bleeding ²⁴⁷ corresponds to and simulates female menarche and menstrual bleeding. These blood rites are a test of resilience, warrior bravery, and are healing ‘protection’ as “women’s blood was held in awe and terror because men saw that ‘she bled and did not die’”. ²⁴⁸

According to Psychoanalyst, Melanie Klein, menarche marks the achievement of sexual status ²⁴⁹ and heralds reproductive fertility and marriage, sexuality, and birth rites. Post-pubescent menarche is a time for building endurance and resilience: “to make her strong”, “to make her fertile” ²⁵⁰ and a series of esoteric, symbolic traditions and practices ritually prepare the menstruant for adulthood. Menstrual taboos tend to restrict social and sexual intercourse ²⁵¹ – sanctioning seclusion and secrecy. During the emotional transition from family to community, demarcating young menstruators as taboo and practices of concealment and social exclusion could be territorialising means to remove child adolescents from premature sexual attention and delay marriage rites. In a World Population Review, 2024, the age of (sexual) consent varies from 12-21. ²⁵² “Nearly a dozen countries, such as Iran, Qatar, Yemen, and Afghanistan, outlaw premarital sex entirely but have no age restriction on marital sex”. ²⁵³ Subsequently, the Office of the United Nations High Commissioner for Human Rights (OHCHR) considers anyone under the age of 18 “vulnerable”.

Anthropologic groups variously interpret menstrual rites as inherently celebratory with duties, rules, strict interdictions, and prohibitions about what is permitted, compulsory, forbidden, and punitively disciplined. Discretion links to decency and modesty, compliance (passive acquiescence), or submission; the uterine power to destroy and create life is socially subdued, ‘safely put away’ into abeyance. In *Bread, Blood and Roses*, Grahn describes how menstruants are variously lifted-off the ground in menstrual seclusion huts, lain for days in pits of stinging nettles, ²⁵⁴ buried underground, put to bed and left to languish in darkened rooms or outhouses (sometimes for several years post-menarche). As, unleashed, their threatening power might ‘earth’, electrifying land and water; a solution was to walk with thick blocks of wood strapped to the feet to lessen electrical contact with the ground and prevent ‘ground-breaking’. ²⁵⁵ *Caveats* (Latin “let him beware”) ²⁵⁶ of her touching others, objects, food, crops, livestock or animals, bodies of water or bathing, or being touched by daylight or moonlight abounded. Menstruators could not eat/or only eat with special utensils, such as an eagle or swan wing bone as a straw to drink. ²⁵⁷

Leaving menstruators alone is ‘rite of passage’, for example, the red rush of annually migrating sockeye salmon and their sinuous red flows simulate the river’s menstrual flow. A menstrual taboo meant that despite hunger or starvation, some indigenous peoples on the North-Western coast of the United States could not touch, hunt, kill, or eat sockeye salmon. ^{258, 259} Globally, and to date, sockeye salmon is wild and not farmed.

2.6 Flow, flows, flowing, flow-er, flo, [fluere, fluxi, fluxus] ...

Sometimes flow too soon, sometimes too late, they are too many or too few, or are quite stopt that they flow not at all. Sometimes they fall by drops, and again sometimes they overflow; sometimes they cause pain, sometimes they are voided not by the womb but some other way; sometimes strange things are sent forth by the womb”. ²⁶⁰

The midwives book. Or the whole art of midwifery discovered. Directing childbearing women how to behave themselves, Jane Sharp (1671).

Menstrual “discharge” is described as abject, an effluent (from the Latin *effluere*: “to flow out”) bodily excrement. What is the likelihood this is to do with Lacan’s linguistic of “the symbolic order” that is “culturally coded male?” Reframing this, flow-ers becomes flowers: Latin *fluor* or *flor* (“flowings” or “flux”. “Flowers are restful to look at. They neither have emotions nor conflicts”. ²⁶¹ Flowers symbolise tropes such as the resilient beauty and fecundity of spring, rebirth, fresh, tender vitality, and uterine procreative power. Historian, Patricia Crawford links this floral anthropomorphism to the flowers that precede the fruit (baby). ²⁶² In the early modern period (1500–1700), they coded menses as “the flowers”. Discretely concealed reproductive health “flower” and plant, herbal tinctures and medicinal remedies were printed in widely shared domestic and culinary recipe books. In the index are “methods for provoking red flowers” (Freud’s red camellia), ²⁶³ stopping excessive bleeding, ²⁶⁴ or attending to “white flowers” (various vaginal secretions). ²⁶⁵

In ‘The Taboo of Virginity’ (1918), Freud links “defloration” and “deflowering”, with (neurotic) “male castration anxiety”,

"impotence", and the "horror of blood and menstruation".²⁶⁶ Fear of blood and menstrual blood are important ubiquitous elements in the unconscious – conflicts and experiences associated with the concepts of the loss of virginity, [sexual intercourse, and birth].²⁶⁷ This 'deflowering' is bloody, portrayed as 'soiling', 'defiling', and 'cross-contaminating' or 'polluting'. "Animal and human blood reveal the combination of fascination and repulsion of taboo whether in the hospital operating room or at the site of a car crash".^{268, 269} Likewise, Lacan's "the Name-of-the-Father" patriarchal "symbolic order"; uses terms that pathologise menstruation and create female psychical conflict (cognitive dissonance, dysphoria, and/or dissociation). Female anatomy is described as a "lack" (of phallus) a "not-whole", a gap, a negative, an absence, or Other. Freud theorised that the clitoris is "the scar or wound left by her castrated penis"; an atrophied penis.^{270, 271} The advent of menarche is a wound of "symbolic castration"²⁷² ("genital trauma"),^{273, 274} a non-secular stigmata (stigma) – a Sinthome (symptom). Simultaneously, the vagina becomes "a devouring mouth, or *vagina dentata*; the jaws of the giant cannibalistic mother".^{275, 276} A psychosexual threat to men that is "traumatising", "Oedipal", and "male castrating" (a penectomy) – as once inside, man *becomes* woman and his penis "a bleeding trophy".²⁷⁷ Patriarchal fears or pathos about female virginity, flowering sexuality, menstruation, pregnancy, and birth link to male libidinal drives. Freud's observation that "in neurotic anxiety ... what one fears is obviously one's own libido"²⁷⁸ is key to the meaning of taboo;²⁷⁹ "[a] discomfort of guilt arising from instinctual wishes".^{280, 281} In the past, considered as "[f]emal snares"²⁸² who entrap men through their beauty, women's "faces are lures, their beauties are baytes, their looks are netts, and their wordes charmes, and all to bring men to ruine".²⁸³

Simplistically (reductively), there is a Freudian, polemic: Madonna-whore, Oedipal complexity; an either/or, passive-aggressive, and fear-based insecurity/ hostility. The Christian iconic contrast between the chaste, white lily: "Annunciation Lily",²⁸⁴ feminine "flower" of "the 'divine' 'Virgin Mary', 'mother of Jesus' + the thorny-rose "petals open[ing] to secrets and forbidden knowledge",²⁸⁵ "prostitution" and "penance" of Mary Magdalene *made flesh* = the male rubric of psychic impotence.^{286, 287} Herein is the underlying, structural taboo: "the sacred" versus "the profane" (or animal) love,²⁸⁸ constituted in male-female tension and polemic. Forevermore "in Original Sin", tempestuous Eve – an arche genealogical antecedent and the gynaecological origin of humanity – is shrouded in Christian guilt. Subsequently, all females (thereafter) must suffer in childbirth and bear the guilt and shame of (aetiological) androcentric 'humanity'.

In 1559, in his *De Re Atonomica*, Italian anatomist Matteo Realdo Colombo described female anatomical structure as similar to the sheath or scabbard (Latin *vagina*) of a sword. Translated into English in 1578, it became a standard textbook of anatomy.²⁸⁹ Previously, in Roman culture, *gladius* (sword) was not slang, but the proper word for penis.²⁹⁰ Colombo named the "placenta" (cake) and the clitoris as "Amor Veneris, vel Dulcedo Appelletur" (the love or sweetness of Venus).²⁹¹ In this sample of terms there is: projected narcissistic and symbolic violence – delicious pleasure – and idealistic adulation.

Thematic is a reconstruing or inverting of male-female power dynamics from archaic and traditional knowledgescapes. In his *The Interpretation of Dreams*, (1900), Freud's snake is the most important symbol of the male phallus. Eve receiving the fruit of knowledge from the serpent in Genesis is familiar, however, Western European artists depicted the serpent as a goddess from about 1200 to the 1600s. Saliently, the snake, Hogarth's serpentine and sinuous "line of beauty"²⁹² is synonymous with the riverly meander and discursive flow of menstrual blood.²⁹³ The ouroboros is an ancient symbol depicting a serpent eating its' tail – signifying eternal, cyclical renewal of birth, life, and death. A fertility symbol: the tail is a phallus, and the mouth is a yoni.²⁹⁴ However, the primordial and archetypal snake was a 'vessel', vagina-like structure that expands to accommodate man, both in birth and sex; a fearsome power manifesting Freud's "castration complex". In Aboriginal culture, the rainbow snake encircles the earth and is the coveted source of all creation.²⁹⁵ Caduceus, with its two snakes and wings, is an international symbol of healing and maternal care in medicine, alternatively, the Rod of Asclepius has a single snake.

2.7 Hysteria and pathologising discourses:

Menstruation is "the moral and physical barometer of the female constitution" Physician, George Man Burrows (1828).²⁹⁶ A cause of "moral and physical derangement". Psychiatrist Henry Maudsley, (1873).²⁹⁷

In the Hippocratic Corpus *"Diseases of Women"*,²⁹⁸ (5th and 4th centuries BCE), based on Plato's dialogue *Timaeus* (second-half of the second century CE); the physician Aretaeus describes the "wandering womb": "an animal within an animal",²⁹⁹ a uterus that moves "out of place" and "floats" within the body.

In the middle of the flanks of women lies the womb, a female viscus, closely resembling an animal; for it is moved of itself hither and thither in the flanks, also upwards in a direct line to below the cartilage of the thorax, and also obliquely to the right or to the left, either to the liver or the spleen, and it likewise is subject to prolapsus downwards, and in a word, it is altogether erratic. It delights also in fragrant smells, and advances towards them; and it has an aversion to fetid smells, and flees from them; and, on the whole, the womb is like an animal within an animal.³⁰⁰

Later, the concept of a pathological and chaotically errant "wandering womb" became the source of the term *hysteria*³⁰¹ from the Greek for uterus (*hysteria*). Marriage, intercourse, and childbearing relieved the supernatural, demonic possession (psychosis) of hysteria. Physician Abraham Zacuto writes in his *Praxis Medica Admiranda*, (1637):

Because of retention of the [menstrual] sexual fluid, the heart and surrounding areas are enveloped in a morbid and moist exudation: this is especially true of the more lascivious females, inclined to venery, passionate women who are most eager to experience physical pleasure: if she is of this type, she cannot ever be relieved by any aid except that of her parents who are advised to find her a husband. Having done so the man's strong and vigorous intercourse alleviated the frenzy".³⁰²

The uterus was somehow mixed-up with the "animal[istic tendencies]" of the amygdala and limbic system in the brain. In the mid-1800's, neurologist Jean-Martin Charcot, determined hysteria was a neurological disorder with a hereditary predisposition and a psychological disease, affecting both sexes. Nevertheless, the enculturated link between the uterus, 'out-of-character' "animus"³⁰³ hysteria, and female neurology persists as cultural stigma.

Hysteria is anarchic, psychotic delirium; artist Antonin Artaud's 'catalysing primordial scream or raging haemorrhagic "jet of blood"'.³⁰⁴ Feminist social historians assert that hysteria is reactionary to oppressive and coercive social strictures. It is a bodily-psychical response to, refusal of, and subversive form of agency (of upending and violent jouissance) against the societal conditions of femininity and subordination. As source of formidable creative, disruptive, and destructive power; the hysteric transcends into a state of liberation "an explosive, diffusive, effervescence, abundance... [that] takes pleasure (jouit) in being limitless".^{305, 306} Hysteria is a metaphysical, 'bloody-violent' sloughing-off and shedding of social mores in the 'uterine' brain. Here the modality is entirely, directly nerve-neural: pure sensation (sensi)³⁰⁷ to reactivity.

"The body is thus not something that is fixed once and for all, but a more or less graspable, heavy extension and exhibition, or what we could call an 'existence-place'". H  lio Oiticica's *Parangol  s: Body-Events*, (2004).³⁰⁸

The *kh  ra*,³⁰⁹ described by Plato (et al) is a metaphysical womb, resonating with interrelational concepts such as "the matrixial",³¹⁰ "the plane of immanence",³¹¹ "the monad",³¹² and the "heterotopia".^{313, 314} These confuse with philosophical theories speculating about the source of creativity as a metaphysical place of conception. According to Plato, *kh  ra* is a receptacle, a space, or an interval; the milieu in which his *Forms* materialise. His *Allegory of the Cave* has overtones of the maternal: as a womb of subconscious realisation. Derrida describes the *kh  ra* as a radical otherness that "gives place" for being. (Like Foucault's heterotopia), something through which everything passes but in which nothing is retained, just as a mirror holds a reflection. He defines *kh  ra* by what it is not: *kh  ra* is that which defies the logic of noncontradiction, the logic of either/or. Similarly, psychoanalyst Bracha Ettinger's "matrixial" escapes the masculine/feminine opposition and engenders a metaphorical place and a process of human co-emergence. The *kh  ra* holds Deleuze's plane of immanence: "the state of being within". Immanence is derived from the Latin root *en maneo* which means "to stay, wait, or remain within" or "I remain within".³¹⁵ Similarly, Deleuze's monad³¹⁶ is an empty or floating signifier, a symbol, or a concept loose, yet specific enough to galvanize action in a particular direction. It is a Foucauldian Other space, 'projected' utopia, and heterotopia. The uterus then is a symbolic, mythic space, and genealogical loci of power: a place where something occurs. It is the site where morphogenesis of Immanuel Kant's *the thing-in-itself* begins: *the noumenal*, and Roland Barthes' *punctum* (point) of a newly autopoietic self.

2.8 "The modulation and scaling of tender points":³¹⁷

According to a 2020 study, 90% of menstruants of reproductive age experience physical and psychological symptoms related to their menses. Premenstrual molimina is mild: breast tenderness (mastalgia), tiredness, difficulty sleeping, headaches, fluid retention, and acne. Molimina is cyclical, occurring during the luteal phase of the menstrual cycle (the interval between ovulation and the start of menses).

Several standards have been developed to quantify premenstrual symptoms: "the calendar of premenstrual syndrome experiences" (COPE), "the prospective record of the impact and severity of menstruation" (PRISM), and "the (pain) visual analogue scales" (VAS). 40% experience premenstrual syndrome: dysmenorrhea (severe and frequent cramps), mastalgia, bloating and bowel changes, lack of sleep, mood swings (irritability, depression, anxiety, and a lessening in confidence). 2% to 8% suffer from premenstrual dysphoric disorder (PMDD); ³¹⁸ "PMDD is a more severe constellation of symptoms, that lead to periodic interference with day-to-day activities and interpersonal relationships". ³¹⁹ In 2019, the World Health Organisation added PMDD to their International Statistical Classification of Diseases and Related Health Problems, 11th Revision (ICD-11), validating PMDD as a legitimate diagnosis and acknowledging growing scientific and medical understanding of this previously under-recognised condition.³²⁰ Included as a distinct entity, PMDD is in the latest version of DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th edition). After years of debate about PMDD inclusion "as a distinct psychiatric condition"; ³²¹ "the importance of alerting psychiatrists to the critical involvement of the menstrual cycle in psychiatric disorders is now widely accepted".³²²

"Psychological and pharmaceutical guidelines and treatments are generic for 'an abstract person'".³²³ However, "mental health care is uniquely 'case by case'".³²⁴ Is it correct, of beneficence, or ethical to classify premenstrual dysphoric disorder as a psychiatric illness in the revised DSM-5 classification? ^{325, 326} Questions arise about treating symptoms as *sinthomes* (psychologising bias) and not examining the underlying, systemic causes, such as, for example, hormonal imbalances caused by endocrine: hypothalamic-pituitary-gonadal axis disorders (etc.).³²⁷ So, in effect, we are still circling back to 'female hysteria'. Reflexively, in retrospect, medieval methods of (medically induced) sexual stimulation and marrying-off a woman for "a man's strong and vigorous intercourse" were harsh, sometimes brutally callous. During the luteal phase and menses, conditions like dysmenorrhea and dyspareunia worsen. Dysmenorrhea is pain caused by prostaglandins, chemical secretions that contract (cramp) the muscles and blood vessels of the uterus to release and shed the endometrial lining. Dyspareunia is pelvic floor discomfort (or dysfunction) making movement, exercise, or intercourse painful. With, for example, pregnancy, endometriosis, pelvic adhesions, polycystic ovarian syndrome, fibroids, cysts, (etc.) both dysmenorrhea and dyspareunia can be extreme (potentially reaching the pain level of childbirth). To date, physiological pain-response continues to be misinterpreted, mistreated, and maligned ("male-dicere" malediction) as mental illness (irritability, depression, anxiety, etc.). Something as basic as needing to stay in bed to offset debilitating pain and/or menorrhagia (heavy bleeding) can be mislabelled (false *deixis*) ³²⁸ as (cyclic) depression. I call for a kinder, sensitively case by case ("biophysical dynamical-homeostatic"), ³²⁹ holistically integrated and supportive medical care and self-care 'joined-up approach'.

Learning to track and encode one's menstrual cycle (code into horizons such as BBT temperature, cervical secretions, blood loss, pain level, and mood) – and heuristically engaging with one's own physiological data in an informed way – could help support medical care practitioners to correctly correlate, diagnose, and treat complications. Early intervention is critical as many RH conditions are progressive.

2.9 Blood, soil, faeces, urine: the first paint

Red hand stencils, handprints, and drawings:

In his memoir, Alejandro Jodorowsky recounts an encounter between Surrealists Luis Buñuel and Lenora Carrington. Lascivious for Lenora and "emboldened by the notion that she transcended all bourgeois morality; (with characteristic bluntness) [Buñuel] asked her to be his mistress". Pre-empting a response, he handed her the key to his secret studio for sexual trysts, instructing her to meet him at three o'clock the following afternoon. Early the next morning, Leonora went to his studio that resembled "a motel room". On her menstrual period, she covered her hands in blood and made bloody handprints all over the walls, decorating the anonymous, impersonal room. Buñuel never spoke to her again. ³³⁰ Her blood mark-making artistry had quelled his libido with an aspect of threat and territorialising 'horror'. Her "righteous" red hand; a *dextera dei* (right hand of God), an archaic symbol signifying divine protection, wrath/vengeance,

strength, and power.^{331, 332} In his *Paradise Lost, Book II*, 170-174, (1674),³³³ John Milton writes:

"What if the breath that kindled those grim fires, / Awaked, should blow them into sevenfold rage, / And plunge us in the flames; or from above / Should intermitted vengeance arm again / His red right hand to plague us?"

On the battlefield, a ruddy hand marks a great warrior; their hand (arm) run through with the blood of their enemies.^{334, 335} Lieutenant General George S. Patton's 1944 speech to the Third United States Army rallies, "War is a bloody business, a killing business... Wade into them, spill their blood or they will spill yours. Shoot them in the guts. Rip open their belly..."³³⁶ A bloodied hand imprint on an enemies' banners and flags signals victory.^{337, 338} A (bloodsoaked) red flag warns "no quarter"; no surrender; no clemency³³⁹ – resonating in Judy Chicago's 1971 "Red Flag" photograph of a bloodied tampon removal.

In February 1980, Irish Republican Army (IRA) member Mairéad Farrell and thirty-plus prisoners in Armagh Women's Prison joined "the dirty protest". After serious allegations of maltreatment by British institutional apparatus and male prison officers,³⁴⁰ they escalated their "no work" protest to "no wash" and "no slop-out", in support of the men in the H-Blocks, Long Kesh Detention Centre. Locked in their cells for 23 hours a day and denied access to basic facilities, they began smearing excreta and menstrual blood on the walls. Their cells were left uncleaned for the first six months, with the protest continuing for a year. In resistance and defiance,³⁴¹ "inscribing" "primordial symbols" to achieve "existential recognition" in a battle where "prison discipline, ... uniformity, the substitution of names for numbers, and extreme forms of humiliation constituted the ultimate form of erasure".^{342, 343} Made explicit and "weaponised" menstrual blood, a taboo, "marginal filthy substance"³⁴⁴ became central to their political protest.³⁴⁵ In their reframing of menses as contaminating excreta, they weaponised disgust to expressively demarcate and re-politicise their incarcerated bodily presence. This re-politicisation simultaneously reasserted their international human rights to political prisoner status which had been withdrawn. The Armagh "dirty protest" destabilised "the disciplinary power that inscribes femininity on the female body",^{346, 347} thereby transgressing powerful social norms that relegated women to the home and silenced 'women's issues' more generally.³⁴⁸ It led to the formation of a Sinn Féin Women's Department in 1980 and their policy document, unanimously supported at the Ard Fheis (national conference) – with appeals for increased access to divorce, public childcare, childcare to be shared by both parents, free and accessible contraception (and the reprimand of doctors who refuse to dispense contraceptives), non-directive pregnancy counselling, and sex education.^{349, 350}
³⁵¹ Feminism within the Republican movement was radical, attracted media attention and challenged sexist attitudes about roles and political participation. However, in retrospect, women's issues were not a priority for Sinn Féin.³⁵²

"The Holiness code", Leviticus 17:11 says "the life of a creature is in the blood",³⁵³ *sacer sanguis*: sacred blood is a symbol of the highest order in Islamic, Jewish, and Christian religions and is integral to pagan and indigenous ceremonies. During mass in Catholicism (e.g. Irish Catholicism), "the Liturgy of the Eucharist" transmutes red wine into "the blood of Christ", 'resembling' both mortal human blood and menstrual (uterine) life-giving blood. However, in the same text Leviticus decrees:

If a woman has a discharge, and the discharge from her body is blood, she shall be set apart seven days; and whoever touches her shall be unclean until evening. Everything that she lies on during her impurity shall be unclean; also, everything that she sits on shall be unclean. Whoever touches her bed shall wash his clothes and bathe in water and be unclean until evening. And whoever touches anything that she sat on shall wash his clothes and bathe in water and be unclean until evening.³⁵⁴

So, when menstrual blood, "as bold in its emergence as it is in its colour is spilt",^{355, 356} and this 'bad blood'; "impure" and "ritually unclean" is smeared like greasy red lipstick across toilet walls, it has highly charged significance as overt religious sacrilege. Cogently, the Armagh "dirty protest" was a nationalist, feminist, and human rights uprising against multiple institutional dogmas (including Irish Catholicism and its denial of female reproductive autonomy). Antithetical to 'period positivity', the conflicted power of menstrual blood was 'made sacrificial' and 'desecrated' to align with and further 'enshrine' widespread misconceptions.

Gargas Cave in France has an exceptional number and variety of bright scarlet and russet hand stencils (circa 30,000 to 35,000 years old), in nine different configurations that involve at least one missing finger. Linguists at the IKER Lab at the French National Centre for Scientific Research (CNRS) analysed all 92 stencils corresponding to hand positions that would be easy to make one-handed in the air, suggesting they were expressions of a visually

communicative sign language.³⁵⁷ Carrington's timeless, primal handprints likewise assert an "I was here!" presence (wave) and lucidity. Are these prints, impressions, or stencils a shared visual sign language or a Rorschach-like, psychometric test of pareidolia: perceiving (projecting) the outlines of meaningful objects or animals onto nebulous [subterranean] phenomena?³⁵⁸ Underground in Plato's shadow-dancing cave, the fiery, flickering, and gilding light makes marks appear to ebb and flow, breathe in and out of view, hand stencils hint and wave, and bestial drawings of hewn wall sinews animate and jump into life.

Visually diagrammatic and using thick, red-line graphic elicitation, these drawings were instructional narratology of life and death themes. In Inkaya Cave, Türkiye (circa Late Neolithic to Early Bronze Age (3000 BCE to 1600 BCE). The panels representing Life illustrate the formation of a fetus inside a pregnant woman's abdomen; its development and birth as well as the celebration of a new individual joining the community, with an emphasis on the shaman's role – extending a hand forward as conduit/continuity between the living and the dead.³⁵⁹ Analogous to a medical instructional PowerPoint presentation, in cave paintings, reliefs, and figurines from the Neolithic period in Anatolia, scenes of sexuality, pregnancy, and childbirth are diagrammatically articulated from various angles.³⁶⁰

Interestingly, some of these brief, descriptive, but abstracting red lines reflect the co-researchers' drawings in the research study. The exercise was to draw female anatomy by heart without any reference. Their lines were simplistic and explanatory with imagistic reasoning (distortion). Most participants chose thick red or pink marker pens.

Without any preamble or discussion (before or after), I give each student a paint tray with 80ml of gouache paint. (80ml is the typical mount of menstrual flow in a period). In 15 minutes, the task is to visually quantify what 80ml looks like. We rush off and collect flowers and leaves, anything to hand to make messy, sequential prints. Later that week, I show our efforts in the UAL research study. The group discusses "how to break taboo" and give the experiment "more veracity". "It needs to be more personal" (phenomenologically qualitative), "comic", or "rude" – we discuss printing with used tampons, pads, menstrual sponges, making period underwear or "fanny prints", or printing with "rude surrogates" like a banana or string of sausages. As a co-researcher myself, the following week I bring in 80ml's worth of red painted banana peel prints – which we all agree look "uncannily phallic", "... but somehow joyous", "Freudian slips!".

(Research study notes.)

Conclusion:

Menstruality is a periodic show of lifeblood, an indexical mark of corporeal, live presence. It is a Heideggerian "*dasein*" (German: *da* "there"; *sein* "to be", "being there" existence (but here); in *dasein*, one is a fully embodied individual, a being-here-function of bodiless, in one's own being – as engaged – '*being-in-the world*'.³⁶¹ Making menstrual blood taboo is a form of female erasure, i.e. physical presence, human biological antecedent (matrilineal and patrilineal), and as iconic, fertility totem.

The Embodied Menstrual Awareness Toolkit's heuristics – via *parrhesia* (free-spokenness) and Co-Designly Practice arts-design activities – observing female anatomy, menstrual cyclicity, flow, colour, and consistency, cervical secretions, etc., speak directly about and make explicitly visual our viscera. Questioning historiographic, colonised, and epistemic knowledgescapes that restrict awareness of our own bodies is pivotal for (re)embodying all aspects of physiological menstrual-related processes; their axiology, and ontology.

1. "To demystify ... Finally! We get to the bloody matter!"
2. "All this time I didn't know anything. I feel grief, no, actually ..., the word is aggrieved".
3. "Now we will talk about it. All of this. No one will tell me, 'You shut-up!'"

(Research study co-researchers' comments.)

Section 3:

The phenomenological self; subjectivity, and “différance”

Introduction: the phenomenological subject:

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Conclusion:

Section 3:

The phenomenological self; subjectivity, and “différance”

Introduction:

The phenomenological subject:

The concept of cyclicity with 'the self' at the centre is simultaneously: 'the' individual phenomenological 'self', other selves (as relational), and 'the non-self' wider context – a context that is affecting. Researcher notes.

In the following section, I start by situating the phenomenological self and its ontogeny³⁶² within an open and plural universe; a pluriversal, 'bio-physic' complexity of affecting, nonlinear dynamical systems. Within a nonlinear dynamical modality, cyclic (feedback), and systemic processes³⁶³ such as autopoiesis, homeostasis, and chaos theory are sensitively attuning – altering our characterising behavioural and epigenetic responses^{364, 365} to our bios.³⁶⁶

Pivotal to our understanding of physiology; homeostasis is dynamically adaptive. The “stability” and “equilibrium” of physiologist Claude Bernard’s “milieu intérieur” of the body (1865), was the underlying principle of Walter Cannon’s “homeostasis” (1915 and 1932). Cannon’s contemporary, biologist Curt Richter, proposed that in addition to an internal regulatory control system, behavioural responses were also responsible for maintaining homeostasis. Two decades later, James Hardy’s (1953) concept of value or ‘set point’, sought to establish a physiological range of values (or tolerance for) homeostatic ‘stability’.³⁶⁷ As example, I examine ‘nonlinear dynamical homeostasis’ in the neuroendocrine hypothalamic-pituitary-gonadal (HPG) axis of the menstrual cycle. The HPG axis links the hypothalamus and pituitary gland in the brain with the gonads (ovaries) in the signalling and release of hormones. This explains menstrual regularity or irregularity and its connectedness to phenomenological phenomena. Moreover, why it is important to track menstruality, since, moment-to-moment, no context (or responding cycle) is exactly the same, despite maturing into ‘a signature’ menstrual cycle.

Ancient medical practices such as humorism intuited our bodily, interconnective holism and sought to correct physically expressed imbalances. I link this to an analysis of internal interoceptive, external exteroceptive, and proprioceptive aspects of embodied awareness and their ‘sensing’ role in self-cognition and phenomenology.

I posit biopower and biopolitics are nonlinear dynamical with systemically pervasive processes, affordances, and affects. Within this context, I explore female positionality as subject: *subject to*, the subject of *who, where, why, and what?* Analysing the subject sociolinguistically, within the context of a patriarchal ethos, “symbolic order”,³⁶⁸ and ideologically subjugating (body-object-making)³⁶⁹ power structures such as biopolitical biopower. I explore the female subject position as it relates to socially conditioned (as pejorative) biologism and economically ‘material’, reproductive-type processes. I then reclaim corporeality as individual (phenomenological), linking physical presence, social, and economic agency as corporeal power. As strategy, having post-structurally deconstructed ‘the subject’, I posit the potential of uniquely singular phenomenological, a bios–auto³⁷⁰ – poietic³⁷¹ reconstruction of the “I” and self – since affect is autonomous³⁷² – for a new rationale, linguistic, and “symbolic”. This new bios–poietic phenomenol (material corporeality) is expressed from with-*in*.

3.0 Context: complexity and a nonlinear dynamical modality affect phenomenology

What we typically perceive and can grasp (construe) differs from what is. For example, according to Georg Friedrich Hegel (1821), the constitution of the state is rational. It divides itself into legislative, executive, and sovereign powers [*fürstliche Gewalt*].³⁷³ However, our perceptual construct of the mise-en-scène: “the staging”, “setting, surroundings, or background [for] any event or action”³⁷⁴ is less differentiated. Indices of infrastructure such as politics, the economy, sociology, and the built environment constitute “an assemblage”;³⁷⁵ a superstructural³⁷⁶ totality of patriarchal biopolitics and biopower, capitalist neoliberalism, and neo-colonialism. This perception is based on our cognitive awareness which is a screening ‘interface’³⁷⁷ and means of structuring a worldview.³⁷⁸ In his ‘Subjectivité et vérité

cours' lectures at Collège de France (1972-3), Michel Foucault states "Bios is qualified life, life with accidents, necessities, but it is also life which one can [improvise,] make oneself, to decide oneself".³⁷⁹ However, I argue that within this fiction, theatre facade, and on this 'stage'; it appears, we are only 'actors' with scripts and fixed subject roles – reiterating Jacques Derrida's "the self-present subject"³⁸⁰ "is a fable ... [of] "aporias, fictions, and fabrications".³⁸¹

Whereas in ontic reality everything is *in* "irreversible" synthesis;³⁸² in pluriversal, 'live complexity'. Complexity theory: Ilya Prigogine's "dissipative structures"³⁸³ (the emerging of new, dissipating structures) as 'order out of chaos', built on the work of Alan Turing, Lars Onsager, and Henri Bergson (et al.). Their complexity is *non-integrable* (not reducible to a finite set of independent and self-sufficient elements from which the evolution of the system can be predicted), has Kurt Gödel's "incompleteness",³⁸⁴ and is set within a nonlinear dynamical system modality that is "far from equilibrium". In other words, this complexity consists of cosmologies (systems of systems) of incommensurable, relational, interacting, "strange attractors", or coexisting constellations. Superposition of quantum mechanics demonstrates that complexity is only "about probabilities".³⁸⁵ Nested nonlinear dynamical systems such as autopoiesis³⁸⁶ and homeostasis, are aggregate, open, and "dissipative systems" that are emergent, novel, and self-organising: self-correcting (agile) and self-regulating. Nonlinear dynamical processes are means an ecology or bios: a *bio-physic-al* system or a 'complex adaptive system' (a complexity) can maintain internal stability, "meta-stability" (structural coherence), while adjusting to "differences":³⁸⁷ everchanging, chaotic, and/or stochastic external conditions. Nonlinear dynamical systems are kinetic — a Heraclitus River³⁸⁸ of everchanging flux that is continuously finding equilibrium.

Chaos theory is the study of apparent random, undecidable or unpredictable behaviour in 'chaotic complex systems' governed by [in/]deterministic laws.³⁸⁹ A more accurate term is *[in/]deterministic chaos*³⁹⁰ – as there [irreducible] patterns, interconnectivity, constant feedback loops, self-similarity (fractals) and self-organising.³⁹¹ Likewise, homeostasis (dynamical homeostasis) is sensitive to a multiplicity of variables and potentially affective factors that influence bios – since "[a] 'system' can rapidly evolve or diverge from a (somewhat) stable state through the interaction of non-linear processes".³⁹² If rates of iteration (self-correction) accelerate, the system is pushed into greater instability, possibly to later regain equilibrium and stabilise, catalyse, or 'schism'³⁹³ (evolve) into a paradigmatic shift, or dissipate into new (order) structures, or entropy.³⁹⁴ Complexity and nonlinear dynamical processes such as autopoiesis, homeostasis, and chaos theory, are infinitesimally, recursively scaling (microcosm mirrors macrocosm),³⁹⁵ descriptive, and transferable theoretical frameworks.

Cyclic fluctuations in our natural seasonal environment can alter our four biological rhythms: circadian, the 24-hour cycle that includes physical and behavioural rhythms like sleeping and waking; diurnal, the circadian rhythm synchronising with day and night (seasonal light and dark); ultradian rhythms repeat throughout a 24-hour day, for example, hormone secretion; and infradian, lasting more than 24 hours such as a menstrual cycle.³⁹⁶ The menstrual cycle is a [nested] nonlinear dynamical systemic [system]³⁹⁷ (a dynamical homeostasis) that is continuously recalibrating in response to various stimuli. The endocrinology of the menstrual cycle is a negative feedback loop of pulsatile, interdependent, catalysing, and cascading events through-out the hypothalamic-pituitary-gonadal (HPG) axis.³⁹⁸

Robert Barbieri, Professor of Obstetrics and Gynecology at Harvard Medical School writes:

The ovulatory menstrual cycle is the result of the integrated action of the hypothalamus, pituitary, ovary, and endometrium. Like a metronome, the hypothalamus sets the beat for the menstrual cycle by the puls[ing] release of gonadotropin-releasing hormone (GnRH). GnRH pulses occur every 1-1.5 h in the follicular phase of the cycle and every 2-4 h in the luteal phase of the cycle. Pulsatile GnRH secretion stimulates the pituitary gland to secrete luteinizing hormone (LH) and follicle-stimulating hormone (FSH). The pituitary gland translates the tempo set by the hypothalamus into a signal, LH and FSH secretion, [which] can be understood by the ovarian follicle. The ovarian follicle is composed of three key cells: theca cells, granulosa cells, and the oocyte. In the ovarian follicle, LH stimulates theca cells to produce androstenedione. In granulosa cells from small antral follicles, FSH stimulates the synthesis of aromatase (Cyp19) which cataly[s]es the conversion of theca-derived androstenedione to [oestrogen]. A critical concentration of [oestrogen], produced from a large dominant antral follicle, causes positive feedback in the hypothalamus, likely through the kisspeptin system, resulting in an increase in GnRH secretion and an LH surge. The LH surge causes the initiation of the process of ovulation.

After ovulation, the follicle is transformed into the corpus luteum, which is stimulated by LH or chorionic gonadotropin (hCG) should pregnancy occur to secrete progesterone. Progesterone prepares the endometrium for implantation of the conceptus. [Oestrogen] stimulates the endometrium to proliferate. [Oestrogen] and progesterone cause the endometrium to become differentiated into a secretory epithelium. During the mid-luteal phase of the cycle, when progesterone production is at its peak, the secretory endometrium is optimally prepared for the implantation of an embryo.

Physicists Gregory and Paula Derry set-out to explicate “the significant amount of unexplained variability in the menstrual cycle”. “This variation is typically dismissed as random fluctuations in an otherwise periodic and predictable system[, g]iven the many delayed nonlinear feedbacks in the multiple levels of the reproductive endocrine system”. However, their findings confirmed that the menstrual cycle is in fact the output of “a nonlinear dynamical system in a chaotic regime [in/deterministic chaos], even in the most comparatively regular phase of its development during the 20–40-year age range”.³⁹⁹

Our connectedness could explain antecedent, intuitive, and existential “male fear of [cataclysmic] menstrual cyclicity beyond all control”,⁴⁰⁰ described by structural anthropologist Claude Lévi-Strauss in his study *Mythologiques*. (Discussed in the following section).

Within live complexity and a nonlinear dynamical system modality, the societal ‘social body’ is simultaneously synecdoche (in gestalt, part-whole relation) with ‘the individual body subject’, and is, therefore, person-to-person sensitive (participative relational). This means, ‘the body’ is responsive to infinitely affective, catalysing, or synthesising forces such as, for example, cultural sociology. Scientific measurement and analysis of this biophysical complexity generates ‘states’ (snapshots) of quantitative and qualitative data.

Everyday practices, local transformations, and affordances further stimulate responses. According to Foucault, counterintuitively, this infinitely sensitive reattuning “reproduces power relations”.⁴⁰¹ Statistician, Dennis Lindley, describes how “[...]everything in the universe is connected with everything. This universal connectivity excludes causal relations since any change is simultaneously cause and effect”.⁴⁰² Furthermore, philosopher Quentin Meillassoux’s “correlationism”; ‘the correlation circle’⁴⁰³ asserts that “thinking” and “being” are separate, but correlate – as one cannot get outside of the (inculcated) circle of the phenomenological self/subject, and this subject is everywhere. So, ‘living cyclicity’ (cyclic causality) and ‘flow’ differs considerably from generally perceived ‘verticality’: top-down gravitational, hierarchical, and ‘staged’ metanarratives of power apparatus. Power circulates and attunes, with-*in* and through matter, bios, and us. And this “matter [, bios, and us] does not remain beneath form but surrounds it with a halo”. Giorgio Agamben’s “halo” is golden potential that is ‘encircling’, vibratory, and dynamic – “a zone in which possibility and reality, potentiality and actuality, become indistinguishable”.⁴⁰⁴ Power is, then, both potential and apparatus. I posit it *is* the nonlinear dynamical modality and traction.

The Embodied Menstrual Awareness (EMA) Toolkit is an ethnographic and interpretive phenomenology⁴⁰⁵ approach to the menstrual cycle that records biophysical, dynamical homeostasis. Firstly, EMA methodology is heuristic and experiential learning⁴⁰⁶ in real time – a day-to-day, sensory sense-making, and visual charting by each co-researcher of their uniquely mutable menstrual cycle. Using the EMA method, we learn to capture (‘snapshot’) variables such as basal body temperature (BBT); cervical secretions and menstrual flow, hue, and consistency; cervical position; discomfort or pain and related emotions; and activity ratios (work, play, or rest). In transcribing interoceptively and exteroceptively embodied menstrual data, we each visualise ‘menstrual complexity’: individual patterns in periodicities that are contiguous, self-replicating, cumulative, and synergistic.

(Auto)poiesis stems from “self” and “poïesis”, meaning “creation, production”; “[...] a word without a history, a word that could directly mean what takes place in the dynamics of the autonomy proper to living systems”. Maturana and Varela’s autopoiesis is the set of live relationships that exist between parts that define a composite whole, for example, the structural unity within (a recursively constructed) living organism. In *Autopoiesis and Cognition: The Realization of the Living*, 1973. Biologists Humberto Maturana and Francisco Varela’s autopoiesis is the capture (cognising) of living dynamics (poïesis). I posit we can rehumanise, personalise, and enliven pencil-on-paper menstrual tracking charts into live/living tissue subjectivities vis-à-vis embodied awareness. Here, the chart is simultaneously diagrammatic proxy and conduit for embodied cognition.

3.1 Phenomenological embodied cognition:

Interoception “is the sens[ing] of the body’s internal physiological variables, their integration and interpretation”.⁴⁰⁷

Regulation of bodily states comes in two forms: reactive control (homeostasis) or anticipatory prospective control (allostasis).⁴⁰⁸ Interoception is implicated in body regulation^{409, 410} as well as reward valuation, perception, emotional processing, and [sense of] self and consciousness.^{411, 412} It is “the overall process of how the nervous system (central and autonomic) senses, interprets, and integrates signals originating from within the body, providing a moment-by-moment mapping of the internal landscape of the body across conscious and nonconscious levels”.⁴¹³ “Interoceptive” register originated with neurophysiologist Charles Sherrington in 1906, i.e., those receptors that are within the viscera “visceroceptive”. He excluded all other receptors and information from the body, which he grouped as either exteroceptive (responses to external stimuli detected by exteroceptors, including vision, hearing, touch or pressure, heat, cold, pain, smell, and taste)⁴¹⁴ or proprioceptive (kinaesthesia: sense of self-movement, action/resistance, and body position). Later definitions of interoception⁴¹⁵ question understandings of ‘where the body ends’ – as an enclosed, demarcated outline or a gradating, loosely topological ‘field of boundary’ between what is internal and external. The menstrual cycle is within the reproductive interoceptive domain (other domains are cardiorespiratory, gastrointestinal, nociceptive, endocrine, and immune systems).⁴¹⁶ We are, therefore, ‘embodied register’ of a multiplicity of interacting “domains” and fields; internal interoceptive and external exteroceptive, in addition to proprioceptive phenomena. These phenomena are first-person phenomenological; both sensing and sense-making – a cognising awareness (embodied cognition). So, we are simultaneously ‘responsive register’ and ‘instrument’/‘instrumental’ with/of power (Agamben’s “halo” of “golden potential”) via enactive agency.

Via the Embodied Menstrual Awareness (EMA) method each co-researcher charts, tracks, and body maps (any, a selection of, or all) menstrual-related data and affective phenomena such as stress, tiredness, etc., etc.

We begin by using the tear sheets from the EMA Toolkit. There is a selection of grids, fold-lined paper, and geometric diagrams, plus twice daily, body map sheets. Later, co-researchers CDLY P their own data visualising and data encoding probes.

(Research study observational and anecdotal notes.)

Subsequently, the EMA method tracks (and monitors) phenomena affecting menstrual data (the menstrual cycle). Likewise, humoral theory is a holistic approach to medicine that considers each person’s phenomenology: in situ looking at their set of circumstances (nonlinear dynamical ethos) and embodied responses (reactivity) to this ethos. Associated with Hippocrates (circa 460–370 BCE), humoral theory dominated medical practice through the 19th century.⁴¹⁷ Indian Ayurvedic, traditional Chinese, and Native American medicines are ancient variants of humoral theory.⁴¹⁸ In assessing health, we continue to analyse urine, blood, phlegm, and stools.⁴¹⁹

“Humoral” theory, “humor” from Greek *chymos* (juice or sap ‘flavour’)⁴²⁰ is based on a mix of the four humors: black bile, yellow bile, blood, and phlegm with each ascribed a psychological temperament: melancholic, choleric, sanguine, and phlegmatic; bodily ‘humoral constitution’ is in balance (*eucrasia*) or imbalanced, the cause of ill-health. “The pathophysiology of disease is [...] brought on by humor excesses and/or deficiencies [*dycrasia*]”.⁴²¹ Associated with the seasons, each humor has characteristic qualities of hotness, coldness, dryness, and wetness.⁴²² Factors such as climate, diet, occupation, geographic location, planetary alignment, sex, age, body mass index (BMI) and social class alter humoral balance. Holistic regimens include ‘purgés’ and ‘tinctures’ (previously with bloodletting, vomits, and enemas), however, diet and lifestyle changes are pivotal. Anything that upsets bodily equilibrium (such as a sudden thermal shift in temperature prior to female ovulation or the onset of puberty and menarche), is a potential health crisis.⁴²³ In overabundance of humors (“plethora”, “congestion”, “inflammation”, and a variety of other terms),⁴²⁴ bloodletting restored balance.⁴²⁵ How much bleeding and where in the body changes depended on individuals and the training (beliefs) of doctors.⁴²⁶ Used seasonally, bloodletting and leech remedies⁴²⁷ possibly replicated the perceived benefits of menstrual bleeding.

I question why female reproductive health and menstruality are siloed and rarely considered holistically in their nonlinear dynamical-homeostatic ‘complexity’? A complexity that has context, is genetically idiographic, eclectically responsive, and is continuously reattuning? Charting and tracking individual, “uniquely mutable” menstrual-related phenomena via the EMA method creates a visually informative diagram for better understanding individual menstruality. This supports self-care and medical expert engagement, assessment, and facilitates early intervention in medical settings.

3.2 Biopolitics and biopower:

Political scientist, Rudolf Kjellén first coined geopolitics in 1916⁴²⁸ and in his “organistic” view the state was a quasi-biological organism.⁴²⁹ In his 1938 book *Bio-politics*, Morley Roberts argued the correct model for world politics is “a loose association of cell and protozoa colonies”. Later, behavioural geneticists co-opted the term infusing it with eugenic undertones. According to Foucault, biopolitics is “the power to make live”;⁴³⁰ “to ensure, sustain, and multiply life, to put this life in order”.⁴³¹

Biopolitic(al) governments use “biopower” to regulate populations (politicising all aspects of living, biological human life).⁴³² As a practice, it is the notion of a collective, social body as the (living) object of institutional and governmental “disciplinary *dispositifs*”.⁴³³ Individual body subjects are simply an iota, “atom”⁴³⁴ (atomisation) of this wider ‘system’ (doxa) and ‘agenda’. In its processes of subjectification, “subjects are constituted by power relations”;⁴³⁵ there is a diminishing of the individual who is relational. Biopolitics also ‘assumes’ linear approximations of complex, nonlinear, and chaotic behaviours. These assumptions are simplistic with capacity to be restrictive: controlling, “disciplining”, and/or “oppressive” dogma.⁴³⁶ Circling back to Spencer-Wood; “[b]oth feminist and post-processual theorists have critiqued the construction of ahistorical cross-cultural [understanding, governance, and law] that overgeneralize similarities among cultures and overlook significant contextual differences.”⁴³⁷ Across physiologies, psychologies, socioeconomic ecologies, and the ethos (nature); complexity, random, stochastic, and chaotic behaviours [i.e. nonlinear dynamical-homeostatic processes] are the norm⁴³⁸ – rather than deterministic, rational[, biopolitically ‘staged’] structures.⁴³⁹

However, power ‘circulates’ throughout ‘the social body’ in everyday practices which sustain and produce power relations.⁴⁴⁰ Power is “productive” and exercised rather than possessed,⁴⁴¹ for example, in Foucault’s later work, such as his ‘Technologies of the Self’ lectures at the University of Vermont (1982), his “self-policing” and “self-disciplining” are reframed as an individual’s “care of the[m]self”.⁴⁴²

According to Foucault, “power” is “the regime of truth” that pervades society at any given time, and is, therefore, in constant renegotiation. In *Will to Power*, (1887), Friedrich Nietzsche had described “truth as a *processus in infinitum*, an active determining, not a becoming conscious of something that is ‘in itself’ fixed and determinate” (my italics).⁴⁴³ Foucault uses the term “power-knowledge” to demonstrate power is realised through sanctioned forms of knowledge, scientific understandings, and ‘truths’. This is reflected in societal norms – such as notions of ‘femininity’, ‘the female body’ and ‘menstruality’ which are subject to biopower and biopolitical, mostly patriarchal “regimes of truth” and their somewhat arbitrary taboos.

So, subjective personhood, and, therefore, interpretation (hermeneutic phenomenology) likewise constitutes a Deleuzian⁴⁴⁴ “typology and topology of multiplicities”⁴⁴⁵ “with continuous variation”⁴⁴⁶ rooted in a uniquely singular (phenomenological) complex reality. In complexity, any ‘event’ consists of infinitesimal, discursive interactions immeasurable, unknowable and ‘unconscious’ processes. Any ‘event’ creates its own ‘conditions of possibility’ – rendering it unpredictable, simply because of the number of variables involved. Subsequently, ‘a complex approach’ intuitively considers what we do not know and cannot know. The resulting chaos seems anarchically volatile, risky (random, stochastic), or threatening cataclysm (a schismogenesis),⁴⁴⁷ but it is not. Chaos is aphoria,⁴⁴⁸ an entangling perplexity wherein we reach limits of intelligibility: human awareness and cognitive function. Likewise, in a menstrual cycle, the weather system, or in a human population; simple changes in one part of the system produce complexities and synecdochical affects throughout. This non-linearity explains how a menstrual cycle can be irregular and why accurate, long-term weather forecasts or fertility prediction apps are not yet viable with current technology.

Biopower in female reproductive health makes it contentious, contested territory; largely male-orchestrated, meta-narrative, and (meta)clinical. Reproductive choice is controversial because it threatens the ‘deterministic’ and ‘rational’ existing biopolitical and biopower, structural and interrelational ethos. As according to Slavoj Žižek, “Formal freedom is the freedom of choice within the coordinates of the existing power relations, while actual freedom designates the site of an intervention that undermines these very coordinates”.⁴⁴⁹ However, for Foucault “practices of freedom” are ethical, “Freedom is the ontological condition of ethics. But ethics is the considered form that freedom takes when it is informed by reflection”.⁴⁵⁰ He links freedom to “connaissance” (awareness) and individual self-expression of *care of the self*.⁴⁵¹ This premise (praxis) is primary in the Co-Designly Practice, EMA Toolkit – building on biologist William

Bateson's view of art as "sublime" and its praxis as 'a form' of realisation.⁴⁵²

3.3 "The pre-linguistic or inchoate point of origin of the subject"⁴⁵³ and linguistic determinism:

Linguistically, we are a semiotic confusion of 'identity', 'individual', and 'subject' word etymology, legacies, definitions, and hierarchies. Hence the deconstructive "we are subject?" exploring (Derrida's) "The question of the subject and the living 'who' is at the heart of the most pressing concerns of modern societies".⁴⁵⁴ Felix Guattari writes "[As, in nature,] at the root of all this is life itself and [a supposedly] collective [evolutionary] desire".⁴⁵⁵

In his essay, 'Wittgenstein's Dictionary', John Willinsky writes,

The dictionary's careful fixing of words to definitions, like butterflies pinned under glass, can suggest that this is how language works. [...] What Ludwig Wittgenstein found in the circulation of ordinary language, however, was a free-floating currency of meaning. The value of each word arises out of the exchange. The lexicographer abstracts a meaning from that exchange, which is then set within the conventions of the dictionary definition" [...] "The schooled representation of meaning sets language in the hands of those who hold the proper definitions."^{456, 457}

So that, according to journalist Kevin Litman-Navarro "appeals to the dictionary serve a political purpose; they preserve existing power structures and fortify the way things are at the expense of the way things can be",^{458 459} This naming and application of meaning exemplifies Edward Sapir and Benjamin Lee Whorf's linguistic relativity (Sapir-Whorf hypothesis), discussed in Section 5, whereby language enculturation can influence and shape a child's formative perception and adult, cognitive world(view).

"... [T]he hailed individual will turn round. By this mere one-hundred-and-eighty-degree physical conversion, [she] becomes a subject".⁴⁶⁰ Louis Althusser's "interpellation" of "the subject" illustrates the social dimension of the category of a subject as "hailed" by ideological state apparatuses. Furthermore, Althusser argues "there is no ideology except by the subject and for the subject".⁴⁶¹ Analogous to the topology of a Möbius strip; his "category of the subject" is simultaneously constitutive of all ideology – as all ideology has the purpose and function of 'constituting' individuals as subjects. So, for Althusser, ideology and subject are interdependent and interactive; "ideology being nothing but its functioning in material forms such as subject existence".⁴⁶² Here, the "I" of the subject (an atom) is an aggregate of "mere subjects" atomised (produced by) social forces. Biopolitical forms of subjectivity are increasingly manufactured on a global scale. For Althusser, "they" are not independent agents with self-identities, and he talks of "[t]he fictional concept of enlightened, autonomous subjectivity".^{463, 464} Circling back to institutionalising educational processes, in 2007, Guattari characterised subjectivity as 'a collective material production':

[T]he fabrication of subjectivity ... concerns very varied models of submission to productive [and reproductive] processes, like particular relations to abstractions of the economic order. And it goes much further than that. From infancy, the intelligence, behaviour, and fantasy of children are shaped so as to make them productive and compatible to [(compliant to)] social conditions. And I insist that this takes place not only on representational and emotional levels: a six-month-old put in front of a television will structure his perception, at that stage of development, by fixing his eyes on the television screen. The concentration of attention upon a certain kind of object is part of the production of subjectivity".⁴⁶⁵

3.4 The gender dialectic is unequal A "social construct"⁴⁶⁶ and "a social contract": "a critical ontology of the present"

"[A] headless subjectification, a subjectification without subject ..." "a subject-with-holes" (sujet troué). Jacques Lacan, 'Seminar XI', No.184 (1964).

"A woman can stand at the scaffold. She must possess equally the right to stand at the speaker's platform". In 1791, Olympe de Gouges⁴⁶⁷ published 'Déclaration des droits de la femme et de la citoyenne';⁴⁶⁸ her egalitarian (human) rights of "the woman and of the citizen" continue to be our frontline and horizon. The World Economic Forum's, Global Gender Gap Index is an annual benchmark of the current state of gender parity. Comparing 146 countries' gender gaps across four key dimensions: economic participation and opportunity, educational attainment, health and survival, and political empowerment;⁴⁶⁹ the 2023 annual metric for gender parity was 68.4%.⁴⁷⁰ "At the current rate of

progress, it will take 131 years [until 2155] to reach full parity [telos]”.⁴⁷¹ Unequitable imbalance causes disequilibrium with innumerable ⁴⁷² systemic consequences.

Fourth Wave Feminism (circa 2012 onwards), restates feminism as an egalitarian, intersectional community; ^{473, 474} a collective of “différental, qualitatively different” ⁴⁷⁵ subjectivities. “I tell you yes. I begin us with a Yes. Yes, begins us”. ⁴⁷⁶ Hélène Cixous’ “us” (cause, incitement, and intervention) is a live field of love, thought, potentiality, and dynamics in continuous negotiation: an inclusive, relational ontology that is affirmatively ‘one’. At this very moment, typically, 800 million children, adolescents, and adults are menstruating and approximately 26% of the female-sexed population, (one in four) is of reproductive age.^{477, 478} However, each one of us is heterogeneously different. An idiographic ⁴⁷⁹ approach sensitively considers us as uniquely intersectional, but essentially coexisting individuals with collective rights to equality and freedoms. As philosopher Rosi Bradotti rallies in ‘Posthuman, All Too Human’ (2017), “We–are–in–this–together–but–we–are–not–one–and–the–same”.⁴⁸⁰

“We must think problematically rather than question and answer dialectically”.

Michel Foucault, ‘Theatrum Philosophicum’, (1970). ⁴⁸¹

This interpellated and therefore linguistically sexed subject is routinely gender differentiated; split into diametrically opposed male, (generally active), and female (somewhat passive) binaries.⁴⁸² Judith Butler considers gender a linguistic construction, “the tacit collective agreement to perform, produce, and sustain discrete and polar genders”. ⁴⁸³ Gender stereotypes persist and heterosexual bodies are considered normative (heteronormative in sex and gender) in overlapping fields such as physiology, neurocognition, psychology, the psychical sphere, and sociology. Societal manifestations of unfairly gender-differentiated biopolitics and biopower “sub-subordinations” ⁴⁸⁴ resonate throughout “genealogical” constitution of knowledges, discourses, domains of objects etc.; ⁴⁸⁵ “the complex and shifting network of relations between power, knowledge, and the body which produce historically specific forms of subjectivity”. ⁴⁸⁶ (Foucault also labels this “genital thought”). ⁴⁸⁷ If genealogy provides “a history [diagnosis] of the present” ⁴⁸⁸ – the iron in your blood – then the continuous power of biopolitics over the body is contingent on our continued belief, compliance, and complicity with these gender inequities and hegemonic norms. As female, this is our social contract with “the symbolic [order]”. ⁴⁸⁹

Sociologist Nancy Chodorow notes Freud’s description of woman as subject of ‘her own psyche’, that is, as living experiencer of self and conscious and unconscious mental processes, as subject to herself. ⁴⁹⁰ Woman as subject is also, woman as subject-object, that is, object to her own subjectivity ...⁴⁹¹ [(a form of “gaze”)].⁴⁹² Furthermore, this woman as subject and subject-object contrasts with woman as object within the masculine psyche ...⁴⁹³ Freud explores woman as psychological subject or object by considering woman’s location in social-historical time and woman as object of cultural attribution or categorisation [*femininity*]...⁴⁹⁴ “She is Freud’s theoretical feminine subject, or theoretical subject of theoretical femininity”.⁴⁹⁵ Hence, “[w]omen, under relentless scrutiny, [comport] themselves to a standard of normative femininity preoccupied with youth and beauty”.⁴⁹⁶

So, to be ‘the Other’ (an object) is ‘not’ to be the self; to be the non-subject, the non-person, the non-agent – “a mere body”. ⁴⁹⁷ As, according to Simone de Beauvoir, “[H]e is the Subject, he is the Absolute - she is the Other, ...” ⁴⁹⁸ Moreover, “You are an imposter” says sex, and/or race, and/or class, and/or age, (intersectional) inequities – as inherent and ubiquitous, sociological “structural violence”.⁴⁹⁹

In *Volatile bodies: toward a corporeal feminism*, 1994, Elizabeth Grosz argues “The misogyny afforded the contemporary gender-body discourse is founded in naturalism, biologism, and essentialism; ... misogynistic thought confines women [as Other] to the biological requirements of reproduction on the assumption that because of particular biological, physiological, and endocrinological transformations, women are somehow more biological, more corporeal, and more natural than men”.⁵⁰⁰ I argue for an egalitarian return to affinity *with* nature, within-and-without – as eco-holistic source in radical alterity to the disastrous “structural violence” ⁵⁰¹ of anthropogenic now. An Other that is *a priori*, pre-existent, and regenerative (via bios-auto-poietic, bio[s]-power). As *precursor* or *post-human* to any ‘manmade’ speculations, constructions, or claim to ecological and ethical, hierarchical potency. I maintain that suppression, abjection, or disavowal of the female body (*or any body*) is itself a fundamentally patriarchal act. It is socially conditioned, psycho-analytically expounded, and its exegesis is to do with the dominant dogma of a Cartesian, mind-body split.

Julia Kristeva criticises the view of the subject as 'floaty', "transcendental ego" detached from its history, its unconscious, and its body that "underlies any and every predicative [(reflective)] synthesis". Her 'self' is "questionable-subject-in-process" of "play, pleasure or desire" and she valorises "the dissident potential of this elusive, decentred subjectivity ...".⁵⁰² In my research study, workshop outputs could be viewed as dynamic and dimensional, *geometry in flow*. Each rendering 'an instant' *in* interstice, or pause, between continuous change and relational, interrelated states of being or "becoming"... "She" would be intangible and fluidly moving outside of so much of what we can see, name, and describe. Herein is Nietzsche's "Supposing truth is a woman – what then?"⁵⁰³ and Derrida's reply in *Spurs: Nietzsche's Styles* (1979) "There is no such thing as a woman, as a truth in itself of woman in itself".⁵⁰⁴ Derrida "deconstructs" woman into a multivalent, irreconcilable figure of undecidability, displacing the rigid dualism of Western metaphysics:⁵⁰⁵ "Woman is ... a figure for *différance*, the mechanism that undoes patriarchal 'ontological decidability'". But more than this, she is the non-place which centres deconstructionism's own marginal status in philosophical discourse".⁵⁰⁶ In *He Stuttered*, 1994, Deleuze agitates us to stretch (definitions) the two (initially associative and syntactic) axes of *langue* to an extreme "far from equilibrium" – where there is no binary of either/or, male/female - they begin to "stutter" and words [like stem cells] self-divide and re-double creating "exhausting logical possibilities". The purpose is "to make one's language (or form) stutter, face to face, or face to back, and at the same time to push language as a whole to its limit, to its outside, to its silence—this would be [...] the boom and the crash".⁵⁰⁷

3.5 **Imago, imitari, imaginem: image** **She is an image:**

What if the concept of woman (femininity) is a societal and collective psychological and libidinal projection? A mediatic mimesis? A sublime, strangely spectral entity that is recursively mirrored, viewed as gestalt and (retroactively) contoured anthropologically? "She" is assigned meaning and value (signification) via every reflective: gazing or endlessly critical and admonishing surface. Defined exteriorly, by what she is not, she is, therefore, materially, socially, and economically wrought: imposed and regulated (disciplined). In this way, female subject positions appear not only binary to male, but magazine-flat and lacking interiority or personhood.⁵⁰⁸ Reworking Friedrich Nietzsche's critique of the body as 'sociocultural artefact' rather than manifestation or externalisation of what is self-hood, psychological, and 'deep' in the individual, Elizabeth Grosz describes the female body as sociocultural object; a "surface phenomenon".⁵⁰⁹

"Where patriarchs have used a fixed concept of the body to contain women, it is understandable that feminists would resist such conceptions and attempt to define themselves in non – or extracorporeal terms, seeking equality on intellectual and conceptual grounds or in terms of an abstract universalism or humanism".⁵¹⁰ Feminist theorists Elizabeth Grosz and Luce Irigaray (et al.) critique the exclusion of "women" from historiography as symptomatic of the absence of a societal, female subject position generally. "Women" are only recognised as female if they conform to pervasive definitions of 'value', violability, and visibility of archaic and prevalently male precepts. To question "the lack of true sexual difference in Western culture" and be equal, women must become disembodied or wear male posture and behaviours. In *Speculum of the Other Woman*, Irigaray writes, "I chose ... to remain a woman instead of subjecting myself to a culture and a subjectivity presumed to be "neutral" [that is,] in reality[,] masculine".⁵¹¹

Feminist bell hooks, however, asserts that identity "is constructed... [from] within".⁵¹² Her "oppositional gaze"⁵¹³ is a reversal of Laura Mulvey's "male gaze".⁵¹⁴ "Not only will I stare. I want my look to change reality".⁵¹⁵ "There is power in looking".⁵¹⁶ Seeing is a suspension in phenomenological epoché; in Hellenistic philosophy epoché (epokhe, "cessation") is suspension of judgement, but also "withholding of assent".^{517, 518} Anthropologist Arjun Appadurai's disjunctive global flows; capitalist material values (financescapes), frames, and mindsets — neoliberal mediascapes, technoscapes, and ideoscapes (etc.);⁵¹⁹ the 'escaped woman' sets her own terms for success.

3.6 **Corporeal feminism:** **(reclaiming the essentialist, biologic, naturalistic as eco-feminist).**

"The body is this small utopian core at the heart of the world from which I dream, speak, go forward, imagine, and perceive things in their own place". Michel Foucault, 'Le corps utopique', broadcast on December 21st, 1966.⁵²⁰

Corporeal feminism,⁵²¹ however, explores bodily potential and politics in both singular and collective, as “the body politic”. According to Grosz, it reframes “corporeality, sexuality, and the difference between the sexes... in different terms than those provided by traditional definitions, philosophical, and feminist understandings”.⁵²² Similarly, I foreground the female as a strategically essential, corporeal self – so that the body “can be understood as the very ‘stuff’ of subjectivity”.⁵²³ This is pivotal “... to understanding woman’s psychical and social existence”.⁵²⁴

Corporeal feminism, bridges sexuality and gender and asks ontological questions about how the body comes into being (is “becoming”). Based on the work of Spinoza and Bergson amongst others, Deleuze and Guattari explored the notion of a psychodynamic, embodied self as resistance to Cartesian mind-body dualism.⁵²⁵ So that, according to Grosz, “the body is no longer viewed as an ahistorical, biologically given, [and discursively constructed],⁵²⁶ acultural object”,⁵²⁷ but “a positive reinscription of the gynocentric body” and the singular actualisation of a live, “lived body”. Whereby “sexual difference is ontological and constitutive of the subject”.⁵²⁸ Subsequently, “woman” would no longer be viewed as contingent on, and within a body, but would be the realisation of a specific body with its singularities, differences, and various capabilities.⁵²⁹ I argue this realisation leverages on legally protected, ethical human rights of unconditional access to reproductive knowledge, healthcare, and self-determining choices. Within his infrastructure of state apparatuses,⁵³⁰ Althusser differentiates between ideological and repressive state apparatus. Repressive state apparatus function “massively and predominantly” by repression, exclusion, and/or conditional subjugation regarding, for example, these basic human rights. His “institutional repressive state apparatus” use ideology and its modes of “violence” and “discipline” to, I argue, implement female physiological, psychological, and psychic repression. As, according to choreographer Martha Graham, “The body never lies”; “[m]ovement[.] never lies”.⁵³¹ Responding to Spinoza’s “We do not know what a body is capable of”,⁵³² Deleuze writes “This declaration of ignorance is a provocation. We speak of consciousness and its decrees, of the will and its effects, of the thousand ways of moving the body, of dominating the body and the passions – *but we do not even know what a body can do*”.⁵³³

3.7 Reproduction:

In lieu of the proliferation of subjectivity – its simulation, production, manufacture, and mass marketing – is the issue of female reproduction. The pervasive interference of biopolitics via Althusser’s “ideological state apparatuses” further confuses the meanings, values, and implications of the female reproductive process. Marxist feminist Silvia Federici argues that labour, materialist, and economic renderings of “reproduction” in the broadest possible sense are the “complex of activities and relations by which our life and labour are daily reconstituted”; “everything that makes life possible in the first place and everything that continues to sustain it”. For women, reproduction in this broad sense is where the contradictions inherent in alienated labour are “most explosive”.⁵³⁴ In this respect, we have yet to fully explore the implications of the social, interrelational, and, therefore, I argue, Marxist constitution of the body itself, the body as a kind of shared, live political and social agent. Wittgenstein argued that *intrinsic meaning* manifests through the shared practices and interactions of living, embodied beings and is only visible in and through the lives and activity of such beings.

Feminists build on psychoanalytic theory, object relations theory, and poststructuralism — to a view of a relational self as psychodynamic, social, and intersectional; Butler’s “... shifting confluence of multiple discursive currents ...”⁵³⁵ “... an intricate network of family, societal, and organisational ties. Unfolding in a multiplicity of relationships rather than in a dyad of mother/child and binary of autonomy/dependency, the self may exhibit vulnerability and/or autonomy but also, more centrally, traits that play out in complex social negotiations and struggles”.⁵³⁶ Within group relations, there is co-existing, interdependence, and opportunities for affirmative and reciprocal support.

Psychoanalyst Brancha Ettinger scales back to the structural integrity (“matrix”) ⁵³⁷ [of the matrilineal body] as archetypal “matrixial”. Her matrixial transcends ‘values’ and is essentially a border space, an intersubjective, (or shared) encounter between an “I” and an intimate “Other” or “non-I”. Her copoiesis is a bodily co-emergence/co-creativity, transgressing the boundaries of self and other to create overlapping fields of resonance, reattunement, and response-ability. Ettinger’s copoiesis is symbolic of the mixing-up of the matrices of mother-womb-child, but also, the sexual encounter, (“the event-encounter”), which she terms a “compassionate hospitality” of shared *jouissance*. According to Lacan, *jouissance* is erotic pleasure that exceeds (explodes) social codes and allows the self to break out of its

subject position. Ettinger's "copoeisis" and "carriance"⁵³⁸ focus on the dyad mother/child, self/partner etc. as primary metaphor for the intersectional and relational (kinship): the self as 'they' relate to others, [who are other selves]. Freedom is, then, entangled *within* "symbolic carriance".⁵³⁹ I maintain that, moreover, *in* matrilineality 'we are all in relation' genealogical antecedent – inter-dependent (*inter alia*) and with-*in* symbiosis.

In *Nomadic Ethics*,⁵⁴⁰ Braidotti repurposes the "la" and "le" and *Écriture féminine*⁵⁴¹ in her Cixousian-style exegesis of politics. Politics "LA politique", is a form of organised, majoritarian politics "made of progressive emancipatory measures". Whereas the political, "LE politique", is "radical self-styling" and "transformative experimentation with new arts of existence and ethical relations". I argue for both registers: a reclaiming of 'the biopolitical body' as *The body politic*, wherein each individual is a live phenomenology ontologic; a "bio(s)-poietic" creative of "co-designly"⁵⁴² truth. Subsequently, the statement (and assertion) "I ...", "we ...", "us ..." is a sociopolitical act that is intersectional. As, themes of Naomi Wolf's Third⁵⁴³ wave "power feminism"^{544, 545} were, according to Chris Bobel in *New Blood, Third-Wave Feminism and the Politics of Menstruation*, "inclusion, multiplicity, contradiction, and everyday feminism".⁵⁴⁶

3.8 Care of the self:

Who is this self that I must care about?

In *A Burst of Light*, feminist cultural activist Audre Lorde⁵⁴⁷ asserts "Caring for myself is not self-indulgence, it is self-preservation, and that is an act of political warfare".⁵⁴⁸ Caring is an act of defiance. As a social behaviour, it is reciprocal, and therefore, I argue is exponentially viral. In *Matters of Care*, Maria Puig de la Bellacasa posits "an ethic of care" is a pervasive moral obligation: "care joins together an affective state, a material vital doing, and an ethico-political obligation".⁵⁴⁹

Epimelesthai sautou; "to take care of yourself", "the concern with self", "to be concerned, to take care of yourself" was a familiar precept in Greco-Roman philosophy of the early Roman Empire (the first two centuries C.E.).⁵⁵⁰ *Epimeleia heautou* "the care of the self"⁵⁵¹ is central to Socratic, Platonic, Epicurean, and later Stoic and Cynic ethics^{552, 553} According to ancient Classical and Hellenistic authors, the Delphic principle, *gnothi sauton* ("Know yourself") was one of three maxims prominently inscribed upon the Temple of Apollo at Delphi. In *The Ethics of the Concern for Self as a Practice of Freedom in Ethics*, Foucault observes "know yourself" is an instruction or order, one that ethically acknowledges individual claims to "power-knowledge", cultivation, and selfhood; while "care of the self" although cautionary and sensitively compassionate, was latterly viewed as discursive, distracting, or self-indulgence. "The care of the self [is] somewhat suspect. Starting at a certain point [Christian morality], being concerned with oneself became denounced as [...] selfishness or self-interest in contradiction with the interest to be shown in others or the self-sacrifice required".^{554, 555} "Know thyself" relates to the mind, while "care of the self" has mind-body-soul holism and continuity. René Descartes' mind-body dialectic only further prioritised the mind over the body and according to Puig de la Bellacasa "neglected epistemic potential of the affective, ethical, and hands-on agencies of practical and material consequence of our thinking".⁵⁵⁶ In *Thus Spoke Zarathustra* (1883-1885), Nietzsche addresses "the despisers of the body" who reject phenomenological (from the Greek *phainómenon* "that which appears" and *lógos* "study")⁵⁵⁷ physiological embodiment and sensory sense-making (embodied cognition).

... [O]ur body with its great intelligence; it does not say 'I' but performs 'I'. ... The self also seeks with the eyes of the senses, it also listens with the ears of the spirit. Always the self listens and seeks; it compares, overpowers, conquers, and destroys. It rules, and is also the ruler of the 'I'. Behind your thoughts and feelings, ... stands a mighty ruler, an unknown sage – it is called the subconscious self: it dwells in your body; it is your body.⁵⁵⁸

Later, likewise, neuroscientist, Antonio Damásio describes Descartes' separateness of the mind from the body as categorical "error";⁵⁵⁹ reasoning requires the function of sensitivities: feelings and emotions via the body.⁵⁶⁰ Descartes' error was the dualist separation of mind and body, rationality and emotion.⁵⁶¹ "There is no such thing as a disembodied mind. The mind is implanted in the brain, and the brain is implanted in the body".⁵⁶² A thinking subject: Descartes' *cogito ergo sum* is necessarily (manifestly) tied to a "body-subject", an existentially sensing and perceiving, live-aware body, Edmund Husserl's "*corps propre*"⁵⁶³ – having *tekhne tou biou* (the art of living). So, the "technique" or "art" to living is projecting and mirroring an ethic of care; of the self, of the knowledge of oneself – as, according to Foucault,

“there is no first or final point of resistance to political power other than in the [phenomenological] relation one has to oneself”⁵⁶⁴ This reflecting, ethical self-truth is *áskesis* an ascetic training and exercise in Foucauldian “truth as discipline and bareness of life”.

3.8 Phenomenology:

The following is an extract from the Embodied Awareness Toolkit:

Embodied awareness and phenomenology:

Are there knowledge gaps in our reproductive physiology? Why is this? Could this affect our sentience (sensing-feeling awareness) of our corporeality (body-ness) and holistic (overall) sense-of-self? How? 17th Century Philosopher, René Descartes’ “mind-body dualism” viewed the mind and the body as separate substances (entities) with “real distinction”. Do we tend to look at ourselves as others might see us – from the outside? Does this “(male) gaze” cause us to constantly scrutinise, judge, and criticise our appearance? What is “embodied awareness?” How might it help us connect with our bodies [and sense of selfhood]?

Phenomenology:

Phenomenology is awareness that is perceptual (using sensory-based perception) and embodied (from within your body). This awareness is from your uniquely first-person point of view and perspective. Contrary to Descartes’ mind-body conflict, in his 1961 book, Douglas Harding describes our awareness, but apparent “headlessness” as an empowering “openness to the world”.⁵⁶⁵

Ex. 03 Class exercise, individual, 3 minutes:

1. Harding’s experiment in being phenomenological:
 - Sit in a chair, – Look down at your body beneath you,
 - Where can you see up to?
 - Where is your head?!
 - Feel your ears with your fingers;
 - Between your ears is an “unbounded” and “headless” space; this is your first-person perspective (phenomenology) and [wide] “openness” to the world. An openness that is self-aware, and at the same time “full of the whole world”.⁵⁶⁶ (In gaming this is the first-person perspective, i.e., from the viewpoint of your character proxy.) – Furthermore, you are an ‘uniquely you’ individual ...

“Become who you are!” Friedrich Nietzsche, Thus Spake Zarathustra (1899–1919).⁵⁶⁷

Anthropologist Gregory Bateson defined epistemology as the “science that studies the process of knowing ...”^{568, 569} From the Greek “episteme” and “logos”; “knowledge” or “understanding” or “acquaintance”, while “logos” translates as “account” or “argument” or “reason”.⁵⁷⁰ The epistemological tradition of scientific research and discourse purports to be rational and objective, using quantitative statistical data collection, analysis, and evaluation. There is an emphasis on “epistemic fact”, reliability, replicability, and validity. Whereas phenomenological experience varies qualitatively from person to person. How can we communicate what experience is, except that it is not quantitative? Phenomenology is not phenomenalism, which reduces mental states and the physical world to complexes of senses,^{571, 572} or psychologism, which construes logical truths or epistemological principles as the products of human (projecting) psychology.⁵⁷³ ⁵⁷⁴ Husserl’s “transcendental phenomenology” strives for an objective understanding of the world via the discovery of (shared) universal structures in human subjective consciousness and experience; ⁵⁷⁵ (“eidetic” essential structures or “essences” of phenomena). His “epoché”, is “the state where all judgements about non-evident matters suspend – to induce a state of ataraxia (freedom from worry and anxiety)”.⁵⁷⁶ In his *Ideas, Volume I*, Husserl talks of the notion of “bracketing”, “phenomenological epoché”, or “phenomenological reduction”. His epoché is a lifted-up moment: a pause and suspension that refuses and sets aside biases (attitudes and assumptions) based on experiences one has about the world around us. Husserl’s epoché has two categories, “local epoché” and “universal epoché”: to elicit a consciously objective view. This simulates ‘a blank slate’ for the object to be described as objectively as possible ⁵⁷⁷, ⁵⁷⁸ in the first-person immediacy of what is before consciousness.^{579, 580} What changes is the relationship between the subject and object in moment-by-moment, ever-changing consciousness.

Husserl uses the term “intentionality” as new levels of meaning present themselves. Acting as a pre-categorical method of separating the object from its subject, Husserl believed that this process would concatenate without end when applied correctly – as there are infinite modalities where we can connect subjects to objects. “Intentionality” is “an act” of consciousness, an awareness that our consciousness is “aboutness” of something.^{581, 582}

A promising theoretical framework: how then is phenomenology practicable? How could it apply to a first-person subject and group-based menstruality since, according to Max van Manen, hermeneutic (interpretative) phenomenology has no set method?⁵⁸³ Co-Designly Practice is heuristic and the “how” is found anew with each study;⁵⁸⁴ co-researchers are “perpetual beginners”.⁵⁸⁵ Here, epoché simulates an originary and existential, ‘pre-reflective’ engagement. Maurice Merleau-Ponty’s “autochthonous sense of the world that is constituted in the *exchange* between the world and our embodied existence” (my italics),⁵⁸⁶ and that this embodied awareness is *a posteriori* (“from what is later”) knowledge based solely on phenomenological experience.

Co-Designly Practice methodology centres on first-person presence, positionality, and phenomenological inquiry. EMA Toolkit activities support co-researcher ‘capture’ of menstruality from a novel and newly aware, ‘live experiential’ perspective. Then collectively develop the means (probes) for transcribing raw phenomena – prior to being theorised, interpreted, explained, and ‘abstracted’. In research subjectivity and *in-situ* ‘co-designly’ contextual relation, we used graphic elicitation, diagramming, and geometry to format and encode our menstrual data. Later, in informal discussion, we reflexively analysed our intersectional experiences of group ‘co-designly’ arts-design praxis. In his 1983-4 lectures, ‘The Courage of Truth’, Foucault discusses the Cynic philosophy of *parrhesia* “truth-telling; the *parrhesiastes* is the one who uses *parrhesia*, i.e., is the one who speaks the truth in “free spokenness (*franc-parler*)”.⁵⁸⁷ This circles back to the EMA toolkit; a “visual, Co-Designly Practice (CDLY P) base toolkit for increasing menstruating adolescents’ understanding of their menstrual cycle in Secondary schools”. Primary is increasing embodied awareness and cognition via menstrual tracking – *gnothi sauton* (knowing thyself) in daily *áskesis* (training and practise) re: *epimeleia heautou* (care of the self) for ethical *tekhne tou biou* (art in living). Post-taboo oppressive self-silencing, phenomenological narratology *parrhesia* “truth-telling”) ⁵⁸⁸ could be liberating.

Conclusion:

I question why internationally agreed and legislated individual rights to human rights are not being met. Intersectionally conscious egalitarian rights that *allow us* to realise and actualise potential. Foucault asks if academic practice is hypothetically “[p]racticing criticism, or is it really important to think?”⁵⁸⁹ Participating, I am *at the frontline*: a working wit(h)ness from with-*in* the DfE education (in postgraduate ‘co-researcher research modality’), a UN consultant advocating for female RH awareness, access, and rights, and an overly experienced female RH healthcare patient.

As “[a] critique is not a matter of saying that things are not right as they are. It is a matter of pointing out on what kinds of assumptions, what kinds of familiar, unchallenged, unconsidered modes of thought the practices that we accept rest... We must free ourselves from the sacralisation of the social as the only reality and stop regarding as superfluous something so essential in human life and human relations as thought”.⁵⁹⁰ Michel Foucault in an interview with Didier Eribon (1981).

As strategy, starting with communicating a live/living (updating) narratology of menstruality, I posit the disruptive potential of Co-Designly Practice as method, via the EMA Toolkit. From within schools, women’s SRH health clinics, and local community organisations; working together on the ground and “co-designly” recreating thoughts about *who we can be* and the *what* and *how* of menstruality? This could constitute a deconstruction of the bio(s)power bio(s)political subject and poietic re-assembly: a form of bio(s)autopoiesis for a new rationale, linguistic, and symbolic – a “co-designly” “imaginative variation”. In *Phenomenological Research Methods* (1994), Psychologist Clark Moustakas elucidates Husserl’s (1931) concept:

The task of imaginative variation is to seek possible meaning through the utilization of imagination, varying the frames of reference, employing polarities and reversals’ and approaching the phenomenon from divergent perspectives, different positions, roles, or functions. The aim is to arrive at structural descriptions of an experience, the underlying and precipitating factors that account for what is being experienced; in other words the “how” that speaks to conditions that illuminate the “what” of experience.⁵⁹¹

In this there is [Husserl's] informal and exploratory “‘free play of fancy’; ⁵⁹² [...] possibility and is permitted to enter into consciousness” ...⁵⁹³

Section 4:

Digital vs analogue

Introduction:

- 4.0 Artificial intelligence (AI) and algorithms; a web of ciphers and forces
- 4.1 Meta pixel, Facebook pixel, the Facebook SDK; shadowing and scoping
- 4.2 Data protection, General Data Protection Regulation (GDPR), human rights:
- 4.3 Access to female reproductive healthcare and reproductive choice is an international human right:
- 4.4 Sanitising the data of blood and cervical secretions:
- 4.5 Menstrual tracking: analogue paper cartographies, grids, geometry vs digital apps:
- 4.6 Natural Cycles: a case study and public health issue:
- 4.7 Data visualisation is algorithmic: finding pattern:
- 4.8 Could algorithmic 1's + 0's and Upper Palaeolithic mark-making be equivalent forms of menstrual tracking?
Prehistoric menstrual tracking via mark-making encoding:
- 4.9 Lunations: could we use the lunar cycle to track menstrual cycles?
- 4.10 Dynamical-homeostatic, biophysic(al) systems:
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Conclusion:

Section 4:

Digital v analogue

Introduction

"[A]n organism has conscious mental states if and only if there is something that it is like to be that organism – something it is like for the organism". Philosopher, Thomas Nagel (1974).⁵⁹⁴

In 'What Is It Like to Be a Bat?', Nagel notes the "intractable", subjective nature of consciousness and posits "conscious experience is a widespread phenomenon" "at many levels".⁵⁹⁵ We can imagine what it is like to be a bat, with a bat's "point of view" but cannot "know what it is like for a bat to be a bat".⁵⁹⁶ Not understanding exactly what consciousness is, how could, for example, a menstrual tracker app register (recognise) phenomenological experience of menstruality – since as menstruators we barely understand our own physiologies. In response to FemTech⁵⁹⁷ 'claims', this section argues first/foremost for individual, corporeal self-awareness that is conscious, cognising, and enactively embodied.⁵⁹⁸

Santiago Ramón y Cajal's 1900's diagrams of the brain are progenitor 'neural model' for AI, however, as diagrammatic 'sketches' they also communicate how little we understand the mammalian brain. In the following section, I define Artificial Intelligence (AI) as a range of technologies and processes that exhibit "human-like intelligence".⁵⁹⁹ According to the National Institute of Healthcare Research (NIHR), of the Department of Health and Social Care (DHSC), and one of the UK's largest funders of health sector research: "most healthcare applications are predictive AI systems".⁶⁰⁰ I then question if epistemological AI in healthcare, FemTech, and related fields is a neologism with a hyperbolic rise in marketing as 'investment potential'.⁶⁰¹ Daron Acemoglu at MIT Economics, believes AI is overrated because humans are underrated. "A lot of people in the industry don't recognize how versatile, talented, multifaceted human skills and capabilities are".⁶⁰² I argue the issue is a non human (or humanly phenomenological), and a not yet bio-logical sensing with sentience, 'data capture' and 'learned' but not felt (physiologically experienced), 'responses' in a care setting. This leads to the question is sensation understood empathically in a medical setting – since some gynaecologists cannot experience what it is like to have gynaecology and menstruality? Should healthcare be Nietzsche's "Human, all too human" and is Artificial Intelligence antithetical, 'alienated' (*alienus* "belonging to another", from *alius* "Other")?⁶⁰³ Where does this distrust come from?

Although knowledgeable; anthropologically-historiographically encyclopaedic and Cartesian, 'algorithmic thinking' is an axiology that prioritises prediction, control, measurement, and explication – based on 'forensic data' of past performance. Furthermore, I explore how algorithmic data harvesting is not a neutral process; 'impassively' using our *a priori* data to speculatively determine possible futures, reflecting, and further projecting (amplifying) enculturated biases, inequality, values, norms, and behaviours. I then argue, AI 'itself' is subject to a process of host human acculturation which is inherently biopolitical. I then draw attention to the ethicality and risks of data collection and raise questions about data sovereignty, legitimacy, consent, ownership, storage, commodification, General Data Protection Regulation (GDPR), and permissions (unmet human rights to privacy, autonomy, and freedoms). To have ethicality, I maintain there needs to be regulatory oversight but acknowledge this may not be possible. For example, Meta pixel, Facebook pixel, the Facebook SDK shadowing and scoping of users and collecting of persona data, oftentimes covertly, is with impunity and has potential for exploitative and punitive consequences. I then conduct a brief overview of menstrual tracking apps: the existing knowledge platform, with a case study of Natural Cycles. Without regulatory safeguards, I identify these apps as a public health issue 'at large' and problematise design industry 'wash' and complicit enabling.

Later, I hypothesise that previously, mean lunar and menstrual cycles transiently entrained. However, set within a pluriversal, nonlinear dynamical complexity and modality; a multiplicity of evolving factors over millennia, including changes in earth's Milankovitch cycles, make this (practically) impossible to prove. I question if mark-making encoding on Upper Palaeolithic, nomadic hunter-gatherer tools such as the Abri Blanchard Bone and the Ishango Bone provide accessible evidence as both lunar and menstrual tracking artifacts. I then correlate prehistoric, encoded "sequential and notational mark-making" and rhythmic patterning such as geometric marks, dots, dashes, lines, zigzags, and hatchings to FemTech menstrual tracking, encoded 1's + 0's; could they be equivalent forms of indexical menstrual tracking?

4.0 Artificial intelligence (AI) and algorithms; a web of ciphers and forces:

"In the bloom of its strength [they] scorned wisdom [...] amid the glitter of power and glory [they were] tormented by an insatiable greed, by an eternal mania for acquisition and accumulation. [...] [They] acquired. Everything that became [their] property bowed to it".⁶⁰⁴

Boris Kushner, Russian Constructivist in his *The divine work of art* (1919).

"Artificial intelligence (AI) refers to the simulation of human intelligence by software-coded heuristics".⁶⁰⁵ In health-care, AI has dynamic learning capabilities for 'biopsychosocial',⁶⁰⁶ holistic, and integrated approaches. These involve automated precepts to scale, accelerate, and optimise data collection, data processing, stratification, and complex analytics – for patient support, screening, diagnosis, monitoring, or treatment. AI also supports administrative workflow, clinical best practice, and inpatient and outpatient care in the community.⁶⁰⁷

Apropos person-with-person care qualities and 'qualitatives'? Questions arise about intimacy and trust, hegemonic bias and ideological affinities (proclivities) inherent in AI. *Inter alia*: the preservation and maintenance of existing (bio-political) power relations; 1. autocratic potential – whereby absolute power (decision-making) is by an 'autocrat' individual or group; 2. Big Pharma (in 2023, pharmaceutical industry global revenue exceeded US \$1.6 trillion, equivalent to the GDP of Australia);⁶⁰⁸ 3. bio-technocracy – a form of oligarchy governance selecting biotech decision-makers based on their wealth (access, expertise, and production) of scientific or technical knowledge; 4. data-as-capital (data is *obliquely* harvested, monetised, and transacted as capital); 5. impunity, the absence of democratic processes such as moral-ethic-legal oversight, regulatory safeguards, transparency, and accountability; 6. and the possibility of unintended harms or "suffering risks", known as s-risks.⁶⁰⁹

In July 2023, the UN Security Council assessed evidence that AI can amplify bias, reinforce discrimination, and enable new levels of authoritarian surveillance – raising political, legal, ethical, and humanitarian concerns. They discussed establishing a UN governing body of international field-experts to regulate, monitor, and certify AI systems and address issues such as malicious misuse, cyberattack, disinformation, terrorism, weaponisation, human behaviour manipulation in biotechnology: biomedical engineering, neurotechnology, cybernetics, and robotics.⁶¹⁰

'Post-Bitcoin', in this time of technocratic, economic precocity is algorithmic data the new currency with which to transact and "invest in life through and through"?⁶¹¹ Again, Boris Kushner's critique of Capitalism could be pertinent here: "... [s]orcery, a supernatural divination, a magic transubstantiation"; the creation and "colonisation" of an "ulterior world" [of spectral and speculative, sovereign data].⁶¹²

"Artificial intelligence [also called weak or narrow AI⁶¹³], is the overarching system. Machine learning is a subset of AI. Deep learning is a subfield of machine learning, and [approximations of] ['neural'] networks make up [(simulate)] ['the backbone'] of deep learning algorithms. [It is] the number of node layers, or depth, of ['neural networks'] that distinguishes a single ['neural network'] from a deep learning algorithm, which must have more than three".⁶¹⁴ Terms like "neural network", "backbone", "nodes" (etc.) are prematurely anthropomorphic. They anticipate "a theoretical form of [strong] AI":⁶¹⁵ artificial neural networks. In his "circuit analysis of neural structures", neuroscientist Santiago Ramón y Cajal's diagrammatic drawings of "neuron theory"⁶¹⁶ (circa 1900), created a model for understanding electrical synapses in the brain and brain neuroplasticity. "The ability of neurons to grow in an adult and their power to create new connections can explain learning"⁶¹⁷ (the origin of the synaptic theory of memory).⁶¹⁸ Likewise, future AI envisions a 'supra imaginary' and sharable network of 'sociological highways with Ramón y Cajal's *contiguous* (neural) intersect points where signals spark, arc across, then connect. Accelerating, exponential advances in AI⁶¹⁹ have the potential to innervate human physiology and link to bio-cognitive apparatus. Artificial-to-biological neural networks could 'conjure' 'portals' of illusionary autopoietic,⁶²⁰ topological manifolds;⁶²¹ 'affective' 'spaces' using synthetic and synaesthetic (artificial) sense-making. The psychological and metaphysical implications are significant: a seismic cyber morphogenesis (and virtual 'metamorphosis') to create new worlds of hybridities. (Charles Darwin's evolutionary "endless forms most beautiful ...").⁶²² So, if nature is the objective reality and all nature is creative, then *by* and *in* our nature, we perpetually create, and 'all this' is phenomenologically 'lucid' *anyway*.⁶²³

Furthermore, is the 'gamifying' of this new pseudo-reality as a sharable, temporary 'existence-place'. Future AI has the

ability to data-ify, ‘industrialise, and mass produce’ our reality/‘nature’. This circles back to Foucault’s power with no centre which is diffuse, but pervasive; “produced at every moment, at every point [synapse], or rather in every relation of one point with another” ⁶²⁴ (human biological to artificial neural nodes and their networked circuitry). Subsequently, “[p]ower is everywhere; not because it embraces everything, but because it comes from everywhere”. ⁶²⁵ In ‘the default world’, this implies portable menstrual tracking is developmentally primitive – as in the future, we could ‘exist’ as/within an application.

Currently, Period Tracker apps (FemTech) ⁶²⁶ use “deep learning algorithms” to data-ify, data mine, predict, and share an individual’s uniquely mutable menstrual cycle. In cryptography, a cipher is an algorithmic procedure that encrypts or decrypts content using a sequence of steps. Another term for this is encipherment: to encipher or encode is to convert information into cipher or code. ⁶²⁷ The Embodied Menstrual Awareness Toolkit encourages co-researchers to encode their menstrual cycle data diagrammatically on (analogue) paper to protect privacy. AI, however, encodes information via algorithms using a binary numerical system, a method of mathematical expression which uses only two symbols: typically, “0” and “1”. Using this coding, algorithms split content into gestalt, pattern-based horizons (striations). “Algorithmic thinking” ⁶²⁸ is, therefore, based on Bayesian ⁶²⁹ (AI-regenerative) generalisations using logic and rationale. “Algorithmic decision making” ⁶³⁰ uses analysis of vast amounts of information (existing data) to strategically project future behaviours and outcomes and is characterised as extrapolative. I draw attention here to the ambitious, but multivalent subtleties between terms such as “prognostic”, “probabilistic”, “projective”, “predictive”, and “deterministic”. Likewise, algorithmic data is problematic because it uses linguistic descriptors to classify, categorise, calculate, and predict. Linguistic and semiotic “arbitrariness” is “the [tacit, tentative] arbitrariness of the link between the signifier and the signified”. ^{631, 632} Contextual social convention imbues meaning to a given semiosis (any activity, conduct, or process that involves signs, including the production of meaning) or sign ^{633, 634} to create a diffuse ‘structure of meaning’.

Our societal and contextual “algorithmic condition” ⁶³⁵ functions as a linguistically arbitrary, assuming, and collectivising “metanarrative”. ⁶³⁶ Whereas I argue we’re all singularly experiential, responsive, and existential live nerve. “Fem-Tech cannot know how pain feels” (a research study co-researcher). ⁶³⁷ Likewise, Psychologist Ignacio Matte Blanco describes human intelligence as “bi-logic”: ⁶³⁸ contingent on a combination of the logic of formal reasoning (thinking) and highly dynamic “states” of emotional response (feeling) in context (being). AI is coded instructions: a systemic linguistic that is Cartesian and ‘becoming’. Manifesting as a disembodied, multiplicitous ‘entity’; it is not yet a biological singularity – autonomously “thinking”, “feeling”, and “being”. Without body, (an emotive, sense-based (sentient) and perceiving, phenomenological self), how then could AI feel a human sensory-empathic connection? In medical practice and nursing, this is an ethical issue as care would be ‘unfeeling’. Any expression of compassion ‘is simulated’. There is also the question of (human) mind and conscious, subconscious, and unconscious moral, ethical conscience. “[Since] [c]onscience motivates us to act according to moral principles or beliefs we already possess”. ⁶³⁹

Moreover, thresholds in human intellectual and cognitive capacity, plus uncertainty about unobservable causes and their unknown effects raise issues about entrusting in “algorithmic decision systems” (ADS). Exponentially, AI existence is not dependent on a biological ethos – it doesn’t breathe, drink, eat, sleep, sweat, urinate, defecate, menstruate, or (anatomically) procreate. What does this imply for genomic, biologic nature: fauna and flora and our collective ecological conditions for survival? Speculatively, could the default evolutionary process ⁶⁴⁰ of survival of the fitter override the living?

Data harvesting is not a neutral process; it ‘impassively’ uses our sociologically documented past to speculatively determine possible futures, reflecting and further projecting enculturated biases, inequality, values, norms, and behaviours. So, AI ‘itself’ is subjected to a process of host human acculturation which is inherently biopolitical. Here, Foucault’s “bio-polar” but “biopower[ed]” “anatomy-politics” ⁶⁴¹ of the human body and consequent biopolitics of the population could be prescient. Feminist theoretician, Rosi Briadotti notes that the [future] convergence of post-humanism with post-anthropocentrism critiques the universalist posture of the idea of “Man” [extrapolated as AI] as the alleged “measure of all things”. ⁶⁴² The latter criticises species hierarchy and the assumption of human exceptionalism (male hubris) – since it is nature that conceives the structure of the mind. In his Pascal’s *Pensées*, Blaise Pascal asks:

"For after all what is man in nature? In [...] relation to infinity[.] all in relation[?]... a central point between [self] and all, and infinitely far from understanding either. The ends of things and their beginnings are impregnably concealed from him in an impenetrable secret. He is equally incapable of seeing the nothingness out of which he was drawn and the infinite in which he is engulfed". *Pensées*, No. 72, (1958).⁶⁴³

Inverting 'the universal posture of man'; Lacan tells of a patient who, "a long time ago had a dream that the source of existence would spring from her forever more. An infinity of lives descending from her in an endless line". "*Est-ce que vous pourriez supporter la vie que vous avez?*"⁶⁴⁴ The archetypal She is a potent origin and conduit of the matrilineal line and lineage. Likewise, 'progenitor' AI has nth powers of non-physiological, reproductive replication or mutation.

Algorithmic bias (bias) raises practical issues about neoliberalism, corporate power, and governance (technocracy), accountability (deregulation), and security or corruption of oftentimes covert infrastructure and means. The ethicality and risks of data collection raise questions about data sovereignty, legitimacy, consent, ownership, storage, commodification, General Data Protection Regulation (GDPR)⁶⁴⁵ and permissions (human rights to privacy, autonomy, and freedoms). What is at issue is unseen, abstract processes with little transparency, 'data visual' visibility, or recognition.

Exponentially, biometrically tracking AI could be "panopticon":⁶⁴⁶ a clinical 'assuming gaze' and diagnostic 'assessing gaze' that is (potentially) omnipresent, omniscient, and omnipotent – simultaneously 'everywhere and nowhere'. In a "female" reproductive health context is this *felt* as an object's robotic gaze back at 'a subject' who is a body (the object). Who is behind or inside this object to subject-object gaze? Could it be an egalitarian and dialogic gaze, or is it paternal or patriarchal, speculatively,⁶⁴⁷ or scopophilic?⁶⁴⁸ As 'a subject' (a body object) of quotidian data sets, "I see only from one point, but in my existence, I am looked at from all sides".⁶⁴⁹ A surfeit of surveilling and all-seeing apps 'circumscribe' and break boundary – monitoring us inside and out: our vital signs, biorhythms, spending, calories, steps, or workout regimes, etc. For example, Ovusense⁶⁵⁰ is a Wi-Fi sensor app that is inserted into the vagina overnight (except during menses). These sometimes physiologically invasive apps largely ignore the underlying (and often interrelated) causes of physiological 'symptoms' (and psychological *sinthomes*), for example, age, genealogy, intersectional and environmental ecologies, the effects of poverty, nutrition, access to healthcare, education, and contextually driven anxiety, stress, or distress. (Hence this research's lens of analogue live(d) phenomenology.) "With systemic algorithmic thinking, we remain stuck in the realm of adaptation, not transformation" – attempting to ameliorate the symptoms, but not the underlying 'illnesses'. "There's a difference between nudging us to follow our walking routines – a solution that favours individual adaptation – and understanding why our towns have no public spaces to walk on – a prerequisite for a politics-friendly solution that favours collective and institutional transformation".⁶⁵¹ Moreover, 'the data' can classify (possibly blame) marginalised communities as 'problematic' – therefore increasing *existing* structural⁶⁵² socioeconomic inequity and intersectional discrimination. Subsequently, (abstract) data categorisation silos can become (real) ghettos. Conversely, there is also the issue of data invisibility, exclusion, or erasure, for example, in domestic violence situations where collecting data can identify individuals and alert abusers, exposing individuals, their children, and families to further harm. Lack of data literacy is an "amplifier of other exclusions".⁶⁵³ In 2024, almost half of UK families with children (45%), didn't meet "a minimum digital living standard" and lack the online skills or access to devices, data and broadband required to participate in today's digital society.^{654, 655}

4.1 Meta pixel, Facebook pixel, the Facebook SDK; shadowing and scoping:

"As a consumer product, you just have to be everywhere they are at [...] they're on social media, [...] they're on some influencers channels, they're on Google [...] You have to prioritise, you have to think about [...] what channel or what strategy offer the lowest hanging fruits [...] that give [...] immediate [capital] return ...".⁶⁵⁶
Sylvia Kang, Founder and CEO of Mira fertility tracking app.

Using an anonymised IP address, "Google Analytics and Facebook Ads conversion tracking [Meta pixel, Facebook pixel, and Facebook SDK]" follow a user's browser 24/7 to collect "personal data: cookies; and usage data" and shares (sells) this "personal data" plus "email address; first name; last name"⁶⁵⁷ with other parties such as marketing companies and advertisers. Meta pixel is a ubiquitous algorithmic code built into apps and browsers to collect personal data – using it to "optimise ads, build targeted audiences for future ads, and remarket to [users] who have al-

ready taken some kind of action on [any] website”.⁶⁵⁸ So, *simultaneously* the user’s internet browser on their phone and computer, their menstrual tracking phone app and product-linked website, (and almost every site they access), will be routinely collecting, cross-referencing, and sharing their ID, contact information, and sensitively personal menstrual and health data. A pregnant woman is the most lucrative marketing ‘discovery’ and her identity: personal details and contact information are (unknowingly) shared *without her consent* to potentially thousands of vested parties. Instantly commoditised, she is inundated with online offers. There are few online safeguards or protections most especially for vulnerable people and children (minors). The lack of corporate transparency obfuscates GDPR enforcement which is significantly under resourced and only applicable if both the menstrual tracking app head-quarters and user are within EU jurisdiction.

“An Observer investigation has uncovered a covert tracking tool in the websites of 20 NHS Trusts which has for years collected browsing information and shared it with the tech giant [“without user consent”] in a major breach of privacy. The data includes [GPS location], and granular details of pages viewed, buttons clicked, and keywords searched. It is matched to the user’s IP address – an identifier linked to an individual or household – and in many cases details of their Facebook account’.⁶⁵⁹ The Observer Health: The Guardian Newspaper, 27th May, 2023.

Menstrual apps collect “superfluous data including personal data – to build a profile of their users”.⁶⁶⁰ Controversially, menstrual tracking apps *can* indiscriminately share highly intimate and medical quantitative and qualitative data about an individual’s menstrual, uterine, and ovulatory cycle: cervical secretions, ovulation, luteal phase, menstrual bleeding (or conception, miscarriage, pregnancy termination or pregnancy) – in addition to their cycle-related sexual activity, mood, anxiety, discomfort or pain, their relationship status, *in situ* geolocation, daily routine, and mode: work, play, rest, and sleep.

“I have always tracked my cycle via an online platform called Flo[.] even though I have been made aware that the app uses your data[.] I don’t think I am at any risk of anything damaging happening as a result of using it because the culture around reproductive health is quite safe and progressive in my country”.

(Research study co-researcher’s self-report comment.)

4.2 Data protection, General Data Protection Regulation (GDPR), human rights:

“The right to privacy or private life” is enshrined in the Universal Declaration of Human Rights (Article 12), the European Convention of Human Rights (Article 8) and the European Charter of Fundamental Rights (Article 7).⁶⁶¹ The Data Protection Act 2018, is the UK’s implementation of the EU General Data Protection Regulation (GDPR). “Data protection principles” assert that information is[...] used fairly, lawfully [,] and transparently; [and] for specified, explicit purposes; [...] in a way that is adequate, relevant, and limited to only what is necessary; accurate, and, where necessary, kept up to date; [retained]for no longer than is necessary; and handled in a way that ensures appropriate security, including protection against unlawful or unauthorised processing, access, loss, destruction, or damage.⁶⁶²

There is stronger legal protection for more sensitive information, such as: race, ethnic background, political opinions, religious beliefs, trade union membership, genetics, biometrics (where used for identification), health, sex life or orientation.⁶⁶³

“Under the Data Protection Act 2018, is the right to [access] find out what information the government and other organisations store about you; [the right to institutional, organisational, and corporate transparency concerning your data]. “This includes the right to: be informed about how your data is being used; access personal data; have incorrect data updated; have data erased; stop or restrict the processing of your data; [and] object to how your data is processed in certain circumstances. You also have rights when an organisation is using your personal data for AI processes: [such as] automated decision-making [...] (without human involvement) [and] profiling, for example to predict your behaviour or interests”.⁶⁶⁴

How are corporations and digital biosensing tracking apps evading or bypassing UK/EU Data Protection laws? What does this indicate about our governmentality – respect for the rule of law, and the security and protection of the populace? Brexit threatens to further erode (or overrule) GDPR and human rights legal and moral-ethical protections.

A 2024 study,⁶⁶⁵ conducted an in-depth, comparative analysis of the data safety sections, privacy policies, and interfaces of 20 of the most popular mobile health apps available in the UK and USA Google Play stores (used by hundreds of millions of people). Key findings were:

35% of the apps claimed not to share personal data with third parties in their data safety sections but contradicted this statement in their privacy policies by describing some level of third-party sharing.

50% provided explicit assurance that users' health data would not be shared with advertisers but were ambiguous about whether this also included data collected through using the app.

45% of privacy policies outlined a lack of responsibility for the practices of any third parties, despite also claiming to vet them.

The 2024 study uncovered "inconsistencies", "as well as problematic privacy practices which saw data transmitted through complex chains of third parties". "Substantial shortcomings in the design of female mHealth app interfaces", include a lack of granular consent, inconsistent mechanisms for data deletion and portability, and dark patterns which coerced users into entering sensitive data". They concluded: "Our work demonstrates how intersections of gender, technology, and policy can configure unique risks to female mHealth app users in a post-Roe world".⁶⁶⁶

4.3 Access to female reproductive healthcare and reproductive choice is an international human right:⁶⁶⁷

Female reproductive autonomy is highly contested territory. According to UNFPA, human rights include sexual and reproductive autonomy and decision making: the right to freely decide the number, spacing, or timing of children, and access to sexual reproductive healthcare (SRH) in the community.^{668, 669} However, "only 55% of women globally have access to the information and means to make these choices [...] without coercion, discrimination, or violence whilst exercising these rights"⁶⁷⁰ and "one in four women is not free to say no to sex".^{671, 672} Limiting access to moral-ethic and legal human rights protections such as sexual consent, SRH (gynaecological, contraception, fertility, STI, pregnancy termination, and maternity clinics) conceivably coerces low and middle-income populations (LMICs) into having higher birth rates with exponential increase in maternal, infant, child, femicide, and suicide mortality rates.

Pivotal issues in First, Second, Third, and more recently Fourth-wave feminism are female autonomy and reproductive choice (decision-making). In 2022, the US Supreme Court's ruling in *Dobbs v. Jackson Women's Health Organisation* ended the constitutional right to discontinue a pregnancy – overturning *Roe v. Wade* (1973)⁶⁷³ and *Planned Parenthood v. Casey* (1992), legislation that "Protects a woman's right to obtain an abortion in a safe and legal manner". Twenty-one states coercively ban pregnancy termination or restrict the procedure to earlier in pregnancy than the standard set by *Roe v. Wade*,⁶⁷⁴ heightening concerns about menstrual tracking apps and the information they collect, store, and, potentially, punitively share. In this way, apps have biopolitical biopower – as surveilling, 'tell-tale', or disciplining dispositif⁶⁷⁵ state institutional apparatus.⁶⁷⁶ According to legal advocates Pregnancy Justice, a pregnancy miscarriage or preterm birth is subject to invasive, further investigation by US law enforcement.⁶⁷⁷

"The criminalization of pregnancy is rooted in sexism, as it seeks to impose traditional gender norms through its attempt to undermine pregnant people's rights and personhood."⁶⁷⁸ Pregnancy Justice.

Creative commons and free, the EMA Toolkit seeks to reclaim and instil reproductive awareness, bodily autonomy, and enactive agency. Analogue, pencil-on-paper menstrual tracking using the EMA (Sympto-Thermal) method supports SRH medical practice and in adult, mature cycles could assist natural contraception via fertility window awareness. STM is 99.6%⁶⁷⁹ effective with correct usage and 98.2% effective with typical usage,⁶⁸⁰ and 95% of women reported improved body literacy.⁶⁸¹ Significantly, no personal data is made digital, uploaded, and shared.

Future AI biopolitic, biopowered artificial or virtual (abiogenesis) and life-from-life (biogenesis) modifications further enmesh human physiology and reproduction in tech and moral-ethic complexity. Linked to privilege, advances in assisted reproduction such as embryo harvesting, preservation, screening, and CRISPR/Cas9 gene-editing of DNA are means of colonising and eugenic practice. Female ova, uteri (pregnancy and birth 'labour'), and male sperm are 'mobilised' for a revolutionary biotech and/or capitalist 'mode of production'.

4.4 Sanitising the data of blood and cervical secretions:

"There may be value in technology that allows the conversion of '...seemingly useless excess, the waste of the bodily system, into useful, exchangeable data'..."⁶⁸² Marie Louise Søndergaard

Online, portable, and wearable menstrual tracking tech devices are rudimentary and proliferate Cartesian and AI algorithmic thinking – perceiving, synthesising, and inferring (problem-solving and decision-making). Our algorithmic axiology values prediction, control, measurement, and explication. However, AI use is a prognostic gamble. It cannot account for interferences such as stochastic anomalies, 'dirt', or the "différental"⁶⁸³ (qualitatively different, the unrecognisable, uncertain, or unknown), disorderly restlessness, the wandering, lost, or maverick (behavioural outlier), the excretory; leaky or smelly, the invisible (Geist);⁶⁸⁴ or mandelbrotian⁶⁸⁵ 'infinity of infinity' of scale-invariant phenomena – Nietzsche's "qualitas occulta"⁶⁸⁶ (hidden quality). Furthermore, there is the loss of individual, instinctual and intuitive sense-making; nerve-to-neural connectivity to the intrinsically psychological, sensory-perceptual, and embodied (real/actual) self.

It is, therefore, a contradiction in terms that algorithms' main selling point is that they are pluralistic and 'customised'. Whereas nothing could possibly be more customised than one's own hand drawn, serial and sequential mark-making; "[a] nerve stimulus, first transposed into an image — [the] first metaphor".⁶⁸⁷ This research prioritises "self-actualising"⁶⁸⁸ via re-embodying menstrual awareness and addresses the lack of a custom, accurate, GDPR data-secure and confidential, analogue tool for learning how to track the menstrual cycle in schools. The EMA method is simply a daily charting and tracking to observe subtle changes in uniquely mutable menstrual cycles. Something that is phenomenological-ontological, sensitively responsive, and constantly reattuning in dynamical-homeostasis with various stimuli such as age-related hypothalamic-pituitary-gonadal (HPG) axis production of (gonadotropic and steroid) hormones, biorhythms: diurnal, ultradian, infradian, and circadian (such as the sleep-wake cycle), cervical fluid secretions, and menstrual flow. Subsequently, the ovarian-uterine cycle and its relation to menstruation are experienced as embodied and understood in real, physical time.

4.5 Menstrual tracking: analogue paper cartographies, grids, geometry vs digital apps:

A grid is a live force field, 'an exponential projection' of recursively (scale-invariant) imaginary lines — apropos pattern, order, and structure.

Our grids fracture and liquesce into fluidly fluxing, live lines like 'nets of nerve'. Sensational waves slow-oscillate and drain. Then, finally, a reflexive return of tidal rhythms, red flows, and frequencies.

We know only the barest rudiments of outline geometries; geometry is the vernacular for the calculus of infinitesimals. (Researcher notes during research study.)

Our historiography neglects the use and communicative value of sketches and diagrams. As tools for visual reasoning *to-work-things-out*, "[d]iagrams are usually adopted as a heuristic tool in exploring a proof, but not as part of a proof".⁶⁸⁹ Likewise, Charles Sanders Pierce's *diagrammatic reasoning*, uses the rules of inference and model theory developed for his existential graphs:⁶⁹⁰

By diagrammatic reasoning, I mean reasoning which constructs a diagram according to a precept expressed in general terms, performs experiments upon this diagram, notes their results, assures itself that similar experiments performed upon any diagram constructed according to the same precept would have the same results and expresses this in general terms.⁶⁹¹

His existential graphs "greatly [...] abridge the labor and increase the exactitude"⁶⁹² of transitory and sketch "moving pictures of thought"⁶⁹³ by putting "intricate logical relations" [sometimes "unnoticed and hidden relations among the parts"]⁶⁹⁴ "into [an axiomatic] form". So, like text flow cascading into a hierarchical, structuring grid; the use of geometry further stratifies, clarifies, and formally standardises visually descriptive relations, postulates, or arguments. Diagrams function as a visual shortcut (snapshot) "with expressive power".⁶⁹⁵ They encode as "symbolic" and are "logically semantic"; a visual "linguistic" of "multimodal information processing" (with multiple modes).⁶⁹⁶ Arguably, diagrammatic models should "be afforded the same logical status as traditional linear proof calculi".⁶⁹⁷

In the research study workshops, we developed means to visualise menstruality and track our day-to-day ovarian and uterine cycles. The diagram becomes a qualitative tool with an idiographic focus – as Interpretative Phenomenological Analysis (IPA) considers each individual as expert of their own experience. Each co-researcher diagram became differentiated to reflect their meaning making of detailed charting and tracking. These diagrams built on EMA Toolkit menstrual knowledge pedagogy about menstruation to raise embodied awareness and cognition. Later, we tested our diagrams for efficacy, usefulness, and analytical potential. As a practicable tool, a record, and artefact; the diagram has potential as a visual interlocutor for patient agency in reproductive healthcare settings. This supports menstrual well-being, medical expert diagnosis for early intervention, and informed decision-making for ‘best practice’.

When you submit any data a pop-up notification momentarily says, “Clue is getting smarter ...” ⁶⁹⁸

“Clue is a period tracking app, a trusted menstrual health resource, and a thought leader in femtech”. ⁶⁹⁹
(Clue website, opening page.)

However, within the locus of advanced diagnostic imaging, mapping, and bio-sensing tech is the development of menstrual tracker apps. The following analysis assesses these technologies and asks if manual drawing with a pencil has any relevance. It considers the usefulness of drawing practice with the advent of menstruation apps and explores their potential for enabling participant users to represent and convey complex information of personal, educational, and medical value.

“Why is really basic information about menstruation capitalised; packaged, marketed, and sold back to us as a commodity?”
(Comment by a research study, co-researcher.)

In 1990, Carl Djerassi, a chemical engineer and one of the biochemists who created the oral contraceptive pill predicted its obsolescence.⁷⁰⁰ Recent advances had made it possible to track changes in blood hormone levels, simply by sampling saliva or urine daily. Using a cheek swab or a dipstick for urinalysis, women were now able to accurately know the day they ovulated and when they could become pregnant. (The Sympto-Thermal Method (STM) (and EMA Toolkit) similarly ‘track’ bio-chemical markers – reflected in a basal body temperature (BBT) “thermal shift” and changes in cervical secretions.) Tracking would make using physiologically systemic, synthetic hormones unnecessary. However, Djerassi thought it was unlikely fertility tracking would replace the pill as no one had figured out how to monetise it. ⁷⁰¹ Fertility Awareness Methods (FAMs) use (basic) physiological self-awareness that is a free, drug-free, and side-effect free as a form of reliable (98.2%) ⁷⁰² birth control. Pivotaly, STM (and EMA) tracking is simply day-to-day and not predictive. However, we have forgotten this tacitly intuitive, archaic, and antecedent knowledge – increasing the dissonance between female self and body.

Two decades later, “smart wearables” menstrual apps first appeared. These apps: “circuits of knowledge” ⁷⁰³ (like the first contraceptive pills in the 1960’s) are exhilarating, profitable, fashionable and ‘on trend’, they “follow the demands and the imperatives of cognitive capitalism – demands to be portable, to be [predictive], to be useful, to be flexible, to be applied, to be entrepreneurial, and generally integrated within market economies at every level”.⁷⁰⁴ The Fem-Tech market is estimated to exceed \$75 billion by 2025 and refers to health software and tech-enabled products that cater to female biological needs and to the wider wellness market.⁷⁰⁵

In 2016, the American College of Obstetricians and Gynecologists assessed apps currently available and evaluated their accuracy, features, and functionality. Of 1,116 apps available; only 20 were deemed [partially] accurate, free apps, 80% contained information for conception and 50% for contraception. Common features and functionality included password protection (55%); no requirement for internet connectivity (80%); no advertisements (65%); in-application technical support (70%); medical disclaimers (65%); health education (55%); tracking of menstrual flow (70%), symptoms (70%), and intercourse (75%); alerts for next menses (65%) and fertility (55%); and cycle length information (75%). 40% were available for Android. Usefulness for fertility medications (15%), professional involvement (5%), and cited literature (5%) was rare. They concluded “most free smartphone menstrual cycle tracking apps for patient use are inaccurate”. They note that few cite medical literature or health professional involvement and support my argument that pencil-on-paper tracking “may remain the best option for some patients until data use is more transparent”.⁷⁰⁶

A 2019, Scoping review ⁷⁰⁷ of material published between 1 January 2010 and 30 April 2019 concluded that “[m]otivations for fertility app use are varied, overlap, and change over time” and that women want apps that are “accurate”, “scientific”, and “evidence-based” regardless of whether they are learning about their cycle, tracking their fertility, planning a pregnancy, or using the app as a form of contraception.⁷⁰⁸ “With some notable exceptions, app developers seldom involve health professionals or users in the design, development, or deployment of menstruation and fertility apps”.⁷⁰⁹ “There is a lack of critical debate and engagement in the development, evaluation, usage and regulation of fertility and menstruation apps. The paucity of evidence-based research and absence of fertility, health professionals and users in studies is [also] raised”.⁷¹⁰

Saliently, from a cost-analysis perspective, menstrual tracking apps depend on external servers, usually have initial download costs and may incur monthly maintenance fees. Their reach is limited since they rely on access to a Wi-Fi connection and a mobile phone/FemTech device, associated costs for maintaining these, combined with technological aptitude. Despite the proliferation of apps, few target low literacy users; there are 773 million illiterate adults globally, most of whom are women.⁷¹¹

Issues about archiving, retrieving, sharing, downloading, and printing data for review with a medical practitioner can also be problematic – since there is no consistent format to collected or stored data and no output per se. With no legislative regulation or agreed medical guidelines, the Journal of Paediatric and Adolescent Gynecology, 2014,⁷¹² expressed concern about “inaccuracies that appear in these apps and websites, most especially those targeting adolescents”. Most use a “28-day cycle” visual representation of the menstrual cycle. However, what is the likelihood of experiencing a 28-day cycle? They argue that women do not menstruate for the same length of time and at the regular intervals each month. In collected data of 30,000 cycles researchers found the average cycle length was 29.1 days, with a standard deviation of 7.5 days and a prediction interval of 15-45 days. The study concluded that a “slightly irregular menstrual cycle” constituted an 8–20-day variability. The findings, based on a 1968 study also found that variability fluctuated with age, with highest variability in groups of women under 25 years of age, and between 40-49 years of age. Irregular cycles are common during early adolescence, especially between the first and second cycles. With most bleeding for 2 to 7 days during their first menses.⁷¹³

Subsequently, research data indicates that these apps may be unreliable and have a significant failure rate when they are used as i.) a form of contraception via the Rhythm or Calendar Method and ii.) as an ovulation predictor for fertility.⁷¹⁴ Entrusting fertility monitoring to an app could lead to complacency about contraception and risk unintended pregnancy. In their 2016 paper, the ACOG concluded, “We do not advocate use of these menstrual cycle tracking apps as a primary tool to prevent or achieve pregnancy.” Furthermore, these apps could expose users to STI risks associated with engaging in unprotected sex, undoing the work of decades of safe-sex educational programmes. (In Secondary schools, the EMA Toolkit would follow existing UK DfE, PSHE units about sexual consent, contraception, STI prevention, fertility, teenage pregnancy, and abortion.)

The rigour of STM (used in the EMA Toolkit) requires daily BBT charting, cervical fluid (and optional cervical position) daily self-monitoring and tracking; these *cannot be predicted* by an app using Bayesian statistics, as no body is according to a predictive algorithm.

4.6 Natural Cycles: a case study and public health issue:

“[... There are q]uestions surrounding evidence base and efficacy, particularly in relation to the risk of unintended pregnancy”.⁷¹⁵

In 2013, Natural Cycles launched a hugely successful marketing campaign incorporating targeted advertising and social media influencers.⁷¹⁶ Natural Cycles combines sophisticated algorithms with the Rhythm Method (FAM) into a mobile app. Four years later, it became the first app certified as “a contraceptive method” in Europe.⁷¹⁷ Users input their BBT temperature every morning, FemTech algorithms calculate and *predict* their menstrual cycle, informing them when they can have sex without protection. The Stockholm-based company, founded by Cern Physicist Elina Berglund and her husband, Raoul Scherwitzl, claims to be 93% effective with typical use, and without the side-effects that many women experience from hormonal birth control. The app was certified as a class II (b) medical device within the

product category “stand alone software for the identification and prediction of the fertile window, for contraceptive or conceptive planning”.⁷¹⁸ In January 2018, the much-hyped Natural Cycles was referred to Swedish authorities⁷¹⁹ after 37 of 668 abortions sought at one hospital in Stockholm were for women who had been using the app as a method of contraception.⁷²⁰ “We were concerned that some of their claims were vulnerable to misinterpretation and may have contravened the UK Code of Non-broadcast Advertising and Direct & Promotional Marketing (CAP code). We felt uneasy about the impact of this advertising on young women’s contraceptive choices ... [and] the potential consequences”.^{721, 722}

In 2017, the UK Advertising Standards Agency (ASA) concluded their claims of “highly accurate contraceptive app” and “clinically tested alternative to birth control methods” were misleading.^{723, 724} The ASA noted that as so few women achieved perfect use of the app, and so contributed to the perfect use Pearl Index, it was misleading to quote this figure in the accuracy claim. They concluded that Natural Cycles broke four separate rules of the CAP code, including exaggeration, and misleading advertising. Natural Cycles were warned not to “exaggerate the efficacy of the app in preventing pregnancies” and were informed that “the ad must not appear again in the form complained about”.^{725, 726} The ruling also reviewed a video detailing the app’s credentials. “We further considered that the claim ‘clinically tested alternative to birth control methods’, presented alongside the ‘highly accurate’ claim would be understood to mean that the app was a reliable method of contraception which could be used in place of other established birth control methods, including those that were highly reliable in preventing unwanted pregnancies”.⁷²⁷

Two weeks before the announcement of the ASA ruling, the US Food and Drug Administration approved marketing of Natural Cycles as a method of contraception,⁷²⁸ and a similar birth control app, Clue in March 2021.⁷²⁹ The FDA⁷³⁰ assessment was less rigorous than for a hormonal birth control pill and used the De Novo classification;⁷³¹ an incentive by policymakers to lower restrictions and standards to expedite new medical devices to the market considered “low to medium risk”. Legalisation such as ‘the 21st Century Cures Act’, 2016, similarly fast-track drugs, medical devices, and products to the market. “There’s also a laissez-faire attitude when it comes to digital health devices, of which Natural Cycles is one”.⁷³² The FDA “didn’t consider it a high-risk device, so it didn’t have to go through the most stringent clinical review process, a premarket approval”.⁷³³ Clue was launched after testing in a study of 718 women.⁷³⁴ Questions arise about bio-ethicity: clinical trial sampling and robust analysis, functionality, and efficacy, “misleading” descriptions, legal disclaimers, the role of social media, advertising, and paid social influencers, and the background ethos of profit-motivation and governmental corporate deregulation.

On 4th April 2023, John Edwards, the UK’s Information Commissioner stated that the UK’s Information Commissioner’s Office (ICO)⁷³⁵ would be “going after providers of women’s health apps and auditing them and getting them to change any practices that are non-compliant”.⁷³⁶ This proposed strategy forms part of the ICO’s new “agile” initiative, focusing on “areas of vulnerability” “requiring regulatory attention”⁷³⁷ targeting intervention where it has the greatest impact.^{738, 739}

In conclusion, according to Amy Hough and Maggie Bryce, “[a] multifaceted approach of comprehensive relationships and sex education, ethical commercial policy, and informed clinicians [are] required to help deliver accurate and clear information”.⁷⁴⁰

4.7 Data visualisation is algorithmic: finding pattern:

Visual communication design can work as a metanarrative in the same way as biopower and biopolitics - by imposing an acultural, generalising, and rationalised aesthetic and meaning. Visually there is an affinity and continuity between menstrual tracking apps and the aesthetic of mobile interfaces. Graphical user interface (GUI) colour tends towards a white background with typically shades of blush or rouge to bright hot pink and blood red details. Some also feature feminine flower or petal motifs. In most designs there are tropes like whiteness, pink, red, flowers, freshness, and greenness with their echoing symbolic significations. My research posits paper charts as a simple and creative alternative using a pencil, coloured pencils/pens, a ruler, and paper. Using Co-Designly Practice, co-researchers design their own visual and encoded diagram. The Embodied Menstrual Awareness (EMA) method is introduced via toolkit-guided, heuristically experiential learning. Accordingly, it is viable for data-visualising the menstrual cycle within a DfE

PSHE, RSHE; RCN Women's' Health; or UN CSE framework particularly in LMICs, and, importantly, instances of functional or technological illiteracy, and/or poverty.

In contrast to the lively palette and playful interactivity of menstrual tracking apps, existing paper charts have a utilitarian, plain graph paper rigidity. A sequence of thin, structuring lines and rows of empty boxes are crossed by colour-coded, hand-drawn lines. Encoded characters (letters, numbers, icons, or symbols) *de*-cipher in a sidebar, explanatory legend. Visual complexity: a combination of mathematical calculi or algebraic-type scrawl can reduce efficacy. There is a distinct lack of expressive poetics (*poïesis*); poet, Wallace Stevens' "One must read poetry with one's nerves" ⁷⁴¹ Biorhythms are interoceptive, intrinsically vibratory resonances that we feel physiologically as embodied. Like tightrope guidelines that bounce slightly as one steps or skips across. How then could we rehumanise, personalise, and 'enliven' pencil-on-paper menstrual tracking charts into representations of live cartographies/ontologies?

4.8 Could algorithmic 1's + 0's and Upper Palaeolithic mark-making be equivalent forms of menstrual tracking? Prehistoric menstrual tracking via mark-making encoding:

I think of this research as restoring lost archaic knowledge: fertility tracking 'knowledge power'; something coveted, politicised and made controversial, withheld, forbidden, and hidden – mired in taboo and made abject. Archaeoastronomy uses a variety of methods to uncover evidence of past practices including archaeology, anthropology, astronomy, statistics and probability, and history. ⁷⁴² In this section, I hypothesise that mean lunar and menstrual cycles could have previously (transiently) entrained. However, a multiplicity of factors over millennia, including changes in earth's Milankovitch cycles – set within a pluriversal, nonlinear dynamical systemic complexity and modality – make this (at this time) practically impossible to prove. I question if Upper Palaeolithic nomadic communities' portable tools such as the Abri Blanchard Bone and the Ishango Bone are evidence of menstrual tracking.

4.9 Lunations: could we use the lunar cycle to track menstrual cycles?

The synodic month (the mean lunar month) is the average interval in days between exact conjunctions of the Moon and the Sun (as observed from the Earth). The current value of the synodic month (rounded to five decimal places) is 29.53058 days (i.e., 29 days 12 hours 44 minutes 3 seconds).⁷⁴³ (Almost) coincidentally, the mean menstrual cycle is 29.3 days in length ⁷⁴⁴ (or, 12.1 days),⁷⁴⁵ and appears to synchronise with the luminance and gravimetric cycles of the moon. Primal and archaic connection between the menstrual cycle and the monthly lunar cycle is found in Upper Palaeolithic symbolic notation visualising and tracking the lunar cycle and/or the menstrual cycle). Linguistically, the word etymology between "month", "moon", "menses" and "period" further signify archetypal valency (also discussed in Section 2). In research findings, however, there is ambiguity (and more recently) doubt about menstrual cycle "synchronisation" with the lunar cycle and "entrainment" (aligning) of menstrual cycles amongst groups of menstruators. About 1 in 2 will have their period either around the new moon or the full moon, plus or minus 3 days. The assumption is ovulation is around the full moon and menstruation circa the new moon ... According to astrophysicist and statistician, Marija Vlajic Wheeler, "Looking at the data, we saw that period start dates fall randomly throughout the month, regardless of the lunar phase".⁷⁴⁶

Nevertheless, periodic changes in the earth's orbit and rotation axis occur over tens of thousands of years, producing rhythmic climate changes called Milankovitch ⁷⁴⁷ cycles. The Milankovitch cycles include: the shape of Earth's orbit, known as "eccentricity"; the angle Earth's axis is tilted with respect to Earth's orbital plane, known as "obliquity"; and the direction Earth's axis of rotation is pointed, known as "precession".⁷⁴⁸ Currently, Earth's eccentricity (orbit around the sun) is near its least elliptic (most circular) and is very slowly decreasing, slightly slowing time in a cycle that spans about 100,000 years. Earth's axis is currently tilted 23.4 degrees, or about halfway between its extremes, this angle is very slowly decreasing in a cycle that spans about 41,000 years. (The two extremes of tilt make seasonal climate milder or more severe.) As Earth rotates, it wobbles slightly upon its axis; tidal forces caused by the gravitational influences of the Sun and Moon cause Earth to bulge at the equator, affecting its rotation. The trend in the direction of this wobble relative to the fixed positions of stars is known as axial precession and the cycle of axial precession spans about 25,771.5 years.⁷⁴⁹ So, using astrochronology, we know that the moon slowly spirals away from the earth at a rate of

about 3.82 cm per year, causing the planet to rotate more slowly around its axis and the days to become longer.⁷⁵⁰ At earlier positional alignments in past millennia did the menstrual cycle entrain with the lunar cycle?

4.10 Dynamical-homeostatic, biophysic(al) systems⁷⁵¹

As discussed in the previous section, each menstrual cycle is sensitively reactive and attuning in response to various biophysical phenomena, such as the natural seasonal environment. Our circadian, diurnal, ultradian, and infradian biorhythms (and therefore menstrual cycles) have continuously adapted and evolved over millennia. *A posteriori* contemporary factors affecting biorhythms such as: the ratio of artificial light to moonlight, nutrition, exercise, caffeine, alcohol consumption, air travel, lack of sleep, etc., I argue that quite possibly the mean menstrual cycle has previously entrained with the lunar cycle.

However, the typically cited (calendar) average of a 28-day cycle length, although close to the mean of 29.3-days, is (nowadays) not typical for a high percentage of women, and only 13.08% of cycles have an estimated ovulation on day 14.⁷⁵² Subsequently, “the necessity for an individualised approach to support reproductive health and fertility, and modifiable factors such as [nutrition,] physical activity[,] and stress should additionally be considered”.⁷⁵³

There are questions and debate about Stonehenge’s (later) archaeoastronomical role as lunisolar calendar and clock.⁷⁵⁴ As an archaeological centre of symbolic, ‘sacred gravity’; it is register of a multiplicity of affective rhythms: dynamic-al-homeostatic, biophysic(al) systems⁷⁵⁵ such as seasonal sun, moon, star, and planetary trajectories. Likewise, we embody and register time in (existential) synchronicity – in our DNA genealogies, menstrual rhythms, and phasing fertility, flows, and frequencies. In this way, menstrual cycles are both clock and pulsing metronome: deeply reflecting and registering our conception (of our construct) of time.⁷⁵⁶ A normal resting pulse is between 60 to 100 beats per minute with a +12 breaths per minute respiration rate; like a metronome, the hypothalamus in the brain sets ‘the beat’ for the menstrual cycle by the pulsing release of gonadotropin-releasing hormone (GnRH) – catalysing and cascading ‘synth’ events throughout the hypothalamic-pituitary gonadal (HPG) axis. This supports Judy Grahn’s hypothesis that the time-based “periodicity” of “female” uterine, ovulatory, and menstrual cycles was, most likely, the earliest source of the sciences of geometry, mathematics, and formal measurement.⁷⁵⁷

In a grandiose reversal and inversion, earlier societies may have conflated the female uterus with the birthing of the cosmos. In this existential, geocentric^{758, 759} ethos, earth is at the centre of the cosmos and the menstrual cycle has ‘cataclysmic power’. In his study *Mythologiques*, structural anthropologist Claude Lévi-Strauss traces antecedent, existential “male fear of menstrual cyclicity beyond all control”.⁷⁶⁰ “Women’s periodic rhythm could slow down and halt the flow of events, or it could accelerate and plunge the world into chaos. It is equally conceivable that women might cease to menstruate and bear children, or that they might bleed continuously and give birth haphazardly. But in either case, the sun and the moon, the heavenly bodies governing the alternation of day and night and of the seasons, would no longer be able to perform their function”.^{761, 762}

4.11 Analogue is live, portable and nomadic: The Abri Blanchard Bone

There is archaeological evidence of symbolic mark-making behaviour (encoding) that is non-figurative and non-representational from the Palaeolithic period (3.3 million years ago to the end of the Pleistocene, circa 11,650 – 115, 000 years ago).⁷⁶³

Upper Palaeolithic, nomadic hunter-gatherer populations followed the seasonal migrations of wild herds using celestial navigation. Their art in rock shelters ‘narrated territories’ in depicting these graceful, boisterous, bestial animals.⁷⁶⁴ The Abri Blanchard Bone found in the Dordogne region of France is an Upper Palaeolithic (10-50,000 years old), portable and palm-sized, ‘majestic’ eagle bone.⁷⁶⁵ Made by European early modern humans (EEMH); the first *Homo sapiens* to settle in Europe (migrating from western Asia, from as early as 56,800 years ago), it was an artefact imbued with sacred, totemic (symbolic), ritualistic, or ‘supernatural power’, much in the same way that a mobile phone ‘stores’ information, ‘connects’, ‘orientates’, and ‘has power’. As “time-factored thought”, “[t]he notational marks on these

sorts of bones were ['made on the move',] serially, in a clear order, and at different times and are thought to represent the waxing and waning moon positions in serpentine form".⁷⁶⁶

Under a microscope, the cool smoothness of flat, pale bone is marked with variously communicating curt, deft, sharp marks; slow-fat marks; tiny tight-twist of the wrist arcs; caught in a hatched net of light lines; x's or crosses, crisscross into small stitches; punctuation stops, starts; deep pock gauge or half-dent dashes and slashes – in an altogether long, loosely-looped line resembling the lunar circuit, a uterus in cross-section, a snake-deity, or S stream of river. Marks were encoded with physicality: forced and riven; or heavy, blunt gesture; a carefully incised, intaglio-type etch; or a lighter, scuff scratching. The semiotics of these marks present "new possibilities of enactive material signification";⁷⁶⁷ likewise, in the research study, we engaged with "the cognitive life and agency of [...] marks as material signs".⁷⁶⁸

The Abri Blanchard Bone is one of the earliest indications of a symbolic notation to visualise an astronomical cycle. By tracking lunar and menstrual periodicities, menstrators were thought to be conduits, celestial astronomers, and gatekeepers⁷⁶⁹ to orientating, essential knowledge about fertility, timekeeping, the seasons, navigation (the movement of the sun, planets, moon, and stars) in their communities.

1.12 The Ishango Bone:

The Ishango Bone is an archaeological artefact from the Palaeolithic era (around 22,000 – 28,000 years ago), found in the Congo in 1957. A fibula (calf bone) of a baboon; archaeologists and anthropologists are interested in encoded marks incised into the bone, set in three columns. Ethnomathematician Claudia Zaslavsky suggests this indicates the creator of the tool was a female tracking the lunar phase in relation to the menstrual cycle, as "[t]he first calendars, notches on a bone, were probably lunar, following the phases of the moon".⁷⁷⁰

The Venus of Laussel is a Gravettian, Upper Palaeolithic (around 25,000 BCE), 46cm limestone bas-relief found in Abri de Laussel, Marquay, Dordogne. She holds a raised crescent moon, bison horn, or cornucopia in one hand inscribed with thirteen notches – symbolising the number of moons or menstrual cycles in one year. She has large breasts and wide hips with a prominent pubis and navel. Her other hand rests on her abdomen, a reference to matrilineal origin, fertility, and pregnancy. Her featureless face turns toward the raised-up crescent. Traces of red ochre signifying the potent, life-giving blood of the mother/mother earth⁷⁷¹ are still apparent on the breasts and in some hollows.⁷⁷²

Epistemically, these were symbolic and ritual, mobiliary artefacts shaped by prevailing belief systems. Anthropologist Chris Knight⁷⁷³ argues that menstrual synchrony is central and pivotal to the evolution of human kinship and social organisation, our ecological fecundity, and symbolic culture. And an "ideology of blood" permeates ritual performances and cosmological beliefs among hunter-gatherers across the world.^{774, 775, 776, 777} Contrary to earlier academic dismissal as "speculative", it is widely accepted that early hunter-gatherers perceived significant correspondences between menstrual and lunar periodicities, scheduling their ceremonies and hunting patterns to achieve the ultimate ideal of synchrony with the moon.^{778, 779, 780}

In the EMA Toolkit sections: "The cultural anthropology of the menstrual cycle", "Alternative methods of tracking important information, 'seeing as thinking' – making data visual"; is the following (optional) exercise:

30 minutes class exercise:

1. Research online, prehistoric notational methods, mark-making, and rhythmic patterning such as geometric marks, dots, dashes, lines, zigzags, and hatchings.
2. Using clay, design a portable and encoded Upper Palaeolithic artefact to record your menstrual cycle. Cross-reference this with, for example, a lunar cycle or another cycle you can think of.

This project is intended to be fun, imaginative, experimental, and creative. (e.g., the mind-blowing connection between a baboon fibula and the menstrual cycle!)

3. Class review and critique of our various menstrual artefacts.

4. One person from each group will additionally test a simplified version of the Abri Blanchard bone for a week and compare it to a menstrual tracking app (they are already using) and report back to the group in a brief, five-minute presentation.

This exercise restores menses back into a haptically tactile, plurisensorial experience – via a visual-sculptural, ‘object-thing’ with gravity, significance, and ‘totemic power’.

Conclusion

In their ‘Children and parents: media use and attitudes report’, 2022,⁷⁸¹ Ofcom notes that by the age of 16-17: 100% of adolescents have a mobile phone and 97% use social media. 94% have their own social media profile and are actively ‘embedded’ in online social media. 99% use messaging apps/sites, 98% use video sharing platforms, 85% watch TV or films online, 79% live streaming apps/sites, 73% game online, and 42% have seen something worrying or nasty online. Significantly, only 44% were able to identify if content was sponsored.

In conclusion, online social media exposure has reached saturation point. As explicated in this section, algorithmic inculcation and conditioning via “neural networking AI”⁷⁸² is rogue as there is no regulatory oversight and a failure to meet child and adult international GDPR safeguarding legislation. Significantly, FemTech tracking apps are conduit for 24/7 online access – as apps need to be logged-in, open, and continuously updated, and/or are self-updating.

Adolescence is an alchemical chrysalis, *chymos*,⁷⁸³ *chrysós*⁷⁸⁴ time of identity formation. It is a ‘molten’ period of intensive physiological and psychological transmutation from childhood to adulthood. A critical time of ego-identity formation and self-affirmation – processes and vicissitudes that are ego-syntonic (in unison with developing self-image, goals, values, and beliefs) and ego-dystonic (dissonant phases).⁷⁸⁵ Psychoanalyst Erik Erikson’s theory of psychosocial development⁷⁸⁶ maintains establishing an identity is the key developmental task of adolescence. His “identity crisis” in adolescence^{787, 788} is a critical stage in the development of a sense of self; the “existential question: who am I and what can I be?”⁷⁸⁹

Social psychologist Leon Festinger’s social comparison theory⁷⁹⁰ describes how individuals evaluate their own opinions and desires by comparing themselves with others.⁷⁹¹ Subjectivity/identity is socially mediated self-representation and artfully constructed online via social media. Artificial “I”s, possibly simultaneous, simulated identities are experiment, practice selves. As social actors in a hypothetical (virtual) space, these selves have social agency. However, agency is somewhat conditional on exposure (visibility), which, if authentic, could be problematic. They become subject to the possibility of likes (praise) or pejorative judgements via a perpetual online “gaze”⁷⁹² (sometimes a scopophilic⁷⁹³ -type voyeurism). These unidentified ‘users’ constitute a sort of ‘peopled panopticon’: a Foucauldian symbol(ic) of “gaze”.⁷⁹⁴ An unaddressed safeguarding issue, parents can be unaware of, or ambivalent about, the psychological battleground of ideological apparatuses, ‘glitching’ value systems, and acculturating social norms via online access.

“All sorts of things in this world behave like mirrors”. Lacan⁷⁹⁵

“What we see in a mirror is always an illusion”. Meghan O’Gieblyn⁷⁹⁶

The online world is multiplicitous, a ‘mirror in mirror’ adult world with a transfixing, Narcissus-like attraction. Lacan speculates that our identification with our reflection relies on *méconnaissance* or misrecognition.⁷⁹⁷ “When we look in the mirror, we see a pleasing image of wholeness and project onto it a mental fantasy – the ego ideal”.⁷⁹⁸ The online world is a Jorge Luis Borges’ “Aleph”⁷⁹⁹ wherein Lacan’s relational “imaginary”, “symbolic”, and “real” further confuse in reflection of reflection (a psychic fracturing). It is a place of specular “imaginative possibility”, but also Morpheus’⁸⁰⁰ ‘hallucinatory dreams’ – evanescent trends and social norms of aspirational advertising, phantasmal celebrities (possibly ‘deepfakes’), and libidinal, profit-driven and prioritised businesses. These watery-kinaesthetic, diffracting illusions can be unethical because they are lure, child-influencing,⁸⁰¹ and therefore, psychologically manipulating.

Nevertheless, social media messaging, live online events, and gaming sessions are significant forms of adolescent

participatory socialisation. They generate special interest groups to share content, building multicultural online communities. However, in addition to stimulating distraction, adolescent peer pressure to socialise online could escalate into humiliation or intimidation. Disseminated within seconds, an embarrassing, shaming, or stigmatising rumour or photo with 'meme potential' can be viewed by 'users' indefinitely. With impunity – a lack of guidance, regulation, or legislation,⁸⁰² there is a further loss of privacy, 'self'-ownership, rights, and freedoms. Within this context, I argue that the self is not expressed from within in a psychological or physiological sense, nor is it performed (Butler's performativity), practiced, or even proactively enacted – it is affected. Here, 'affective response' is not 'active choice'; according to social psychologist Andrew Todd, affect, because of its influence on human behaviour, "can shift culpability and self-determination away from individuals, philosophically undermining capacity for moral freedom and judgment".⁸⁰³ According to research by YoungMinds in 2022, a third (34%) of young people "feel trapped on social media", "they want to leave social media sites" ... "but feel like they can't".⁸⁰⁴ Online Femtech contributes to the 'ensnaring' of vulnerable 'users'.

Section 5:

Co-Designly Practice methodology. Using Arts-Design Praxis as Lens and Prism for Learning within the UK, Department for Education (DfE) national curriculum.

Notes on the text:

Introduction:

- 5.0 The Embodied Menstrual Awareness Toolkit and research study methodology:
- 5.1 Co-Designly Practice introduction:
- 5.2 Positioning Co-Designly Practice (CDLY P):
- 5.3 A social process for social progress; via elemental and child-centric joy, play of imagination, and creativity:
- 5.4 From Rousseau to Illich, Freire, and Foucault; a critique of school:
- 5.5 Arts-design, practice-based learning – whereby art is not “just art” or a (pejorative) hobby, but an immersive, sensi encounter and experience.
- 5.6 Enchantment, luminosity, and alterity; grasping the nettle and differentiation:
- 5.7 Arts-design praxis, a phenomenological lens and prism?
- 5.8 ‘Phenomenologic-optics’:
- 5.9 Using CDLY P, could phenomenology be non-parochial, group-based, and practicable:
- 5.10 Acknowledging a blend of aptitudes, sociometry, support, and learning from each other:
- 5.11 Co-Designly Sensi:
- 5.12 Forensic curiosity:
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- 5.15 Co-Designly Practice case study 1: Our Utopia
- 5.16 Being Singular Plural:
- 5.17 Life-Art-Design:
- 5.18 What Value? Homo economicus, homo ethic from ethos “moral character”, related to ethos “custom”:

Conclusion:

- 5.19 Qualitative assessments
- 5.20 Acknowledgements:

Section 5:

Co-Designly Practice methodology.

Notes on the text:

"It is not enough to listen to young people – we need to integrate them into decision-making mechanisms at all levels".
Working together collaboratively and constructively, in "intergenerational solidarity ... to achieve a more equitable, just, and inclusive world for all people".⁸⁰⁵

UN Secretary-General, António Guterres speaking on International Youth Day (2022).

Co-Designly Practice, using Arts-Design Praxis as Lens and Prism for Learning within the UK, Department for Education (DfE) national curriculum.

5.0 The Embodied Menstrual Awareness Toolkit and research study methodology:

The Embodied Menstrual Awareness (EMA) Toolkit uses Co-Designly Practice (CDLY P) as methodology. First iterated in the context of my professional practice as a Department for Education (DfE) Primary school teacher and developed *with* children, specifically *within* 'the Early Years Foundation Stage' and 'Reception, Key Stage 1', UK, DfE curriculum. CDLY P pedagogy mobilises "arts-design praxis as lens and prism for learning" and was designed as a transferable method for child-led inquiry across Key Stages 1-5 (age 4-18) in schools.⁸⁰⁶

In the research study, I intended to further evaluate and assess the rigour and cogency of Co-Designly Practice used in the EMA Toolkit in a Key Stage 4-5 (age 15-18), Physical, Social, Health, Economic (PSHE), Relationships, Sex, and Health Education (RSHE) setting at a local Secondary school. Unfortunately, Covid 19 pandemic disruption, social distancing and a series of lockdowns with school closures cancelled an already organised research study at Bullers Wood School for Girls. Post-pandemic uncertainty and precarity, an acute shortage of PSHE staff in schools, and industrial action by the four, main teaching unions⁸⁰⁷ put planning into disarray. Subsequently, the research study took place at University of the Arts (UAL), across UAL student, alumni, and faculty. A diffuse cohort allowed for a more rigorous testing of the Embodied Menstrual Awareness Toolkit and further Co-Designly Practice reworking with creatives in a Social Design and Data Visualisation discipline setting.

The research study was redesigned to be across a term with 20-30 participants for academic credit and during daylight hours with whole afternoon sessions of Co-Designly Practice improvisation *to further iterate* two versions of the EMA Toolkit. One for schools, and one for +51% of the UK population of reproductive age (via the Royal College of Nursing's (RCN), Women's Health Toolkit). Unfortunately, with less than two months' notice and having to condense a large amount of necessary information into four short sessions (8 hrs instead of a relaxed 39) left barely any time for creativity. This arrangement was upending for me, as this was a heartfelt egalitarian (and dialogic), responsive-creative endeavour. Unfortunately, the study (para)metrics were compromised by precarious, post-pandemic circumstances.

Nevertheless, my methodology is set out in the following section with case studies documented here:

<https://www.lscovell.com/co-designly-practice> password is PhD. (Please zoom out to scroll down full menu.)

Please note co-researcher names have been anonymised with randomised letters (i.e., letters do not correlate individuals). However, the age indicated is correct.

5.1 Co-Designly Practice introduction:

A., (4), raises his arms high holding up his painting “LOOK!”⁸⁰⁸ He beams radiantly, his eyes wide in wonder and emotion, “Look at this! Can you see what I see?” He excitedly and imaginatively deciphers meaning in his abstract, painterly gestures. Last week, we looked at Rorschach painting (“RoarrRR ShaCK”) and they understood. The class enthusiastically crowd round and further elucidates on what A. sees.

Here, abstract, designly qualities like colour, line gesture, shape, contrast, spacial arrangement, pattern, and texture, express a raw phenomenological, communicative syntax that may or may not be recognisable (legible). How might Co-Designly Practice introduce an organising structure and shared framework to transform, for example, an Early Years Foundation Stage’s abstract expression, (priceless Twomblys, Matisse’s, or Picassos), into a heuristic, visual tool for practical learning?

Co-Designly Practice is not co-design. It questions if art and design could be further utilised (instilled) as a qualitative praxis, an interlocutor lens and prism for other subjects? CDLY P has potential as an integral, organising principle within the UK, DfE across the national curriculum from Early Years Foundation Stage to Key Stage 5 (age 4-18). Since a cross-disciplinary, horizontal axis (arts-design praxis) across and uniting DfE curriculum subjects is possible. Most especially in ‘Early Years Foundation Stage Reception, and Key Stage 1’, (as rigorously tested in our practice-based work). In this instance, CDLY P comfortably co-existed with traditional modes of DfE teaching and learning.

“... [T]he joyous affirmation of the play of the world and of the innocence of becoming, the affirmation of a world of signs without fault, without truth, and without origin which is offered to an active interpretation”.⁸⁰⁹

Jacques Derrida, ‘Structure, Sign, and Play in the Discourse of the Humanities’, John Hopkins University lecture (1966).

In this section, I explain developing and using Co-Designly Practice (CDLY P), via arts-design praxis as lens and prism for child/adolescent learning within the UK, DfE national curriculum. CDLY P is methodological framework for Co-Designly Sensi” (CDLY S) moving from somatic sentence – to sense-certainty⁸¹⁰ – to sense-making. Primary and secondary inquiry was practice-based, iterative, and helically reflexive. Interdisciplinary theory-building mixed methods such as phenomenology, aspects of co-creation, co-design, and continental Superstructuralist⁸¹¹ pedagogies with qualitative interplay between philosophical ideas and empirical research.⁸¹²

My findings offer an insightful, useful, and critical interpretation of a systemic problem: ⁸¹³ does the DfE and Ofsted focus on assessment and “accountability” (“bankability”)⁸¹⁴ of academic learning outcomes, (meting, maintaining, and monitoring by testing, measurement, and analysis) inhibit serendipitous “flow”⁸¹⁵ of child/adolescent learning? Within the national curriculum is art and design “just art?”⁸¹⁶ Post English Baccalaureate (EBacc) relegation and a 50% reduction in State funding for arts education to prioritise “enshrined”, “high-value subjects”,⁸¹⁷ it is vital to reassert validity claims for arts-design praxis across the curriculum. This section presents a proposal to heal a *gap in the making*, the loss of art and design subject categories, disciplines, and their material, transferable practice.

“A. is our home; I mean my second home”. (I, 11)

This section is based on embedded and frontline,⁸¹⁸ ‘practice-based explorings’ into developing a form of plurisensorial co-design for schools (Co-Designly Sensi). Work study⁸¹⁹ was developed, tested, iterated, and peer-reviewed within a secular, Independent Primary school as part of the national curriculum within UK, Gov. DfE ethical guidelines.⁸²⁰

A. Primary School⁸²¹ is a large family house with approximately 105 co-ed pupils over seven classes. Community of practice (COP)⁸²² “co-researchers” were Class 1: Early Years Foundation Stage – Reception and Classes 2 and 3: Key Stage 1. Children were Infants and Juniors between the ages of 4-7, oftentimes working collaboratively across class years. A longitudinal study, our collaborative work took place every Monday and Friday, over an eight-year period with a Lower School cohort that varied from 75 to 17.⁸²³ My findings are based on deductive and inductive analysis of collected qualitative and empirical data: photo-documented and archived (descriptive) Co-Designly Practice, discourse analysis of dialogical interactions and anecdotal and observational notes. (A photo-document archive accom-

panies this section, is integral and frequently referenced.)⁸²⁴

“The principle that there is a single world does not contradict the infinite play of identities and differences”.⁸²⁵ With an internationally vibrant and largely⁸²⁶ multicultural cohort, A. school prioritises a sense of ‘school as [heterogenic] family’. There is an established and holistic community of support and care in the form of an intricate network of family, relational, and societal ties, and a neighbourly, local community kinship.⁸²⁷

I use a mixed-methods approach to child/adolescent pedagogy, as “[a] mixed method design is useful to capture the best of both quantitative and qualitative approaches”.⁸²⁸ Interdisciplinary theory-building uses methods such as phenomenology, aspects of co-creation, co-design, and Superstructuralist⁸²⁹ educational pedagogies. With an academic, visual communication background; the pluralistic and inquiry-based Reggio Emilia Approach “of a hundred languages” was helpful in open-mindedly working with multi-cultured children. The playful, elemental simplicity of Russian Suprematism, and the (utilitarian) responsiveness of the Vkhutemas school were also influential.

CDLY P is a learning method designed to be “co-designly” adapted by co-researcher children/adolescents: inventive mixing of methodologies is illuminating, as each (re)configuration offers different levers, levels, and scales of dynamics of practice. In their practice, “[p]ractice theories are a kind of ‘modest grand theories’ as they offer [...] frameworks of categories and assumptions for developing substantial theories on specific practices”.⁸³⁰ Is (“co-designly”) practice then, the new imperative, materialism, and ontology? If so, why aren’t we experimenting, trying things out and practising more?

5.2 Positioning Co-Designly Practice (CDLY P):

“Co-design that means co-operative? Like a co-op, right?” “Is it something to do with the Co-op supermarket?” (S., 5)

Co-design emerged from the participatory action research (PAR) movement of the 1970’s whereby “communities of inquiry and action evolve and address questions and issues that are significant for those who participate as co-researchers”.⁸³¹ Similarly, co-design also engages researchers, stakeholders, and end-users in distinctly role-based, but co-operative “collective creativity”.⁸³² However, co-design is a visual design process of intervention, tackling specific and predetermined problematics with problem-addressing outputs and outcomes. According to Elizabeth Sanders and Pieter Jan Stappers, co-creation is “is any act of collective creativity”;⁸³³ a broad term “with applications ranging from the physical to the metaphysical and from the material to the spiritual”.⁸³⁴ “Co-design is a specific instance of co-creation”, this “collective creativity” and cooperation is applied across the entirety of the design process.⁸³⁵ “We use co-design ... to refer to the creativity of designers and people not trained in design working together in the design development process”.⁸³⁶

In ‘Participatory Design and Prototyping’, Wendy Mackay and Michel Beaudouin-Lafon discuss locus of control: “[a] common misconception about [co-design] is that designers are expected to abdicate their responsibilities as designers and leave the design to [‘]users[‘]. This is never the case: designers must always consider what users can and cannot contribute.”⁸³⁷ Furthermore, service design is the process of planning and organising people, infrastructure, communication, and material components of a service, with the goal of improving the service’s quality, interactions between a provider and its customers, and customer experience.⁸³⁸ Co-creation, co-design, and service design are interrelated, but with differing levels of designer/researcher engagement, facilitation/intent/control; and prioritising of output/outcomes.

Co-creation: Level 1 Designer/researcher engagement is low or joining-in as participatory.	“[I]s any act of collective creativity”. ⁸²²
Co-design: Level 2 Designer/researcher engagement is moderate: facilitation <i>with intent</i> re: output/outcomes.	This “collective creativity” and cooperation is applied across the entirety of the design process. “We use co-design ... to refer to the creativity of designers and people not trained in design working together in the design development process”. ⁸²³ 1. Identifying and/or defining a problematic. 2. Participating in a design research process (an intervention) to address it. 3. Deliverable. 4. A reflexive or assessment phase. 5. Measured analysis that can generate further, useful data.
Service design: Level 3 Designer/researcher engagement is high: facilitation <i>with intent</i> (and possibly control), a prioritising of output/outcomes.	The process of planning and organising people, infrastructure, communication, and material components of a service, with the goal of improving the service's quality, interactions between a provider and its customers, and customer experience. ⁸²⁴

839, 840, 841

Co-Designly Practice has its basis in co-design methodology; our qualitative, practice-based research uses co-creation and co-design as a starting point (and departure) for participatory inquiry and sensemaking. As a pedagogical proposal for learning in schools, CDLY P works with heterogenic⁸⁴² child phenomenologies – unique but essentially co-existing individuals in group-based work. Distinctively egalitarian⁸⁴³ and cooperative, CDLY P is not role-based or hierarchical. I question the co-design lexicon of “designer”, “facilitator”, “intervention” and ‘the othering’ of “subjects”, “participants”, “users”, or “consumers” – and ask whose “values?” Value; *valoir* ‘a worth’, from Latin *valere*: “be strong, be well; be of value, be worth” – determined commensurate to who’s colonising “what”? CDLY P is not conditional on “expert” designer-led, developer, analyst, producer, marketer, “stakeholder” inputs, outputs, or outcomes or their instrumental axiology of extrinsic value⁸⁴⁴ (*in service* to). The word service: “be of service to provide with a service”⁸⁴⁵ – stems from the Latin *servus*, “servant or slave”.⁸⁴⁶ Semantically, the term “service design” implies a service or “servitude” (to some extent) to economic principles and apparatus, or, for example, “consumers” and “end-users”; (note the implicit reduction to Capitalist function and othering in these terms). In contrast, Co-Designly Practice is non transactional, intrinsic value motivated,⁸⁴⁷ and isn’t about problem-solving per se. CDLY P proposes a non-teleological ontology by highlighting heuristic learning in praxis (doing and making), is about *sensi* (afferent stimulation and sensory sense-making), and playful, but purposeful, polyvocal co-producing and sharing of new ways of making or (re)framing knowledge. In other words, the liberty of knowledges and a communal sharing (doing, socialisation) of various, en-active⁸⁴⁸ processes.

In the context of adolescent menstruality, the Embodied Menstrual Awareness Toolkit uses Co-Designly Practice to empower co-researchers. The toolkit provides the knowledge, awareness, and means to build “internal locus of control”,⁸⁴⁹ for example, individual and collective embodied cognition to reclaim autonomy. Moreover, CDLY P visual encoding (encryption) can allow us to communicate freely amongst ourselves and work together while in ‘silencing cultures’.

5.3 A social process for social progress; via elemental and child-centric joy, play of imagination, and creativity:

“We’re ALL buddies here!” (D., 5)

Firstly, every CDLY P project has its *élan*⁸⁵⁰ in elemental and child-centric joy; play of imagination, and creativity, on their terms and in their vernacular. Positioning learning in socialisation: classmate camaraderie, friendship, joy, heuristic play,⁸⁵¹ and improvised creativity is a natural prerequisite for “sky high” child engagement and makes for the making of happy memories at school.

In a review of our practice-based research by the Ofsted Inspector (during an A. School inspection, 2020):

"Child engagement is sky high".

"YES! I can *really* see that!"

Conventionally, 'childish' joy (Jacques Lacan's pre-symbolic "lost" jouissance), is suppressed during lessons as it is considered transgressive of institutional gravitas (the complex nexus of biopolitical power relations and social strictures). In CDLY P, joy is simultaneously motivator and reward and lifts class ennui with neuro-transmitter relays of convergence and exchange: dopamine, serotonin, endorphins, or oxytocin. Furthermore, I learned (joyful) play is formative experiment.

5.4 From Rousseau to Illich, Freire, and Foucault; a critique of school:

Yesterday, we did Picasso-inspired portraiture with fantastical, eclectic results. Instead of drawing his partner, W., (7) would only draw himself as an oval, blank mirror. He was very insistent about this and spent a double lesson carefully outlining his oval shape. This is intriguing from a phenomenological perspective.

0.9.2014, (1st month of teaching/scoping).

Co-Designly Practice is rooted in critique of educational pedagogy in schools. (From Jean-Jacques Rousseau's (1762), treatise *Emile, or On Education*; Ivan Illich's *Deschooling Society* (1971); Paulo Freire's *Pedagogy of the Oppressed* (1970); and Michel Foucault's opus (discussed in other sections of this dissertation) et al.) In maintaining status quo, we *tend to* inculcate (encode) children with a set of known scripts to ensure the future cognises the past. According to Foucault, in this way the child materialises the social reproduction of the family, the class, the nation, the race, and the economy.⁸⁵² "Schools serve the same social functions as prisons and mental institutions – to define, classify, control, and regulate people".⁸⁵³ He argues, they instil discipline making us obedient, "docile bodies" through a pattern of learned institutional rigour. The same institutionalising logic, forces, and categories of power relation recursively drive the school in administering education, the hospital in maintaining healthcare, the prison in maintaining punishment, and the factory in generating value. Moreover, he critiques the classification of knowledge into distinct subject disciplines as meted, monitored, and maintained subject matter. This meting of hegemonic "knowledge-power discourse" is a form of "censoring" and knowledge (reward) "punishment and control". Similarly, Ivan Illich's *Deschooling Society*,⁸⁵⁴ views compulsory, mass education as an institutionalising and conditioning force "teaching the need to be taught". School is a place of "confinement" and "segregation ... [with]in the category of childhood [and adolescence]".

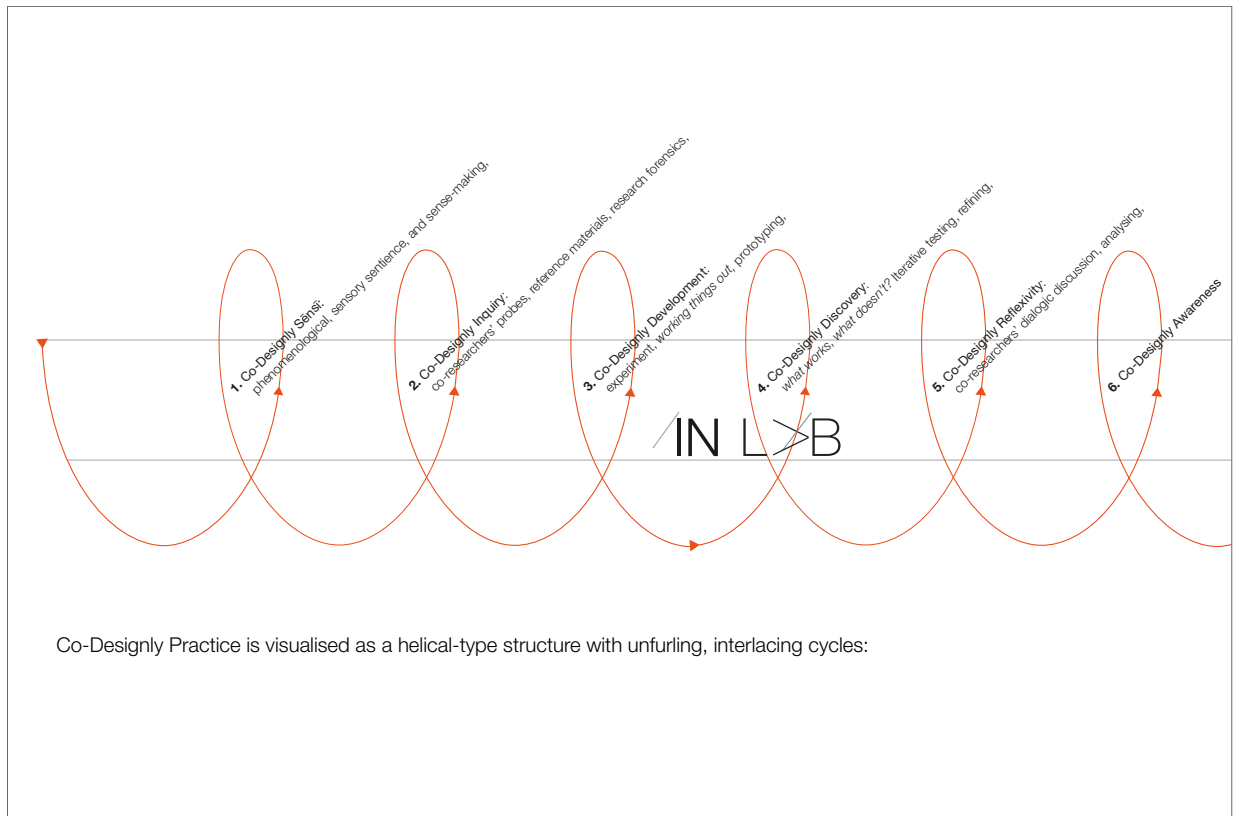
What if a ritual, *symbolic* act could reconcile a child's cognitive dissonance? Isn't all art and design praxis a visual, symbolic act? By its *quest*-ioning, sensitive nature, could Co-Designly Practice" pause the "symbolic violence",⁸⁵⁵ in a(n albeit temporal) sharing of power?

Illich's notion of "convivial communities", however, upends the view of citizens (and children) as faceless, recipient "end-users" or "consumer-users". "I consider conviviality to be individual freedom realized in personal interdependence and, as such, an intrinsic ethical value".⁸⁵⁶ He proposes inclusive, pluralistic, and radical socialisation⁸⁵⁷ of knowledges, skills, technology, tools, and societal power (via communities of inquiry, practice, and action). Paulo Freire's solidaristic "practices of freedom"⁸⁵⁸ are means by which individuals "deal critically and creatively with their reality and discover how to participate in the transformation of their world".⁸⁵⁹ Using critical reflexivity, Co-Designly Practice works to correct multivalent gaps, oversights, and interstices (injustices) in children's practical involvement in determining their own ontologies, childhoods, intellectual, and creative projects. Moreover, the opportunity to be considered egalitarian/intersectionally included⁸⁶⁰ and participate during formative years prepares for a life of engagement: advocacy (care and responsibility) and activity (enactivity⁸⁶¹ and activism).

5.5 Arts-design, practice-based learning – whereby art is not "just art"⁸⁶² or a (pejorative) hobby, but an immersive, sensi encounter and experience.

"Art is my interlocutor rather than my object of study; it is the entity that chases me around and forces me to think things differently, at a different register or through the permissions provided by another angle".⁸⁶³

Irit Rogoff, *Terra infirma: Geography's visual culture*, (2000).



In *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*, 1933,⁸⁶⁶ John Dewey elucidates the criticality of involving the learner in reflection. He believed our experiences are shaping, and when reflective practice is part of learning, meaning and relevancy materialise, nurturing [learning cycles of] growth and adaptive change. Building on David Kolb's experiential learning cycle (Dewey, Kurt Lewin, Jean Piaget, etc., CDLY P is 'a telos ontos', a continuous cyclicity spiralling in time, a 'be-ing' ("being singular plural"),⁸⁶⁷ which is a 'be-coming' aware.

The following chart describes a school day of CDLY P, more written and visual examples are here:
<https://www.lscovell.com/co-designly-practice> password is PhD

Co-Designly Practice:

To question, research, interpret, design (make visual/ visually articulate), and test other ways of knowing.

Our tables are usually put together and we sit around the circumference. All the materials we need are within reach, at the centre.

1. Morning:

- I introduce the DfE national curriculum topic (all activities thereafter “constructively align”⁸⁶⁸ with the topic).
 - A dialogic class discussion/debate follows to write a definition of the topic on the board.
 - All **Reading**, **Vocabulary**, and **Spelling** exercises revolve around the topic. e.g., We read a story about a tree. On the board, we list all the words describing trees we can think of, sorting them into the five senses, writing them in our books (as spellings to revise at home).
 - An interpretative **English Comprehension**, **Creative Writing**, or **Poetry** exercise follows about trees. (Here **prose text**, **narratives**, **stories**, **myths**, or **poems** are independently and/or “co-designly” studied and written about.)
- (Reasoning-based worksheets, diagrams, or activities that function as overview are set for homework.)

2. After Morning Break:

- Further dialogic class discussion about the topic, looking at what we know and exploring ways to find out more.
- We identify suitable art/design tools, materials, and methods.
- We make a work plan for the afternoon.
- We split into teams to research existing knowledge: questioning what we think we know, then cross-referencing this with our library books and detailed printouts of online resources; (contextual inquiry and capture: qualitative, data-gathering, and data-analysing). In our teams, reasoning and making inferences about our newly collected data, we formulate a set of hypotheses to test. e.g.,
1. There are few species of tree in our playground. 2. If there are more trees, there are more types of leaf. 3. All trees have the same leaves and they all fall off in autumn. 4. Trees are people too?

3. Afternoon: non discursive, visual, heuristic, and embodied learning:

- Pivotaly, via arts-design projects we then conduct practical tests of our hypotheses (embodied, experiential, and sensory-based learning about the topic (explored earlier in the day).

e.g., We collect samples of local leaf morphology in the playground: leaves on angiosperms (flowering) shrubs, deciduous trees, conifer needles, fronds and palms, and grasses. We closely observe, measure, and identify a dataset of 27 leaf species, make (messy) documentary observational sketches, ink prints, sun prints, or clay-imprint “fossils”.
 - Presentation show and tell.
 - Reflexivity: we learn both plants and trees have leaves. There are 8 species of tree in the playground. Some trees have the same leaf design which means they are the same species. We find out which trees are deciduous trees and lose their leaves in autumn and which are evergreen. We discover trees breathe, drink, and sway about – but are flora, not fauna (animal) species like us.
- Each year, we collect local seeds which we plant in pots at the back of the class to grow sapling trees. We organised our own (mass) sapling plantings with Lewisham Council in Beckenham Place Park.
- Other case studies documented more fully here: <https://www.lscovell.com/co-designly-practice> password is PhD.
(Please zoom out to scroll down full menu.)
- <https://www.lscovell.com/flora-and-fauna-info>
<https://www.lscovell.com/flora>
<https://www.lscovell.com/print>
<https://www.lscovell.com/growing-trees-from-seeds-and-kew-gardens>
<https://www.lscovell.com/twigs-and-sticks>

In CDLY P brainstorming, the 4-6-year-old children found our (indecipherable) Post-it Notes “too messy scribble”. Our attempts at mind maps and spider diagrams “tangled-up-ness” was too visually overwhelming and spatially confusing. They interacted better when we wrote a simple, sequential list that tracked the progression of our thoughts and ideas on the board. (Intuitively, they prefer kinaesthetic learning, drawing, mark-making, or making (doing) to writing and consecutive list-making.) Accordingly, our ‘research’ was instinctive and processual with an exploratory openness avoiding Post-it Note ‘categorist labelling’.

(Anecdotal teacher notes.)

In CDLY P, class learning is discursive; arts-design practice is catalyst, lens (and prism) for other subjects and access to knowledge is not confined to subject discipline(s). Subsequently, Art, Design, Science, Humanities, Maths, and P.E. perspectives coalesce into a holistic view of any given topic. Initially our Co-Designly Practice was conducted across and linked my classes in Reading, Vocabulary, English Comprehension, and Art. Later, via discursive reasoning, implicit historical, culturally anthropological, biological (somatic and local flora and fauna studies), scientific, philosophical reasoning, and mathematical elements materialised in our projects – as the children curiously ventured into an exploration of the wider world.⁸⁶⁹

CDLY P classes are not concretely set out; instead, we sit together, discuss the DfE curriculum topic and think anew arts-design tools, materials, and methods for each project. CDLY P builds on tacit knowledge, the ineffable, and “other ways of knowing”⁸⁷⁰ for imaginative play of new hybridities. “We can know more than we can tell”, as all knowledge (anyway) is rooted in tacit knowledge.⁸⁷¹ Sharing aspects of intuitive pedagogical theories such as situated learning,⁸⁷² social development theory;⁸⁷³ constructive alignment theory;⁸⁷⁴ peer-to-peer teaching,⁸⁷⁵ and scaffolding,⁸⁷⁶ CDLY P, however, is an unconventional “practice of freedom”⁸⁷⁷ – *self-made design* that works with children’s innate, inquisitive curiosity, ethical concern for our collective welfare, explores our social and natural environs, makes visual sense, and is hands-on, by the child/adolescent, for the child/adolescent.⁸⁷⁸

Specifically, CDLY P is visually communicable arts-design practice, a collaborative, socially engaged and transformative, inquiry and research-based approach to education. Here, communication moves beyond exegesis (visual representation or illustration) or linguistic explication, to a site of live, improvised creativity, questioning (seeing into and behind things), expressing (producing), or in other words, where live visual thinking takes place.

According to the Education Endowment Foundation (EEF):⁸⁷⁹ collaborative learning “is consistently positive” and can add the equivalent of “+5 months” of education “for very low cost, based on extensive evidence” and “approaches which promote talk and interaction between learners tend to result in the best gains”.

CDLY P proposes a new variant of co-design specifically for ethically sensitive, educational settings modelled on pro-social maternal care. I apply Bracha Ettinger’s [nurturing] “matrixial”,⁸⁸⁰ [a maternal matter or matrix of] “copoiesis”⁸⁸¹ [poietic co-creativity] centring on “carriance” (care, to carry) in “an aesth-ethic relation”. And Maria Puig de la Bellacasa’s “a matter of care”; “an affective state, a material vital doing, and an ethico-political obligation”,⁸⁸² for a tending to emotional wellbeing, genuineness, acceptance, and trust. For everyone under the age of 18, the International Convention on the Rights of the Child (UNCRC)⁸⁸³ ensures ethical freedoms, rights, and obligations accord with the right to feel safe and protected from harm. UNCRC rights, Updating Disclosure and Barring Service (DBS), DfE safeguarding and pastoral care guidelines, Physical, Social, Health, Economic (PSHE) Education support and General Data Protection Regulation (GDPR) are, therefore, forefront and integral to all CDLY P.

5.6 Enchantment, luminosity, and alterity; grasping the nettle and differentiation:

Edmund Husserl notes that when we turn toward an experience attentively and grasp it, it takes on a new mode of being: “it becomes differentiated, singled out”. “And this differentiating is precisely nothing other than the grasping; and the differentiatedness is nothing other than being-grasped, being the object of our turning-towards”.⁸⁸⁴ This “grasping” of the ineffable-abstract-emotive⁸⁸⁵ and “the differentiating turn”-ing toward is a conscious articulation, a phenomenological act of aware, co-reflexive thinking. In “différance”,⁸⁸⁶ (from French “*différer*”: to defer, postpone, to delay; to differ, be differential) in “the grasping”, meaning continuously defers and is discursive as significations diffract into further signs and meanings. Jacques Derrida’s “différance”,⁸⁸⁷ (ceaseless creating/interpreting),⁸⁸⁸ I argue

is, therefore, a constructive⁸⁸⁹ diffraction of knowledge (*syn*-aesthetic, diffractive-kaleidoscopic). “Co-designly” diffraction casts a spectral prism of iridescent possibilities and alterities of creative practice (via thinking, imagining, picturing, being, and doing). Within the parametric of the DfE national curriculum, our “co-designly” projects naturally evolve to be “différental” (qualitatively different) – since Co-Designly Practice is phenomenological, child-led research.⁸⁹⁰ However, documented discoveries of our eight years of practice clearly demonstrates that CDLY P can be this constructively diffractive (whereby children actively engage in the construction of new knowledge) *and* work within the national curriculum.⁸⁹¹ This methodology, therefore, questions “the rigid and fixed univocity of subject categories”⁸⁹² and the year-in-year-out teaching of the same class template,⁸⁹³ regardless of the nuanced learning requirements of each child and the exceptional dynamic within the class.

5.7 Arts-design praxis, a phenomenological lens and prism?

Phenomenology as a theoretical framework works with-in individual (phenomenological) understandings of sense-based phenomena.⁸⁹⁴ Based on the work of Friedrich Hegel, Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty (et al.), phenomenological theory⁸⁹⁵ is concerned with the study of experience from the perspective of the individual. Phenomenology, as a theory of singular subjectivity, is therefore, a universal theoretical framework that rejects the algorithmic type “metanarrative”⁸⁹⁶ of universals. Each child’s phenomenology is a sense-based manifold to do with a formative, “restless curiosity”⁸⁹⁷ and since almost everything is unfamiliar, it is therefore an “I” *anew* with fresh objectivity. Furthermore, “[t]his curious [I/]eye”⁸⁹⁸ (“[l]’oeil existe à l’état sauvage”),⁸⁹⁹ implies a certain inquisitiveness or live discursive wandering; a finding things out.

5.8 ‘Phenomenologic-optics’

Consisting of an optical nerve and refractive lens (or prism), “lens” considers each child’s unique perceptual, view: something from which “there is no out-of-context”.⁹⁰⁰ Leonardo Da Vinci writes, “... in the eye the shapes, the colours, all the images of the parts of the universe are reduced to a [single] point, and this point is such a marvellous thing ... In so small a space the image may be recreated and recomposed through its expansion”.⁹⁰¹ So, from a single point, punctum,⁹⁰² pupil, and perspective, “a line moves to a plane, finally achieving solidity as a tetrahedron, the shape or plane of three-dimensional view and interaction”.⁹⁰³ Visual perception, is therefore, simultaneously, specular reflection and a window. There is a singular view out (an exteriorly divergent), sentient “body of vision”,⁹⁰⁴ and a shaft of light in (interiorly convergent) “with its own sun entirely”.⁹⁰⁵

It follows then, that children’s art is a defamiliarised “image of thought”;⁹⁰⁶ there is a refractive bend and polyvalence between what we know, what they perceive, and what they draw. Their work is considered primitive and naive: people, objects, and things in linear perspective (distance in space), corollary time, and gravity are commonly distorted, collapsed, and imprinted (retina-like) onto the picture surface. Developing fine motor skills such as hand-and-eye co-ordination and rudimentary manual dexterity further obfuscate representational mark-making. Because of this, children are innate encoders and can deftly visually communicate with each other via a communal, visual lexicon of very loosely archetypal, semiological signs: glyphs, pictograms, and ideograms – unstable signifiers of gestalt simplicity⁹⁰⁷ made with fresh, essential, hard-edged pencil lines. In the barest rudiments of coordinate points: dots, dashes, lines and loops, impatient scribbles, scratches, strange glyphs, kaleidoscopic rainbows, slashes of rain, lush terrain, and bright, wobbly, emoji suns – is a primary, somewhat decodable narratology, a visual language.⁹⁰⁸

Ludwig Wittgenstein’s “world picture” (language pictures things)⁹⁰⁹ constitutes a semantic ‘world’ of meaning; whereby heuristic sense-making unifies representational and relational aspects of reality. In linguistics and cognitive science, linguistic relativity (the Sapir-Whorf hypothesis) suggests language can alter a child’s formative perception and adult cognitive world(view). Ludwig Klages’ “logocentrism” critiques this Western tendency to privilege the linguistic signifier; Derrida’s “logocentric” (logos: a word, reason, speech),⁹¹⁰ over the signified (understanding).

Is visual literacy, then, as essential to child development as literacy? Exploring the intuitive primacy of the visual in child phenomenology and learning; this section calls for further funded research into visual literacy via CDLY P with-

in education. Since the visual sign (icon, index, or symbol) and its linguistic signifier are a posteriori anthropologically indivisible, and logos is already made form (typography/graphic design: “[b]y this art [one] may contemplate the variations of the 23 letters...”),⁹¹¹ why not *learn to read the visual* as if it were linguistic, a visual-symbolic précis – to better reflect our ethos? For example, we experimented with visual-haptic-phonics: “What is the shape of this sound? What does it *look* and *feel* like?” Since, according to Ferdinand de Saussure, “[meaning] is like the center of a constellation; it’s the point of convergence of an indefinite number of co-ordinated terms”.⁹¹²

5.9 Using CDLY P, could phenomenology be non-parochial, group-based, and practicable:

Hermeneutic phenomenological⁹¹³ research studies in an educational setting generally embody participants’ “lived experience”, perception, and feelings. Like every form of human awareness, it is interpretative rather than purely descriptive.⁹¹⁴ A qualitative method, it utilises subjectively perceptual and heuristic discovery, interpretation, and reflection – whereby meanings and essences of experience are elicited. Here “the creative interpretive act is primary”⁹¹⁵ rather than prediction, control, measurement, and explication. There is an emphasis on interpretations that “bracket” taken-for-granted assumptions and usual ways of construing phenomena.

Neuroplasticity⁹¹⁶ implies cognition and entelechy are emergent, mutable, and adaptive. Each child’s unique perceptual, and, therefore, critical perspective is something that is a moment-by-moment flow, curious, rively discursive, and fluidly digressive; a restless, “subjectivity in formation”.⁹¹⁷ Catherine Malabou borrows her theme of plasticity (viscosity) from Hegel.⁹¹⁸ I link her “possibility of a [somewhat mutable] plastic ontology”⁹¹⁹ and “malleable real” to the concept of a neuroplastic-phenomenological perspective. Interdisciplinary 4E cognition: embodied, embedded, enactive, and extended⁹²⁰ (affective affordances), further assumes that cognition is shaped and structured by dynamic interactions between the self, body, and ecology (both the physical and social environments). “We perceive the world through our bodies: we perceive phenomena first, then reflect, then act [...] This is instantaneous and synonymous with our being and perception in, as, and with body, i.e., embodiment”.⁹²¹ As living, autopoietic⁹²² beings *in* phenomenology, using a chemistry practical test as analogy, we are simultaneously the litmus paper that indicates and the pH solution within which we are vertically immersed.

I, therefore, prioritise these subjective, phenomenological, but essentially formative (simultaneous) selves/realities over more group-based anthropological-historiographic and sociologically grounded theories and assumptions. An idiographic approach,⁹²³ thereby, considers these unique, but essentially co-existing individuals. It makes sense then that heterogeneity and egalitarian co-existence is an *a priori* of CDLY P.

“Phenomenology commits itself to descriptions of experiences, not explanations or analysis. The data of experience, your own thinking, intuiting and judging are primary evidences of scientific investigation”.⁹²⁴ Clark Moustakas (1994).

In class, unique phenomenologies; somata, modes of knowing or “epistemes”, “aesthetics and techniques of the self”⁹²⁵ combine to form a set of potentialities and loci of perspectives or “ways of seeing”⁹²⁶ (construing) and then making visual (expressing). In class, interpretations (readings) and understandings (meanings) are continuously attuning: reactive, reflective, refracting, and reflexive and are then, therefore, further generative, and adaptive. This presents an almost infinitesimal possibility for “affect”:⁹²⁷ further exploring, coalescing, extrapolating, and applying. In this way, I broach the inherent diversity, complexity, and opportunity for multiplicity present, when, for example, twenty-two lively phenomenologies enter the classroom. The classroom is, accordingly, a conceptual space of “immanence”: “forces” or “intensities” and a “multiplicity” of “potentialities” and “possibilities”.⁹²⁸ Subjectivity, then, becomes both encounter and synthesis; “a mode of relationality”,⁹²⁹ a coming together and “producing of social relations and agendas that do not emanate from [metanarratives] of shared identities, shared ideologies, shared belief systems”, but build a community of momentary proximity, interactions, and shared affiliations.⁹³⁰ Analysing these “co-designly” relations between individuals in group situations (sociometry) is a form of gestalt, network analysis.

“Co-design [b]egins when first you view the world through the eyes of another”.⁹³¹ In class, through reciprocal sensitivity (aesth–et(h)ic–sensation), exists the possibility to momentarily pause, become Other (in experience, ontology, and episteme), and therefore, temporarily approach thinking and understanding as the Other/s. Furthermore, in trans-

cendental intersubjectivity,⁹³² we move beyond our own ego-phenomenological representations, immersing ourselves in the thrall/flow of live and abstract pure perception – a transcendental experience between subjects.

5.10 Acknowledging a blend of aptitudes, sociometry, support, and learning from each other:

Here, the aetiological myth of Odin the partially sighted Norse god functions as metaphor for CDLY P. Each morning, Odin's oracle ravens Munin (memory) and Hugin (thought) fly around the Nine Worlds of Norse Cosmology to bring him the latest empirical research. Odin's ability to send his ravens on learning journeys is about scoping, forensics, and imagination. His two wolves, Geri and Freki are at his side with a marvellous eight-legged horse, Sleipnir. The man/god-raven-wolf-horse interrelation (gestalt, part-whole relationship)⁹³³ functions as autopoietic organism;⁹³⁴ the ravens (mind and memory), the horse (kinaesthetic physicality), and the roving wolves (hunt, protect, and territorialise).

Likewise, differences in aptitude allow each child to contribute and build on strengths or weaknesses. Developmental psychologist, Howard Gardner posits each learner has a uniquely altering blend of a range of intelligences: Linguistic, Logical-Mathematical, Musical, Bodily-Kinesthetic, Spatial, Interpersonal, Intrapersonal, and Naturalistic.⁹³⁵ (Arguably, these are learning proclivities and not inherent learning styles.) CDLY P offers a choice of differing modes of engagement, working with or challenging an individual's learning preference. "An intelligence is the biopsychological potential to process information in certain ways".⁹³⁶ Gardner notes intelligence is the ability to capture, cipher, or communicate information using shared worldwide symbol systems such as language, picturing, and mathematics; "culturally contrived system[s] of [shared] meaning".⁹³⁷ So, to enable the child to communicate (share and participate) in the world, the DfE educational paradigm traditionally focuses on linguistics (the three Rs, reading, writing, and arithmetic). In CDLY P, however, *translative* "picturing", visual literacy, and material practice introduce the possibility of using arts-design praxis as *lens and prism for the three Rs*⁹³⁸ – whereby Gardner's "Linguistic, Logical-Mathematical" becomes accessible through other intelligences/ means. Moreover, CDLY P-based inquiry, forensics, inductive and deductive reasoning, and reflexivity in class about phenomenological processes such as cognising of sentience could further support learning – as, according to Gardner, learning is "synthesis"⁹³⁹ of intelligences.

5.11 Co-Designly Sensi:

Subsequently, I argue constructivist learning⁹⁴⁰ is more memorable syn (with) aesthetic and when children feel, hear, smell, and taste evidence for themselves. This neurologically links learning with memory via sense and emotion-based triggers, heightening embodied cognition and increasing perceptual awareness, and therefore, observational aptitude. Here, recent findings about neuroplasticity, sense-making, and haptic cognition⁹⁴¹ support previously intuited and qualitative, empirical inferences. Accordingly, CDLY P projects are usually somatically active and often team based; here children with a *preference* for abstract, visual thinking, or numerical and linguistic thinking, or physically active doing can make hypotheses, *try things out*, strategise, and organise amongst themselves about how best to work together – to solve challenging, multifaceted problems.

Learning is experience-based; a learning by doing and then learning more "through reflection on doing"⁹⁴² experimenting and trying things out, finding out what's what, what works, what doesn't. Reiterating Chinese Philosopher, Xun Kuang's axiom, "I hear, and I forget. I see, and I remember". Whereas "I do, I can understand".⁹⁴³ CDLY P's experiential learning⁹⁴⁴ is "made on the move",⁹⁴⁵ in process and implies something operational, improvised, actively collaborative, and participatory and is to do with a "singular" and a "processual" mode of "being in common".⁹⁴⁶

In working against fixed meanings of diagnosis, categorisation, and compartmentalisation, how then could CDLY P allow, for example, introvert, quieter children, or those with special educational needs (SEND) to excel and flourish?

P. is new to the school, very shy, and barely speaks. He never puts his hand up, if necessary, he speaks through his best friend N. When we start our CDLY P project, whispering in hushed tones with his interlocutor friend, without hesitation he starts to boldly communicate through strong, conceptual work.⁹⁴⁷ His stride, focus, and imaginative play of materials often sets the pace for the other teams.

I., Y., M., and X. were experiencing difficulties with reading, writing, and arithmetic (the “Linguistic, Logical-Mathematical”). Over eight years of our CDLY P, they independently discovered they excelled in art and design via prolific creative expression, visual sensitivity and acuity, and abstraction (decoding/encoding). Their communication skills skyrocketed, and they were suddenly engaged and participating in the classroom.⁹⁴⁸ They each developed a quiet self-assurance, a confidence and positivity emanating from a newly acquired expressive ‘voice,’ and therefore, communicative agency. Is child pedagogy then about instilling confidence and self-belief? “/ can, and / will” S., (4) corrects me.

The DfE national curriculum require precise pre-definition of interventions, mode of delivery, and assessment of learning outcomes. However, in Ofsted’s “Inspecting the Curriculum”, (2019)⁹⁴⁹ “holistic”, “overall effectiveness”, and “quality of education” “coherence” is key. Furthermore, in their “Making a Mark: Art, Craft and Design Education Report”⁹⁵⁰ they recommend the inclusion of sketching, drawing, and diagramming to support every facet of Primary and Secondary education – to facilitate ideas by depicting ideation in process and to visually communicate complex information. I argue that CDLY P “arts and design praxis, lens, and prism” supports this recommendation, and furthermore, the serendipity of making happy and unexpected discoveries shouldn’t be overlooked.⁹⁵¹

5.12 Forensic curiosity:

Behind the shiny skitter of a visual lure is the curve of a difficult question, a question mark:
“I like that it is not just Art, it’s everything! We learn by finding out answers to all of our questions”. (A., 7)

CDLY P nurtures a research modality that is consciously aware as: 1. heuristically experiential, 2. pragmatic and critically engaged, 3. materialises process, and is 4. forensically self-reflective. The Socratic method of dialectical argument *elenchus*⁹⁵² (*élenkhos*, meaning “refutation, scrutiny, control”),⁹⁵³ starts with a statement thesis. Via data gathering, forensic quality close observation, and analytical skills such as logical inductive and deductive reasoning, we then evaluate our thesis. We seek clarifications, qualifications, extrapolations, recontextualising and referencing with other theses – while articulating our process into visual form (as evidence).⁹⁵⁴

In 1754, Horace Walpole introduced “serendipity” into the lexicon.⁹⁵⁵ He was intrigued by a Persian fairy-tale in which the three princes of Serendip (Sri Lanka) travel the world – making detailed, observation-based discoveries or “stories-within-stories” “by accidents and sagacity, of things they were not in quest of [...]”⁹⁵⁶ The quality of information the princes gathered was not about the validity⁹⁵⁷ of their inferences from clues, but the forensic quality and detail of their observations.

Pivotaly, serendipity includes fortuitous and unexpected discoveries, sometimes stochastic, by experiment (risk), or a collision of chance, accident, error, or failure.⁹⁵⁸ Serendipity is, therefore, indispensable to the hypothesis-based rigor of our CDLY P forensics and presents reflexive opportunities for exposition, class discussion, analysis, and thoughtful learning.

Subsequently, understandings are processual, evolving from a sometimes “fuzzy front end”.⁹⁵⁹ Through reflexivity, we survey our knowledgescapes, frames, and lenses for (momentarily) fixing meanings; CDLY P makes for a live, *sentient* and continuously reattuning, dynamic learning.⁹⁶⁰ Ontological and without telos (not output or outcome-based), learning is poiesis.⁹⁶¹ This seems paradoxical; however, it is compatible with DfE Early Years Foundation and Key Stage 1 to 5 national curriculum guidelines.

5.13 A responsive learning environment:

We were discussing volcanos, P., 7 offers his hypothesis: “Every time I get a Maths question wrong, a volcano erupts in the world and people could die”. We set out to understand how this could be possible. Our inquiry leads to conversations about cause and effect, “the butterfly (or Maths equation) effect”, “volcanic” eruptions as metaphor about how emotions can build-up and erupt and anxiety about this. M. concludes that P.’s father is the volcano and he’s struggling with his Maths homework. By way of addressing his discursive hypothesis, we research volcanoes⁹⁶² and the complex set of causal circumstances underlying their eruption, volcano death and injury statistics, the volcano as sign, symbol, and metaphor, and emotional wellbeing. In a meeting with the Head, his parents are offered supportive extra tuition for their child.

This project led to our winning a Fourth Plinth Schools Award, here: password is PhD
<https://www.iscovell.com/fourth-plinth-schools-award-1>
<https://www.iscovell.com/fourth-plinth-schools-award>

In this instance, CDLY P was co-supportive *co-emotion*, a social interaction leading to social cognition or awareness, “The know-how that allows us to sustain interactions, form relations, understand each other, and act together”.⁹⁶³ In the PhD research study, strong emotional valence around menstruality created salience and traction for ‘the work at (first)hand’ and ‘the work to do’.

From my observations, *participating* engagement accomplishes more than acquiescent, disciplined silence. Instead, we rouse consciousness – awareness of the conscience for it to be conscientious – as conscience (moral-ethical integrity, self-regulation, kindness, empathy, and care comes from within. In dialogic ⁹⁶⁴ conversation, we learn not to (excitedly) interrupt; instead, engaging with each other *care-fully* and attentively. We learn to communicate consciously, clearly prefacing concepts and references rather than hurling them into the conversation. We practice responding instead of reacting and learn to communicate in a way that is sensitively respectful, kind, honest, and helpful. Ofsted’s “Education inspection framework” (2019) ⁹⁶⁵ confirms my findings, “[h]igh expectations and a positive climate characterised by respectful interactions ...” “... to learn impulse control and the importance of rules, and to learn to communicate and cooperate with others”.

On card, we each design two cut-out animal heads in profile. Using white plastic clothes pegs, we glue each jaw to the moveable top and bottom of the peg. A discussion about dialogic debate ensues – how to speak and listen as equals, fairly and in turns, how to be empathic, understanding, negotiate a compromise, or politely ‘agree to disagree’. We discuss and test Hegel’s Dialectic and his “thesis”, “antithesis”, and “synthesis”, taking turns to practice having a debate between two, differently opinionated peg characters. We think about possible assumptions, biases, or imbalances in intersectional power relations, for example, in the dynamic between a horse and a lion. “What if it was a child and a teacher character!?” (K., 7.) ⁹⁶⁶ (<https://rb.gy/0j7xnf> and <https://rb.gy/9nkjgm> password is PhD)

They have terrific fun at snack time feeding their chatty, “Snappy, snap, snap!” (S., 6) peg characters.

If the class is engaged, hardworking, busy-in-flow and allowed to be noisy, there is no need to exert “institutional power apparatus” and “discipline” or “punish”. Children will often create several versions, want to continue working, or ask to extend the project into the following week. We are late packing-up for home time because engagement is so intense. Children will often point out errant behaviour and communally agree that it must stop. A common complaint is “You’re stopping me working!” We establish that this isn’t acceptable and discuss possible solutions to mollify issues.

5.14 Cognitive flexibility/the visual imagination; a visual reality?

Our imagination is “all schooled up”.⁹⁶⁷ Ivan Illich, (1973).

The class expect a pre-prepared, start-to-finish art project with exacting, step-by-step instructions, and a finished example to replicate – a sort of default and mimetic ‘cloning art exercise’. (1st month teaching/scoping.)

Lacan’s “imaginary”, in relation to the “symbolic” and the “real”, explores the epistemological, but illusionary nature of phenomenology, (Husserl’s “flux” and “shimmer”). Arts-design is an expressive *act of phenomenality* that is re-signified (made subjectively translatable/interpretative and imaginary) with each encounter. As a form of consciousness (both latent and realised), the Imaginary is core to CDLY P’s diffractive and spectral “prism” of possibilities – generating new, iridescent alterities. So, according to B., 7, “The curved orange rinds in marmalade are goldfish bones”. I assert that this enchanting *imaginative incredulity* needs to be both individually and collectively, consciously explored. In CDLY P, this reconnaissance, reverie and further re-imagining, (a child-like “imaginative variation”),⁹⁶⁸ is an intriguing, analysable process – to creatively articulate, frame, cipher, or abstract the unknown and unthought-of, unfamiliar things and their possible relations: in Deleuze and Guattari’s “lines of flight”,⁹⁶⁹ x-to-y diagonals, curves, circuits, or messy, and entangling knots; psychiatrist R. D. Laing’s “tangles, disjunctions, impasses, or binds”.⁹⁷⁰

The task of imaginative variation is to seek possible meaning through the utilization of imagination, varying the frames of reference,

employing polarities and reversals and approaching the phenomenon from divergent perspectives, different positions, roles, or functions. The aim is to arrive at structural descriptions of an experience, the underlying and precipitating factors that account for what is being experienced; in other words, the “how” that speaks to conditions that illuminate the “what” of experience”.⁹⁷¹ Clark Moustakas, (1994).

Anthropologist, Arjun Appadurai further describes the imagined as a sharable social practice, “a social fact”,⁹⁷² that, (although speculative and temporal), is no longer phenomenologically existential.

The image, the imagined, the imaginary – these are all terms that direct us to something critical and new in global cultural processes: the imagination as a social practice ... an organised field of social practices, a form of work (in the sense of both labour and culturally organised practice), and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility”... “The imagination is now central to all forms of agency, is itself a social fact ...”.

5.15 Co-Designly Practice case study 1: Our Utopia

Over three weeks, Class 2 and 3 each made a monumental, table-top and classroom sized “Our Utopia” out of painted cardboard packages:⁹⁷³ (<https://www.lscovell.com/our-utopia-1> password is: PhD)

Firstly, they spontaneously take off their shoes and climb the table into their world. At the city centre is a large, blue, shiny Ferris wheel and colourful, isometric fairground, nestling in amongst a massive jungle where the bank is scribbled over in thick, green marker pen foliage. There’s a Lego playground with a poised balance of complex engineering; a steep, vertical slide that doubles as “a rocket launch pad (up) or airport landing strip (down)” (D., 6). Close by is “a beach with bathing, aqua mermaids holding shimmery mirrors”, “umbrella jellyfish” (S., 6), and fluently S-line fish or M-shape birds. Amidst the visual din of complex road and motorway organisation, is a single shop with a signage logo of “No Shop” in big, shaky letters, and, what appears to be, a large window with no door. I ask why there was only one shop that appears closed. “I don’t like being dragged around the shops by my Mummy and there are far better things to do in our town” (J., 7). All roads lead to and from “Our School”, which is a smiley, sunshiny epicentre. “Pregnant Mummy with her see-through baby inside”, holds a little dog on a lead and stands waving outside O.’s rendition of her home. Her mother in amongst towering, tender, and smiling flowers. At the other end of town is a tall, luminous, silvery paper mountain with tiers of “Nigerian goats” (P., 6), and a remote “Scottish Highland railway station from holiday” on top (A., 6), linking to a snaking track down and through the base of the mountain. Across is London Zoo and “an underground cave for a caveman” in a lion cloth “who lives under the museum” (D., 6). He contrasts starkly with the stately, white ermine-trimmed red robes of the Kings and Queens and their austere castle(s) with “inside-out stables” and horses (E., 6). The three giggling girls lay out their felt-tipped colourful beach towels under the big, smiling sun. C. stands on a chair ceremoniously waving a huge, transparent mylar flag over Our Utopia. J. draws “a portal to other dimensions”, a building or 3D door with a big “X” “swirling” inside a spiralling circle blue-black hole of scribble. Entering his DNA physics portal, “the horse becomes a unicorn; a Utopian!”

At home time, the children are very reluctant to leave their sprawling, classroom-sized assemblage. Most tug their caregiver or parent into the classroom to proudly show their work. As they leave, the children extricate their buildings to take them home. Outside, I can see L. in his duffle coat delightedly skipping home with his four buildings held close to his chest. As we clear up and waiting for his music class, D. tells me he will remake “Our Utopia” at home this weekend using his buildings, “When our cousins come to stay, me and my sisters will build one together across our bedrooms and down the hall and we can all live in it and play ALL weekend!”

As child-centric urban planning, Our Utopia is locus for a fidelity of phenomenologies, working together to negotiate and construct an “inside-out, imaginary city” (D., 6) – a set, staging, and props; a “scrambled-up” (A., 6), theatrical, fantasy world “where anything; everything is possible” (A., 5) as utopic, *limitless impossibility*.

Recurrent themes surface: questioning why things are like they are, how they could be better, ever more natural, fantastical, non-physical, non-corollary; another worldly idyll - “like heaven would be for us” (M., 6), or “when we’re in a lovely dream” (P., 5). A non-reality reality: the “imaginary” and the “symbolic” are, according to Lacan, anyway, inextricably intertwined and work in tension with the real. *Our Utopia* attempts to capture and materialise the real, phenomenological world of each child’s untethered imagination via CDLY P participation.⁹⁷⁴

5.16 Being Singular Plural:⁹⁷⁵

Brief, improvisational, and process-orientated exercises or “Happenings!” often disrupt longer projects. An abrupt shift in rhythm shakes-up creativity, increasing engagement and traction. Again, unruly, noisy, messy play, unselfconscious physicality, spontaneous laughter, and joy are primary.

D, 4 has a lisp. Every time he says "lello" all the children laugh aloud 'in canned laughter'. Immediately self-conscious, D's blue startle eyes fill with tears. My child also had this difficulty and it was the beginning of some bullying. At weekends, we'd hike deep into the forest and shout as loud as we could laughing, "Yellow!" "Lello!" "Yellow!" "Lello!" "Yellow!" "Lello!" "Yellow!" After a few weeks, we'd both be shouting "Yellow!". I tried this exercise several times with the whole class; running round at playtime in the playground delightedly shouting out "Yellow!" "Yellow!" D's "Lello!" and self-consciousness quickly dissipated (except both D. and my child could thereafter only joyfully shout the word "Yellow!").

"I'm Beeing the work!" (S., 6)

We study the work of Hélio Oiticica and his Object Yellow painting and Parangoles. Class 1 (age 4-5) spontaneously take large sheets of yellow, floaty tissue paper and, using sticky tape, make their interpretations of his Parangoles or "possibilities". All at once, the class is a shifting yellow; opaque, transparent, solid, then luminous. They waft, shake, dazzle, and dance about inside the pure, sensory joy of Oiticica's painterly yellow, but this is not a surface; it is a living membrane, active, light tissue paper yellow – a crisp "sunshine yellow".

Herein is Heidegger's *Dasein* (being-[t]here)⁹⁷⁶ presence, live inside 'this' now, ("sunflower yellowy") moment. Practice is ontological process or praxis – since all experience is empirical sentience that happens *with-in* a body. The creative act, *poietic* act(ion) is *poïesis*, that which brings forth⁹⁷⁷ something into being/presence (Heidegger's "transient blossoming"). Oiticica argues the artist's task is not to deal in the modification of the aesthetic field as if this were a second nature or a separate object in itself, but "through participation, seek to erect the foundations of a cultural totality to engender transformations in man's consciousness"[.]⁹⁷⁸ For example, in the doing verb (verbe) *to be* yellow. So, the children shift from passive spectators of unfolding events, to *be-ing* physical, kinetic or heliotropic art form; *poietic* enactors⁹⁷⁹ "improvising with the means at hand: for revolt, protest, constructive work, etc".

"...Art [...] is related only to objects [...] it is something [...] specialised, or which is done by experts who are artists. But couldn't everyone's life become a work of art? Why should the lamp or the house be an art object, but not our life?"⁹⁸⁰ Michel Foucault, 'On the genealogy of ethics: An overview of work in progress' (1984).

In his notes for *The Visible and The Invisible*, Merleau-Ponty writes, "[... A]rt and philosophy together are [...] contact with Being precisely as creations. Being is what requires *creation of us* for us to experience it".⁹⁸¹ Sanders and Stappers reflect, "The act of [co-design] making here is not just a performative act of reproduction, but a creative act which involves construction and transformation of meaning ...".⁹⁸² Extrapolating this further, in their CDLY P quintessence, Hélio's sentient sun, or Hegel's "phenomenology of spirit" (the process in which the spirit becomes awareness "pure knowledge"); the children are being the art *and it is they* who are transformed and transmuted in creation, awareness, and meaning. (In mitosis and multiplicity, absolute restless, pure activity; this is everyday life.)

'What still lies ahead for consciousness is the experience of what Spirit is — the absolute substance which is the unity of different independent self-consciousnesses which, in their opposition enjoy perfect freedom and independence: "I" that is "We" and "We" that is "I".' Hegel, *Phenomenology of Spirit* (1807).

5.17 Life-Art-Design:

Similar to Oiticica's Parangole, culture, like the natural world is something we inextricably inhabit. In a historiographic-anthropological sense, it follows that from moment-to-moment art is already and elementally *in life* (and live/d). Art, then, communicates our evolutionary advances in awareness, cognition, creativity, and technology – expressing archetypal and anthropological states of consciousness, subconscious, and collective unconscious "truths". In his *On the Genealogy of Ethics*, (1984), Foucault links aesthetics (and these sorts of Oiticica yellow athletics), to our genealogical and sociological (inhabited), Heideggerian "being-in-the-world", *and* (animation of) Kantian aesthetic-ethical and morality structures. I argue this began phenomenologically, firstly, with proprioception and kinaesthesia, (the body's ability to perceive its position and movement in space using sensory-motor awareness) – embodied awareness is central to the Embodied Menstrual Awareness Toolkit.

The following week, Class 1 (age 4-5) ask to make "those superhero capes", Oiticica's Parangoles suddenly transform into spirited Nietzschean Übermensch, DC and Marvel superhero capes. We discuss comic superheroes and their godlike super-powers, exceptional morality, costumes, and symbolic accoutrements that lend character. Using coloured card, tissue paper, and silver and gold corrugated cardboard: they fashion design themselves into their own, eclectic superhero characters. By lunchtime, the class are (mostly altruistic) fantastical superheroes.

Consistent with “co-designly practice”, Illich claims most of what children learn in school comes from “peer groups, from comics, from chance observations, and above all from mere participation in the ritual of school...”⁹⁸³ rather than from teacher ‘download’ (or readymade, downloadable Tes or Twinkl lessons). “School is an institution built on the axiom that learning is the result of teaching. And institutional wisdom continues to accept this axiom, despite overwhelming evidence to the contrary”.⁹⁸⁴

Set a word, concept, or topic; the children confidently “run-off with it”⁹⁸⁵ accelerating their learning with joyful engagement – this materialises in continuously iterative visual forms and written narratives that we photo-document for review. (Towards end of work study, 2021.)

This week we were researching the Möbius Strip for English Comprehension and writing elliptical, never-ending stories. We made Möbius Strips and cutting along them lengthways, making ever larger loops of linked Möbius. It was so lovely watching Class 3 running around the playground in the sun, laughing, screaming, wrestling their huge, twisty, cut-out and entangling paper loops within loops. Class 2 also wanted to “make Möbius” in their Art class – so we combined years and made a massive, 20 metre x 60cm Automatism painting. We ceremoniously joined ends to make it “endlessly Möbius”.⁹⁸⁶ In the playground the children climbed inside the enormous, looped painting and terrifically ran in all directions, shredding it to bits!

Is this “becoming” then a genesis, flinty-spark moment? Or is it something slow linear, genealogical, and scalar; scale invariantly exponential? Perhaps it is more circular, topological, and turning than we imagine; a Möbius-like twist to the turn? Infinitely continuous and non-orientable, the topology of the Möbius strip is a Hegelian-type synthesis of the incommensurable gap (dialectic) between two surfaces, however, in every movement/moment, we are always at the turn: a juncture of possibilities.

I bring in large packets of brightly coloured plastic straws. We look up the Platonic Solids and experiment joining straws into simple geometric forms. For the rest of the afternoon, they CDLY P free play, making colourful frame, sculptural headpieces, dimensional body armature, towers, bridges, strange pets on leads, hexagon footballs, star-shaped light fittings, wobbly furniture, neck adornments, arm extensions, a pot plant, odd fluorescent fruit, and even joining themselves up for a kaleidoscopic parade in the playground. Their frame compositions are fragile and despite deciding to use Sellotape, the parade breaks apart and falls into laughter. The Maths teacher was surprised when Class 3, (6-7) knew about the Platonic Solids, Buckminster Fuller’s geodesic domes, Frei Otto’s “soap bubble” frame architecture, the work of artist, Olafur Eliasson, and basic, dimensional geometry.

5.18 What Value? Homo economicus, homo ethic from ethos “moral character”, related to ethos “custom”:

Z., 6 is interested in Finance, in our game design project she insists everyone in her team is “making money”. By the end of the session, they have a huge pile of imaginary money, but no concept. I wonder when her team will realise, despite our self-reflexivity as a class. The following project, only one student would work with Z., then tearfully gives up.

When we made Nam June Paik TV robots⁹⁸⁷ out of recycled plastic and cardboard boxes, Z. valued everyone’s finished robot, attaching a price tag to each one. Arguments broke out about why N.’s was significantly more costly than her friend’s M.’s. Remarkably, the children hurriedly ‘make money’ to buy back their robots so they could take them home. We discussed what had just happened at length:

B., 6 suddenly realised “HEY, you’re making us pay for our work! That’s not fair!” We collectively agreed that our work would exist outside of the market economy, (for now), because: “Children have no money and can’t properly work until they are in Year 11 or 12, like my cousin”. (V., 6) Everyone ripped off their price tags and put the work in the front window of the school as, “A free display, for everybody to share”. (B., 6) In this instance, the children independently discovered the difference between intrinsic and extrinsic motivation and reward. “Adults, Z. should really listen; you’ve made a mess of everything for us. It’s all about money and we don’t have any” (W., 7).

In game theory, homo economicus models “perfect rationality”, it assumes that agents always act in ways that maximise utility: as a consumer and profit-making producer.⁹⁸⁸ In his coining of “economic man” in 1836, John Stuart Mill wrote, “It is concerned with him solely as a being who desires to possess wealth, and who is capable of judging the comparative efficacy of means for obtaining that end”. “[... A] definition of man, as a being who inevitably does that by which he may obtain the greatest amount of necessities, conveniences, and luxuries, with the smallest quantity of labour and physical self-denial with which they can be obtained”.⁹⁸⁹

Does CDLY P rigour (phenomenological self-awareness) that acknowledges the phenomenological Other support and nurture sensitively empathic, kinder responses, and values?⁹⁹⁰ The multicultural rapport and ethical ethos at A.

School pre-existed this study. My findings show CDLY P further catalyses and supports cultural inclusivity, humanitarian common ground, egalitarian fairness, and ethical and moral wellbeing – via elemental and child-centric joy; play of imagination, and creativity.

Conclusion

"F. and M. spent the weekend making ever more shadow puppets ⁹⁹¹ with black card, sticky tape, and wooden sticks. At bedtime, they had set-up a surprise, theatrical show for us in their bunk bed. Most of the night they were giggling and playing with their puppets. Then again at 6.00am in the morning, all day, night, the following day; making characters, stories; so many imaginative performances! Thank you! It is difficult during [Covid] Lockdown, I'm happy when they're happy. They both love Art!" Parent of F., (7) and M., (5).

Our CDLY P is summarised in the following propositions or questions:

- The visual is a universal language (and *a priori*). ⁹⁹² Visual literacy is essential to child development, expression, and communication.
- Holistic child pedagogy is key: the early years (0–age 3), are foundational to children's future development ⁹⁹³ and their life chances as adults.
- Scaling-up ⁹⁹⁴ CDLY S (sentience and sensemaking) from a conscious phenomenological standpoint is pivotal: to be able to engage, participate, and work egalitarianly within the class; each child's unique, phenomenological perspective needs: 1. exploring, 2. realisation, 3. self-awareness, 4. recognising by others, and 5. autonomy.
- Each child is within an institutional epistemology of educational and cultural discourse. This 'given' makes unfair assumptions about an individual's uniquely subjective, live phenomenological perspective. Within the tradition and normative of hierarchical, biopolitic, and biopower relations, ⁹⁹⁵ (sometimes experienced in school as "oppressive" and continuously reconditioning); what does "the child" (protagonist) who must ask permission to speak ⁹⁹⁶ have to say? In CDPY P, 'co-researcher protagonists' are 'dialogically relational'.
- To create the conditions for participatory parity and dialogic reciprocity; a semblance of equitable, level horizon needs to be established. In breaking hierarchies, Co-Designly Practice has pedagogical and sociopolitical implications and works towards heterogenic equilibrium for "convivial" ⁹⁹⁷ harmony/holism.
- Enactive participation and, therefore, translativity practice (alterité materiality), or any claim to these methods and processes enables child engagement, their sense of creative agency and, accordingly, empowerment.

These are based on deductive and inductive analysis of collected qualitative and empirical data: eight years of photo-documented and archived (descriptive) "co-designly practice", discourse analysis of dialogical interactions and my anecdotal and observational notes. A photodocumentary archive ⁹⁹⁸ accompanies and is integral to this paper: <https://www.lscovell.com/co-designly-practice> password is: PhD (zoom out for the entire drop-down menu).

In an assessment, I asked the children about our CDLY P; the following is a fair sampling of their recorded comments, (they refer to our CDLY P as "Art").

(Unanimously), "We would like to have more Art".

"Because it's fun and entertaining, we learn about things". (S., 7)

"We learned that we like eggs and ham". (From Dr. Seuss's book Green Eggs and Ham.) "We like it, we like learning! Yes! Sam I am!" (A., 7)

"I think it is better than other classes. I forget I'm at school, about home time. I don't ever look at the clock". (D., 6)

"You never know where art is going to take you!" (A., 7)

I ask, "Is that good or bad?"

(Unanimously), "Good!"

"I showed my Dad my infinity kaleidoscope for seeing and he said, 'This is NOT Art!' He said it was a high something".

"Hybrid?"

"I think so(?) He said it's mixing things; like there's a computer inside our car, so it's a computerised car". (D., 7)

"The Möbius Strip was my most favourite class ever!" (S., 7)

"Whenever it is windy, I think about our paper airplanes, kites, and windmills and the Beaufort Scale". (I., 7)

"I like it because I can play and think". (D., 6)

"I like making experiments; we try things out, we make and do! We can do!" (S., 8)

"Art makes me happy". (D., 6)

"My Mummy said in India, her Art teacher was Miss Art and then she had Miss English and Miss Maths ... I like that it is not just Art, it's everything! We learn by finding out answers to all of our questions". (A., 7)

"We like Art because we learn to be better buddies". (D., 6) (Early on in my research, "We are all buddies" emerged as a core, CDLY P theme.)

A criticism was: "I would like to take my art home more to show my Mummy what we did. When we work together, we can't tear it apart". (J., 5)

"I want to be an artist. But our art doesn't mean what everyone thinks it is!" (H., 5)

"Yes! It's about trees, insects, and nature, and volcanos, Mobius Strip, hummingbirds, Egyptian Mummies, museums, poetry, and making Utopia, all stuff like that. Whatever you can think of!" (S., 8)

"I wish all day was Art. I think we would learn more". (S., 7)

"Every class I ask 'Is it Art next? Are we having Miss Scovell today?'" (S., 7)

CDLY P is about "co-designly" questioning institutional ideology and the hegemonic, normative doxa of child pedagogy; the "what", "why", and "how" of *formative* years' education. Children are the subject of (*subjected to*) a systematically institutionalising educational paradigm. Firstly, I posit an educational [re]"turn" to the Euclidean centre, a "*being [-with/in] singular plural*"⁹⁹⁹ *phenomenality* and elusive 'collective participant-observer'. Although embodied, each subjectivity is relative/in relation, is a reactive-affective social field, and a site of territorial contestation ("co-designly" negotiation). Via Co-Designly Sensi (*attentiveness to* sentience and sense-making) and "co-designly practice", *praxis*, probes, and outputs become analysable 'qualitative cartography'. Secondly, to approach "the latent potency of unframed knowledge"¹⁰⁰⁰ – what if our CDLY P process never materialises, just constantly renews, reconceives, flexes, and abstracts as 'a research modality' (an evolving awareness)? Whereby learning is understood as experiential, a sequence of conscious and aware turns or shifts, and, herein is the imperative:¹⁰⁰¹ the turning, articulating, and inverting *is* and this *is made visible*.

"In a "turn", we shift *away* from something or *towards* or *around* something, and it is we who are in movement, rather than *it*. Something is activated in us, perhaps even actualized, as we move. And so, I am tempted to turn away from the various emulations of an aesthetics of pedagogy that have taken place in so many forums and platforms around us in recent years, and towards the very drive *to turn*".¹⁰⁰² Irit Rogoff, 'Turning', e-flux Journal, Issue #00, 2008.

This section is a critique of normative educational and institutional governance and apparatuses, the downloading of mediocre lessons – the loss of fluency (a pinning-down and fixing into stasis), enforced regulation, validity assessments, monitoring, and control. In his *Eclipse of Reason*, (1947), critical theorist Max Horkheimer writes:

The more these artificial renaissances strive to keep intact the letter of the original doctrines, the more they distort the original meaning, for truth is forged in an evolution of changing and conflicting ideas. Thought is faithful to itself largely through being ready to contradict itself, while preserving, as inherent elements of truth, the memory of the processes by which it was reached. The task of critical reflection is not merely to understand the various facts in their historical development but

also to see through the notion of fact itself, in its development and therefore in its relativity.¹⁰⁰³

Our eight years of professional practice ‘work study’ nurtured, evolved, (and mobilises), a variant of co-design for schools using arts-design praxis as (material) lens and prism. Via enabled(-ing) learning, phenomenology-realising “co-researchers” generate thoughtful responses to the curriculum; further sharing, embedding, and cascading content and practice. “Co-Designly Practice is a pedagogical model that refuses to proliferate pervasive, top-down, hierarchical, and largely subjectifying, and commodifying structures. Such openness and trust within a child pedagogy supports the active and practical involvement of young learners in determining their own intellectual, creative, and imaginative projects, and, in turn, their ontologies, society, and ecology; their wider lives and futures.

Subsequently, CDLY P is fluently enactive, exploring reversals in flows of riverly hierarchies, or, for example, where everything joins and levels, reaching the parametric of what is (already) familiar – to be drawn-out by tide into the deep, uncertain, and unknown; an open sea of curiosity and adventure. Hence the importance of documenting the experiential in art and design (material) practice – as research (lens and prism), primordial nerve, mark, axis, and orientating tool.

5.19 Qualitative assessments:

"Can I ask you a question? I have been thinking it since I first met you ... and I am thinking it a lot now. Are you really Mary Poppins and there's a film about you?" (T., 6.)

A GDPR compliant photographic archive of our eight years of experiential practice supports this written methodology. Contextual inquiry and capture; qualitative: scoping, data-gathering and data-analysing includes my lived experience as an embedded, frontline DfE Teacher; discourse analysis of interactions, anecdotal, and observational notes; continuous peer-review by Dr. P. A., Head, and fellow staff at A. School; two, formal (one-to-one) Ofsted School Inspection assessments (in 2020 and 2022); and a review by Gill Treharne, (previously) Head of a Special educational needs and disability (SEND) Primary school for several decades – function as qualitative assessment.

A. School's Ofsted School Inspection Report, 2020 is in the public domain and comments on our CDLY P.

"There are some strengths in the Early Years [Foundation Stage] and Years 1 and 2 [Key Stage 1 (Class 1, 2, and 3, ages 4-7)], for example in Art. Here pupils take part in a range of projects, such as 'being a robot' and [sic] 'twigs' [various flora and fauna]. They produce high-quality work. Some of this work is on display around the school. These projects help pupils to become curious, engaged and creative learners. They also help pupils to develop their understanding of diverse cultures and beliefs".¹⁰⁰⁴

Our Co-Designly Practice" project,¹⁰⁰⁵ inspired by the work of Iraqi-American artist Michael Rakowitz was on the wall during the inspection. Later, it was a winner in The Fourth Plinth Schools Award, 2020, (amongst 4,582 entries from Primary and Secondary schools in every London borough). The project was curated and judged by The Mayor of London and Jo Baxendale, Visual Arts Officer at the Arts Council England.

On 01.12.22, I gave a 1.5 hr presentation about our CDLY P in a second Ofsted School Inspection. The Inspector told me I should approach Ofsted's Chief Inspector. "As this is good work and being child-led is directly responsive to pupils needs". He said, "They should see this!" (our online CDLY P archive.)

Ofsted were supportive of CDLY P working with *the most vulnerable sector*: the Early Years Foundation Stage' and 'Reception, Key Stage 1' (age 4-7), in addition to some 'special educational needs and disabilities' (SEND) pupils. Therefore, as a pedagogy in schools, it is sensitive to and considers intersectional approaches to PSHE, RSHE subjects such as menarche, menstrual awareness, and adolescent menstruality. Subsequently, the 'work study' relayed in this section was *instrumental in, and imperative for*, the development of the Embodied Menstrual Awareness Toolkit.

Through John Dewey's "reflective practice", I continue to examine opportunities for transferability to other areas of social need. Effectiveness, replicability, and sustainability will be key issues.

5.20 Acknowledgements:

Thank you to Dr. P. A., Head; Ms. L. H., Secretary; and the staff at A. School; the inspiring, constantly surprising Infants and Juniors and their parents for allowing us the freedom to explore creative modes of learning within the DfE curriculum. A pivotal outcome of this research was “the [experience of] making of happy memories at [A.] school”.

Section 6:

Menstrual cycle modification

Introduction:

- 6.0 The clinical gaze:
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Section 6:

Menstrual cycle modification

Introduction

The gynaecological female as a self-less patient under societal scrutiny (in clinical gaze) is a familiar cliché. In this section, I question medical ethics; is the quantitative and qualitative guideline of beneficence vs. non-maleficence realistically actionable? I then link political failings in implementing human rights globally to unwanted sex [rape by acquiescence],¹⁰⁰⁶ and lack of access to fertility awareness, contraception, and pregnancy termination – leading to increases in unintended pregnancies, unsafe abortions, maternal deaths, and STIs transmission. I underline the importance of agency via access to reproductive health education, RH healthcare, contraception and safe-sex barrier methods. I briefly evaluate combined hormonal contraceptives (CHC) and menstrual suppression ‘beneficence vs. non-maleficence’, highlighting the importance of informed decision-making. In an overview of the different fertility awareness based (FAB) methods, I discuss the Sympto-Thermal Method (STM) of menstrual tracking in more detail as it is used heuristically in the EMA Toolkit. I then review the design of the toolkit which includes an array/choice of Co-Designly Practice lesson plans, discussion points, and exercises. In an overview of the PSHE Association, I conduct a case study of two menstrual-related PSHE, RSHE toolkits, critiquing corporate sponsorship, product placement, and advertising in schools.

6.0 The clinical gaze:

29% of respondents to the Women’s Health Strategy for England’s call for evidence said they did not feel comfortable talking to healthcare professionals about gynaecological conditions, this rose to 40% among respondents aged 16 to 17.¹⁰⁰⁷

Department for Health and Social Care, ‘Women’s Health – Let’s talk about it’ survey, 13th April 2022.

The medical profession has a histrionic obsession with female menstrual pathology (Latin *pathologia* “study of disease”, from Greek *pathos* “suffering” + *-logia* “study”).¹⁰⁰⁸ In *The History of Sexuality, Volume I* (1976), Foucault maintains that modern medical surveillance of the reproductive body inexorably transforms taboos and rituals into epistemic medical, legal, or scientific truths; the menstruating female as contaminating, unstable, and abject.¹⁰⁰⁹ In his *The Birth of the Clinic* (1963), Foucault defines the medical gaze as the dehumanising, Cartesian separation (decoupling) of the patient’s body “corps” from their personhood (or Geist).¹⁰¹⁰ This ‘gaze’ is “endowed with a plurisensorial structure”, a “sight/touch/hearing trinity [...] perceptual configuration in which the inaccessible illness is tracked down by markers, gauged in depth, drawn to the surface and projected virtually on the dispersed organs of the corpse. The ‘glance’ has become a complex organisation with a view to a spatial assignation of the invisible”.¹⁰¹¹ Viewed exteriorly and interiorly with professional distance and “great sagacity”¹⁰¹² – as ‘a body’, a patronised (“docile”) “object of information”,¹⁰¹³ conditioned to “self-policing” (“the conduct of conduct”),¹⁰¹⁴ a scopophilic ‘Other’, a data-statistic, or even sociological liability; I take issue with sometimes indiscriminate ‘care’ provided by medical practitioners and the unwillingness to empathically understand the patient as a phenomenological, first-person singular. She, ‘childlike’, third person subject, cannot have equality/ be egalitarian in “dialogic” dialogue [and decision-making] – as advocated by Mikhail Bakhtin’s dialogic socialism.¹⁰¹⁵ In this way, “women” are trapped in a mirror-like field of silenced visibility and (medical) scrutiny:

“... [Sh]e who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power; [s]he makes them play spontaneously upon, [within her]self; [s]he inscribes in [her]self the power relation in which [s]he simultaneously plays both roles; [s]he becomes the principle of h[er] own subjection”.¹⁰¹⁶

Michel Foucault, *Discipline and punish* (1977).

This leads to the question: why are so many gynaecological procedures painful, sometimes unnecessarily?

Comportment is usually acquiescent. Unfolded flat, she is lain part-naked, a submissive-horizontal supine on the slim-black examination table. Then ... prodding, unkind (nitrile blue) rubber gloves’ slow, heavy knead: a belly lean-in with full weight. A cold gel sludge or thrust of gritty, see-through scanner scrutiny. Alternatively, her legs are manoeuvred, raised, and restrained in gynaecological stirrups. They fidget under an indiscrete, thin paper sheet in the harsh, fluorescent-light keyhole. A brut-

ish hand twist-hurt (internal to check uterus mobility), then a speculum shove and a sharp pinch, various metal implements, rummagings, scratches, scrapings, and ‘needle sharps’ in a clinical, cold room. The all-body, disembodied patient is a proxy, a vague abstract of complaints and conditions, “patient number”. Her eyes float at the suspended ceiling, a simulacra black-blueprint is LED at the wall.

“There’s always a rush, I’m brusquely hurried along”.¹⁰¹⁷

According to the Women and Equalities Committee’s, House of Commons Report 2024-5: ‘Women’s reproductive health conditions’, “women continue to undergo harrowing experiences of painful procedures” (such as hysteroscopy and having a contraceptive coil fitted). This includes not being informed of potential pain, consent: feeling they cannot stop procedures, and not having access to sufficient pain relief. “This is against medical best practice and guidelines.”

“Patients’ concerns about substandard care are the ‘canary in the coal mine’ but too often go ignored ... [T]oo often we hear about patients who have raised concerns being gaslighted, dismissed, and fobbed off”.¹⁰¹⁸

Henrietta Hughes, Patient Safety Commissioner for the Department of Health, and Social Care, the BMJ (2024).

It is easier to deftly minimise, dismiss, or gaslight evidence-based issues than to engage wholeheartedly with patient symptoms. In their 2021, ‘Women’s Health Strategy: Call for Evidence’, the UK Department of Health and Social Care found 84% of respondents felt women’s voices were not listened to and the report discusses “medical misogyny”.¹⁰¹⁹ Hughes, a former Medical Director at NHS England and National Guardian for the NHS writes in the BMJ (2024), “Too often, patients raising concerns were passed-off as ‘difficult women ...’ It shows a very dismissive and very old-fashioned, patronising attitude to patients who have identified problems and need to have their voices heard”. Hughes adds, “The relentless focus on productivity, finance, and performance is really missing a huge opportunity to start with patients and start with safety”.

So, how to restore an *in-situ* female-rights perspective? Allocating more time for appointments with better informed practitioners? In the UK, each GP has ten minutes per patient (Consultants thirty), could longer appointments facilitate fully present, dialogic discourse? Optic-haptic-listening, ‘in-touch’ sensitivity, and ‘slow’ dialogue asserts a new standard of inviolable “response-ability”;¹⁰²¹ an attentive and attuning respect and kind, gentle care.

6.1 Beneficence vs. non-maleficence and RH agency:

In medical ethics, the quantitative and qualitative guideline of beneficence vs. non-maleficence applies: to be of benefit, with positives outweighing associated risks. Beneficent actions prevent, address, or remove harms (such as ignorance) or simply improve (empower) the situation of others. As allopathic intervention: medications and procedures can have subjective side-effects and outcomes; the ethic of non-maleficence (do no harm) is not always straightforward. Therefore, patient (actor) engagement in female RH must sensitively pivot on each individual’s comprehensive knowledge, cogent awareness, informed agency, and autonomous decision-making — to decide whether possible benefits outweigh potential risks or harms. The EMA Toolkit advocates being proactive (enactive) about one’s own RH and supports the role of school-based PSHE, RSHE pedagogy, UN comprehensive sexuality education (CSE), and the RCN’s Women’s Health clinical services.

Learning to heuristically chart one’s uniquely mutable menstrual cycle increases menstrual literacy. Tracking generates useful quantitative and qualitative data, ‘a diagrammatic proof’¹⁰²² enabling menstruators to engage with RH medical practitioners and assist their own case-sensitive care. This challenges hegemonic patriarchal hierarchy – manifesting as an analytic and diagnosing, ‘disengaged objectivity’ in RH medical practice.

In medical institutional beneficence versus non-maleficence, ‘wait and see’ inaction can be a form of Johan Galtung’s “structural violence” or Pierre Bourdieu’s ‘softer’ “symbolic violence”.¹⁰²³ “... [T]he capacity of actors to impose their cultural reproductions and symbolic systems plays an essential role in the reproduction of dominant social structures. Symbolic violence is the self-interested capacity to ensure that the arbitrariness of the social order is either ignored, or argued as natural, thereby justifying the legitimacy of existing social structures”.¹⁰²⁴ Structural inequality and socio-

economic imbalance and precarity foment a non-intervention approach. Whereas, counterintuitively, early intervention patient–medical expert engagement, screening, monitoring, and self-care could reliably improve RH outcomes, easing pressure on cost-intensive late intervention and finite: medical staff, resources, and infrastructure.¹⁰²⁵

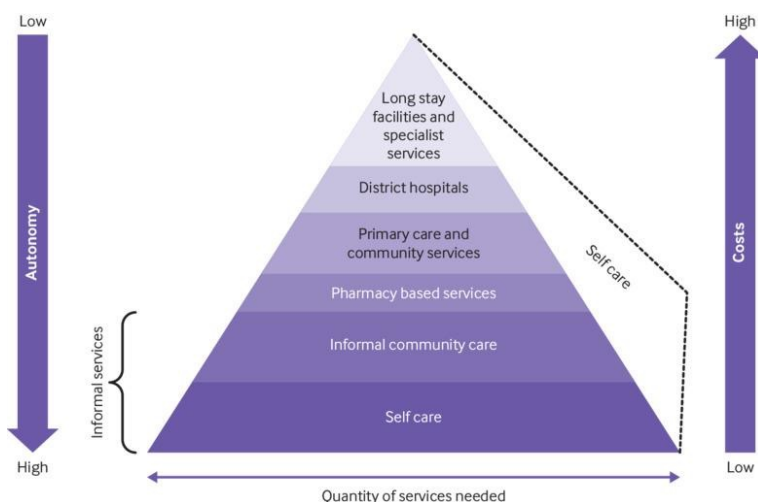


Fig. 4 ^{1026, 1027} Self-care within the healthcare pyramid. Adapted from Shidhaye et al. (2016).

6.2 Contraceptives: menstrual suppression, hypothalamic-pituitary-ovarian hormone modification:

In ‘Seeing the unseen’,¹⁰²⁸ UNFPA’s State of World Population 2022, reports that each year, an estimated 121 million pregnancies are unintended; over 60 per cent of these end with abortion. Approximately 45% of abortions are considered unsafe. Unsafe abortion is a leading cause of maternal death globally and hospitalises millions of women every year.¹⁰²⁹ The Sustainable Development Goals (indicator 5.6.1) shows that, in (57) countries where data is available, almost 25% of women are unable to say no to sex and almost 25% are unable to make choices about their own healthcare. About 10% are unable to make their own decisions about contraception.¹⁰³⁰ “We must address justice systems that too often fail to hold perpetrators of sexual violence and coercion to account, leaving survivors to bear the stigma of [...] unwanted sex [rape by acquiescence]”¹⁰³¹ the consequences of a potential pregnancy [, and possible exposure to STIs and HIV/AIDS]”.¹⁰³² Around 257 million women who want to avoid pregnancy are not using safe, modern methods of contraception. Among these, 172 million are using no method at all.¹⁰³³ Counterintuitively, the report shows that lack of access and knowledge are no longer the most cited reasons for non-use and disuse of modern contraceptives. Instead, fear and experience of side-effects, infrequent sex, opposition to contraception, and postpartum/ lactational amenorrhea are more common reasons.¹⁰³⁴ UNFPA concludes, “We must strengthen our health and education systems, which have a human rights obligation to provide accurate information about reproduction[, contraception[, and protective, safe-sex barrier methods]”.

In 2022, the UK Department of Health in England and Wales recorded 251,377 abortions: the highest recorded. The most pregnancy terminations were by 22-year-olds. Access to SRH education, healthcare, and contraception were factors. Dr Sarah Salkeld at MSI Reproductive Choices notes that greater demand and finite NHS resources, GPs, and SRH clinics put women at risk of unintended pregnancy.¹⁰³⁵ Furthermore, during the Covid-19 Pandemic from 30th January 2020 ¹⁰³⁶ to 5th May 2023,¹⁰³⁷ PSHE, RSHE classes suspended and did not effectively resume (in part) because of lack of government guidance concerning “gender identity”. Subsequently, it is probable abortions will rise exponentially to reflect these failings. In December 2024, across the UK more than three-quarters of a million women (763,694) were waiting for gynaecological healthcare ¹⁰³⁸ (tripling since 2012),¹⁰³⁹ of 7.6 million cases (one in 7 people) are on the NHS waiting list.¹⁰⁴⁰ This data does not include women waiting in primary care or those waiting for cancer-related gynaecological care.¹⁰⁴¹ Dr Ranee Thakar, President of the Royal College of Obstetricians and Gynaecologists, stresses that women’s health continues to be “deprioritised and overlooked”:

“We are asking the NHS to rethink the way care is prioritised. [...] While often called ‘benign’, common conditions ... are often progressive, and have a huge impact on a woman’s quality of life. Long waits can result in unnecessary emergency admission to hospital, or more complex treatment needs”.¹⁰⁴²

In response to the following self-report survey question in the research study: “We’re listening (academia, the UK Government Department of Education, and the Royal College of Nursing) – what do you want to say or tell us about menstruation?”, a co-researcher wrote:

At age 15, I was having irregular and painful periods. My mom remembered having the same thing at when she was that age and brought me to see a doctor (I remember it was a female doctor) [...]. The appointment lasted maybe 10 minutes at the most before I was prescribed birth control. Looking back, I’m disappointed that nothing was ever questioned on either side – the doctor hardly asked any questions about my period and my mom and I asked no questions in return. I always believed that my body needed the synthetic hormones to be “normal”. Over time I began to believe that I would never be able to conceive children as my periods were too irregular, compounded by the longterm use of birth control”.¹⁰⁴³

To prevent conception the current normative is to put menstrual cycles into a hormonally regulated, contraceptive cycle. (Any) hormone regulation interferes with and distorts acutely sensitive and uniquely individual (and attuning) endocrine homeostasis. Individuals taking the combined contraceptive pill conventionally take a seven-day break at the end of each 21-pill packet During this monthly break (of seven placebo pills), there is usually a [withdrawal] bleed and sometimes symptoms like period pain, headache, and mood change.¹⁰⁴³

In 2019, the Faculty of Sexual and Reproductive Healthcare (FSRH) Clinical Effectiveness Unit noted that the continuous use of combined hormonal contraceptives (CHC) to eliminate menstruation was safe; “Women can safely take fewer (or no) hormone-free intervals to avoid monthly [withdrawal] bleeds, cramps and other symptoms”.^{1044, 1045} Slight risk of venous and arterial thromboembolism, breast cancer, and cervical cancer, in addition to conflict with (identified) medical conditions and pharmaceutical products arises with CHC.^{1046, 1047}

1. “Would you prefer no period. Period?”

A co-researcher rolls their eyes, others heave shoulders, sigh, make awkward expressions, another noisily lifts a chair to sit forward and coughs.

2. “It’s not so much about that. It’s how we are made to feel [by others]”.

3. “Yes, there’s conflict, I mean it’s conflictive. Periods are not afflictive, no – that’s not it. Just we are put ‘into conflict’ and that, yes, this is afflicting”.

4. “It’s like we can’t be ourselves, talk about it freely, talk it through”.

5. “So we can know/understand enough to think about what’s best?”

6. “Yes. It is difficult to [know to] express”.

7. “We have that anyway, there’s no period when we are young and old”.

8. “And then when it is gone, you’d miss it?”

Research study co-researcher conversation

In the research study workshops we openly discussed and explored tacit understandings about menstruation. Ambiguity about ‘what’s what’ and having the space, time, and means to engage with and process menstruality was an issue, both individually and collectively. “Is my menstrual cycle normal/ok?” appeared to be a central concern and motif. Problematic aspects of enculturation were thematic: invoking feelings of “self-body blame”, self-pathologising (pathos-logos), and, therefore, self-policed self-silencing.¹⁰⁴⁸

Systemic (endocrine: hypothalamic-pituitary-gonadal (HPG) axial hormonal) contraceptive use is linked to distinct behaviour changes and clinical depression.¹⁰⁴⁹ In 2016, a nationwide cohort study of over 1 million women living in Denmark found an increased risk for first use of an antidepressant and first diagnosis of depression amongst users of different types of hormonal contraception, with the highest rates among adolescents.¹⁰⁵⁰ “Th[is] finding complies with the theory of progesterone involvement in the aetiology of depression, because progest[erone] dominates combined and progest[erone]-only contraceptives”.¹⁰⁵¹ Progesterone naturally dominates the post-ovulatory luteal phase of the menstrual cycle, often considered the most challenging phase in terms of interrelational symptomology. Depending on the type of hormonal contraceptive and its progestins (synthetic progesterone), individuals should be asking their medical practitioners about the synthetic hormonal composition and documented side-effects of the pill they are prescribing. This makes the case for continuing to track withdrawal bleeds and being attentive to physical, emotional, and social changes whilst on hormonal contraception. (In this instance, when tracking using the STM/ EMA

Method, daily BBT temperature readings and cervical secretion monitoring (except for STIs) would no longer be insightful or necessary.)

Hormonal suppression, however, may be ameliorative and has potential to moderate progressive health complications, for example, in controlling conditions such as endometriosis – whereby menstrual fluid containing uterine (endometrial) tissue flows ‘retrograde’ (backward-flow) up the fallopian tubes and into the pelvic cavity. This ‘rogue’ endometrial tissue implants and grows into and across pelvic cavity tissues and organs continuing to bleed (and further proliferate) in unison with monthly menstrual bleeding. Pelvic endometrial bleeding causes adhesions (a fusing ‘gluing together’ of internal surfaces and organs by endometriosis). About 10% of women experience endometriosis. Hormonal suppression can also suspend polycystic ovarian syndrome (PCOS)¹⁰⁵² halting the development of multiple ovarian follicles into large fluid-filled cysts, endometriomas (cysts filled with ‘errant’ endometrial fluid), or dermoid cysts (teratomata tumours). 1 in 10 – 8% of women develop PCOS.¹⁰⁵³ CHC lessens menorrhagia (‘excessive’ bleeding) affecting 50% of women¹⁰⁵⁴ and the effects of premenstrual syndrome (PMS), and premenstrual dysphoric disorder (PMDD). Hormonal supplementation can also mitigate amenorrhea (absent menstruation), irregular menstrual bleeding, perimenopause (early menopause), and symptoms of menopause – a menstrual cycle is “irregular” if: the number of days between menses is less than 21 days or more than 35 days, the spacing of periods is erratic, and/or the amount of menstrual blood varies from one period to the next.¹⁰⁵⁵ Monitoring, early detection, formal diagnosis, and medical intervention could stall or prevent potentially chronic gynaecological problems – since menstruation is “a vital sign”¹⁰⁵⁶ and “menstrual disorders”¹⁰⁵⁷ or “menstrual abnormality” could be indicative of RH issues caused by underlying genetic and epigenic responses.

“... there is an over-reliance on hormonal contraception *to manage symptoms*”. (my italics)¹⁰⁵⁸

The Women and Equalities Committee's report to the House of Commons, 'Women's reproductive health conditions', (2024).

As panacea,¹⁰⁵⁹ an allopathic CHC symptom-management approach could, however, mask underlying causal, catalyst factors such as an anovulatory cycle (a menstrual cycle where ovulation doesn't occur); uterine fibroids (experienced by two-thirds of women);¹⁰⁶⁰ endometriosis; adenomyosis (endometrial tissue lining the uterus grows into the uterine muscle walls, affecting one in ten women);¹⁰⁶¹ PCOs; neuroendocrinological changes (affecting hormonal balance); coagulopathic (blood clotting disorders); genetic pre-disposition; disease; stress; and nutritional deficiencies, etc. Practicably, gynaecologists and endocrinologists cannot fully understand the complexity of systemic biophysical processes (nonlinear dynamical homeostasis ‘at play’). However, by not investigating, diagnosing, or addressing issues, time-sensitive opportunities for early intervention are missed – life-changing (sometimes life-threatening) outcomes such as long-term RH illness, chronic pain, and/or infertility are left unchecked. In their ‘Committee on Adolescent Health Care’ (2015), The ACOG raise these ethical concerns, “It is important for clinicians to have an understanding of the menstrual patterns of adolescent girls, the ability to differentiate between normal and abnormal menstruation, and the skill to know how to evaluate the adolescent girl patient”.¹⁰⁶²

Furthermore, for example, in the UK approximately 2% of public research funding is dedicated to female reproductive health and childbirth,¹⁰⁶³ five times more research is conducted into erectile dysfunction than premenstrual syndrome.¹⁰⁶⁴ “This is staggering considering that 19% of men are affected by erectile dysfunction, while 90% of women have premenstrual syndrome”.¹⁰⁶⁵ (Janet Lindsay, Chief Executive of the charity Wellbeing of Women.)

6.3 Eudaemonia, dialogic inquiry, action/actualisation, and reflexivity:

Pragmatically, it makes sense for adolescents (15-18+) to engage with and familiarise themselves with their maturing, signature menstrual cycle before starting combined hormonal contraceptives. In discussions with the PSHE Association, the EMA toolkit is designed to follow a PSHE, RSHE module about safe-sex practice (to prevent unintended pregnancy and STIs), fertility, teenage pregnancy, and abortion. Post-adolescence, by age 23, the hypothalamus-pituitary-ovarian axis is [typically] mature, and the menstrual cycle [pattern] is established.^{1066, 1067}

The EMA toolkit provides the ‘know-how’ and “co-designly”¹⁰⁶⁸ means for individuals to data-visualise sensitively com-

plex and ontological menstrual data into a pencil-on-paper “diagrammatic proof”.¹⁰⁶⁹ A heuristic learning tool, the diagram has potential as an interlocuter/ interface with medical practitioners in RH clinical settings. In the research study workshops, menstrual cycle tracking, body maps, and physiological, Situationist-type “psychogeographical maps” supported embodied awareness and phenomenologic self-realisation (actualisation). Using the toolkit’s cut-out geometric outlines, grids, and folded templates in “co-designly praxis”, we prototyped various paper tools, tracking diagrams, and material cultural probes.

Analogue FAM methods (such as STM/ EMA) and paper tools are minimal cost or free, accessible online, downloadable, printable, and customisable, sharable, and portable. Actor confidentiality, GDPR, and safeguarding rights are maintained and paper tools facilitate self-monitoring and support community self-care. Sharing our praxis, we explored analogue, but collective means to bypass colonising, institutional structural apparatus, biopolitics and bio-power. We experimented in reclaiming menstruality by encoding our various ‘disruptive flows’. (Even attempting to translate a menstrual cycle into sound/noise.)

“Menstrual tracking is now part of my morning routine. I’m getting to know my patterns and I understand more now, like, ‘Oh! That explains why I was so tired ... my progesterone peaked, while I was sleeping my ovum released, and my uterus has been working hard to prepare a soft, plush bed’”.

“I came off hormonal birth control for the first time in 15 years back in April, and I’m really happy to see that my menstrual cycle is back and I’m fully bleeding again. I feel much more connected to my body than ever before”.

Research study co-researcher.

“You will not be defined by your form, by your organs, by your organism, by your genus or by your species, tell me the affections of which you are capable and I’ll tell you who you are. Of what affects are you capable?”¹⁰⁷⁰

Gilles Deleuze, Cours Vincennes (1974).

To gain equality (“neutral[ity]”),¹⁰⁷¹ individuals can feel pressured to comport to the *homo economicus* tradition of the male-calibrated professional and his workplace hegemonic of (industrial-complex) efficiency. Construed as debilitating, menstruating women are perceived of as ‘weak’, ‘erratic’, and ‘unreliable’. Accordingly, some menstruators opt to intentionally subdue their corporeality: concealing, suppressing, and possibly eradicating menstruation by suppressive hormonal control or surgical means. According to Judith Butler, this “performative” could be strategic, positional and/or socially conditioned; since “I became increasingly aware of how I presented myself and acted because I was aware that at any moment I could be evaluated”.¹⁰⁷² (Foucault’s “...[Wo]man gradually learns what it means to be a living species in a living world, to have a body, conditions of existence, probabilities of life, an individual and collective welfare, forces that could be modified...”).¹⁰⁷³ “I wanted to work out how a norm actually materialises a body, how we might understand the materiality of the body to be not only invested with a norm, but in some sense animated by a norm or contoured by a norm”.¹⁰⁷⁴ Controversially, I question to what extent are adolescent girls and women materialising, vested in economically, animated and/or contoured by the norm of hormonal manipulation of their menstrual cycles? What correlative affects can we observe in female phenomenology: cognition, psychology – behaviour, physicality, and looks? Since, “[t]he hypothalamic-pituitary-gonadal (HPG) axis is a complex neuroendocrine system[; a vital signifier] that governs menstruation and is sensitive to even small variations ...” Do we interrogate this issue as a probabilistic or a propositional causal for neuroendocrine consequences and side-effects? Within the medical establishment and development sector this presents a criticality of ethical considerations. An ethos or ‘ethic’ that is currently hegemonic and normative, but – is not fully understood (and therefore, could be unethical).

In *The Woman in the Body, A Cultural Analysis of Reproduction* (2001), Emily Martin writes:

“Despite the obvious appeal [of menstrual suppression] we must wonder what the price of such fashionable convenience might be”. ... “[W]omen for whom menstruation causes serious problems might welcome the cessation of their periods. But to make all menstruation pathological for all women goes far beyond the bounds of what we know and begins to sound like a scientific replacement for the idea that menstruation is dangerous and polluting. One has to wonder whether the virtual elimination of women’s periods might make women’s bodies appear more calm, steady, and predictable, in short, less ‘troublesome’”.^{1075, 1076, 1077}

6.4 The affect of various female contraceptives on menstrual flow:

Method	Use
Combined oral contraceptives (COC) (The pill) i.e., including dedicated product Seasonale [®] and Lybrel [™]	Extended or continuous cycles suppress menstruation
Contraceptive vaginal ring (inserted close to the cervix) i.e., NuvaRing [®]	Studies not published, but regimens similar to COC's suppress menstruation
Transdermal contraceptive patch (removable skin patch) i.e., Ortho Evra [®]	Studies not published about safety or efficacy, but regimens similar to COC's suppress Menstruation
Depot-medroxyprogesterone acetate injections i.e., Depo-Provera [®]	Amenorrhea (having no menstruation) common with long-term use - 50% after 1 year, 90% after 2 years
Levonorgestrel intrauterine system (implanted in uterus) i.e., Mirena [®]	Significant (80%–90%) decrease in blood loss; approximately 20% of users amenorrhoeic (no menstruation) by 1 year
Etonogestrel implantable contraceptive (implanted in arm) i.e., Implanon [™]	21% of users are amenorrhoeic in any 90-day reference period

6.5 Awareness is knowledge, ownership, power, and agency:

However, material feminists are currently bringing a rich biologism in their thoughts on the renaturalised, non-medicalised self, and/or sexual difference.¹⁰⁷⁸ A possible 'bio-logic' alternative to continuous hormone manipulation could be the use of barrier methods of contraception for six–nine days a month combined with fertility awareness based (FAB) methods of family planning. The Sympto-Thermal Method (STM) is an FAB method that uses two indicators of fertility: basal body temperature (BBT) and cervical fluid (mucus) monitoring (CMM) and, additionally, (but not necessarily), cervical position observation. A 2007, peer-reviewed research study concluded, "STM is a highly effective family planning method, *provided the appropriate guidelines are consistently adhered to*" (my italics).¹⁰⁷⁹ Adherence is a key issue when used in (adult) family planning. For menstruators under the age of 23 (or those experiencing irregular cycles), the STM is useful for getting to know their maturing, signature menstrual cycle.

6.6 Overview of the different fertility awareness based (FAB) methods:

Methods	Mechanism
Rhythm (calendar-based) method	Calculation of the fertile days according to the length of a woman's previous menstrual cycles
The basal body temperature method (BBT)	Charting the BBT to detect ovulation day
Billings ovulation method	Identification of the changes in vaginal discharge in a woman's own words
Creighton Model	Identification of the changes in vaginal discharge with use of pictures and suggested words
TwoDays Method	Focus on the presence or absence of cervical mucus
Symptothermal Method	Identification of the fertility window through use of the BBT and cervical secretions

Thijssen, A., Meier, A., Panis, K., Ombelet, W. (2014)

The Sympto-Thermal Method is a combination of methods. The two most commonly used are the basal body temperature (BBT) and cervical fluid (mucus) monitoring (CMM). Checking cervical position is an additional method not used in the EMA Toolkit. The medical expert Gynaecologist and I decided against this (additional) method to prevent

vaginal biome contamination as it necessitates careful handwashing, then touching of the cervix. A lowering, slight opening, and softening of the cervix occurs when the fertile time ends, prior to menstruation (similar in consistency to the tip of the nose). Adolescents may already be struggling with tampon, Tampax, menstrual cup, and cap insertion and (possibly) having access to clean, running water and soap for handwashing.

The STM involves users charting their daily temperature (BBT) immediately on waking with a BBT thermometer (a thermometer, but with an extra digit for greater precision), observing and recording their cervical fluid consistency, (with cervical position is an optional extra) – to track the progress of their ovulation and menstruation. In a 2016 paper, the ACOG confirmed that daily mark-making on paper tracking “may remain the best option for some patients” wanting to track their fertility cycles.¹⁰⁸⁰ Practically, however, STM involves an ongoing, daily, and long-term commitment of several minutes a day to self-monitoring and charting information. If consistently observed, the rigour of the STM fertility awareness using BBT and CMM is 99.6% effective “with perfect use”.¹⁰⁸¹

For a contraceptive method to be rated [as] highly efficient as the hormonal pill, it requires a method failure rate of less than one pregnancy per 100 women per year. Our [STM]-effectiveness of 0.4% can be interpreted as one pregnancy occurring per 3250 cycles (assuming a 13-cycle year). [STM ... is therefore] comparable to the method effectiveness of modern contraceptive methods like oral contraceptives.¹⁰⁸²

‘Human Reproduction’, Oxford Academic Journal, Vol. 22, Issue 5, 1 May 2007.

An effective method to track menstruality: menstrual flow, the luteal phase, cervical secretions, ovulation and the 4-6 /9 day fertile window: the EMA Toolkit (and workshops) continuously stress the importance of barrier protection condom use during sexual activity – to prevent unintended pregnancy and STI’s.

Embodied Menstrual Awareness (EMA) is a simplified, adapted version of STM to intentionally avoid STM’s association with fertility awareness; EMA is not a fertility tool. The toolkit and workshops continuously emphasise the immaturity of the adolescent menstrual cycle and adolescent susceptibility to hormonal fluctuations. (PSHE, RSHE sessions about human fertility and reproduction, contraceptives, safe-sex, STIs, teenage pregnancy, and abortion would be prerequisite to using the EMA toolkit in schools (these classes are statutory and should repeat yearly).)

A ‘user’ can record their BBT, cervical secretions, and cervical position onto an app, however, ovulation, fertility window, and menstruation cannot be accurately predicted by ‘predictive algorithm’ – as biorhythms are embodied, live responses. (Discussed further in Section 4: Digital vs Analogue.) Factors including (significant) nutritional deficiency mild insomnia, stress, exposure to light, travel crossing time zones, late night partying, alcohol, and caffeine consumption, (etc.), can interfere with the circadian rhythm, and consequently, the menstrual cycle. This is where the Rhythm Method (also called the Calendar Method) fails; attempting to predict future ovulation cycles, fertility windows, and menses based on the regularity of past cycles. STM is often confused with the Rhythm Method or Calendar Method (as they are all termed “fertility awareness based (FAB) methods of family planning”). However, they use different criteria: the Rhythm/Calendar Method is predictive (using algorithms based on what is known) rather than recording what is happening in real time. Also, the closer the participant is to menarche, the more ‘irregular’, ‘less stable’ and ‘undisciplined’ their cycles will be – this makes the Rhythm Method or Calendar Method unsuitable for tracking adolescent menstrual cycles.¹⁰⁸³

6.7 Designing the EMA Toolkit:

Why is design important?

Design is visual sense-making of concatenating and representative, gestalt “signs”. Information is communicated via the construction and sharing of meaning, for example, in material “co-designly praxis”. These meanings are phenomenologically interpretative, processual, and ontologic. Hermann von Helmholtz’s “sign theory of perception” (1848–1868), reasoned that since human vision is ophthalmologically weak, vision could only be the result of “unconscious inferences” made from incomplete data; assumptions and conclusions based on epistemic knowledge and empirical sense experiences. Later, circa 1930–1940, this evolved into Gestalt Psychology (German, meaning)

“shape, form, figure, configuration, appearance”, “to set, place, arrange” and “whole or emergent structure”. ‘The Gestalt Laws of Organization’ perceive visual components as organised patterns or wholes, instead of diffuse parts.¹⁰⁸⁴ So, with incomplete and partial: vision, embodied sense, and epistemic facts; the EMA Toolkit is purposeful ‘design to be re-designed’ in Co-Designly Practice.

In contextual inquiry and capture, quantitative and qualitative: scoping, data gathering, and data analysing in an immersive, twelve-year contextual survey of academic medical literature and clinical research; the EMA Toolkit considers (analysed, captures, and is constitutive of), a significant amount of cross-referenced, menstrual knowledge. The EMA Toolkit works with (and alongside) the Royal College of Nursing’s professional development publication: ‘Promoting Menstrual Wellbeing’¹⁰⁸⁵ and their ‘Women’s Health Pocket Guide’.¹⁰⁸⁶ Subjects covered in the EMA Toolkit are:

- Reproductive physiology and the menstrual cycle explained in detail.
- How to track my menstrual cycle?
- Understanding the menstrual cycle as ‘a vital sign’.
- When to access support?
- How to access support?
- Terms to use when speaking with medical practitioners about my menstrual health.
- Useful quantitative, qualitative, and data-visual evidence to take to a GP appointment (for reassurance, further investigation, or possible diagnosis).
- Factual content in the toolkit is visually iterated and further ‘attuned’ via Co-Designly Practice.

Title:

A Visual, Co-Designly Practice (CDLY P) Base Toolkit for increasing menstruating adolescents’ understanding of their menstrual cycle in Secondary schools via Embodied Menstrual Awareness (EMA). Aligning with the UK Department for Education, PSHE, Joint Roadmap to Statutory Relationships and Sex, Health Education (RSHE) For Key Stages 4 & 5 Reproductive Health:

Introduction:

Why can’t adolescents Co-Designly Practice (CDLY P) their own PSHE, RSHE messages and materials? We will develop our own menstrual awareness tools using Co-Designly Practice and Co-Designly Sensi prompts.

Your live/lived experience: this project is all about you!

Session 1.

Mapping the body, Co-Designly Sensi (sentience, sense-making), and embodied cognition:

Your feedback: we’ll test the usefulness of the toolkit by looking at how much we’ve learned via “experiential learning”.

Encoding and data visualisation:

Structuring a community of practice (COP); a co-researcher, group subjectivity – I am; we are:

[Discussion point: 5 minutes](#)

Our Terminology:

Bloody hell!

[Discussion point: 5 minutes](#)

Menstrual euphemisms, innuendos, double entendre, colloquialisms, and slang terms.

Ex.01: Class exercise 10 minutes

Period vernacular:

[Discussion point: 10 minutes](#)

Our period lingo:

Our toolkit strategies for period positivity:

Ex.02: Class exercise 30 minutes

Draw the female reproductive system (actual size) and label (without reference).

If you have time, try drawing a second, cross-section view.

Embodied Awareness and Phenomenology

Ex.03: Class exercise 3 minutes

Douglas Harding's experiment in being phenomenological:

Our support strategies:

Ex.04: Class exercise 30 minutes

Co-Designly Practice a cut-out 'educational tool' to support learning.

Ex.05: Class exercise 3 minutes

What's What? Puzzler:

Referring to the diagram, label your drawings.

Ex.06: Class exercise 3 minutes

What's What?:

Referring to the diagram, label your drawings.

Session 1. S.2

Anatomy: (female) internal reproductive organs:

Explanatory text re:

The ovaries:

The fallopian tubes:

The uterus:

The cervix:

The cervical OS:

The vagina:

The hymen:

The labia minora:

The labia majora:

The clitoris:

The urethra:

The rectum:

The anus:

How do you feel?

Ex.07: Class exercise 30 minutes

Life-size body map.

Discussion point: 10 minutes

Body map class review.

Ex.08: Individual exercise (to do at home in your own time).

Twice daily body map.

What would your cortical homunculus illustration look like?!

Embodied Menstrual Awareness:

How I feel body map tear sheets x2

Session 2.

The menstrual cycle: a window into your singular and unique biology:

Overview: the menstrual cycle:

There are three stages to the menstrual cycle:

Phase 1: The menstrual phase:

Phase 2: The follicular phase, (also called the proliferative phase) – preparing for ovulation:

Phase 3: The secretory /luteal phase – preparing for implantation:

The corpus luteum:

Ex.10: Class exercise, 20 minutes

Co-Designly Practice flashcards, folded piece, or visual meme to show the three stages to the menstrual cycle.

Discussion point: 10 minutes

Class review.

What's going on?!

Session 3.

An introduction to Embodied Menstrual Awareness (EMA):

1. Basal Body Temperature (BBT):
2. Cervical secretions:
3. The cervical position:

Sample chart:

Discussion point: 20 minutes

Ex.10: Class exercise, 20 minutes

Co-Designly Practice a cervical fluid consistency legend.

Ex.12 Individual exercise, (to do at home)

Start menstrual tracking using the EMA chart.

Sample chart:

Sample chart:

Ex.13: Class exercise, 20 minutes

Main brief: diagram

The Golden Ratio (Phi):

Sample chart:

Session 4.

Menstrual blood

Tampons (with or without applicators):

Menstrual cups and cervical cups:

Sponges:

Menstrual flow:

How much?!

Menorrhagia:

Endometriosis:

Amenorrhoea:

Oligomenorrhea:

Intracyclic bleeding, or intermenstrual bleeding:

Ex.14: Class exercise, 20 minutes

Session 5.

Menstrual cycle “modulation and scaling of tender points”:

The menstrual cycle, discomfort or pain:

Pre-menstrual syndrome (PMS):

Premenstrual dysphoric disorder (PMDD):

Endometriosis:

Adenomyosis:

Amenorrhoea:

Ovarian cyst:

Polycystic ovaries, polycystic ovarian syndrome:

Uterine fibroids:

Fibrocystic breasts:

Ex.15: Class exercise, 30 minutes

Co-Designly Practice a game about which symptoms are typical during menstruation.

Menstrual health support:

Discussion point: 5 minutes

How and where to get support:

Ex.16: Class exercise, 5 minutes

Copy list for reference.

Measuring sensation: Visual Analogue Scale (VAS):

Discussion point: 10 minutes

What is a typical amount of discomfort or pain.

Self-care.

Ex.17: Class exercise, 30 minutes

1. Co-Designly Practice a pain legend.

Session 6.

The cultural anthropology of the menstrual cycle:

Discussion point: 10 minutes

Do cultural anthropological traditions and our current culture, sociology, and knowledgescapes influence how we feel about our periods?

Ex.18: Class exercise, 45 minutes

In class, research online as many menstrual taboos you can find and create a list.

Taboos:

Ex.19: Class exercise, 1hr

Construct a menstrual ceremonial rite – something you would like to see others do or celebrate.

Alternative methods of tracking important information: “Seeing as thinking” - making data visual:

Analogue is; live, portable and nomadic: The Abri Blanchard Bone.

“Menstruation, because of its relation to the moon, was the most likely earliest source of the sciences of geometry, mathematics, and formal measurement”.

The Ishango Bone:

Ex.20: Class exercise, 20 minutes

Design a portable and encoded Upper Palaeolithic artefact to record your menstrual cycle.

Ex.20: Class exercise, 15 minutes

Artist, Leonora Carrington’s “Map of Down Below”.

Session 7.

Final class review:

Discussion point: 30 minutes

Our feedback:

Equipment:

Grid templates: Simple four-fold, Simple six-fold, Business card/credit card-size fold, Zigzag-fold, Basic grid, Möbius strip, Experiment!, Dot grid, Line grid, Line grid, Depth grid:

Credit:

References

6.8 “Not Good Enough”, PSHE Education in Schools:

Ofsted actively encourage research in schools. According to their report ‘Not Good Enough: PSHE Education in Schools’ (2012),¹⁰⁸⁷ most programmes rated “good” or “outstanding” had benefited from the contributions of outside speakers, experts, and researchers. As “the curriculum was usually more coherent” in schools that offered discrete and focused PSHE pedagogy “beyond GCSE lesson plans”. “Outside [researchers] had made a valuable contribution to teaching by bringing a wide range of expertise and life experiences” and their report notes “most pupils valued these contributions”.

PSHE Guidelines state “Outside [researchers] are intended to enhance rather than replace teacher-led, [RSHE] education and provide a specific contribution to the programme”. “They ‘enrich [student] learning...’ In addition to internal school resources for safeguarding and child protection issues; all sessions should actively promote online and local community health and counselling services – so pupils know where to go for outside confidential advice and support”. As a Primary school teacher and doctoral researcher, I am frontline embedded in the DfE.¹⁰⁸⁸ A simultaneously two-fold mirror of reflex and relay, participating and scoping, sensing and perceiving, and as ‘a dichotomic data subject’, seeing out of and into ‘the data’. The dual affiliation between professional practice as a teacher and that of a researcher supports institutional relationship-building (trust) and the shared co-producing of knowledge. Here, an ontological commitment to inquiry, conscientious insight, care and compassion is authentically experiential and grounded.

As Primary school teachers, we are expected ‘to parent’ formalities like going to the toilet, handwashing, face washing, nose wiping, toothbrushing, sitting in a chair at a desk, basic manners, eating with a knife and fork, tying shoelaces, a tie, how to tidy-up, cross the road, and name writing, etc. Learning consists of ‘exercises/ exercising’, a continuous repeating and reframing (rearticulation) of certain facts in new, unfamiliar contexts. Likewise, when broaching the physical, psychological, and sociocultural complexity of menstruation; a single explanation during a biology lesson is not suffice. Although intended for an older Key Stage 4 and 5 (age 15–18) cohort; the EMA toolkit is subtly iterating and continuously reiterative. For example, we look at the ovum across different contexts of 1. anatomy: female internal reproductive organs (the ovaries); 2. the three stages of the menstrual cycle (ovum formation and release/ovulation); 3. an introduction to embodied menstrual awareness (hormonal and physiological impacts of ovulation); and 4. as discarded in menstrual blood (typically as a full-stop in this size font).

On a day-to-day basis, the lack of emotional support children receive is overwhelming for teachers. The majority of the children I work with do not have help with their homework, read with their parents, or have bedtime stories with a cup of warm milk. Children tell me they have little one-to-one interaction with their parents. For example, those that have parental support with their homework do better (or excel) and have greater confidence. Sensitivity, time (patience), and consistent emotional support are foundational for learning and I have consciously tried to factor this into Co-Designly Practice methodology, whereby, school is a heterogenic ‘family’ of ‘siblings’ with “peer-to-peer scaffolding”.¹⁰⁸⁹

Positive parental guidance links to a good preparation for adolescent menarche. Again, teachers are expected to fill in gaps and/or take the place of the mother (and/or father) to daughter and mother (and/or father) to son discussion about menstruality. In schools, this role is strictly for designated PSHE, RSHE teachers or Biology teachers (via the textbook curriculum). If asked about menses, teachers must redirect questions to designated staff. Community Nurses in schools offer one-to-one support, however, they are rarely present. Subsequently, children turning to online searches, older siblings, or friends is pervasive and problematic. “Children don’t know where to go for advice or support”.¹⁰⁹⁰

“Young people just go online[...] to get their sex education from TikTok [...] they] are learning about sex through pornography”.¹⁰⁹¹

“I go around the country talking to teenagers and saying, ‘What’s on your mind?’ and I cannot tell you how many times sex education comes up. They say, ‘Nobody has ever taught me, is my body right? ... We’re in this culture war about Relationships and Sex Education, but we’re not actually teaching our kids what they need to hear ... Heads are so frightened about teaching these things and they’re not teaching these things well ... Too many Heads are outsourcing [RSHE] education, allowing activist groups to overly influence teaching materials”.¹⁰⁹²

Rachel de Souza, the Children’s Commissioner for England, the Times Health Commission (2023).

De Souza notes that in 2022, STI diagnoses escalated to 400 young people a day,¹⁰⁹³ with highest rates in the UK population amongst 15–24-year-olds.¹⁰⁹⁴

1. “The gap in understanding is literal, I asked my 15-year-old and their best friend to draw the interior female reproductive organs, actual size, and without reference. M. drew a cute, headed character with a super long neck and two (flexing) lowered arms with circles (ovaries) for hands, the legs fused into a chute. Their female friend drew a faint-lined, huge, empty, inverted triangle. The two upper corners slightly rounded and poking-out. There was no cervix or vagina, just a self-enclosed uterus. ‘It’s like there is a blank triangle inside me ... There’s a gap; I just don’t know?’

In the same class, they both studied male and female reproductive anatomy for GCSE Biology, ‘But, it was just a single lesson’. I asked if they had missed further classes about anatomy because of the Covid-19 pandemic. She said, ‘No, we were in school then and it was a one lesson thing’.

2. "I guess it's about what they can see [(learn)] from porn then?"
3. "I can't remember being taught anything".
4. "I wasn't quite sure either".
5. "There's ignorance, shame, embarrassment, all that about asking".

(Research Study discussion about anatomy lessons in school.)

Considered a separate topic, menstruation is lower priority than socioeconomic impacts such as teen pregnancy and STIs 'disease control'. Menstrual supply, pharmaceutical product, and digital FemTech advertising materials fill this gap. In return for period tracking app subscription and the transaction of personal data, a young person can access branded period information, a form of 'period product porn'. Unregulated and not necessarily: evidence-based content, safeguarding and pastoral care protected, or GDPR-compliant – this is unethical, and these online materials may not be in adolescents' best interests. In contrast, the EMA Toolkit offers an altruistic (free, not-for-profit, and unbiased), rigorously researched, evidence-based focus. Significantly workshops are classroom situated, offline, and off-limits to advertisers.

6.9 The PSHE Association

In longitudinal study (with a long view of over a decade) as a doctoral researcher, a DfE teacher, and a PSHE Association member, I have followed the PSHE closely. In the next section, I discuss their Quality Mark for PSHE materials in schools and discuss "The Truth, Undressed" toolkit by (Canesten®/Bayer) and "betty for schools" (which has since relocated to Tes teaching resources). The first case study illustrates how lesson plans with apps/online links become personal data and child protection safeguarding issues (also discussed in Section 4). The second case study tracks "betty for schools" over various iterations, since its launch in March 2017.

The PSHE Association is the national body for Physical, Social, Health, and Economic (PSHE) education in UK Department for Education schools.¹⁰⁹⁵ In 2024, there were 60,000 PSHE Association members, consisting of individual teachers and schools. For a yearly subscription fee of £70 (or £155 per school), members can access online resources, DfE guidance, and advice (updates).¹⁰⁹⁶ Access to some resources, training, conferences, events, or award ceremonies costs significantly more – such as "'The You Before Two', 'The Fundamentals' film bundle costs £200. However, any of the five lesson plans can be purchased individually for £50 each". The government provides grant funding to the PSHE Association¹⁰⁹⁷ and it has charity status.¹⁰⁹⁸

For a fee of £1,500, the PSHE Association assesses (and potentially "Quality Mark" approves), PSHE materials for schools.¹⁰⁹⁹ Any changes to accredited materials necessitate a second Quality Mark assessment and fee. The Quality Mark routinely expires every three years, so resources must be continuously re-accredited and cogent.¹¹⁰⁰

However, clearly branded, these materials introduce (overt) brand advertising and product placement in schools. A Quality Mark constitutes access to a target audience of 9,073,832 (approximately 9.1 million) under-18s, across 24,442 UK state-funded and independent schools.¹¹⁰¹ For an additional fee, promotional opportunities such as access to PSHE mailing lists and social media accounts are available. "In summer 2023, there were over 60,000 contacts on [the PSHE Association's] mailing list and 25,000 [across] [X] and Facebook. Organisations that have developed resources achieving the PSHE Association's Quality Mark shall be granted a non-exclusive licence to use a version of the PSHE Association Quality Assurance Mark, which states 'This resource has been quality assured by the PSHE Association (the 'Quality Mark') on the individual quality-assured resources themselves and [all] promotional materials directly relating to the resources (including relevant web listings)".¹¹⁰²

I question if it is ethical for brands to generate PSHE health and mental wellbeing advocacy materials for DfE Primary and Secondary school children. The International Convention on the Rights of the Child (UNCRC)¹¹⁰³ considers every-one under the age of 18 "a child". (Note the semiotics of "child" – as sign, signifying, the significations.)¹¹⁰⁴ Is this

overt advertising and product placement in schools ethical? Is the information imparted (via PSHE education) impartial and evidence-based? In the UK national curriculum, where is parental/guardian and child consent 'agreeing to be commodified'?

6.10 The Truth, Undressed: Case study

The PSHE Association¹¹⁰⁵ offers product placement, awareness, and branding in schools. In the Truth, Undressed¹¹⁰⁶ “We’ve collaborated with intimate health brand expert Canesten® [Bayer Pharmaceuticals] to develop a set of four lesson plans for KS 3-5 [ages 11-18] promoting understanding of vulval and vaginal health”. “Intimate health brand expert Canesten®” notes on their “Brought To You By Canesten®” branded advertising materials for schools: “We’re here to help. Visit our website to learn about our range of treatments for common vaginal infections”.¹¹⁰⁷ To enter the website users must consent to sharing their personal data and receiving marketing information. There is a full-page disclaimer: “By entering this site, you understand and acknowledge that you will be viewing uncensored nude imagery”, and “As nudity is a sensitive topic for many, please ensure that parental supervision or adult consent is given for people under the age of 16”. On “the UK’s no.1 selling women’s intimate health brand[‘s]” website there are large photos of varied vulvas and types of infection discharge in underwear, amongst bright colours and shapes. They do not discuss in any detail healthy cervical secretions and their distinct menstrual cycle-related changes. To use Canesten’s online, “symptom checker” users must (again) consent to sharing their personal data and receiving marketing information via Ada Health GmbH. Ada is a clinical AI, the segment of (macro) healthcare AI that specifically focuses on AI technologies.¹¹⁰⁸ A complex footnote (7,819 words over several pages)¹¹⁰⁹ shows just how many ‘interested parties’ will have access to a minor’s (+16-year-old’s) data about their vaginal secretory health. A further disclaimer adds:

Our website may contain links to third-party websites. If you follow a link to any of those third-party websites, please note that they have their own privacy policies and that we do not accept any responsibility or liability for their policies or processing of your personal data. Please check these policies before you submit any personal data to such third-party websites.¹¹¹⁰

“Oh my god! I use that product all the time! I didn’t know what was happening [with my cervical secretions] was completely normal!”

(Research study co-researcher during the workshop explaining menstrual cycle-related cervical secretions.)

Whereas, the EMA Toolkit aligns with The Royal College of Nursing’s ‘Menstrual Wellbeing Toolkit’, in discussion with medical expert external advisor, Dr. Sai Gnanasambanthan, the EMA Toolkit notes: “Unfortunately, through social norms and advertising, we are led to believe that healthy cervical and vaginal secretions that are an important part of the menstrual cycle are unhygienic ‘discharges’ or, for example, are to do with vaginal infections such as candida. By learning about and tracking the distinct changes in cervical secretions at each stage of the menstrual cycle, we can understand more fully what is happening and why. We will also know when there is an infection and what to do about it”.

This awareness is important because certain STIs share symptoms with candida. Dr. Gnanasambanthan suggested the EMA Toolkit advises co-researchers visit a sexual health clinic, a genitourinary medicine (GUM) clinic, or GP surgery, rather than self-medicate with over-the-counter pharmacy products (for longer than 1-2 weeks). “We want adolescents to come in, so we can help educate, support, and reassure them with reproductive health and STI checks”.

These materials have bias; they exist to promote a particular product and build trust in the brand, which becomes familiar and synonymous with self-diagnosis and self-care. However, chlamydia is the most common STI in the UK¹¹¹¹ and is most prevalent in under-25s.¹¹¹² If self-(un)diagnosed and left untreated, chlamydia can cause infertility or ectopic pregnancy, pelvic inflammatory disease (PID), and chronic pain.¹¹¹³ The EMA Toolkit advocates ongoing reproductive healthcare engagement. “Don’t feel embarrassed; infections are common and usually easily cured”.¹¹¹⁴ This aligns with the NHS recommendation of a yearly check-up for sexually active under 25-year-olds.¹¹¹⁵

Marketers use AI-enhanced scientific research into child psychology, psychosocial development, behaviours, and desires – to better understand the wants and motivations of children. Using this information without informed consent (child, parental, or guardian), marketers craft sophisticated messaging to reach young people both overtly and subliminally.¹¹¹⁶ In other words, CEO of Mira fertility, Sylvia Kang’s “lowest hanging fruits”.¹¹¹⁷

6.11 **betty for schools: case study**

'betty for schools' ¹¹¹⁸ are linked "menstrual packages" for schools to learn about menstruation. "Quality Mark accredited for 8-12s" and marketed across UK DfE schools by the PSHE Association (previously), and Tes (currently) – betty for schools has evolved into two, 45-minute, mostly online, interactive sessions. There are two levels of education: children between the ages of 8 and 11 in Primary school, and 11–12-year-olds in Secondary school, with links to a betty.me app, bettyforschools, bettycollective, and weare-betty Instagram, X, and Facebook sites. An online pre-lesson letter and booklet for parents enthuses "betty has everything you need to support your daughter growing up, from tips and advice on how to navigate puberty to brilliant products that help make her feel protected and comfortable throughout her period. [...] It is] a fab site that is constantly updated with the latest gossip, advice, beauty articles, and more [...]" "We are a brand designed for young girls to support them throughout their period [...]" Our website, betty.me, is your child's go-to place for period and puberty advice, fun quizzes, and lifestyle features". betty products are marketed to "GenZ girls". ¹¹¹⁹ Social influencers live unbox and enthusiastically gush about "bettypads", "betty-pick-and-mix", and the "bettybox"; with a choice of pads, liners, tampons, and Tampax, "teen-friendly make-up", "pampering treats", chocolate, sweets, and skincare for a monthly subscription fee of £12.99. A bright yellow "betty bus" with an attachable slide tours around the UK with betty facilitators. Boys take part in a separate session "on empathy and how to support their female friends while they're on their period".

betty uses a Patrick Nagel, graphic-illustration aesthetic (alluding to his Duran Duran "Rio" album cover), with areas of flat, opaque colour with minimally descriptive flourishes of line and shape details. There are a series of social media 'influencers', all called "betty", that appear across their bright yellow and pink "vibey" materials. Via "buzz marketing", "betty" is trendsetting, wears make-up, and appears older (17-20), for a scaffolded, peer-to-peer (older sister) stance.

There are four downloadable "toilet takeover posters of betty". The four posters have the same tagline:

"CAUGHT SHORT?"

You can also come to me if you need any advice or have a question you want answered. Sometimes, thinking about periods can feel a little overwhelming. But don't worry, we've got you covered just in case. bettyme is an advice hub created for super-star young girls like you".

1. A white, female adolescent with black 'dirt' freckles and dark, mid-length hair with bangs. She has purple eye-brows, lips, and 'Feminist' written in purple across her white T-shirt. She's wearing graphic badges with slogans: "girls", "Girl's Club", "Girl's Support Girls", and "equality". Her head slightly tilts, and her arms cross in a defiant gesture.
2. A fair, freckled female adolescent with pink, mid-length hair with bangs stares directly. Again, with large hoop earrings and a black, part-goth, part-boho choker with a broken heart affixed. She wears a denim jacket with similar badges, with an additional "GRL PWR" and "riot girl".
3. A 'preppy' white, female adolescent tilts her head quizzically, her blonde hair, tied-up in a topknot loosely flows down. Her white-collared, tight navy T-shirt is emblazoned with a large blue heart. Her lips purse in a slightly impatient, tense expression.
4. A slightly darker female adolescent, her straightened, mid-length brown hair in two loose bunches with a side hair-clip. Her head tilts, slightly listlessly, with a gaping mouth, pink lips, and braces. She wears a T-shirt with rainbow-coloured fine lines and "Girl power" written in a cloud and rainbow. Her hoodie is falling off and is already below her elbows.

In their "About" section is the following: "Subscribe for hilarious stories and honest advice about what's going on in your body, your life, and the world. We'll be asking the really important questions, like, is my period smaller than a Frappuccino? Are parents' real people too? And is there life after a DIY haircut?"

betty has "vintage lifestyle features" and markets to teens with ubiquitous product placement. Their 'influencer' tropes relay a certain type of feminine identity, forming "a dedicated, tribe-like community of bettettes". They offer yearly subscriptions for family and friends to buy for teens "to support their menstruation". What if families cannot afford the peer-pressure/ monthly subscription fee of £12.99? In 2021/22 there were 4.7 million people, or 7% of the UK population,

in households experiencing food poverty, including 12% of children.¹¹²⁰ According to Action Aid, cost of living related “period poverty” rose in the UK from 12% to 21% in a year (2023), (27% of 18 to 24-year-olds). This translates to 1 in 5, or 2.8 million menstruators struggling to afford menstrual products.¹¹²¹

On an earlier website in 2017,¹¹²² betty write:

“betty provides a voice for small retailers and gives young talent and independent designers a place to promote their creations [...] [B]oth individual and nostalgic, [a]t the heart of the strong visual identity is a loyal tribe of bettettes. betty creates a place for girls to discover who they truly are, to exchange information, and rediscover femininity. Through betty, the aim is to show that there is glamour in being the girl next door.

“betty is into fashion, but she is not a slave, a cook but not a chef. She knows a lot but is not a know it all. She loves magazines but embraces new technology. Empowering others, betty has a vintage heart and high street shoes. She loves sight-seeing and a day trip, *turning every situation into an excuse to shop*. Believing romance isn’t dead, a problem shared is a problem halved. She’s romantic and frivolous, yet practical and generous, sharing tips on everything from housekeeping to high heels, knitting, [and] nail art. betty is the eternal girl embracing the modern world”. [My italics.]

Clearly, there is an attempt to transact access to menstruating 8–12-year-olds (compulsorily) sitting at their desks in school as market potential via (previously) PSHE Association menstrual education in schools. betty is now only accessible via Tes; (paying) subscriber-based “trusted education solutions” (downloadable, ready-made teacher resources). Tes has “more than 13 million educators in our community, and working relationships with 25,000 schools in over 100 countries[...]”¹¹²³

betty successfully imparts basic menstrual knowledge, and positively and vibrantly helps break taboos. However, I question how seriously ‘betty-ness lifestyle’: marketing-oriented ‘consumer training’ and (further) enculturation of “teen femininity” is relevant to menstrual pedagogy in schools. When I began this research, betty was the “fun and award-winning”, shining exemplar. This research has taught me the imperative of ethical rigour, evidence-based fact, and usefulness. Pretty ‘poster girls’, “free make-up kits”, “online beauty” and “fashion tips”, zany yellow, polka dot doubledecker buses, with pink beanbags, bouncy inflatables, ball pits, and playground slides are somewhat superfluous in communicating menstruality.

During the research study, we discussed offsetting menstrual taboo, shame, and self-silencing by celebrating each individual’s menarche with a special family event and gift-giving. betty.me captures the “feeling of specialness”, “positivity”, and “gift-giving” ethos we explored, but at a transactional, subscription-based cost. Post-menarche, a ‘betty-ified’ teen is a commercially activated, live market, and via the bettyme app; a shared, bought, and sold subject. The conflation with the term “consumer” is disempowering for children aged 8-12.

[C]hildren represent a third type of marketing potential: that of the future consumer. Savvy marketers know that brand loyalty and consumer habits form when children are young, and that they have real staying power. Because it’s easier to shape future buyers than it is to convert customers who buy from competitors; marketers are wise to foster a relationship with consumers from a young age.¹¹²⁴

‘Marketing to Children: Tips, Tactics, and Taboos’, Concordia University, abstract for B.S. in Digital Marketing.

6.12 Transparency in menstrual pedagogy: The Embodied Menstrual Awareness Toolkit

“Out there is either very complex medical literature or chatty, online, ‘insta-girl power’ stuff. The toolkit is a good middle ground”. (Research study co-researcher.)

‘The agenda’ is transparently straightforward, increasing menstrual awareness learning in schools. One that is uniquely phenomenological, analogue, conscientiously in observance of GDPR, and sensitively safeguarding.

“It is essential that preventive and early intervention should be seen as the cornerstone of multi-agency working to ensure pupils’ right to education and to protect their health and wellbeing”.¹¹²⁵

The concluding remarks of ‘Public Engagement: Engaging with Healthcare Practitioners as Medical Historians’ (2020), at the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH), Cambridge University, highlight

the essentiality of a cross-sector approach. I involved stakeholders in the development of the EMA toolkit: the PSHE Association (as advisory); King's College Hospital NHS Trust via my medical expert, external advisor; Jane Hatfield, CEO at the Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians and Gynaecologists (FSRH); the National Institute for Health and Care Research, the DfE; Ofsted; and UAL – to maximise impact (educational and RH synergy). And to ensure all toolkit materials were ethical, age-appropriate, factual, synergistically consistent, and sufficiently educational. Jane Hatfield at the FSRH was helpful, but unfortunately passed away during the Covid Pandemic. Wendy Norton at the Royal College of Nursing (RCN) and Michelle Eleftheriades, RCN Children and Young People's Professional Lead have been tremendously supportive and encouraging.

Using the EMA Toolkit, via Co-Designly Practice, stakeholder menstruating adolescents (or adults) design their own cultural probes. The EMA Toolkit is a base kit or “cultural probe”^{1126, 1127} designed for elective, creative visual interplay and has various cut-out and folding templates, grids, and physiological diagrams for retooling. There are a choice of projects to do and as co-researchers, we work in groups to further design materials. I question why can't adolescents use Co-Designly Practice to generate their own PSHE, RSHE messaging materials, mobilising their interests and vernaculars? In situ experts of their own experience, they are better placed (in their own shoes) to create solutions.

6.13 The Specials “Too Much Too Young”: Case study

In 1980, The Specials, a British Two-tone ska revival band released the equivalent of a Secondary school PSHE, RSHE PSA (public service announcement) about teenage pregnancy: <https://www.youtube.com/watch?v=rdu8VOWk3pg>.¹¹²⁸ As peer-to-peer social critique, it had extensive, cross-culture, intersectional, and anti-racist reach as “number one in the UK Singles Chart” for two weeks in February, 1980. Influential and impacting, The Specials demonstrated that youth could create their own PSA-type messages that were progressive protest-advocacy. In ‘fuse’ vernacular, their lyrics were about council estates, mobilising disaffected youth, and were a Thatcher-era revolutionary riposte. Based on a 1969 track by Lloyd Charmer called “Birth Control”, The Specials' keyboardist Jerry Dammers sped-up the tempo and updated the words.¹¹²⁹ Ska was a Jamaican music genre of the late 1950's, Two-tone combined this with rocksteady and reggae music, with elements of punk rock, and new wave music.¹¹³⁰

Conclusion:

Homo economicus or “economic man” from *ethos* “moral character” related to *ethos* “custom”?¹¹³¹ I ask what values: “the perfect rationality” of maximum profitability and consistent self-interest? ¹¹³² Is “Economic”, in Physical, Social, Health, and Economic (PSHE) education about teaching children to be subjects of ‘Althusserian “ideological state apparatuses”’?¹¹³³ Althusser asks:

“Why is the educational apparatus *in fact* the dominant Ideological State Apparatus in capitalist social formations, and how does it function? ... All Ideological State Apparatuses, whatever they are [repressive etc.], contribute to the same result: the reproduction of the relations of production, i.e., of capitalist relations of exploitation”.

“‘Lenin and Philosophy’ and Other Essays. Ideology and Ideological State Apparatuses (Notes towards an Investigation)’, Monthly Review Press (1971).

Sociological “institutionalisation” is the process of embedding some conception within an organisation, social system, or society.¹¹³⁴ Betty for schools embeds economic propensity via school-based, social inculcation. Neoliberal deregulation and the marketisation of education ‘as enterprise’ is problematic. Market forces become the dominant biopolitical power and assemblages of corporate conglomeration can exert pressure on government policy. For example, attempts to ban mobile phones in schools are persistently backgrounded;¹¹³⁵ construed as “a political stunt rather than a serious contribution to schools policy”,¹¹³⁶ and not supported by the (prevalently right-wing) UK press/media.

“We have lost count of the number of times that ministers have now announced a crackdown on mobile phones in schools. It is a non-policy for a non-problem”.¹¹³⁷

Geoff Barton, General Secretary, the Association of School and College Leaders (ASCL), (2024).

Under the (previous) Conservative government's "austerity" fiscal policy, child poverty "is expected" to rise to 4.4 million by 2027/28.¹¹³⁸ Systemic underfunding of the educational sector, social care in the community, the NHS, and non-profit organisations (etc.), cause a shortfall in government PSHE funding. Sponsorship (product placement and advertising) in schools is a profitable solution, but only works *via complicity*. Abbetting and conduit are visual communication designers and 'freelancers'. However, I argue there needs to be ethical-moral exemplar and status in holistic-altruistic social responsibility and consistently maintained regulatory standards (that include evidence-based rigour, safeguarding protections, and sustainability) – in a move away from child-focused economic opportunism.

The EMA Toolkit is:

'Creative Commons (CC BY NC DD: Attribution + Non-commercial + No Derivatives). As not for profit and self-funded research, the base toolkit, concepts, and terms "Embodied Menstrual Awareness", "EMA Method", "Co-Designly Practice", ("CDLY P") and "Co-Designly Sensi", ("CDLY S") are intentionally copyrighted – so they cannot be made commercial: commodified, marketed (advertised, sold, or purchased) as written materials, a toolkit, a service, training, or used (withheld) for profit. (I work pro-socially and entirely from within issues, so, fairness, equity, and egalitarian access is very important to me.)'

Circa 2015, "City to Sea" recently developed a Key Stage 2-3 (age 7–14) plastic pollution-themed menstrual awareness toolkit, "Rethink Periods" (2019). Initially launched with introductory funding for 600 schools, thematic is an emphasis on sustainable menstrual products and their environmentally safe disposal. There is a PowerPoint visual presentation and a support PDF (text content referencing a plethora of pre-existing online resources with links). Practicably, the EMA Toolkit, Key Stage 4-5 (15–18), could follow this toolkit and/or comfortably coexist.

In an informal interview, their Head of Corporate Partnerships said they have withdrawn their toolkit because of funding issues including a lack of corporate sponsorship. "City to Sea" is supported by privately owned water companies; the UK government is fining these companies for water safety violations and costs related to restoring polluted water habitats, and a Waitrose (plastic bag-funded) grant they relied on has recently ended. Costs relating to a pre-course "Period Ambassador" teacher induction, research analytics, and the PSHE Association's increased costs for accreditation were also problematic. And with no DfE "gender expression" guidelines for schools, "there is anxiety in schools about parental pressure and public, media scrutiny". She said, "Schools cannot afford to implement anything that isn't free" (the EMA Toolkit is free), and that "NHS-related institutional endorsement [such as the Royal College of Nursing] is considered more relevant by teachers and schools than PSHE Accreditation [*per se*]". Arguably, accreditation is undermined by the selling of access to 9.1 million minors via product placement and advertising in schools.

At the onset of my doctoral research, there were no PSHE, RSHE menstrual awareness materials. I contacted Jonathan Baggaley (Chief Executive of the PSHE Association), for assistance as a field expert, external advisor – sharing my research proposal, abstract, and draft EMA Toolkit. John Dillion (Director of Communications) and I discussed post-research Quality Mark accreditation and possibly linking the toolkit to a teen pregnancy resource (to be completed beforehand). The PSHE has since issued two, PSHE, RSHE lesson plans: "Fertility and pregnancy choices" (2021 /3) for KS 4-5 students "with accurate, impartial information on choices around fertility and pregnancy". The toolkit focuses on unplanned pregnancy, abortion, parenting, and age-related infertility and is only available to subscription paying, PSHE Association members. The EMA Toolkit could follow this resource.

"You Before Two" Fundamentals (2022), by Dr Rebecca Foljambe and Dr Naomi Sutton (now under the remit of the Family Planning Association), is a sexual health themed toolkit covering penile and vulva health, having a sexual health check-up, contraceptives, and sexual consent. There is a single lesson called:

Period Dramas:

– What periods are and about the factors that affect menstrual wellbeing product choices.

Students will be able to:

- Explain what a period is
- Evaluate [...] which menstrual wellbeing products a person might choose to use

Could the use of the word "Dramas" reify pejorative stereotypes? Again, I question how menstruality could be understood in a single, 40-45-minute lesson.

Access to “You Before Two” Fundamentals KS 3-4 is for PSHE Association members only and costs an additional £99 for two users, £199 for 10 users, with a “POA for +10 users”, and the “You Before Two” Fundamentals film bundle is £200. Their “Contraception Choices” lesson bundle for KS 4 is an additional £150.

To reiterate, the EMA Toolkit is an introduction to STM (EMA) as means to understand, track, and chart the menstrual cycle – as an embodied, sensitively responsive, and uniquely mutable experience. Post-menarche, it may take several years for menses to be regular and consistently ovulatory. Nevertheless, my research generated qualitative and practice-based data confirming EMA as useful praxis for understanding hormonal fluctuations and corollary menstrual cycle: cervical responses, ovulation, fertility window, and menses and for establishing when to seek medical advice and care. Co-Designly Practice activities successfully sought to individualise this knowledge; *make it one’s own*, by visualising and encoding data for confidentiality. The EMA Toolkit avoids economic exploitation: described in the ‘Committee on the (Human) Rights of the Child: report on the 4th session, 20th September – 8th October 1993’.

Economic implies the idea of a certain gain or profit through the production, distribution, and consumption of goods and services. This material interest has an impact on the economy of a certain unit, be it the State, the community, or the family. For its part, exploitation means taking unjust advantage of another for one’s own advantage or benefit ...¹¹³⁹

Section 7:

Research Study Analysis:

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Section 7:

Research Study Analysis:

To conclude, I analyse research study co-researchers' response to the Embodied Menstrual Awareness (EMA) Toolkit. Starting with an overview of the toolkit, I discuss ethical considerations (extracted from the Post-Registration Research Ethics Approval Form), UAL RKEESC Ethics Committee approval, and research study cohort recruitment.

7.0 Study Analysis re: The Embodied Menstrual Awareness (EMA) Toolkit

The EMA Toolkit uses practice-based, co-researcher-led Co-Designly Practice (CDLY P) methodology. Here, arts-design praxis is lens and prism for increasing menstruating adolescents' understanding of their menstrual cycles in Secondary school. Via phenomenologically experiential pedagogy, co-researchers heuristically learn to track their menstrual cycles, visualising (and later encoding) their uniquely mutable data. Intended for use by Key Stages 4 and 5 (ages 15-18), in the Department for Education's (DfE), Physical, Social, Health, and Economic (PSHE), Relationships, Sex, and Health Education (RSHE). The toolkit aligns with the UK Gov. draft "PSHE Joint Roadmap to Statutory RSE, 2020"¹¹⁴⁰ guidelines, their 2024 advisory, and DfE safeguarding and pastoral care guidelines.

The EMA Toolkit is a prototype toolkit developed for testing in the research study. Designed for implementation by others, for accuracy, consistency, and replicability it is step-by-step self-explanatory and evidence-based epistemic. The toolkit uses secondary data to generate primary, "Co-Designly Practice" (CDLY P) data.

7.1 Ethical considerations:

Foremost and requisite, "an ethic of care" and ethical considerations were sensitively responsive and attuning. When working within child, adolescent, and student educational settings; ethics are "an affective state, a material vital doing, and an ethico-political obligation".¹¹⁴¹ The following section outlines the research study ethical preparations, procedures, and affordances.

An explanatory poster and invite linked to a designated website with a downloadable: Letter of Information, Consent Form, a non-disclosure agreement (NDA), and (later) a PDF of the EMA Toolkit <https://rb.gy/seb4on>. The poster, invite, and Letter of Information clearly outlined the research in preparation for the workshops. The Letter of Information and Consent Form were as simple as possible – as recommended in EU/UK General Data Protection Regulation (GDPR) "[c]onsent must be clear and distinguishable from other matters and provided in an intelligible and easily accessible form, using clear and plain language". An initialling of all pages in the Letter of Information, a signed Consent Form (consenting to take part), and a Non-Disclosure Form were prerequisite to participating in the research.

Participant "co-researchers" were self-selecting; no-one was excluded or not invited to the study. The cohort included 16 undergraduate, masters, and post-graduate research students, alumni, and staff from University of the Arts London (UAL). Although all female, there was a wide gamut of menstrual phenomenology from age 19 to perimenopausal – menopausal. A richly diverse, international mix of ethnicities, cultures, and secular or religious backgrounds elicited a more rigorous testing of the toolkit and further Co-Designly Practice reworking with creatives, in an intensive academic setting. (This included matriculated Social Design and Data Visualisation students and qualified practitioners.) The research study had intended to further iterate two versions of the toolkit – one for schools and one for +51% of the UK population of reproductive age – since via the Royal College of Nursing's Women's Health Forum, the EMA Toolkit has potential for use across a wider, reproductive-age cohort.

Intersectional, instead of "normally" (normatively), we used the word "typically". While using the terms "female(s)", "woman", "women", and "girls" as they appear in existing literature, we acknowledged gender diversity; cisgender

women (assigned female at birth), transgender men, intersex, gender-queer, or non-binary, consistently using an individual's preferred name and pronoun: she/her, he/him, them/they.

Participants understood that we would be learning about female anatomy, dynamical homeostatic physiology (such as the hypothalamic-pituitary-gonadal (HPG) axis and associated hormonal changes), and symptoms of menstrual complications. In addition to exploring our anthropological-historiographic, enculturated understandings such as menstrual rites, practices, and taboos.

If students were: 1. non menstruating, 2. menstruating, but not yet ovulating, 3. pregnant, or using hormonal products, medications, or contraceptives, they were invited to join the study. Due to pregnancy termination, IUD removal, and suspension of hormonal contraceptives, not everyone was able to track an unmodified menstrual cycle. (Typically, it takes three months for hormonal changes to dissipate and the menstrual cycle to reattune; by default, the menstrual cycle is continuously mutable and always attuning.) However, the research study was comprehensive and practice-based, once understood, co-researchers could continue to track their menstrual cycles post-research study, supported by the EMA Toolkit (PDF).

Maintaining a systematic regard and respect for the rights of others, beneficence and non-maleficence applied: the aim of research was to be of benefit, with a favourable risk-benefit ratio. Beneficent actions help prevent or remove harms (such as ignorance) or simply improve (engage with and empower) the situation of others. Non-maleficence means to “do no harm.” Risks were minimised by superimposing several ethical protocols, which were then sensitively observed, met, maintained, and monitored:

1. UAL Ethical Research Guidelines: outlined in a Post-Registration Research Ethics Approval Form approved by the UAL, RKEESC Ethics Committee.
2. National Institute for Health and Care Research (NIHR) ethics for clinical research in the medical sciences.
3. The PSHE ‘Joint Roadmap to Statutory RSE, 2020’ guidelines and newly revised national curriculum, set within UK Gov., DfE safeguarding and pastoral care guidelines.
4. Knowledge and awareness human rights (the United Nations Convention on the Rights of the Child [age 0-18], (UNCRC).

Health and safety risk assessment and informed consent were moment-to-moment and dynamic, as specified in the UAL General Risk Assessment Form.

UAL, RKEESC Ethics Committee stipulated approval of ‘the Post-Registration Research Ethics Approval Form’ was conditional on the involvement of a medical expert external advisor in the field. Subsequently, Dr Sai Gnanasambanthan, Consultant in Obstetrics and Gynaecology at Epsom and St Helier University Hospitals NHS Trust (previously, Specialist Registrar in the Obstetrics and Gynaecology Department of the Princess Royal University Hospital, King’s College NHS Trust), was external advisor. In addition to her role in Obstetrics and Gynaecology, she is Section Editor of Oxford clinical guidelines for Oxford University Press, a Clinical Key Student Assessment Editor for Elsevier inc., an article author for the Obstetrics, Gynaecology, and Reproductive Medicine Journal, a co-author of SBAs for the MRCOG Part 1 and 2 Exam Book, and a Peer Reviewer for BMJ Case Reports.

Dr Gnanasambanthan reviewed the EMA Toolkit and made corrections. She very kindly wrote a second letter (in the Appendix), in addition to her original letter (also included) agreeing to be a medical expert:

“To Whom This May Concern,

I have reviewed the CDLY P EMA Menstrual Toolkit in detail, and feel it is very informative and well set out. I have analysed it in detail, and made suggestions for corrections, as well as disclaimers to include – for when readers should seek health-professional advice. I believe this toolkit would be a worthwhile accessory for increasing menstruating adolescents’ understanding of their menstrual cycle in Secondary schools”.

“[I] finished going through the toolkit yesterday, which is brilliant I have to say. Love how it is set out and the natural way it flows through all the points”.¹¹⁴²

At the start of each session we put away laptops and phones; sharing workshop-related content on social media wasn't permitted. A brief overview of General Data Protection Rights (GDPR) followed, explaining their centrality in the research study. As researcher (participating co-researcher), I (securely) audio-recorded the workshops, compiling observational notes, cross-referenced with audio recordings directly after each session. I also collected quantitative and qualitative fieldwork data: survey data such as demographics, interviews, written and oral self-report questionnaires, group discussions, data visualisation exercises, diagrams, sketches, and conducted (non-identifying) photodocumentary. I respected requests for privacy and confidentiality, and co-researchers freely decided whether their audio and visual data was retained and for what purpose. At the end of each session, they could review, edit, or withdraw their research study contributions. At any time, they could freely and informally withdraw themselves and their data from the research without explanation or prejudice. At the end of the research study, co-researchers were debriefed in a friendly, informal setting and relayed feedback on the findings.

Any content that "compromised the confidentiality, security, health, or wellbeing of any participant" was destroyed according to UAL guidelines. Data was encrypted and stored on a separate, secured server. There are no identifying names in the research data – as secured data has been irreversibly anonymised. Transcripts (extracted here) have sequential numbers to indicate that a different person is talking; there is no correlation between numbers and individuals. Any data with potential to identify participants is password protected and stored separately from this dissertation. I stored signed Consent Forms in a locked cabinet in a locked room. Data will not be kept longer than necessary and not be distributed to third parties.

Interpretive Phenomenological Analysis (IPA) of transcripts (taken from pre-research study and post-research study survey data, discussion comments, and email feedback), separated content in word/subject descriptor horizons. Photographs taken during the workshops and material outputs are online at: <https://www.lscovell>, the password is: PhD (work is under the heading Doctoral Research).

The EMA toolkit highlights that under the age of 23-years-old, periods can be erratic and irregular in response to adolescent hormonal fluctuations (possibly exacerbated by exposure to sunlight, air travel, lack of sleep, stress, exercise, alcohol and caffeine consumption, or nutritional deficiencies). Significantly, the EMA Method is not a self-diagnosing or diagnostic tool. It does, however, support menstrual awareness and embodied cognition, collecting information such as menstrual cycle lengths, ovulatory rates, blood loss, cervical secretions, and pain – insightful data for a GP or RH professional. In addition to UAL resources for safeguarding and pastoral care, workshops also signposted support: a list of online organisations for confidential and one-to-one advice, links to NHS 111, local: GPs, sexual reproductive healthcare (SRH) clinics, hospital outpatient Gynaecology and A&E Departments, pharmacies, and counselling. In a later toolkit exercise, co-researchers made their own additions to the list of locally available services.¹¹⁴³ These resources are on posters, leaflets, cards, and URLs in the public domain (in schools, libraries, doctor's surgeries, clinics, pharmacies, youth centres, and gyms, etc.).

7.2 Design: structure of inquiry

Firstly, according to sociologist Muriel Singer, "We do not collect data, we interact with it"¹¹⁴⁴ as entangled, unquantifiable selves.

Menstrual tracking is a daily, experiential (kind of) mediative practice. Although, mapping multiple cartographies, it gets discursive, is entangling, lines can knot and stress.

(Extract from observational notes.)

There were four, two-hour sessions from 18.00 to 20.00, bi-weekly, with a final debrief session in a relaxed, social setting. The bi-weekly spacing of workshops gave participant co-researchers time to track their menstrual cycles (an iterative learning process) and generate data in longitudinal, observational study. Throughout the study, I was available via email – assisting co-researchers with tracking, translating the EMA Toolkit into other languages, engaging with confidential questions, or collecting useful, nuanced feedback apart from the group. Spaced further apart, the final 'de-brief' session allowed for three months of menstrual cycle tracking (a pattern in menstrual data typically appears over three

menstrual cycles).

In further testing of Co-Designly Practice methodology, practice-based workshops produced primary data qualitative materials. Demographic data and elective pre-research study and post-research study self-report surveys supplied quantitative research and qualitative material.

The EMA Toolkit was split into four sequential sections. Following the toolkit section-by-section on a large-format LED display screen,¹¹⁴⁵ each research study session covered (25%) of the toolkit. For reference purposes, each table had several copies of printouts of the toolkit section. At the end of the session, co-researchers received an emailed digital copy (PDF), for closer review in their own time. Via visually creative interplay, the base, prototype toolkit (appended) is constructed for CDLY P. There are signposted discussion points with a choice of exercises.

In response to evidence-based content, co-researchers were actively encouraged to generate their own exercises and projects to include. Various paper materials are included for designing probes such as tear-out sheets with menstrual tracking grids, all kinds of grids, cut-out, and folded templates, physiological diagrams, and body maps, and paper tools.

There is also an online archive with examples of visual data encoding to help support menstrual tracking diagramming.

line-based: <https://rb.gy/53s6nb>,
geometric-based: <https://rb.gy/jpvy37>, and
red: <https://rb.gy/gg32jz>

In the research study, these were printed and displayed in the corridor for discussion and inspiration:
<https://rb.gy/c8qw4x>

If non-attending, co-researchers continued the research study remotely by following the PDF section and doing a choice of exercises (albeit missing the Co-Designly Practice aspect). Two co-researchers were able to miss a session and stay on track using their PDF. For efficacy of use, a combination of formats: a display screen, printouts, and PDF digital copies of the toolkit were optimal.

Designed to stimulate critical thinking and interpretative, innovating, or discursive, freely openly-ended co-researcher responses; the EMA toolkit explored idiographic and group subjectivities via phenomenology.

Learning to track a uniquely mutable menstrual cycle sensitively 'awakens' tacit, embodied awareness into embodied cognition. From within the body, topological and topographical knowledgescapes arise; empirical, physiological, contextually social, and (now) enactive. "The enactive approach not only emphasizes the integration of [perception and action] into a form of prospective control, but also brings a strong focus onto intrinsic motivation".¹¹⁴⁶

As the workshop sessions progress, confidence increases, and co-researchers feel comfortable asking self-advocating questions: addressing issues as they materialise in visual form.

(Extract from observational notes.)

CDLY P builds on tacit knowledge,¹¹⁴⁷ the ineffable and "other ways of knowing"¹¹⁴⁸ for imaginative play of new hybridities. "We can know more than we can tell", as all knowledge (anyway) is rooted in tacit knowledge.¹¹⁴⁹ As 'full body action', developing embodied awareness is "experiential [re]learning"¹¹⁵⁰ of "tacit knowing".¹¹⁵¹ Michael Polanyi's somatic, relational, and collective tacit knowledge is a "know-how" as opposed to "know-what".^{1152, 1153} Arts-design based activities to do with observing the menstrual cycle ("a vital sign")¹¹⁵⁴ via basal body temperature, cervical secretions, menstrual blood flow and consistency, etc., speak directly about (parrhesia) and data visualise 'felt sense' ("visceroceptive")¹¹⁵⁵ sensing-feeling. To develop an understanding of the body as a gradated, loosely topological 'field of boundary' between what is internal and external, exploring 'where the body ends'. There was a holistic (re) embodying of all aspects of menstrual physiological processes in detail. In 'Somatic Processes: Convergence of Theory and Practice' (1998), Barbara Sellers-Young writes, "A somatic approach to education integrates, as an existential whole, the experiential history of individuals with their current experience. It implies an education that trusts individuals to learn from their ability to attend and to listen to the information they are receiving from the interaction of self with the environment".¹¹⁵⁶

In this research, I link: 1. *a priori* factual knowledge about the menstrual cycle, contained in the EMA Toolkit with 2. embodied menstrual awareness; applied, heuristic, *a posteriori* knowledge (what can be known via experience). A *posteriori* knowledge forms the impetus for my research and critique, hence the emphasis on each person's uniquely phenomenological 'lived experience' (interiority, subjectivity, and the ability to experience qualitative phenomena (qualia))¹¹⁵⁷ – and reflexivity about this (thought-meaning, theory of mind, 'putting oneself in the others' shoes' etc.). Via pencil-on-paper, experiential, and heuristic menstrual tracking, co-researchers charted quantitative, quantifiable data such as basal body temperature, cervical secretions, the timing, and flow of menses, etc. This was synergistic with qualitative data, somatic sensations, discomfort and/or pain, emotional states, and modes, e.g., work, play, or rest.

Workshops sought to nurture a singular-plural¹¹⁵⁸ sense of embodied awareness, within group "co-designly" camaraderie and support. I argue that incomplete or lack of access to information, misinformation, and confusion about what is happening whilst menstruating is illegal,¹¹⁵⁹ unethical, and causes harm. Anxiety, stress, and emotional discomfort affect wellbeing and self-care, cause withdrawal from (school) activities during menstruation and can lead to social self-isolation. Reproductive healthcare engagement (and potential early intervention) is also compromised. This is well documented in qualitative and quantitative academic research findings detailed in my contextual review.

7.3 "Using distancing strategies," "handl[ing] questions safely," confidentiality, and disclosure:

All workshop activity followed DfE, PSHE guidelines "Handling sensitive or controversial issues" (2018),¹¹⁶⁰ protecting students' "physical and psychological wellbeing, their commercial interests; and their rights of privacy and reputation." "[A]ll visitors [...] are bound by school policy on confidentiality, "since confidentiality policies are in the best interests of young people." The guidelines also describe the importance of establishing "a climate of trust, cooperation and support," as, "a safe learning environment helps [students] share feelings, explore values and attitudes, express opinions, and consider those of others without attracting negative feedback. As well as encouraging more open discussion, it also helps to ensure that teachers are not anxious about unexpected disclosures or comments". Co-researchers were asked not to divulge personal information about others outside the workshop. However, I could not prevent this and mentioned it in the Letter of Information. I also cautioned co-researchers at the start and end of each new session. To reduce this risk, co-researchers were reminded they could speak of experiences indirectly: ("I know of ..." instead of "I experienced").

However, primary objectives were to:

1. remove shame and stigma;
2. to recognise threat, abuse, bullying, gossip, and/or insensitivity when it occurs;
3. to empower individuals to actively engender trust, respect, and friendship and;
4. to establish solidarity via a scaffolded, peer-support¹¹⁶¹ community.

The research study intended to sensitively deconstruct taboos: stigma and abjection, shame, uncertainty (and anxiety about this), or embarrassment.

In research study, I planned to further assess and evaluate the rigour and cogency of the EMA Toolkit in situ, within a Key Stage 4/5 (age 15–18), PSHE, RSHE setting at a local Secondary school. Unfortunately, I had to cancel an already organised research study at Bullers Wood School for Girls, with 30 self-selecting students, over a term of afternoon PSHE, RSHE classes. This was in response to extended Covid-19 Pandemic school closures, Pandemic (and Brexit-related) disruption causing loss of PSHE staff at Bullers Wood, and post-Pandemic industrial action by the four main teaching unions.¹¹⁶² To allow schools time to recover, the government delayed implementation of 'the PSHE's Joint Roadmap to Statutory RSE, 2020' guidelines and newly revised national curriculum, in addition to an update in DfE safeguarding and pastoral care guidelines. Without government oversight, guidance, and impetus, there was a period of confusion, delay, and ennui. This combination of extraneous variables created (still resonating) mitigating factors. Therefore, there was a secondary (non-optimal) sampling of a more stratified and diverse cohort. The research study moved to the University of Arts London (UAL), London College of Communication (LCC). Research study workshops were during university opening hours on UAL campus. The cohort included 16, self-selecting: UAL matriculated

Undergraduate, Masters, and Postgraduate research students, recent alumni, and staff. Although all cisgender female, there was a wide gamut of menstrual phenomenology from age 19, to perimenopausal–menopausal. I collected document evidence of increased peer-to-peer scaffolding ¹¹⁶³ that crossed generations (e.g., “When I was younger ...”. “My niece also ...”). Research data materiality reflected the richly diverse, international mix of ethnicities, cultures, and religious backgrounds, in instances across oppressively marginalised, colonial, and patriarchal contextual and anthropological-historiographic milieus. However, recurring themes created “an easy communality”.¹¹⁶⁴ This more rigorous testing of the toolkit’s efficacy and validity allowed for further Co-Designly Practice reworking with creatives across academic social design and data visualisation disciplines. A field experiment in a naturalistic setting (the university situational field), as “a participating co-researcher among co-researchers”,¹¹⁶⁵ I was careful to rebalance lecturer > student asymmetrical power relations. Subsequently, our “co-designly praxis” rapport was “convivially egalitarian camaraderie”¹¹⁶⁶ with a relaxed and informal “friendly flow” of dialogue.¹¹⁶⁷ Research in action was via experiential, heuristic learning, and ‘lively’ arts-design creative interplay. Phenomenological and sensory-mediated insights and outcomes were idiographically diverse, enlightening, and demonstrated the adaptively ‘agile’ nature of the EMA Toolkit. For example, to engage more fully, two co-researchers translated sections of the toolkit into Japanese and Chinese. (Using their downloadable, PDF copy of the toolkit to run translation software.) At the end of the study, this had not impacted their participation or engagement.

The research study was (re)designed to be a term-long project (unit) with 16 participants, for academic credit, and during daylight hours, with whole afternoon sessions of “Co-Designly Practice” improvisation – to further iterate two versions of the EMA Toolkit, one for schools, and one for +50% of the UK population of reproductive age. Unfortunately, with less than two months’ notice and having to compress a large amount of (necessary) information into four short sessions (8 hrs instead of a relaxed 39), left barely any time for creativity. Sessions were suddenly non-credit and conflicted with the last weeks before the end-of-year reviews and Final Show. The last session was during the opening of the Final Show which was problematic as several participants were presenting their work in the show. Whereas PSHE, RSHE classes in Secondary school are compulsory and considered “for credit” (towards the completion of the school year). This revised arrangement was upending for me, as this was an egalitarian (and dialogic), responsive-creative endeavour. Unfortunately, the research study (para)metrics were set in post-Pandemic circumstances, ‘a totalising present’, and these were challenging and non-negotiable.

Although the target audience are menstruating adolescents, Key Stage 4/5 (aged 15-18) in school, Michelle Eleftheriades, the Royal College of Nursing’s (RCN) Children and Young People’s Professional Lead; the School and Public Health Nurses Association (SAPHNA); and Carmel Bagness, RCN Professional Lead Midwifery and Women’s Health, have offered to review the EMA Toolkit (post-research study) for inclusion in their RCN toolkit. (For use across the RCN’s Women’s Health community programmes.) A Secondary school education is typical within the UK population, with 40%¹¹⁶⁸ not acquiring “level three” (A-level equivalency) qualification. Pragmatically, for efficacy and widest reach, public health materials tend to communicate at Key stage 4, (age 16) educational level. While acknowledging that cognitive intelligence and creativity are not necessarily reflected in academic attainment or qualifications; a focus on visual literacy further increases inclusivity and considers, for example, those with English as an additional language.

During the research study, “co-designly” input and adaptations by co-researchers to the EMA toolkit make it more accessible to both 15–18-year-old menstruators and the RCN’s Women’s Health cohort (51% of the population). Effectively, adversities experienced throughout this research gave the toolkit greater rigour and scope, via intersectional inclusivity and usefulness: a major outcome.

Participant co-researchers responded to posters or leaflets/flyers across all UAL campuses, a brief overview talk to masters’ students, a UAL PGR Office email and a social media link to an online website (<https://rb.gy/1zi4b1>). Stratified sampling: age, socioeconomic, and cultural mix approximated the Royal College of Nursing’s “Women’s Health” cohort. The sampling size of 16 was adequate, however, a post-Pandemic work from home (WFH) ethos may have caused reticence; five respondents did not attend after signing-up for the research study, completing the Letter of Consent, background/bio, plus pre-research study survey, and NDA. Despite interacting via email and requesting materials for completing the study remotely, they did not engage.

There is also the question of correlation to (commensurate or counterbalance with), the proposed, optimal sampling of

menstruators age 15-18, PSHE, RSHE Secondary school cohort. The EMA Toolkit was successfully transferable to a wider Women's Health cohort; more transferable findings demonstrate higher validity. Validity is the extent to which observational data was genuine with "face validity" and salience. In conclusion, there is no need for a second toolkit, as one sufficed.

Co-researchers tested the EMA method to track their ovarian-uterine cycle, cervical secretions, and menstrual flow. Each morning, co-researchers took their waking (resting) temperature using a basal body thermometer (BBT), (a BBT is a thermometer with an extra digit for precise readings). Cervical fluid and menstrual flow were also charted. Participants learned to log, chart, understand, and engage with their own (confidential) data. (Data was intended to be visually encoded for privacy using various forms of pencil-on-paper diagramming, geometry, or graphics.) Later, we tested our menstrual tracking against other menstrual mapping methods, for example, the FemTech app Flo, already in use by two co-researchers, and an artifact from the Upper Paleolithic Period, (of an estimated 35,000 years).

Transferable learning was various exercises in visualising data:

1. Female anatomy;
2. The menstrual cycle;
3. Menstrual tracking via the EMA method;
4. Co-Designly Practice to 'phenomenologise' basic information, exercise responses, and design probes;
5. Exploring menstruation from a situated, embodied, hermeneutically phenomenological, and relational perspective – one that is consciously aware of, and responsive to, sociocultural factors.

Intended to be adaptive; the EMA Toolkit is designed to be continuously iterative and open to NHS healthcare input and synergy (the Royal College of Nursing, the RCN's Women's Health Forum, the Royal College of Obstetricians and Gynaecologists, the Faculty of Sexual and Reproductive Healthcare), and UN (UNFPA), the PSHE, the DfE, Secondary school adolescent and university student, alumni, and staff feedback.

'Tick box' nominal data is categorising, sorting, and external (observational). Although a starting point for positional-ity statement, it was not conducive to the researcher's participatory co-researcher, egalitarian ethos. There was an a priori knowledge self-report survey and a post-research self-assessment survey which were very informative in helping to improve the EMA Toolkit design, functionality, and usefulness. Ordinal data (completed, self-report questionnaires had the potential for 'quantitative data reliability'):

1. very strongly agree;
2. strongly agree;
3. agree;
4. undecided;
5. disagree;
6. strongly disagree;
7. very strongly disagree;

Instead, I used the following:

1. Your name:

2. Course and/or qualifications:

3. A brief bio:

4. Have you ever formally studied menstruation? If so, where, and when?

5. How confident do you feel about:

Anatomy /10

The menstrual cycle /10

How to track the menstrual cycle/10

Understanding what is [typical] re: menstruation /10

Knowing when to seek reproductive health (RH) support /10

Knowing where to get support /10

6. Non-disclosure: signed/not signed

7. I would also like us to discuss: (suggestions for other menstruation-related topics)

(If you don't want to ask here, in every session there is a sealed box for posting questions anonymously, or you can use the confidential email link.)

Sensitive to Theodor Adorno's critique: "It was as if [she], as a living being, already thought [and lived] according to the model of multi-choice questions in questionnaires",¹¹⁶⁹ I was non-reductionist in document analysis, as each experience of menstruality is unique. This materialised and was self-evident in responses to intentionally open-ended surveys and exercises.

I used a multi-store model of memory¹¹⁷⁰ (also known as the modal model) proposed by Richard Atkinson and Richard Shiffrin (1968) as structural model which worked well with CDLY P praxis. Whereby memory consists of three stores: a sensory register, short-term memory (STM), and long-term memory (LTM). With this, I use descriptive and inferential analysis of visual-spatial cache/ data using Endel Tulving's (1972):¹¹⁷¹ *Episodic memory*, personal events/ memory, conscious, declarative. *Semantic memory*, conscious effort/ recall, general knowledge/ meanings, declarative knowledge, "Knowing that". *Procedural memory*, unconscious, non-declarative, embodied cognition: "Knowing how". The research study successfully linked Cohen and Squire's declarative: "knowing that" and procedural "knowing how" (1980).

In Alan Baddeley's "retroactive interference",¹¹⁷² later learning disrupts and rewrites/ overwrites prior learning such as conditioning, enculturation, institutional bias, etc. For example, "... infinitely continuous and non-orientable, the topology of the Möbius strip is a Hegelian-type synthesis of the incommensurable gap (dialectic) between two surfaces, however, in every movement/moment, we are always at 'the turn': a juncture of possibilities".¹¹⁷³ The research study is historiographic-anthropological based (looped) and, therefore, imbued with Feminist eidos (Möbius twist, turn) about collective 're-knowing' for reasserting rights, autonomy, and empowerment.

7.4 Workshop findings:

(In analysis of qualitative and quantitate responses in assessment data, numbers indicate a new person is talking and the dialogue sequence, they do not correlate to co-researchers' identities. I have extracted comments from transcripts in a fair sampling as an overview.)

Results were variable: open and closed questions, open-ended responses, and visual outputs allowed for a duality of group and subjective, phenomenal-rich experience. During workshops "needing more time to finish" was a recurrent issue. "It's messy!" "... because I'm rushing", was also thematic. Drawings and diagrams commonly became "rough sketches" relying on more detailed verbal descriptions. This allowed for greater input from other individuals (or groups in "co-designly" work) as work was "unfinished", "undone" and "We're not ready yet!" Several co-researchers completed their "improvised" work for the next session, implementing quality, reflexive feedback from our (impromptu) review. Subsequently our "review[s]" were reflexive, but "... so not a critique!". Less perfected work increased spontaneity and created informality; "I feel less self-conscious about this because ...". Capturing "... just getting ideas down on paper" to elicit response became important. Overall, parrhesia: semi-structured *wanting to discuss in a dialogic setting* appeared to override cultural probe 'aesthetic look' and 'design'. Evidently, there is an unmet need to talk freely about menstruality, typically enculturated as 'a taboo subject'. This was cause of a significant amount of expressed frustration and anger. In this way, our cultural probes functioned as 'talking points' centring on aspects of menstrual phenomenology identified in the EMA Toolkit as Co-Designly Practice guided group exercises.

In the section of the EMA Toolkit "Embodied menstrual awareness, how I feel", there are two tear-out sheets of seven front and back body outlines:

Body mapping:

Individual exercise (to do at home in your own time).

1. Every day for the week before and the week of your period, diagram areas of warmth, comfort – discomfort, pain to do with your period on the A4 b/w print-out body outlines.

Use a distinct colour and/or method of mark-making for each sensation or symptom (with a legend at the side). Please bring your unnamed (anonymous) research to the following session(s).

Research study co-researchers' responses to the exercise:

- 1 "These body outlines are [too] small. I wasn't sure how to show difference between mental and physical sensations".
- 2 "There is an alternative exercise in the EMA Toolkit whereby each co-researcher creates a life-size body map. Then, with expressive, gestural lines, tangles of scribbles, cross-hatching, collage, whatever(!), they freely describe their physical sensations and mental feelings, e.g., with areas of pressure or lightness, sharp, spiky, dense pain flares (pain can defer or deflect via the nerves, e.g., sciatic nerve pain down the right leg), or places of warmth, comfort, release etc., etc.".
- 3 "I couldn't map the front and back of the body".
- 4 "I decided to make my own 27-day cycle body map on the reverse side of the BBT sheet to keep it all in the same place".
- 5 "After 2 days I was confussed [sic] between sensations, pain, soreness, discomfort, emotions".

"Confussed" appears to be an amalgam of confused, concussed, and fussed. It elucidates 'lack' in physiologically embodied awareness, the separation of body from sentience, and the incommensurability between 'sense' and 'word'. This 'separating of selves' creates a muddling 'a confusion'. There is a gap between first-person experience and expression of that experience. In the choice of linguistic word descriptors, is the unconscious structured as language? Lacan's unconscious consists of "chains of repressed signifiers" that concatenate in relation, with their own axioms of metaphor and metonymy.¹¹⁷⁴ So, co-researchers words approximate 'in poiesis' 'around' a particular sensation.

1 persisted and successfully tracked her: headaches, "muffled head", discomfort, "bloated pain", back pain, acne, and "feeling warm", "regular", and "really good". A recommendation could be to make the body outlines significantly larger, which I had done by leaving out a ream of A4 photocopied and two-sided, large body outlines (front and back, one for each day). In response, I have added this (as a photocopiable printout) to the EMA Toolkit.

It is important to highlight that qualitative data, sometimes construed of as ambivalent and open to interpretation (specifically, Interpretative Phenomenological Analysis), forms a large part of my research analysis. Phenomenological experience focuses an individual's uniquely phenomenological, 'lived experience' and reflexivity about this. Qualitative content analysis codes co-researcher experiential, heuristic learning, and creative expression of menstruality and approaches co-researchers as producers of facts, which are truths about each individual's inner thoughts, feelings, or sensed-felt experiences. These first-person truths have perspective, authenticity, validity, and elucidating insight. Class Co-Designly Practice, although 'phenomenologic-centric', has the potential to increase both singular autonomy and collective agency. As cognition is an ontological process of "co-emergence", "co-arising" and "cognition is enactively embodied".¹¹⁷⁵ Furthermore, biologist Francisco Varela writes: the key point of embodiment is [enactive] codetermination of the inner and outer.¹¹⁷⁶ Meaning cognition is somatically and symbiotically bound to social, cultural, and physical contexts. In the research study, co-researcher diagramming, and live menstrual mapping acknowledged Varela's "much neglected role of affect and emotions as the originary source of the living present, as a foundational dimension of the moment-to-moment emergence of [feeling, knowing] consciousness".¹¹⁷⁷

Both inductive and deductive analysis processes appear in three main phases: preparation, organising, and reporting. However, I use deductive content analysis as the structure of analysis. This is (operational) based on previous historiographic knowledge and various academic discourses discussed in my contextual review.

I use observational, inductive reasoning – "It should follow ..." propositions and inferences. These are based on

'getting to know' the co-researchers over the workshop sessions, self-report survey questionnaires, audio recordings, our observational notes, and photo-documented, and archived workshop outputs.

7.5 Discussion: observations, interpretation of workshop findings.

Firstly,

The value of qualitatively reflexive data was prioritised in the research study via phenomenology and Co-Designly Practice methodologies:

1. From individual co-researcher phenomenological, embodied, and enactive perspective.
2. Via communal Co-Designly Practice: using a visually communicative praxis and an "arts-design lens and prism".

In transmuting raw data points and heuristic learning into creative probes or outputs, such as menstrual tracking data visuals; co-researchers were able to assess, analyse, and evaluate their uniquely qualitative and quantitative data.

This quantitative data was insightful, however, data collection was uneven, since the research study shed participants in the latter half. Furthermore, self-reporting data such as survey questionnaires and interviews can be affected by an external bias caused by social desirability or approval; writing statements to please the researcher and (helping) to positively affect research outcomes. This was somewhat averted by establishing an informal, egalitarian ethos whereby everyone was "co-researcher" and "expert of their own experience".

Two co-researchers entered the study with postgraduate research in menstruation. However, they both learned how to apply their epistemic knowledge experientially by learning to track their menstrual cycles – becoming data subject, participant, and 'co-researcher of their own research'. In Co-Designly Practice, they helped support class learning via scaffolded, peer-to-peer support.¹¹⁷⁸

- 1 "Thank you again for your time explaining some of the finer details around menstruating and menstrual tracking, I have found the study really valuable and wish you all the best with implementing these kinds of sessions in schools and wider!"

The research study appears to confirm my preconceptions (developed in an extensive contextual review), is this confirmation bias or possibly blind-spot bias? Confirmation bias is the tendency to search for, interpret, favour, and recall information in a way that affirms or supports one's preconceptions, beliefs, values, and/or preferences. Such bias results in human errors, including imprecision and misconception and can result in ignoring or omitting contradictory evidence.^{1179, 1180} In [public health] research, confirmation bias is one of the main reasons for diagnostic errors and may cause inaccurate evaluations and outcomes.^{1181, 1182, 1183, 1184} To enhance the reliability of investigations, it is important to accept that bias is a part of investigations.¹¹⁸⁵ "Since an observer [(researcher)] always participates in what is observed, all statements by observers embody a self-reflexive component".¹¹⁸⁶ Things cannot be objectively observed and measured because observations demand involvement.¹¹⁸⁷ Becoming a co-researcher, I committed to an always inquiring, 'research modality'. However, researcher/ co-researcher cues (demand characteristics) could still explain the following:

- "Overall[,] I absolutely love the toolkit and your work and have really appreciated the sessions we have had. I just want to thank you Louise for being so approachable and encouraging ..."

In any "community of practice"¹¹⁸⁸ a "not one, not two"¹¹⁸⁹ (social co-embodiment),¹¹⁹⁰ there is socialisation: a mode of relationality, a "coming together and producing of social relations and agendas that do not emanate from [meta-narratives of] shared identities, shared ideologies, shared belief systems",¹¹⁹¹ but build a community of momentary proximity, interactions, and shared affiliations.¹¹⁹² Every workshop or research study is an "epoché suspension"¹¹⁹³ in liminal space. There is an ontic beginning and telos end, with different people coming in than those that go out. In 'the multivalent interstice', here we are listened to, seen, understood, and known. This builds trust, then camaraderie, friendships built on trust, closely followed by support and care. Evaluated in longitudinal study, the EMA Toolkit's methodology of Co-Designly Practice facilitates free interplay of individual, dispositional differences, and situational

characteristics, Ivan Illich's "convivial" social influence.¹¹⁹⁴ Or "CDLY P camaraderie"^{1195, 1196} for "co-designly"¹¹⁹⁷ social change. In "continental Superstructuralist"¹¹⁹⁸ social learning theories such as a behaviourist approach, learning occurs through experience in a social context and "learning through reflection on doing".¹¹⁹⁹ Sharing aspects of situated learning,¹²⁰⁰ social development theory,¹²⁰¹ constructive alignment theory,¹²⁰² peer-to-peer teaching,¹²⁰³ and scaffolding,¹²⁰⁴ CDLY P, however, is an unconventional "practice of freedom".¹²⁰⁵ "Co-designly praxis" facilitates an interrelated casual chain of group self-reflexivity – self-determining – self-actualising, a realising of personal responsibility, potentiality, and growth for collective 'co-holism'. Reflexively listening to the self and others with Carl Roger's "genuineness, empathy, unconditional positive regard" is a humanistic approach.¹²⁰⁶

As co-researchers, a bond develops: "bias" i.e., we worked together investing ourselves and we want us to succeed. A clustered response, could also be a clustering illusion ... Several co-researchers proliferated our CDLY P arts-design outputs into other interrelated or imaginatively discursive projects.

Post-research study, I inferred (incorrectly), that co-researchers 1, 2, and 3 had exercised their right to withdraw their menstrual tracking data as noted on the Consent Form. i.) on account of 1 "leaving it at home", ii.) 2 wanting to keep her data private, and iii.) 3 "In a rush to get here, I wasn't able to find it". (During the workshop sessions, they were each positively engaged and participating, made conscientious and creative contributions, and brought in their on-going menstrual tracking.) All three maintained they confidently understood EMA menstrual tracking (two were already using FemTech tracking apps and continued throughout the study). In the fourth session, 3 confided she didn't take her BBT temperature correctly (on waking at the same time every morning) and that "alcohol and end-of-Term late night partying" may have compromised her timings, readings, and therefore tracking. "I've been recording my temperature, but not at the same time. I forget". So, by withdrawing her visual tracking, she had removed her compromised data from the study – so as not to alter the outcome. I invited her include her data, as it elucidated issues about commitment, continuity, and menstrual cycle sensitivity to various affects.

In *The Philosophical Status of Diagrams*, Michael Greaves, observes "[d]iagrams are usually adopted as a heuristic tool in exploring a proof, but not as part of a proof".¹²⁰⁷ In retrospect, a diagrammatic proof was evidence, but not the purpose (intended outcome) of the research study. The open-ended, no telos process (of uncertainty, disorientation, and not knowing) was forefront "[h]ighlighting learning in praxis (doing and making)" "sensemaking" and "playful, but purposeful polyvocal co-producing and sharing of new ways of making or (re)framing knowledge".¹²⁰⁸ Here, "[l]earning is experience-based; a learning by doing and then learning more "through reflection on doing"¹²⁰⁹ experimenting and trying things out, finding out what's what, what works, what doesn't. Reiterating Xun Kuang's axiom, "I hear, and I forget. I see, and I remember". Whereas "I do, I can understand".^{1210, 1211} By its nature research is *always unfinished*. Embodied menstrual awareness tracking and our eclectic cartographies are maps back to the self – to nowhere else.

1 "So, it didn't matter?"

2 "No, it's a daily practice; 7.00/7.30 am every morning the alarm clock kicks on. I reach over, take my temperature, roll back, and snooze. I can recall each reading later on the BBT thermometer".

3 "This knowledge is huge for my partner and me, it's a game-changer at this time in our lives. Even in Secondary schools, once you understand you can always come back to this later and start tracking again – when you are ready or need it".

4 "Yes! During school is optimal because it reaches the widest cohort, 40% of adolescents have difficulty engaging with Further Education past 16 in the UK".¹²¹²

5 "It is an issue for teenagers as they sleep a lot. There is also resistance, rebelliousness – this is a life skill. They can learn how to track, then come back later when they might need it. Like the way we learn maths in school".

6 and 7 agreed. 8 said, "It's massively helpful for perimenopause too".

Each co-researcher left the study with a BBT thermometer, pre-printed tracking sheets, a colour printout of each section, and an emailed, back-up PDF file with downloadable materials for each section of the EMA toolkit. (Later, at their own pace, they could follow the EMA method in closer, granular detail, and away from the group.)

Some participants chose not to share their personal information in the pre-research study and post-research study

survey questionnaires. However, they fully participated in sessions they attended engaging in “co-designly” arts-design praxis, and dialogic discussion; asking questions to understand more fully or to prompt debate. In email correspondence, they positively expressed their experience of the study, their new understanding of how to track their menstrual cycle data, and renewed a commitment to continue to track post-research study.

In response to question 5. on the self-assessment survey: “How confident do you feel about: –” Self-reporting suggests that even among menses-experienced, mature adult women there was a borderline or a distinct lack of confidence in practically everything to do with the menstrual cycle.

At the beginning of the study, there was a self-reported 51% confidence in understanding of female anatomy. With a 45.5% understanding of the menstrual cycle and 30% confidence in knowing how to track the menstrual cycle (three were using menstrual tracking apps, but “I don’t really understand the logistics behind it; [the fertility awareness-based Calendar Method]”). These apps were Clue and Flo. There was a 46% confidence in understanding what is [typical] menstruation – which could directly impact reproductive health. With a 55% confidence in knowing when to seek reproductive health (RH) support. 52 % felt confident knowing where to get support.

I intended to retake the self-report survey post-research study, however, only 6 co-researchers were still tracking their menstrual cycles by the end of the study. I eliminated pre-study survey data of those not completing the study. At the end of the study, 5 of the 6 co-researchers that were still tracking did a second self-assessment survey (one participant was struggling with workload during their final, graduating show and returned home (abroad) immediately after).

The following were their responses:

1

How confident do you feel about:

Anatomy: 1 to 10

before the study: 5

after the study: 8

The menstrual cycle: 1 to 10

before the study: 6

after the study: 8

How to track the menstrual cycle: 1 to 10

before the study: 7

after the study: 9

Understanding what is [typical] re: menstruation; 1 to 10

before the study: 5

after the study: 9

Knowing when to seek Reproductive Health (RH) support: 1 to 10

before the study: 5

after the study: 8

Knowing where to get support: 1 to 10

before the study: 5

after the study: 7

2

How confident do you feel about:

Anatomy: 1 to 10

before the study: 2

after the study: 6

The menstrual cycle: 1 to 10

before the study: 3

after the study: 8

How to track the menstrual cycle: 1 to 10

before the study: 2

after the study: 8

Understanding what is [typical] re: menstruation; 1 to 10

before the study: 5

after the study: 7

Knowing when to seek Reproductive Health (RH) support: 1 to 10

before the study: 3

after the study: 6

Knowing where to get support: 1 to 10

before the study: 3

after the study: 5

3

How confident do you feel about:

Anatomy: 1 to 10

before the study: 7

after the study: 9

The menstrual cycle: 1 to 10

before the study: 7

after the study: 9

How to track the menstrual cycle: 1 to 10

before the study: 3

after the study: 10

Understanding what is [typical] re: menstruation; 1 to 10

before the study: 7

after the study: 9

Knowing when to seek Reproductive Health (RH) support: 1 to 10

before the study: 8

after the study: 9

Knowing where to get support: 1 to 10

before the study: 8

after the study: 8

4.

How confident do you feel about:

Anatomy: 1 to 10

before the study: 3

after the study: 8

The menstrual cycle: 1 to 10

before the study: 3

after the study: 8

How to track the menstrual cycle: 1 to 10

before the study: 2

after the study: 8

Understanding what is [typical] re: menstruation; 1 to 10

before the study: 4

after the study: 8

Knowing when to seek Reproductive Health (RH) support: 1 to 10

before the study: 3

after the study: 7

Knowing where to get support: 1 to 10

before the study: 5

after the study: 7

5

How confident do you feel about:

Anatomy: 1 to 10

before the study: 3

after the study: 8

The menstrual cycle: 1 to 10

before the study: 6
after the study: 8

How to track the menstrual cycle: 1 to 10

before the study: 1
after the study: 8

Understanding what is [typical] re: menstruation; 1 to 10

before the study: 3
after the study: 8

Knowing when to seek Reproductive Health (RH) support: 1 to 10

before the study: 6
after the study: 8

Knowing where to get support: 1 to 10

before the study: 5
after the study: 5

Knowing where to get support: 1 to 10

before the study: 5
after the study: 5

A cohort of 6 completed the study. Of the 16 registered participants, 5 (31.25%) did not attend any workshops sessions. Another 4 (25%) only attended one workshop session (of 4). Only 2 co-researchers (12.5%) attended all 4 sessions with 1 (6.25%) attending the 5th session social debrief (which was by then during the summer holiday). However, this was not a mitigating factor, co-researchers missing a session received all materials, exercises to do, and session notes via email and continued to take part. Over the Covid-19 Pandemic and Lockdown participants had become adaptive, working 'in hybridity' both at work and remotely.

The toolkit, research study activities linked in a sequential and interrelated, casual chain: 1 to 2, 2 to 3, 3 to 4:

1: bodily anatomy – 2: menstrual cycle awareness – 3: menstrual tracking – 4: what is 'typical'
– 4: what is 'not typical' – when to seek support – where to get support.

"Confidence about bodily anatomy" rose from 40% to 78%. "Confidence about menstrual cycle awareness" rose from 50% to 82%. "Confidence in tracking the menstrual cycle" again rose to 86% from 30%. "Understanding what is [typical] re: menstruation" almost doubled from 48% to 82%. "Certainty about knowing when to seek reproductive health (RH) support" rose from 50% to 76%. "Knowing where to get support", there was not time to cover this so a rise from 52% to 64% was understandable. However, we instilled when to seek support from a medical practitioner, and how to use menstrual tracking data visualisation as evidence to help fast-track reproductive healthcare. In addition to communicating informatively, using the correct medical terms, in context of (abstract) phenomenological embodied awareness (sentience – 'sense-ness' cognition).

At the beginning of the study co-researchers were more confident about what they thought they knew than after; this indicates they were not aware of how much they didn't know. This was most significant re: anatomical physiology; where what they thought they understood dropped by 11%.

Anatomy:

Pre-study estimate 51% post-study (pre-study estimate) 40%

The menstrual cycle:

Pre-study estimate 45.5% post-study (pre-study estimate) 50%

How to track the menstrual cycle:

Pre-study estimate 30% post-study (pre-study estimate) 30%

Understanding what is [typical] re: menstruation;

Pre-study estimate 46% post-study (pre-study estimate) 48%

Knowing when to seek Reproductive Health (RH) support:

Pre-study estimate 55% post-study (pre-study estimate) 50%

Knowing where to get support:

I shared the EMA Toolkit with Erica Thompson, University Mental Health Adviser at UAL, for use in a UAL menstrual health event: “In my research study, I am finding a lack of very basic information. I am having to backtrack to cover the basics, which is stressful as there is so little time allotted. In private (and away from the group), some participants relayed harrowing stories; their fears about what is wrong with their menstrual cycle, how they feel alone, and they can’t get the medical support they need. The contextual ethos of the NHS is problematic: there is a post-Covid-19 Pandemic backlog; with already pre-existing, long waiting lists; a post-Brexit shortage of NHS staff; and intermittent GP, Consultant, and nurse industrial action”.

One participant, referring to her sister’s traumatic experience commented, “My sister is very brave ... but not that brave”. During this time, I considered if a differently worded, alternative hypothesis could better communicate how serious this issue is. Since knowing *when*, *where*, and *how* to get menstrual support relies on access to reproductive healthcare.

“As of October, last year [2022], 38,000 women had been waiting over a year for treatment. That is 2,500 times more than 10 years ago”. Anneliese Dodds, MP. UK Parliament Hansard Report, (2023) ‘Gynaecological Care: Waiting Lists’. Volume 726: debated on Wednesday 25 January 2023. ¹²¹³

In a 2024, Royal College of Obstetricians and Gynaecologists survey, ¹²¹⁴ healthcare professionals were asked about the impact of longer waiting times to access non-cancer gynaecology services:

- 88% said patients reported worsening symptoms
- 74% said the complexity of patients’ care and treatment needs increased
- 70% saw an increase in patients requiring emergency gynaecological care.

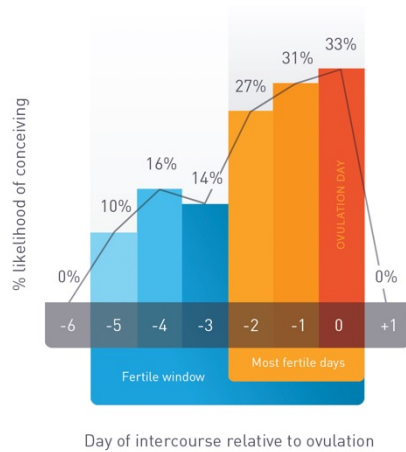
They reported that “around 591,000 women and people in England are currently on a waiting list for gynaecology hospital care, with around 31,000 waiting over a year. While waiting, women are left struggling with symptoms such as extreme pain, heavy menstrual bleeding, and incontinence. Long waits can result in more complex treatment needs or emergency admission to hospital”.)

“It is so great that UAL [is supporting menstruality]. I am discovering that this is a *major issue* affecting wellbeing, work performance, and attendance, which is unfortunately stifled and repressed (taboo to talk about). I was thinking it might be helpful for UAL to have a longer course that could use a “co-designly practice”, arts-design praxis (lens and prism) menstrual toolkit ... with an expert gynaecological consultant available (on call) to contact directly (possibly via the RCN, the FSRH, or RCOG). This could help ameliorate (or leverage) menstrual health RH issues at UAL and *actively address* ongoing student and staff concerns. (A third of the participant co-researchers in the research study are UAL staff.)” Neglecting women’s health in the workplace costs the UK economy an estimated £20 billion a year. ^{1215, 1216} Research by Parla in 2022, found that 23% of women take time off work because of period health issues, while 80% lie about the reasons for absence if they are related to their period. ^{1217, 1218}

To supplement the self-assessment survey, we had an informal group discussion with scripted questions asking for feedback about:

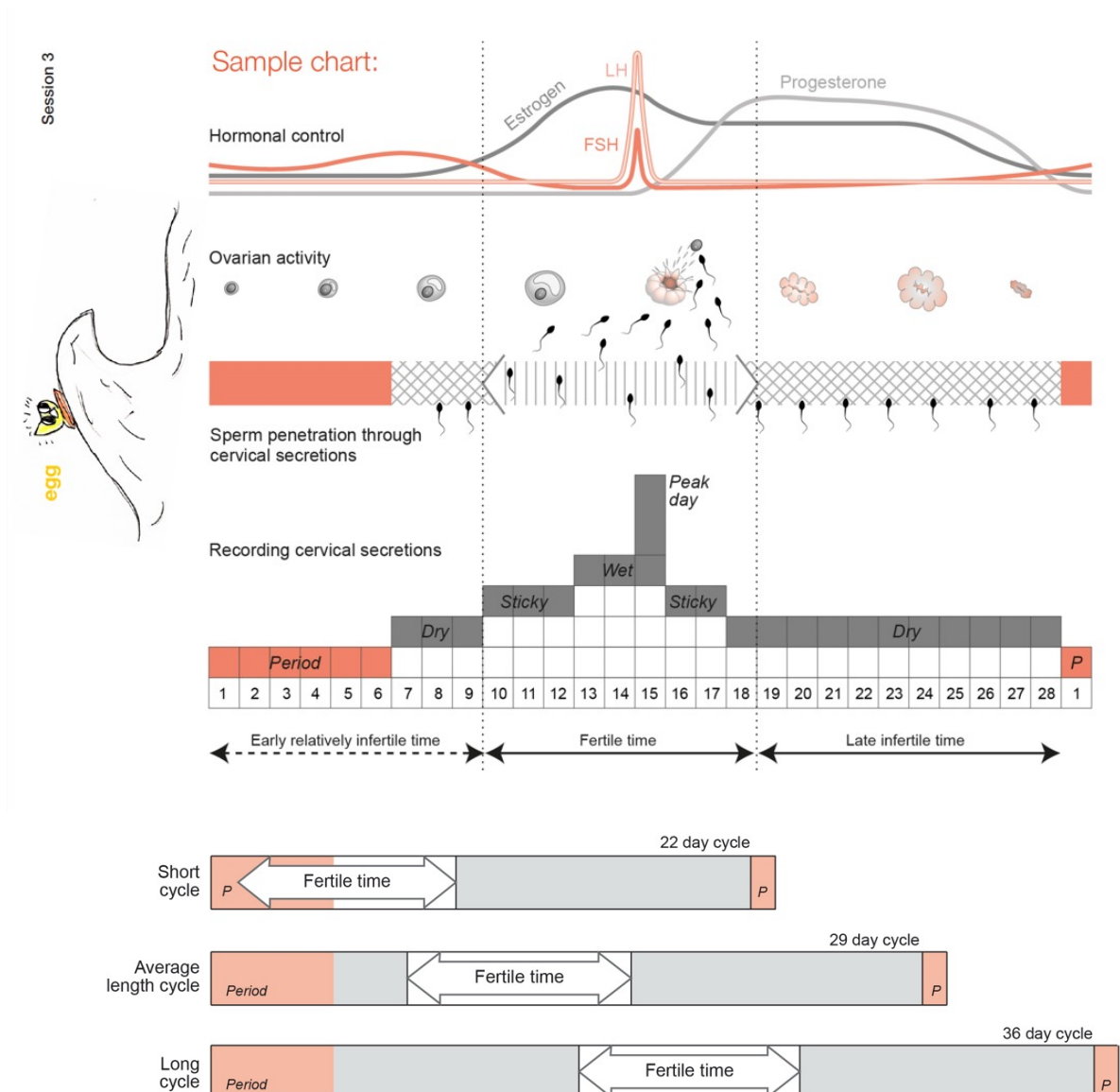
1. Efficacy of learning how to track via the EMA Toolkit.
2. Problematic areas: how and why? (List.)
3. Addressing these issues one by one from list: suggestions for improvements.
4. Key Stage 4 and 5 (age 15-18) students versus adult menstruators – transferability and replicability: should content differ between the two groups?
5. Outcome: comments on Co-Designly Practice outputs and feedback.

This illustration from 'Understanding ovulation and the fertile window',¹²¹⁹ a public health initiative funded by the Australian government generated significant interest in co-researchers looking to avoid pregnancy or conceive:



YourFertility.org (2018), 'Understanding ovulation and the fertile window'.

Although informative, the illustration may not account for the immaturity of the adolescent menstrual cycle, menstrual irregularity (and possible causal complications), the influence of diet, sleep, caffeine and alcohol, stress, and lifestyle. In consultation with the Faculty of Sexual and Reproductive Healthcare (FSRH) public health materials and the medical expert external advisor Gynaecologist, we widened the fertility window from 6 to 9 days "as a precaution to eliminate risk" and used the following FSRH diagram.



Pyper, C., Knight, J. (2006) in collaboration with Fertility UK and The Institute for Reproductive Health, Georgetown University.

7.6 Outcomes of workshops:

Over ten years of longitudinal research, within an academic, post-doctoral setting gives academic rigor and research validity to claims. Testing the EMA Toolkit, within a university setting allowed for further assessment, evaluative critique, and revisions.

The research study sample showed measurable improvement in 1. understanding their menstrual cycle and 2. learning to track menstruation. This was unequivocally reflected in quantitative, survey data: 1. increasing from 50% to 82% and 2. confidence in tracking the menstrual cycle again rose to 86% from 30%.

1 "A while ago, shortly after their PSHE, RSHE lesson, I asked my 16-year-old about menstruation. (To their acute embarrassment, I had already tried to explain it several times.) They understood the (basic) logistics, but thought the average woman loses about 5 litres of blood for 5-14 days a month". [It is usually around 80ml over 3-4 days (1 Litre is 1,000ml).] So, there is a telling, significant gap in understanding".

2 "I think they lose about five litres per period'; boys should know this!"

3 "The question is, are they listening? There is a psychological push or turning away, a rejecting, like, 'I just do not want to know – this doesn't interest or apply to me'".

I have left this issue open in the EMA Toolkit, PSHE, RSHE teachers can adaptively choose which sections to teach, in their allotted time, and with whom. I recommend going through the toolkit sequentially and providing each adolescent with a digital, downloadable copy – as something they can return to as a resource. Under new, UK Government guidelines, parents will have prior access to the toolkit, can influence what is taught, or can withdraw their adolescents from these sessions. This could reignite cultural taboos, shaming, and silencing issues. (Alternatively, for example, by engaging with the toolkit, a parent could simultaneously learn to track their cycles.)

The inclusion of boys using the toolkit and taking part in menstrual awareness at school was a major concern for the co-researchers. However, with our focus on learning to track in 4 short sessions, we did not have the time to explore how to make the toolkit more inclusive (as intended). While working through the toolkit in schools, CDLY P could further iterate outputs to include both cisgender and be non-binary or identifying gender inclusive. Here, adolescents would be experts of their own lived, intersectional experiences.

The research study cohort were a culturally diverse, eclectic mix of backgrounds, co-researchers provided insightful and culturally nuanced – critical, interpretative, and reflective data for detailed analysis.

Ex. 02

Class exercise, individual, warm-up, 30 minutes

1. On a horizontal, A4 sheet of paper draw the female reproductive system (actual size) and label (without reference). If you have time, try drawing a second, cross-section view.
2. Scan and upload your drawing(s) online – (or lay them out for discussion).
3. Class review, briefly looking at our drawings, we compare them to an actual diagram.
4. On tracing paper, make corrections over your (same) drawing(s) using the reference diagram (on the following page) and label.
5. Scan and upload your latest drawing(s) or lay out for discussion. (In a later diagram, we'll look at the external (female) reproductive anatomy.)

Doing the exercise, we look at our drawings <https://rb.gy/i9gi2p>. 1's looks like a cross-section of a gigantic mushroom in thick, red marker pen. "It's a menstruous, mushroom!" There is no uterus, just massive ovaries with lots of "hatchery follicles" and a thick, horizontally ribbed cervix. 2.s' "THE RAGING BULL", has a uterine emoji expression with handle-bar horns and fist-like ovaries. 3.'s is all twisty with shy lines and heavy, deleted (sometimes detached), black bits. 4.'s "Looks like broccoli" and aside from the thick, green marker pen resembles "a bifurcated double ear, double cochlear",

or sculptor Robert Smithson's "double Spiral Jetty". Again, (this is thematic) there is a massively oversized structure which looks like a large funnel (why a funnel?). 5.'s is a black marker pen "dicot sapling" with a bubblegum pink, "emoji baby popping-up". Most show the ovaries as gargantuan and cartoonishly gigantic "Well, they've a job to do!" Barely any drawings show the vagina, it is just an open-ended "chute for babies". I question why the drawings are descriptively 'cartoonish', could this be embarrassment or discomfort to conceal anatomical uncertainty? Or simply, "I'm feeling ridiculous" and 'making light of the issue'?

Ex. 04

Class exercise, in break-out groups, 30 minutes

1. Could a wearable, tracing paper drawing or 3D folding, geometric diagram help support internal, bodily (embodied) understanding of the female reproductive system?

Experiment creating something wearable as an educational tool. Create something fashionable, surprising, ingenious, and life-size for use in a classroom PSHE lesson. Photo document someone wearing your piece over their clothes. Upload files online (or print-out for discussion).

2. Class review

Designing an explanatory anatomical tool for others, 1 knits what appears to be a thick woollen eye mask. "I didn't have time to do the cervix or vagina". As a "wearable" that can be "worn over clothes" "or buttoned on" it is "an empathic tool" to simulate "the woolliness and itchy-discomfort of the luteal phase of the menstrual cycle".

In the following link: <https://rb.gy/igt65> she translates her phenomenological experience of menstruality into knitwear, beginning her MA project in our workshop <https://vimeo.com/user185682168> <https://vimeo.com/900107815>

The following is a brief discussion about her short film: a young woman struggles inside a full body and restricting, knitted, wearable artifact:

- 1 "My DoS said she couldn't help me much. She doesn't know much about the menstrual cycle, so I joined this research project to learn more. I wanted to create a wearable craft or artifact that personifies [characterises and animates] the luteal phase. Could fashion increase women's bodily literacy? Something 'snuggled', downy, comforting, and supporting – a series of textures and knitted fabrics to raise awareness and make a political statement. [i.e.,] We should discuss this more openly; 'wear' our feelings [and sensations]. I see it as a bold, empowering piece".

- 2."It's like a body is across two topologic surfaces that are back-to-back: an inside and an outside, divided by a body outline with each side continuously deforming. Pushing in; a slow kneading, or swordlike thrust and wrist-twist of pain, or pushing out kick, or leaning with heavy weight into outside of the 'inside'/'out' outline – an invisible stretching of pain/ angst that slips, twists, knots, and unknots; a bending, a folding, a crumpling – all this without any [visible] cut, tear, necessary stitching, or gluing".

I have a difficult luteal phase also; it is practically (physiologically) impossible to 'get out of' the phenomenological experience of it – that struggle, which your work terrifically communicates.

Your video is incredibly descriptive-emotive ... I love the knit, lipstick, eyeshadow, model, hair, costume design, and colours. They perfectly communicate what it is like 'to be' corpus luteal (so not sunshiny yellow)! I love that it's all scratchy texture and body curl-dry-lumpy headache!"

3. Makes a delicate, colour beaded necklace in a bright, candy-coloured, wearable outline. 4. has a similar idea, but this time in 3D and made of delicate, but sharp cut wire, again not having time to add the vagina. Whereas 5. is "of a sensitive, deep pink tissue paper". Within these four variations of "a wearable" theme there were four discursive, descriptively different approaches to materials, textures, and sensations. Bizarrely in both exercises, the vagina was often "missing", a functional "chute for babies", or "was going to be put in, but wasn't completed". Speculatively, this could be inferred as somatic and psychological reticence, discomfort, or dissonance about female sexual taboo; the vagina 'of Lacanian jouissance and erotic pleasure' is "left blank", "missing", "not complete"; an afterthought?

- 1 "After our [research study] session, I used this exercise in a workshop I gave for my MA. The results were just as surprising as ours. Well, I would add, actually shocking".

2 "It's like we are walking around with these vague gaps and holes".

3 "Yes, absences ...".

4 "Or big, goofy and cartoony things inside us".

5 "Voids, or dark, black holes! 1. I'd really love to see their drawings, could you bring them to the next session?
Why 'goofy'?"

6 "Silly, don't know embarrassment?"

7 "It is difficult to imagine actual size, it feels bigger, huge somehow".

8 "Like a huge 'not knowing' or 'not being known'?"

9 "Exactly".

In a 2019, YouGov poll ¹²²⁰ almost half of British women (45%) could not label the vagina, 55% did not know what the urethra was, 43% couldn't label the labia, and almost a third (29%) did not know what the clitoris was.

Ex. 10

Class exercise, in breakout groups, 20 minutes

1. Using Co-Designly Practice (CDLY P), write and order flashcards to correctly sequence the menstrual cycle. Create a visual meme, (visual) rap, acrostic* code, or aphorism (a catchy phrase) to help remember the sequence. Design something foldable that simply and visually explains the menstrual cycle and might reassure you if you were about to experience menarche (the start of your period). Use a cut-out format from pages at the back of this toolkit, or better yet, create your own!

*Acrostic: a poem, word puzzle, or composition where the first letter of each line forms a vertical word or sentence.

1 "I made a rap".

[She raps the words in rhythm. The group responds enthralled, she is part poet, part Beat:]

"Phase 1:

In Winter, I am cold. I am shedding the uppermost layers of the endometrium. The lining that keeps it altogether all year round. I am losing a lot. But resting, lots of resting.

Phase 2:

In Spring, I am fertile for regeneration. I am preparing. The pituitary gland is cooking with FSH (not fish) to grow my seeds. In Summer, I might sow. Oestrogen is a big help – call her sous chef.

Phase 3:

In Summer, I am peaking. By the time the sun sits comfortably sky high. I am having a party inside. FSH is about ready to go home, but oestrogen and LH are talking about sticking around. Too much of a good time. Though, never good for too long.

Phase 4:

I am humbled. The ovum is moving tiptoe around, heading for the door. The day meets me with a mist, hot, bloated".

2 "I am thinking about plant life – as female body parts and then making a 'plant person' character. An animation".

3 "Plant flora fauna?"

4 "It is night inside the female body where the plant lives. It is a wide arms fallopian plant or ovary tree; a zygote fruit or seed pops out the fruiting ovary and then is dividing into more fruit-like segments. Later, well then there is blood from the river, genitals. The blood is thick and then clear, a plant-like sticky. There is the ferning [in the cervical fluid], like a fir tree, but it is tiny plants with tiny leaves – like a seed [sperm] climbing frame.

5 "Ferns?"

6 "Yes, like ferns".

7 "I like the 'fallopian plant' with wide open arms. The fallopian tubes were named after Italian anatomist, Gabriele

Fallopio [1523–1562].¹²²¹ He was also a botanist [and the botanical genus: *Fallopia* is named after him]”.¹²²²

[He first described the fallopian tubes:

“This slender and narrow seminal tube (*“ductus seminarius”*) is of a firm consistency and of a light colour. It originates near the uterine *cornu*, widens considerably all along its length, and ends up as a bent branch. At its terminal point, it is fibroid-fleshy and red. It is unravelling like the seam of a worn piece of garment. It displays a wide opening that is closed off as the *“fimbriae”*, fringes converge. When these fringes are carefully separated, this part does indeed resemble the mouthpiece of a (Theban) trumpet. Since the parts of the female’s seminal tube do resemble the shape of this classical music instrument, I have named it *“tuba uteri”*.¹²²³

8 “What if this naming of the women’s body part, her fallopian tubes is like charting an unmapped territory, but also terra meaning like the earth or land?”

9 “So, he notices them and labels them, putting his name inside every woman!”

10 “Hmm ... he’s right there too; the place where fertilisation occurs inside the fallopian tube”.

11 “And he names women’s parts like he does plants ...”

12 “What if they were discovered by a woman and she didn’t have the power to use her name in the naming?”

13 “It is funny he calls them ‘like little trumpets’”.

14 “If [menstruation] is in seasons, then I am in Winter [(perimenopausal)]. So, I split menstruation into seasons.

15 “My piece is about the [dominant follicle...] the yellowy egg yolk is exploding [out], just like a sun, an explosion of the power of love!”

This exercise was about simply and visually explaining the menstrual cycle, instead of (anticipated) literal and didactic explications, co-researchers digressed in creative expression. Collected learning discoveries were discursive and novel (eclectic and heterogeneously phenomenological). Playful imaginings, metonymy, and metaphors filled gaps in understandings. For example, plant fertility and fecundity were preferable to other antecedent scripts like the “wandering womb”: “an animal within an animal”,¹²²⁴ a uterus that moves “out of place” and “floats” within the body and is somehow mixed-up with (hysteria) the “animal[istic tendencies]” of the amygdala and limbic system in the brain.¹²²⁵ Instead, the dominant follicle releases the progenitor egg with exploding positivity: “sun” and “love”. In my work with 4–7-year-old children, there is the same predilection for imaginative musing, could this be because what we are learning here is just as unfamiliar? There is a recurring disconnect between the real (viscera), interoception¹²²⁶ (what is perceived as embodied), and what is vaguely imagined or fantasied. The research study revealed a profound lack of understanding about basic anatomy, female physiology, and the menstrual cycle in adult women.

Ex. 11

Class exercise, in breakout groups, 20 minutes

1. Co-Designly Practice a Cervical Fluid Consistency legend, something that visually encodes changes in cervical fluid that occur at different stages of the menstrual cycle.

2. Add a cervical fluid consistency legend to your group’s EMA chart.

3. Review and critique

The group want to be more “co-designly” interpretative and creative, instead of designing a simple legend, they make three-dimensional objects such as “a triangular ruler” and wearable “paper-tech sleeves”.

1 “I’ve made a mental and physical triangular ruler ‘map’. This side is cervical secretions and to be felt with a finger: like rough scratchy, lumpy, sticky bits, gooey, slimy smooth. This side is BBT temperature with a thermal shift ... there ... And this side is my sensations and feelings”.

2 “It’s like you’ve triangulated all sensorial aspects to make sense, ‘a rule’”.

3 “I’ll always think ‘ah sticky cervical secretion!’ every time I use a Pritt Stick again!”

4 "I've made a wearable [triangular] mobius strip arm bracelet. You rotate it according to your position in your menstrual cycle". [It aligns where you are in your cycle with the typical cervical secretion.]

5 "It looks like a computer interface with various controls".

6 "Or Wonder woman's 'bracelets of submission'."

[Intrigued, I Google this on the large screen:

The 'bracelets of submission' reign in women's incredible powers and were symbol of the importance of love over war. Amazons also wear them as a reminder of their subjugation and oppression by Hercules and their failure to stop the conflicts in the world. This mission is behind their retreat to an all-female island, Themyscira. Although protected by Zeus, they are in training for the possible return of Ares, the god of war. Deflecting gunfire, blasts, small missiles, arrows, and other projectile weaponry, clashing the bracelets together causes a powerful concussive force field.] ^{1227, 1228}

7 "WOW! We so need those!"

8 "Yes! It looks tech, but it would be made of tearproof [Tyvek] paper?"

7.7 Taboo and Parrhesia:

The co-researchers just want to talk – openly and freely. There's a sudden free flow of conversation. Something discretely hidden away is 'unleashed', a shared, overlapping, noisy banter: frustration interspersed with laughter fills the room. [W]e are back in the girls' toilets at school, the only place we can talk briefly at break!

(Extract from observational notes.)

1 "I remember being afraid of having my first period. The concept of bleeding; I didn't want to bleed".

2 "There's this feeling everyone knows and is looking, thinking, 'She's on her period, she's crazy now'".

3 "Like the scene in the film Carrie!".

4 "It's all about 'the blood' and horror of that".

5 "Sometimes, I feel alarmed too. When there's a lot of it and you'd forgotten".

6 "It's like you go back to your desk and sit quiet, a little in shock".

7 "I still feel a lot of anxiety about leaking in public".

8 [Laughing:] "At school, when you stand-up from a chair and notice that the chair is marked with blood!"

9 "Or you just sit and don't move, waiting until everyone has left the room. Then you stand and check the chair!"

10 "What about when you get-up and leave, without realising there's blood on the chair ... and everyone sees it!"

11 "There's this constant fear, when is it going to happen, is it today? I never know".

12 "It's fear because you're not supposed to soil your pants or wet yourself like a child".

13 "Sneezing on your period!"

14 "School toilet paper was like tracing paper, slippery ... there was no absorbency, and it would fall out!"

15 "Some cervical secretions feel wet [like blood], so you just can't tell what is what. You keep having to go to the toilet to check".

16 "I like that they have free supplies in public spaces at UAL. I never know when my period was coming".

17 "Yes! You'd find a tampon at the bottom of your bag, and it is torn and no good and you'd use it anyway!"

18 "To help tackle 'period poverty' during the cost-of-living crisis, if you ask for 'Sandy' at Morrison's supermarket, they give you an envelope with two unwrapped pads. At Tesco's you can ask customer service staff for "a

white envelope" and Lidl gives a free box of sanitary pads or tampons per customer each month, [redeemed through the Lidl Plus app] but you need a phone and their app. It's apparently aimed at homeless people(?) To test it out, I went to Customer Service at Morrison's and asked for 'Sandy'. The two shop assistants said they didn't have any staff called Sandy and asked if it was some type of product. When I explained, they started rifling through the bottom of a dirty drawer and pulled out a single, very crumpled, open envelope. It didn't seem very sanitary!"

19 "What if Tesco leaves period products in the toilets - like they do paper towels? Then there's no self-promoting on social media, no specific product endorsement, questionable naming, shaming, or taboo!"

20 "I asked about that, they said they were close to three Secondary schools; they 'didn't want everyone coming in, helping themselves, and taking everything. It is just if someone is shopping and gets caught short - so they don't have to leave'. Which I think misunderstands the 'period poverty' element".

21 "It's like they want the experience to be ultra-humiliating!"

22 "And then they boast about it on social media. While they were rummaging in a dirty drawer, a queue of people was sighing and huffing behind me".

1 "What about free bleeding?"

2 "People think you're not in control or that you've had an accident, even if it was intentional".

3 "Then they'll make fun of you and post to social media".

4 "At home I suppose it is ok ... if you lived alone!"

5 "Wouldn't there be stains everywhere; there'd be lots of laundry?!"

6 "Like someone was murdered overnight in your bed!"

7 "It would be a bit antisocial, to go to your Mum's house and mess on her couch!"

8 "Or your boyfriend's bed!"

9 "Wearing white [trousers], anyway, is a problem".

1 "How do you quantify 80ml of blood?" <https://rb.gy/ws0pz4>

Without any preamble or discussion (before or after), I give each student a paint tray with 80ml of gouache paint. (80ml is the typical amount of menstrual flow in a period). In 15 minutes, the task is to visually quantify what 80ml looks like. We rush off and collect flowers and leaves, anything to hand to make messy, sequential prints. Later that week, I show our efforts in the UAL research study. The group discusses "how to break taboo" and give the experiment "more veracity". "It needs to be more personal" (phenomenologically qualitative), "comic", or "rude" - we discuss printing with used tampons, pads, menstrual sponges, making period underwear or "fanny prints", or printing with "rude surrogates" like a banana or string of sausages. As a co-researcher myself, the following week I bring in 80ml's worth of red painted banana peel prints - which we all agree look "uncannily phallic", "but somehow joyous" ("Freudian slips").

2. "We were reviewing our 80ml worth of leaf and flower prints in class with a mixed class of 10-11-year-olds - some prints used red gouache paint. Spontaneously, the whole class erupted loudly, 'Ewwwwww! That looks like period!'. Some students weren't even sure what a period was, so it was a clear example of class group-think"

3 "What is with that Ew-ness? Where did it come from?" [The Cambridge Dictionary defines "eww" as an expression of disgust (disapproval and dislike)] ¹²²⁹

We were discussing "betty for schools" period promotional materials for schools and the feelings that online influencers express opening their bright and colourful, monthly subscription bettybox delivery:

1. "How could we encapsulate that 'I'm special, this is for me!' feeling of unwrapping a gift?"

2 "What if there was a big party, your parents gave you £500, and all your family and friends gave you gifts to celebrate your menarche, would we feel better about starting to menstruate?"

5 "It's different with family than at school, maybe it's just a family thing?"

- 6 "I remember telling my mother and not my father. I didn't want to tell my father".
- 7 "I told my parents, we were prepared at school and my mother had talked about it, so they were both very supportive". (A younger co-researcher from the EU.)
- 8 "In school, some get their period at 9, others at 14/15; imagine if you're the last in your class? Then you'd feel left out or might have to fake it, I would feel so anxious".
- 9 "Also, if you're trans/non-binary it becomes complicated. You wouldn't want people celebrating menarche if you identify as male".
- 10 "Sigh ..."
- 11 "What's that about?"
- 12 "Menstruation is so massive for us".
- 13 "Maybe something informal – so as not to feel embarrassed about making a big statement".
- 14 "I think we need to be open; Trans people don't feel ashamed, 'uniquely own it!' Let's rebel and put out blood-stained clothing and bloody bed sheets in the public domain".
- 15 "I find people don't want to talk about this. The problem is misogyny in education. Our mothers also didn't have this knowledge [to pass on]."
- 16 "My mother and her six sisters, their mother, and I, were all 'day girls' at Indian, and later, Spanish-Irish convent boarding schools. No one thought to tell any of us anything. My mother wasn't sure enough herself to tell me. We had to read the instructions together about what to do with a tampon. By that time, I had been having a period for almost two years without telling anyone. I had been using kitchen roll and toilet paper".
- 17 "This was in the UK?"
- 18 "Yes!"
- 20 "In Spain it is worse for women and girls. How many things I had to find out by myself.
- 21 "My sister's and I have a different life to my brothers [...] We are raised differently in the same house. We do all the housework: making the beds, the cleaning, the shopping, the cooking, the washing-up, the putting in the cupboard. My brothers, they just eat, walk away, and go out! I became depressed because I was taught to disregard my feelings and be obedient. Then I was fighting. 'You fuck off! Fuck off! [(with a back of hand, flick gesture)]. For me it was big, the woman is fierce when she gets her period. Men can be quite unsympathetic and derogatory.
- In my life, I had two partners who understood the menstrual cycle, they were my best relationships. They planned what we did to match my cycle [...] they knew it better than me! They were understanding. If we don't even know ourselves; how can we educate our partners?
- [...] My character a PMS monster or PMDD volcano. My body is an oven during this time. I am an explosive person; I can be volcano! So more, than others, I need to understand. Now, I understand and can switch-off, relax, write a journal or do sketching and isolate myself".
- 22 "My Nepalese flatmate would stay in her room and not leave for days. She told me her grandmother would scold her, that she must always stay in her room while she menstruates. Even though she was an adult in another country, she was too afraid of her grandmother to leave her room".
- 23 "If you are menstruating in my China, you cannot go to the Temple. You cannot enter anyone's house, not even my grandfather, his house. I have to stay at home by myself. Although now it is not so strict".

7.8 Tracking:

As a group, we did not look at, or discuss individual menstrual tracking charts to protect privacy. Instead, focusing on technical questions about the Sympto-Thermal Method (used in the toolkit). A co-researcher asked more complex information not in the toolkit, such as a drawing a cover line, and the nuances of the 6–9-day fertile period (discussed

earlier). I was happy to do this, however, it was outside the remit of the study. A selection of anonymised charts are shown here, <https://rb.gy/v39vef> however, most of the co-researchers did not give me copies of their menstrual tracking, which we had agreed was ok.

1 "I'm going with the flow!".

2 "Tracking is a way to identify and show issues".

3 "Tracking should be easier to do; the menstrual cycle is quite complex".

4 "I had trouble finding pattern, data visualising. It expresses (my) visual literacy, but is not so visually communicative.

5 "Egg white dries to little pieces of dried rice. I'm not sure, cervical secretions; it's a journey!"

6 "We went away for a weekend trip, but I felt completely exhausted. I could see my tiredness coincided with my uterus working hard, making a plush, soft, cushiony lining for a fertilised ovum. I was able to explain to my partner, he was more understanding".

7 "I find it exhausting too. Two-thirds of an organ is shed and then regrows each month".

8 "I have very painful menstrual cycles".

9 "I have been exploring exercise, diet, nutrition, and intermittent fasting to sync my metabolism with my tracked menstrual cycle. Tracking helps me get to know my rhythm".

10 "I wanted to thank you for the wonderful workshop and lesson[s] - I thoroughly enjoyed it. This project is particularly interesting to me, as I have struggled with understanding menstruation since my teenage years. Even now, I don't know exactly when my period will come. I truly appreciate to you [sic] for creating this opportunity for me to better understand myself, and for creating this project to help teenagers understand menstruation in the future.

11 "I am exploring how to incorporate playful and interactive elements into social design or co-design for my graduation project next year. Therefore, yesterday's workshop taught me a lot. Thank you so much".

7.9 Encoding:

The research study ended too early to explore creative encoding. Collective feedback was that in limited time we had, it was more important to learn how to track ("This is a life skill!"). There was not so much interest in encoding, as participants were adults with privacy, living away from home, and didn't seem to mind if their partner knew. One co-researcher involved her partner in her tracking. Her feedback was he was "excited to feel included", "actively learning a lot", and was able to be "more understanding, empathic, and supportive".

1 "What about encoding menstrual tracking to keep it private?"

2 "Isn't this counterintuitive? Aren't we trying to lessen secrecy, silencing, and taboo in schools?"

1 "My piece uses the aesthetic of a casino roulette wheel. Numbers 1-36".

2 "Chance and accidents?!"

3 "Yes, hit or miss".

Could this be about cycle irregularity? Communicating how "never knowing when it'll happen" feels like? Is it surprise win or a loss? Unfortunately, we had so little time in research study modality to further analyse these sorts of cultural probes.

4 "I feel grateful, your different perspective is thoughtful. I'm really excited about doing this for the rest of my [menstrual] life and seeing how it changes over time. I feel like I need to [track] for a longer time to get to the point of creativity".

5 "The creative part is interesting, it would all be a bit dry otherwise, especially for adolescents".

Class exercise, individual, warm-up: 15 minutes

1. On a A4 sheet of paper, diagram your abstract cartography. Let your lines be live experiential, experimental, and expressive of your uniquely embodied, inner landscape. Experiment encoding secret facts, memories, or stories into your surreal, sublime diagram.

1 "A big thing for me is headaches, lower back pain that goes down my leg, and lower tummy. I would create a headache map first, as this is bothers me most".

2. "A mapping of pain: how much? When? Where? Could be really useful to show your GP".

3. "After a few months, after a pattern is established, you could make this into a paper period belt".

4 "It shows the horizontal frequencies, ups and downs as a circle".

5 Or a girdle, something really tight spandex and uncomfortable!"

6 "I wanted to make my 'interior topology cartography' a spiny [dye-murex] sea creature which produces [Tyrian purple] indigo dye. Like my tattoo along my forearm, it's very delicate and intricate and is according to the golden ratio".

7 "That's interesting, because researchers have discovered that mathematically, the female reproductive organs are according to the golden ratio or proportion.¹²³⁰ The developing fetus is a golden section spiral.

8 "My design is a strawberry heart, [sic] upside-down uterus that is hugging itself with long tube arms".

Again, we return to 'the heart of menstrual taboo: shy, indirect euphemism; innuendo; double entendre; colloquialism; slang; and "false deixis"'.^{1231 1232} This time, with a "heart-strawberry emoji" self-caring, understanding, and supportively, edifying hug.

7.10 Extraneous and confounding variables 'muddied the waters':

Transport and UAL staff strikes compounded Covid-19 Pandemic and Lockdown-related ennui and perpetuated a work from home (WFH) ethos. Subsequently, context-related stress and anxiety caused a reticence to travel onsite. In three instances, GP or Consultant specialist cancelling of appointments had exacerbated participants' menstrual health and "heavy menstrual bleeding and pain" made coming onsite "just not possible". (Poignantly, I felt this was the first-time co-researchers were entirely truthful and had not made-up an excuse.) Mitigating factors were a combination of: NHS strikes, an NHS Covid Pandemic backlog, long NHS waiting-lists, and Brexit-related, NHS staff losses and/or shortages.

Contextual precarity created validity flaws: no longer a longitudinal research study, there were lengthy delays in implementing the research study as 'the gap' (identified in the research) inexorably widened. Co-researcher feedback reported that the research study was "too short" and "I would have liked to have more time with this". Extraneous and confounding variables were significant: a complete redesign of the research study with a new Research Ethics Approval Form, relocation, and curtailment of the study. Furthermore, a non-accredited course, evening sessions conflicted with end-of-term final projects and the Final Show (the last session was *during* the public graduating show). In the first session, (a prior-tested) dongle didn't work and non-UAL students were denied access at Reception, despite my DoS notifying Reception beforehand and coming onsite to ensure there were no problems. Access to the assigned room at the appointed time was problematic. The second session started 40 minutes late, as 20+ students from an earlier class were late finishing a critique. Likewise, the third session was 20 minutes late. I consistently had to set-up displays for discussion in the corridor and couldn't do this for the last session as it was the Final Show. As a result, already shortened sessions were delayed and waylaid, even though I was consistently 1.5 hours early and co-researcher participants were keenly, assiduously punctual.

Nevertheless, we established a shared framework in which to address a clear gap. Fortunately, 6 co-researchers were committed, engaged, and hardworking and successfully completed the research study in adverse circumstances. Paradoxically, extraneous, and confounding variables increased the EMA Toolkit's validity; its comprehensive 'heft and bulk' enabled co-researchers to self-navigate when we were not together in-situ in the research study.

Co-Designly Practice is an iterating, slow research modality. If, as planned, the research study was for credit with 39 hours of sunshiny afternoons of Co-Designly Practice, there could have been an increase in co-researcher retention and greater research material output, with a better finish – with more time *to make this their own and explore other ways of doing different things*. In “co-designly praxis”, the training model (EMA Toolkit) valorises the potential and value of off-grid, serendipitous, intuitive, and discursive learning. Furthermore, student-led, and self-initiated work was ground-breaking (tactile-knitted and audio e.g., possibly translating a menstrual cycle's BBT daily readings into sound).

Were we able to track (somewhat ineffable) phenomenological, experiential, sense-based, improvised, and iterative, constructivist-type learning, or the learning from risk, experiment, chance, accident, or failure? (“The epistemic value that understanding might possess independently of [known or] propositional knowledge[?]”.)¹²³³ Physiological (embodied) self-awareness and pencil-on-paper menstrual tracking “know-how” was a consistent and compelling, corroborated outcome. In ethical beneficence vs. non-maleficence, the outcome was positively beneficence.

Conclusion

I question who perceives and assesses, who determines the toolkit's rationality and efficacy with regards to ‘fitness’, ‘rightness’, and ‘correctness’ – affordances, guidelines, and recommendations when it comes to the abstractness of knowledge, creativity, and Co-Designly Practice viridity? The EMA Toolkit seeks to instil impartial student self-learning, empowerment, and autonomy but has its basis in didactic assessment procedures and monitoring. A brief quiz or tick box test at the end of each toolkit section could function as a (private) self-assessment tool and an overview revision of key points.

Research study feedback:

According to Margaret Roller, “rich learning comes from meaningful conversations”.¹²³⁴ To sensitivity build trust and attune with others, an egalitarian and *dialogically conversational* mindset is essential for communicative understandings. In comprehensive qualitative and quantitative assessment, I considered the affect of an academic gaze, scrutiny, and self-consciousness on social and communication skills and teamwork interactivity. Furthermore, a dominant Western bias with colonising imperative can negativise cultural nuances in phenomenological perception and expression. Neurodiversity creates additional layers of sensitivities and subtleties.

In the research study, we were side-by-side in co-creating in “co-designly praxis”. In combination with the enchanting candour of some co-researchers; their humorous anecdotes and kind sensitivity of others helped to relax and “un-guard” quieter participants. They felt able to authentically engage, informally, and openly without judgement by others – which was a positive outcome.

The following is a fair sampling of feedback as an overview.

Given the study was a partial overview of a more extensive project; do you have any comments or suggestions about how to improve the toolkit?

¹ “I think the way the toolkit is structured is really informative without overloading the reader with too much. The language is very inclusive and I love the visuals.

For me personally, as a teenager, I would have really appreciated having a safe space to discuss my emotions and also have had someone explain to me the drastic hormonal imbalances which occur due to the menstrual cycle in order to better understand myself. I think a lot of teenagers feel quite isolated in how they feel and maybe don't share because they think they're

the only ones going through something like this, so encouraging discussion but in a less formal and serious way I think would be so so beneficial for young girls”.

- 2 “The tracking method onto the chart and asking students to encode their data is no doubt the best learning tool versus looking at graphs, diagram, anatomy, learning the names of the phases, etc. I think as a base tool the chart tracking is essential and then following that with content that sits on a spectrum of SCIENTIFIC — CREATIVE is all possible to add to understanding. I think a lot of the scientific information is already out there and more creative tools like mapping should be considered in secondary school curriculums”.

– for 15-18-year-old Secondary school students (via PSHE lessons)

- 1 “Out there is either very complex medical literature or chatty, online, ‘insta-girl-power’ stuff. This toolkit is a good middle ground”.
- 2 “In my opinion, the activities were great and interesting. The way of approaching the subjects was holistic and thought-inspiring. I believe people might need more time to relate to the team and converse in order to create a co-design[ly practice] experience. experience might improve by having more didactic material, easy-to-remember diagrams, slides with punc[hy] information, etc.”
- 3 “I think the toolkit was super detailed and informative but it was super heavy and could be broken down into shorter segments to digest the information”.
- 4 “... I do think that the act of taking BBT on a daily basis and mapping it out along with any kind of other pencil-to-paper mapping (onto a body outline for instance) is massively helpful to understand the stages of our cycles”.

– for women [and menstruators] of reproductive age (as an RCN Women's Health toolkit).

- 1 “I do think that along with the BBT and body mapping tools women could be educated on how other factors such as sleep, diet, exercise etc. affects our cycles and what are the symptoms to be aware of for more serious [menstrual] health conditions”.
- 2 “[T]here is a lot of information to take in and understand so it would be beneficial to slow the process”.

Intended for assessment over a school term (or equivalent) of weekly sessions, the research design and EMA Toolkit and is slow pedagogy that is experiential, heuristic, and self-reflexive. As mentioned earlier, curtailed by ‘cataclysmic’ Pandemic-related adversities, the workshops were cut from 39 hours to just 8. A pivotal life skill, learning to track a menstrual cycle requires time/patience, practice, and guidance, hence the built-in co-supportive and “co-designly” community-building praxis and camaraderie.

“In general, I believe the information could be condensed”....[.]

To be flexible, it makes sense to have a simpler version as a PowerPoint, ‘as something is better than nothing’. However, this misses the essential point: how easily 51% of the population’s mentrality, “a vital sign” is neglected. The menstrual cycle needs more time and attention, than for example, reading *An Inspector Calls* by J. B. Priestley over a term of English Literature classes. Since this is a significant public health issue to do with life-changing reproductive health, fertility, and procreation. According to UNICEF, typically menstruators have 13 menstrual cycles a year, cumulating in 7 years of continuous menstrual bleeding – something that is *not understood* as this research study clearly demonstrates.

How do you feel about your menstrual cycle?”

- 1 “I don’t know”.
- 2 “I menstruate regularly, and I rarely feel physical discomfort around my cycle, I do struggle quite heavily with a low mood during my luteal phase which is something I have begun to identify more and more as I grow older”.
- 3 “... I have very painful menstrual cycles”.
- 4 “It frightens me. There’s just too much blood, sometimes my periods lasts 2 weeks and I can feel dizzy, tired, weak. I was told “You’re just a bleeder”, and that I was “worrying about nothing”. Because my periods are all over the place, I wasn’t able give my healthcare provider any information. Now I can track and say “Look at this. What’s going on?”

What is your response to the menstrual cycle being perceived of as a taboo subject?”

1 "I think my personal experience with the topic has been generally positive I haven't ever really felt uncomfortable around discussing the topic with my immediate circle and have never experienced any negative response. I think my generation is keen to understand their body in greater detail and for that reason people are becoming more and more open about communicating issues around their menstrual cycle".

We're listening (academia, the UK Government Department of Education, and the Royal College of Nursing)
– what do you want to say, add, /or tell about menstruation?

1 "There needs to be an open conversation had with both boys and girls at a younger age, this will relieve some of the misconceptions that people struggle with in adolescence".

2 "how the pill change the cycle". [sic]

What needs to change? How?

1 "I don't expect the entire medical system (along with its neglectful nature around women's health) to change any time soon and so I think increasing individual agency is key. I believe new and embodied toolkits for menstruation tracking put the knowledge (and hence power) in the right place – with the people who are menstruating and presenting themselves to physicians. I think holistic and multi-disciplinary approaches to menstruation should be integrated into the formation of these toolkits".

2. "Teaching about periods from the beginning of high school".

3 "I wish I knew how to track earlier; ovulation kits are so expensive".

Did you continue to track your menstrual cycle beyond the immediate study? For how long?

1 "Yes I did continue and am still tracking".

"... this cycle tracking and being more aligned with my body is a big part of that. So, thank YOU :-) I really enjoyed your approach, creativity and humour on the course and wish we had more time with it ..."

2 "Knowing that you don't need to use an app. is important. I used Flo and paper-tracked at the same time, to compare [...]".

3 "Before I came here, my 'go-to' was an app. Once you understand [the Sympto-Thermal method, a Fertility Awareness Method], everything 'period' starts to make sense".

4 "Thank you again for your time explaining some of the finer details around menstrating and menstrual tracking, I have found the study really valuable and wish you all the best with implementing these kind of sessions in schools and wider!"

Conclusion:

Research assessment was based on deductive and inductive analysis of collected quantitative and qualitative, empirical data: photo-documented and archived (descriptive) "co-designly practice", discourse analysis of dialogical interactions and my anecdotal and observational notes.

In conclusion, I return to Section 5: Co-Designly Practice Methodology, Using Arts-Design Praxis as Lens and Prism for Learning ...". Scaling-up ¹²³⁵ CDLY P/S (sentience and sensemaking) from a conscious phenomenological standpoint [was] pivotal: to be able to engage, participate, and work egalitarianly within the [workshop]; each [individual's] unique, phenomenological perspective [needed]: 1. exploring, 2. realisation, 3. self-awareness, 4. recognising by others, and 5. autonomy. To create the conditions for participatory parity and dialogic reciprocity – a semblance of equitable, level horizon [was] established. In breaking hierarchies, Co-Designly Practice has pedagogical, sociopolitical, and environmental implications, and works towards heterogenic equilibrium for "convivial"¹²³⁶ harmony/holism. Enactive participation, and, therefore, translative practice and (alterité) materiality, (or any claim to these methods and processes), enables [...] engagement, [...] creative agency, and, accordingly, empowerment. Access to menstrual awareness from multiplicity of perspectives was a major outcome.¹²³⁷

Section 8:

Conclusion:

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References and notes on the text:

Appendix:

Section: 8

Conclusion:

In this section, I evaluate the study design and structure of inquiry. Returning to the research question, re-examining the aims and objectives, and methodology, I compare my intentions with research analysis findings and outcomes.

Perhaps it is important that the enactively creative mind, creative act, and creative material are embodied or reify embodiment; Francisco Varela's "not one, not two" – a *simultaneously* "one and two" mind-body "neurophenomenology".¹²³⁸ A "bearing [bare] witness to the [phenomenological] life within our minds"¹²³⁹ that is shared as co-embodied via Co-Designly Practice. "[T]he enactive approach rejects the pervasive dualisms that currently dominate science and philosophy: dualisms between subject and object, body and mind, self and other, humanity and nature, observer and observed, descriptive and prescriptive knowing, and so on."¹²⁴⁰ The research study exposed the striking disconnect and dissonance we have about our menstruality and bodies. In discussion, we identified this as "A not knowing" (is this then also a "not fully Be-ing")? Whereby body and self are commensurate, but divided, dialectic, and disconnect? Lacan links *objet petit a* to the concept of 'semblance', asserting that 'a' is a "semblance of being".¹²⁴¹ Analogous, the unattainable *objet petit a* is at the center of the Borromean knot, at the place where "La troisième", the three orders ("real", "symbolic", and "imaginary") intersect.¹²⁴² Our Co-Designly Practice was a rejoining and re-engaging that was bold, funny, and openly honest. Through heuristic praxis, we able to reclaim those parts of ourselves, bodies, and menstruality, history, relations, and experiences for enactive agency. Newly poised with 'radiating' embodied cognition and menstrual awareness.

Research question:

Could Co-Designly Practice (CDLY P), pencil-on-paper tracking, data visualisation, and encoding (using diagramming, geometry, and graphic elicitation), increase menstruating adolescents' embodied understanding of their menstrual cycle in schools?

Potentially yes, since the EMA toolkit targets an age 15+ cohort. Using the toolkit, research study activities linked in a sequential and interrelated, casual chain: 1 to 2, 2 to 3, 3 to 4:

1: bodily anatomy – 2: menstrual cycle awareness – 3: menstrual tracking – 4: what is 'typical'
– 4: what is 'not typical' – when to seek support – where to get support.

"Confidence about bodily anatomy" rose from 40% to 78%. "Confidence about menstrual cycle awareness" rose from 50% to 82%. "Confidence in tracking the menstrual cycle" again rose to 86% from 30%. "Understanding what is [typical] re: menstruation" almost doubled from 48% to 82%. "Certainty about knowing when to seek reproductive health (RH) support" rose from 50% to 76%. "Knowing where to get support"; there wasn't time to cover this so a rise from 52% to 64% was understandable. However, we instilled when to seek support from a medical practitioner and how to use menstrual tracking data visualisation as evidence to help fast-track reproductive healthcare. While communicating informatively, using the correct medical terms, within the context of (abstract) phenomenological embodied awareness (sentience – 'sense-ness' cognition).

Aims:

- i. To add to the field of knowledge by developing and testing an educational toolkit designed to increase menstruating adolescents' understanding of their menstrual cycle in Secondary schools. For use within the UK Department for Education (DfE), Physical, Social, Health, and Economic (PSHE), Relationships, Sex and Health Education (RSHE) curriculum, Key Stages 4 and 5 (age 15-18).

Covid-19, Pandemic lockdowns and school closures, Brexit, and teaching industrial action cancelled a research study planned at Bullers Wood School for Girls. With an optimal cohort of 15-16 or 16-18-year-olds, the PSHE teacher

would have delivered the toolkit in a classroom setting. As researcher, I would have observed and possibly assisted as a teaching assistant. The teacher may not have been knowledgeable about menstruation, and, as intended, would become a co-researcher. Improvised teaching is dynamic; this would have been evaluated. For this reason, in the UAL research study we worked through the self-explanatory EMA Toolkit sequentially, step-by-step, section by section.

- ii. To examine how visual communication can be better utilised in menstrual reproductive pedagogy, care of the self, and reproductive health (RH) agency – by generating expressive content and forms of diagrammatic information.

The arts-design “lens and prism” praxis was both lure and anchor. The toolkit was content heavy and quite technical, I conscientiously tried to make it look less like a school textbook and where it did, there were hand drawn images and doodles.

Co-researcher feedback responded positively to the interactivity of Co-Designly Practice and its freedom to explore, iterate, and express. Each co-researcher use of the toolkit generated different probes and materials, the diversity (and sometimes discursivity) of visually communicative outputs was surprising and intriguing. Work spiralled off into other undergraduate or postgraduate projects; evidence of ‘making this their own’.

- iii. To support a learning environment that enables participants to freely explore menstrual-related issues in anthropological–historiographic and contemporary contexts.

There was a richly diverse, international mix of ethnicities, cultures, and secular/ non secular backgrounds and no two co-researchers were from the same country. At various “discussion points” in the toolkit, we talked at length about our differing, sometimes eclectic, anthropological-historiographic traditions, and contemporary realities. There was a liberating and informal “friendly flow”¹²⁴³ to our conversations; a release from the stifling shame and “the lonely isolation”¹²⁴⁴ of menstruation.

Objectives:

- i. Contributing to knowledge by testing the transferability and efficacy of a prototype methodology: “Co-Designly Practice” (CDLY P). Developed in my professional practice within the UK DfE national curriculum, CDLY P has a shared framework of social design and arts-design praxis.

The EMA Toolkit uses Co-Designly Practice methodology, CDLY P played a significant role in a co-researcher led practice-based praxis. As documented in my professional work, Ofsted positively assessed our CDLY P in two Ofsted school inspections. Our CDLY P project¹²⁴⁵ inspired by the work of Iraqi American artist, Michael Rakowitz was a winner in The Fourth Plinth Schools Award, 2020 (amongst 4,582 entries from Primary and Secondary schools in every London borough). The project was curated and judged by The Mayor of London and Jo Baxendale, Visual Arts Officer at the Arts Council England.

CDLY P has validity as a transferable method: in longitudinal study (in the research study and across +9 years of tracked projects within the DfE), it was applied and evaluated across a multiplicity of subject disciplines and topics. CDLY P was transferable from ‘the Early Years Foundation Stage’ and ‘Reception, Key Stage 1’ (ages 4-7) in a DfE, Primary school national curriculum – to adult women in an academic, university setting. Therefore, it has potential for student-led inquiry across Key Stages 1-5 (age 4-18) in schools and is a contribution to knowledge.

- ii. To use this methodology to test my hypothesis in CDLY P visual communications: 1. as heuristic, design probes; 2. as visual register for tracking and understanding their menstrual cycle; 3. as potential visual interlocutor between the co-researcher and their medical practitioner.

In the research study, we were able to positively test 1. and 2. (discussed more fully in the Research Analysis Section).

- iii. To use these means so individuals can understand their anatomy, the menstrual cycle, and learn to chart their uniquely mutable ovarian and uterine cycles – establishing their link to menstrual flow and connectedness to fertility, sexual reproduction, pregnancy, and childbirth.

“Confidence about bodily anatomy” rose from 40% to 78%. “Confidence about menstrual cycle awareness” rose from 50% to 82%. “Confidence in tracking the menstrual cycle” again rose to 86% from 30%. “Understanding what is [typical] re: menstruation” almost doubled from 48% to 82%. Learning was demonstrated visually in co-researcher menstrual tracking charts.

- iv. To build on and share embodied cognition specific to menstruation. Whereby arts-design praxis, graphic elicitation, diagramming, and geometry can structure, creatively express, or encode the physically embodied, phenomenological “lived experience” of menstruation.

This was a key outcome. The Embodied Menstrual Awareness Toolkit is a contribution to knowledge that is transferable.

Research study evaluated CDLY P as a methodology to further iterate (with UAL students) a menstrual awareness toolkit and PSHE, RSHE educational resource for UK Secondary schools. All research was in alignment with adolescent human rights¹²⁴⁶ of access to knowledge and awareness about their own menstrual: physiology, reproductive health, and wellbeing; “The Department for Education (DfE) Mandatory PSHE requirements for Health Education, Relationships Education and RSHE” (updated September 2021);¹²⁴⁷ the “Women’s Health Strategy for England, Presented to Parliament by the Secretary of State for Health and Social Care, August 2022”;¹²⁴⁸ and the FSRH Hatfield Vision Manifesto (the Faculty of Sexual and Reproductive Healthcare),¹²⁴⁹ “outlining what needs to be achieved to improve the health of 51% of the UK’s population and tackle the inequalities that women and girls face across their lifetime”, plus many other institutional calls for action.

I had the kind assistance of the UN (UNFPA); the Royal College of Nursing (RCN), RCN Women’s Health, and RCN Children and Young People; the DfE, the PSHE Association, and Ofsted; (amongst others). Factual information in the toolkit cites ‘The Royal College of Nursing, Women’s Health Pocket Guide’¹²⁵⁰ and their ‘Promoting Menstrual Wellbeing’¹²⁵¹ reference materials for nurses, amongst other recently published medical research literature. Medical expert, external advisor Dr Sai Gnanasambanthan, Consultant, Obstetrics and Gynaecology at Epsom and St Helier University Hospitals NHS Trust reviewed the toolkit and made corrections.

In the following section, I cross-reference extracts from the draft DfE Mandatory PSHE requirements for RSHE (continuously updated since 2018) with the EMA Toolkit.

Consent:

As a single PSHE class, series of classes, or a module in schools; student participation would be entirely voluntary and via consent. Parents can preview the toolkit in advance and can have a say in their adolescent’s participation.

Interactive, iterative, and updating:

Teachers/co-researchers are free to select topics they want to learn about. Designed to be interactive and iterative – the toolkit is responsive to student’s needs:

The base toolkit is designed for visual, creative interplay and has various cut-out and folding templates, grids, and physiological diagrams for drawing on and retooling. There is a choice of projects to do and as co-researchers, you will be working in groups to further design materials and exercises using the core information provided (citing ‘the Royal College of Nursing (RCN), Women’s Health Pocket Guide’ and their RCN toolkit ‘Promoting Menstrual Wellbeing’). Intended to be adaptive, the toolkit is designed to be continuously iterative; open to NHS Healthcare input and synergy, the RCN’s Women’s Health Forum, the Royal College of Obstetricians and Gynaecologists (RCOG), FSRH (Faculty of Sexual and Reproductive Healthcare), the UN (UNFPA), the PSHE Association, the DfE, Ofsted, in addition to responding to Secondary school adolescent and university student feedback”.

Gender:

The EMA Toolkit is inclusive and intersectional. It sensitively considers that male cisgender or transgender, intersex, genderqueer, or gender fluid, non-binary individuals may want to participate or not want to participate. However, it

could be unethical and counterproductive to force anyone to complete a course that they feel is upsetting, not relevant, or uninteresting.

The PSHE has existing course materials supporting gender identity more fully – the toolkit would be contextual to and is holistic with these materials. “Pupils should be taught the facts and the law about sex, sexuality, sexual health, and gender identity in an age-appropriate and inclusive way. All pupils should feel that the content is relevant to them and their developing sexuality. Sexual orientation and gender identity should be explored at a timely point and in a clear, sensitive and respectful manner. When teaching about these topics, it must be recognised that young people may be discovering or understanding their sexual orientation or gender identity. There should be an equal opportunity to explore the features of stable and healthy same-sex relationships. This should be integrated appropriately into the RSE programme, rather than addressed separately or in only one lesson”.¹²⁵²

The PSHE context:

Within the context of PSHE classes in school, the toolkit would be supported by, and scheduled after, mandatory lessons in establishing healthy relationships, gender identity, safe sex (barrier methods and contraception), sexually transmitted infections, and adolescent pregnancy etc.¹²⁵³

Fertility and RH:

Although based on the Sympto-Thermal Method, Embodied Menstrual Awareness is not a fertility method. The toolkit repeatedly emphasises that adolescent menstrual cycles are maturing and can be erratic in response to hormonal changes and lifestyle, and that a signature cycle usually emerges after the age of 23. PSHE education continuously highlights safe sex (using barrier methods and contraception). According to the Department of Education Mandatory PSHE requirements for Health Education, Relationships Education and RSE, 2021;¹²⁵⁴ “By the end of secondary school [students must know]: [...] the facts about reproductive health, including fertility and the potential impact of lifestyle on fertility for men and women and menopause [...]” And as mentioned above, “Pupils should be taught the facts and the law about sex, sexuality, sexual [reproductive] health, and gender identity [...]”.¹²⁵⁵

In response to the “Women’s Health Strategy for England Presented to Parliament by the Secretary of State for Health and Social Care by Command of Her Majesty, 2022”, the UK government made the following (2024) amendment:¹²⁵⁶

Developing bodies: Pupils should know

1. the main changes which take place in males and females, and the implications for emotional and physical health.
2. the key facts about puberty, the changing adolescent body, including brain development.
3. about menstrual and gynaecological health, including what is an average period, period problems such as premenstrual syndrome, heavy menstrual bleeding, endometriosis, and polycystic ovary syndrome (PCOS), and when to seek help from healthcare professionals.
4. the facts about reproductive health, including fertility and menopause, and the potential impact of lifestyle on fertility for men and women.

Number 3. is significant because the EMA Toolkit *had already anticipated this inclusion* at doctoral research onset ten years ago.

In 2024, the Faculty of Sexual and Reproductive Healthcare¹²⁵⁷ published a manifesto in response to the Women’s Health Strategy for England that further supports the aims and objectives of my research; the “so what?”.¹²⁵⁸

Practice evaluation led to synergies, expansions, and areas of potential synthesis amongst theoretical and methodological approaches. The research study assiduously collected constructive feedback to improve the EMA Toolkit.

In conclusion, a 30-pupil cohort at a Secondary school with adolescents aged 15-18 (as planned with Bullers Wood School for Girls), could follow with a revised and improved EMA Toolkit. However, it is not necessary – as learning

to track the menstrual cycle was an achievable and positive outcome of this study. Most co-researchers were international students and with English as an additional language. Visual communication was key and functioned well enough.

Menstrual advocacy in the EMA Toolkit supports the ethic of:

1. Care of the self and others.
2. The social and clinical validity of recognising individual (phenomenological) experience of menstruality.
3. Menstrual education: menstrual knowledge, embodied awareness (or understanding) for all pupils in both Primary and Secondary schools made integral to UK, DfE reproductive health education.
4. Routine, timely, and free access to healthcare for gynaecological, menstrual, and fertility health and wellbeing.
5. Low-income interventions with access to free products.
6. Implementation of human rights ¹²⁵⁹ and post-age of consent reproductive choice and autonomy.
7. And later, free access to comprehensive obstetric, maternity, postnatal, and neonatal healthcare.

The toolkit is intended to be Creative Commons (CC BY NC DD: Attribution + Non-commercial + No Derivatives). As not-for-profit (and unfunded) research, the base toolkit and concepts and terms “Embodied Menstrual Awareness,” “EMA method,” “Co-Designly Practice,” (“CDLY P”) and “Co-Designly Sensi” (“CDLY S”) are intentionally copyrighted – so they cannot be made commercial: commodified, marketed (advertised, sold, or purchased) as written materials, a toolkit, a service, training, or used (withheld) for profit. (I work pro-socially and entirely from within issues, so fairness, equity, and egalitarian access is important to me.)

I hope to enter my research into UAL research archives via a USB stick and in final PhD book form.

Post-PhD:

I will apply for a Quality Mark Assessment, PSHE Association accreditation of the EMA Toolkit as “a PSHE resource” for Secondary schools. Accredited resources are distributed across the PSHE, RSHE educational system for use in the UK national curriculum. However, I need to ensure there is *no fee for accessing it: that it is free and accessible*.

Michelle Eleftheriades, the RCN Children and Young People’s Professional Lead, the School and Public Health Nurses Association (SAPHNA), and Carmel Bagness, RCN Professional Lead Midwifery and Women’s Health, will review the toolkit post-research for inclusion in the RCN toolkit for reproductive health advocacy across their Women’s Health community programmes. The RCN toolkit is distributed to every nurse in the UK, for use by RCN staff in DfE schools, healthcare clinics, hospitals, young people’s nursing homes, reformatory youth centers, prisons, and (home visit) community nursing.

Through reflexive practice, I will examine opportunities for transferability to other areas of social need; potentially the WHO/UN in their Comprehensive Sexuality Education (CSE) education programmes and nongovernmental (NGO) aid agencies. Sensitivity, effectiveness, replicability, and sustainability will be key issues.

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Notes of the text:

1. Merleau-Ponty, M. (1969). *Humanism and terror*. Boston: Beacon Press. p. 127.
 2. This comment was in the draft document, but not the final document.
 3. The 'PSHE Joint Roadmap to Statutory RSE, 2020' is currently under review by The UK Parliament, House of Commons and House of Lords and will be amended. educationhub.blog.gov.uk (2023) 'Education Secretary's letter to parents: You have the right to see RSHE lesson material', The Education Hub. Available at: <https://educationhub.blog.gov.uk/2023/10/24/education-secretarys-letter-to-parents-you-have-the-right-to-see-rshe-lesson-material/> (Accessed 4 Nov. 2023).
 4. The 2024 guidance update notes "[...] we're seeking views on adding several new subjects to the curriculum, and more detail on others. These include: [...] menstrual and gynaecological health including endometriosis, polycystic ovary syndrome (PCOS) and heavy menstrual bleeding". The Embodied Menstrual Awareness Toolkit developed in this research addresses these issues.
 5. The term "co-researchers" is used in: Lave, J., Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.
 6. Nietzsche, F. (1917) *Thus Spoke Zarathustra*, (trans.) Common, T. The Modern Library: New York.
 7. Acog.org. (2006, 2021) 'Menstruation in girls and adolescents: using the menstrual cycle as a vital sign'. Committee Opinion No. 651. American College of Obstetricians and Gynecologists. Available at: <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2015/12/menstruation-in-girls-and-adolescents-using-the-menstrual-cycle-as-a-vital-sign> (Accessed: 19 December 2016)
 8. World Health Organisation (WHO), United Nations (UN). Human rights-based female reproductive aboutness and intentionality.
 9. Acknowledging differing experiences and identities, "intersectionality" was introduced into the field of legal studies by Kimberlé Crenshaw, civil rights advocate critical race theory scholar.
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 11. Gani, J., Khan, R. (2024) 'Positionality Statements as a Function of Coloniality: Interrogating Reflexive Methodologies', *International Studies Quarterly*, Volume 68, Issue 2, June 2024, <https://doi.org/10.1093/isq/sqae038>
 12. (Q.E.D., e.g., as I demonstrate ...)
 13. Value theory, values about morality, ethics, and aesthetics.
Schroeder, M. (2021) 'Value Theory', *The Stanford Encyclopedia of Philosophy*. Available at: <https://plato.stanford.edu/entries/value-theory/> (Accessed: 20 September 2023)
 14. I am a UN Consultant (trained, tested, and certified by the UN Procurement Division "in accordance with the regulations, rules, and procedures of the UN").
 15. With Keith Godard at Studioworks.
 16. Ibid.
 17. With Class Action, which I co-founded.
 18. With Keith Godard, Studioworks.
 19. For collaborative work with Jason Claisse re: Next-X Directory.
 20. Throughout my doctoral research, a single parent; I experienced frontline and life-changing setbacks with my health, my child's, and that of my house-bound, disabled father. In palliative care and in an NHS hospital bed in the living room, I nursed him through four years of harrowing changes necessitating my learning of "Tissue Viability Nursing". Isolated in a global pandemic and across a series of Covid-19 Lockdowns, the professionalism of the RCN community nurses and Dr. Batchelor was a lifeline. So too was my work as a Key Worker teacher working with wonder and delight-filled 4-7-year-old Infants and Juniors. In response, I started a photodocumentary as reflexive register and catharsis: "RED; a doctoral research postcard journal: <https://www.lscovell.com/red-visual-journal> Consisting of 175 images, each image is a composite of 5-20 'photographic impressions', often recursively sublimated. Designed to be a digital postcard or projected door-height as a walk-in, immersing piece – a splatter of blood or wound, confuses with an exploding flower, a child's painting, the fragile surface/shimmer of a lake, the overturned roots of tree, etc., to create "[a] discursive counternarrative and menstrual phenomenology, [where] the colours slide from red, to black, to a viriditas green, veritas (or truth)". During Lockdown, my child Kiera and I went on grey, torchlit walks through the steel-verticality of night forest. Subsequently, the Lockdown photos are a dull, 'broomy'¹ scour of greyblack and white – sensitively moving to a florid green and light post-Covid Lockdowns.
- My doctoral research's commitment to Co-Designly Practice acknowledges that sometimes it is easier to express complex, abstract, and taboo subjects in 'experiential picture-words' or 'experiential object-words'. And that creativity recognises the shared communality of these meaningful and resonating experiences.
1. The town name Bromley (first recorded in 862 as Bromleag) means Anglo-Saxon "the place where broom grows".
Bromley Council (2024) History of the Bromley area – London Borough of Bromley. London Borough of Bromley.
Available at: <https://www.bromley.gov.uk/local-history-heritage/history-bromley-area> (Accessed: 30 August 2024).
 21. Safeguarding Children and Adults, Care Act Certificate 1 and 2;
Keeping Children Safe in Education; Seen and Heard;
Female Genital Mutilation: Recognising and Preventing FGM V4;
Awareness of Forced Marriage;
Data Protection Law, Definitions and Principles (GDPR);
Online Safety – Risks to Children; Risks for Parents and Carers;
Gangs and Youth Violence;
and Prevent Duty/The Terrorism Act.
(Each year, Primary and Secondary school teachers take the same requalifying exams as social services employees, police, healthcare, and childcare workers.)

- I also have Centre for Learning & Teaching in Art and Design (CLTAD) certification and Teaching and Learning Exchange, Academic Practice Provision (APP). So, I am thoroughly trained, qualified, and experienced in child and adult safeguarding, pastoral care, and guidelines for best practice concerning sensitive or problematic issues. (I have an (ongoing) twenty-four-year teaching record to maintain (protect) in observance of educational (University, Primary, and Secondary school) ethical guidelines.
22. ICA (2023) 'Choreographic Devices', Without Prescription: André Lepecki and Irit Rogoff in conversation. Available at: https://www.youtube.com/watch?v=440ZsBkb_0Q (Accessed: 4 June 2024).
 23. Husserl, E. (1983) *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy*. Dordrecht: Kluwer Academic Pub.
 24. After a near-fatal traffic accident with resuscitation(s) and pre-hysterectomy (with bilateral salpingo-oophorectomy), I struggled for two decades with severe endometriosis, adenomyosis, adhesions, polycystic ovary syndrome, ovarian rupture (and oophorectomy), intramural fibroids, menorrhagia, cervical insufficiency, and a high-risk pregnancy. I had nine operations, four of which were laparotomies, (two of these required further CPR intervention). Throughout, I had minimal physiological awareness and felt (was made to feel) embarrassed/shame. Earlier diagnoses could have provided access to (potentially) preventive medical interventions. The toolkit addresses gaps in knowledge I encountered first-hand, establishes an understanding of when and how to seek support, and identifies communities of support (in-school, local RH providers, and non-profit organisations).
 - I designed the EMA Toolkit to be as sensitively helpful, informative, empowering, and fun/engaging as possible.
 25. Michelle Eleftheriades, Professional Lead for Children and Young People at the Royal College of Nursing wrote in an email, "I think many people working to support children, young people, and families often have their own stories that drive them which is what makes them exactly the right people to make a change ..."
 26. The name and acronym have changed multiple times; henceforth, I use PSHE RSHE for consistency.
 27. Menstruators (that are female-sexed).
 28. Derry P. (2022) 'Nonlinear Dynamics and Positive Health: The Case of Menstruation and Menopause'. *Nonlinear Dynamics Psychology Life Science*. 2022 Jul; 26(3): pp. 237-258.
 29. Marshack, A. (1972) *The Roots of Civilization*. New York: McGraw-Hill; London: Weidenfeld & Nicolson.
 30. Please zoom-out to access full drop-down menu.
 31. (Explained in Section 3.)
 32. The Royal College of Nursing (2022) Promoting Menstrual Wellbeing, The Royal College of Nursing. Available at: <https://www.rcn.org.uk/Professional-Development/publications/promoting-menstrual-wellbeing-uk-pub-010-375> (Accessed: 22 October 2022).
 33. Royal College of Nursing (2020) 'Women's Health Pocket Guide', Part 3, London: RCN. Available at: www.rcn.org.uk/professional-development/publications/pub-007293 (Accessed 23 September 2019).
 34. Fsrh.org. (2024). 'The FSRH launches its 2024 General Election FSRH Hatfield Vision Manifesto'. Available at: <https://www.fsrh.org/Public/News/Articles/The-FSRH-launches-its-2024-General-Election-FSRH-Hatfield-Vision-Manifesto.aspx?WebsiteKey=f858b086-d221-4a83-9688-824162920b1b> (Accessed: 30 August 2024).
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 36. The WHO/UNICEF Joint Monitoring Programme for Drinking-Water Supply and Sanitation (JMP). Washdata.org. (2018). Data | JMP. Available at: <https://washdata.org/data> (Accessed: 12 May 2022).
 37. UNICEF (2023) 'UN Convention on the Rights of the Child (UNCRC)'. Available at: <https://www.unicef.org.uk/what-we-do/un-convention-child-rights/>. (Accessed: 10 May 2024)
 38. Scott Free and Hardy Son & Baker (2016), UK TX Postproduction Script. Available at: <https://www.bbc.co.uk/writers/documents/taboo-s1-ep3-uk-tx-final-script.pdf> (Accessed: 5 April 2023).
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 40. Kathryn Matthews Lovering starts her thesis with this anecdote. Lovering, K. (1994) *Discourses in Menstruation*, Goldsmiths University. Available at: https://web.archive.org/web/20201209060226id_/https://research.gold.ac.uk/id/eprint/28580/1/PSY_thesis_Lovering_1994.pdf (Accessed: 10 December 2019).
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Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child> (Accessed: 09.09. 2020)
 49. This comment was in the draft document, but not the final document. (EU Devolution). Post-Brexit, International human rights and EU laws are under threat via the UK Government.
 50. The 'PSHE Joint Roadmap to Statutory RSE, 2020' is currently under review by the UK Parliament, House of Commons, and House of Lords and will be amended. educationhub.blog.gov.uk. (2023). Education Secretary's letter to parents: You have the right to see RSHE lesson material - The Education Hub.
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74. Ibid.
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77. For example, a youth club, a local gym, or a sports club, a social or cultural arts centre, or a regular event, or activity.
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United Nations Population Fund. (2022). RHIYA Programme Officially Ends, But Its Legacy Continues. Available at: <https://www.unfpa.org/news/rhiya-programme-officially-ends-its-legacy-continues> (Accessed: 22 June 2023).
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104. Ibid.
105. PSHE RSHE education, Ofsted, and the DfE are under public scrutiny in the media. I base the EMA Toolkit on the RCN Toolkit (a medical practitioner publication) meticulously cross-referenced with RH medical and clinical research – so that it is evidence-based, has ethical rigour, and is *within* UAL, DfE national curriculum/PSHE, and UNCRC guidelines.

When I was working on a project for the Department for International Development (DFID), now the Foreign, Commonwealth & Development Office (FCDO), the CEO warned, "Everything we do must be Daily Mail proof, I'm constantly asking myself, 'Is this Daily Mail proof?'"

- As example, there was the following front-page headline in 2023: "Twelve-year-olds are being taught about anal sex in school, while nine-year-olds are told to 'masturbate' for homework: The shocking lesson plans used by teachers in UK classrooms". Daily Mail, 18 June 2023.
(Available at: <https://www.dailymail.co.uk/news/article-12189041/Twelve-year-olds-taught-anal-sex-school-nine-year-olds-told-masturbate.html>)
(Accessed 18 June 2023).
106. UK Department for Education SRE Guidance, 2000.
 107. "Parents have the right to request that their child be withdrawn from some or all of sex education delivered as part of statutory RSE."
Department for Education (2019) 'Introduction to requirements'. GOV.UK.
Available at: <https://www.gov.uk/government/publications/relationships-education-relationships-and-sex-education-rse-and-health-education/introduction-to-requirements#fnref:9> (Accessed 7 October 2023).
 108. Public Health UK (26.06.2018) 'A consensus statement: reproductive health is a public issue' Ref: PHE Publications gateway number: 2018194
'What do women say? Reproductive health is a public health issue' Ref: PHE Publications gateway number: 2018194
Available at: <https://www.gov.uk/government/publications/reproductive-health-what-women-say> (Accessed 26 June 2018).
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PMID: 8588517.
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'A consensus statement: reproductive health is a public issue' Ref: PHE Publications gateway number: 2018194
'What do women say? Reproductive health is a public health issue' Ref: PHE Publications gateway number: 2018194
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 111. Koff, E., Rierdan, J. (1995) 'Preparing girls for menstruation: recommendations from adolescent girls'. *Adolescence*. 1995. Winter; 30(120): pp.795-811.
PMID: 8588517.
 112. GOV.UK. 'Personal, social, health and economic education (PSHE)'.
Available at: <https://www.gov.uk/government/publications/personal-social-health-and-economic-education-pshe> (Accessed: 12 January 2019).
 113. GOV.UK. Department for Education (2021). 'Personal, social, health and economic education (PSHE)'. GOV.UK. Available at: <https://www.gov.uk/government/publications/personal-social-health-and-economic-education-pshe/personal-social-health-and-economic-pshe-education>.
(Accessed: 12 November 2021).
 114. Ibid.
 115. Harbottle, E. (2023) Children and RSHE. Children's Commissioner for England.
Available at: <https://www.childrenscommissioner.gov.uk/blog/children-and-rshe/> (Accessed: 4 March 2023).
 116. Plan International, 'Nearly two million girls in the UK miss school because of their period', 20th October, 2021.

Parliament.uk. (2024) 'Women's reproductive health conditions' - Committees - UK Parliament.
Available at: <https://committees.parliament.uk/work/7865/womens-reproductive-health-conditions/> (Accessed: 11 December 2024).
 117. The PSHE Association and Sex Education Forum intended to launch 'The Joint Roadmap to Statutory Relationships and Sex Education' in September, 2020. Whereby all secondary schools "will be required to deliver RSE", and all primary schools "will be required to deliver 'relationships education'". The government also "committed to statutory health education", meaning the majority of PSHE education "will be compulsory" from 2020. However, a menstrual pedagogy component appearing in the draft ruling was excluded in the final ruling. Following a COVID-19 delay in implementation, by 2023, PSHE education, Ofsted (and the DfE) were being publicly scrutinised in the media. Subsequently, statutory PSHE, RSHE was already "under review", prior to the Conservative government losing the 2024 election. The recent 'RSHE guidance joint position statement' by "the PSHE Strategic Partners Group, a coalition of organisations focused on supporting Personal, Social, Health and Economic (PSHE) education, including statutory RSHE, comprising: Anna Freud, Association for Young People's Health, ASCL, Barnardo's, Brook, Centre of expertise on child sexual abuse, End Violence Against Women Coalition, NAHT, NSPCC, PSHE Association, and Sex Education Forum" expresses concerns about using evidence-based materials, being transparent, and representative.

Available at: <https://rshe.uk/#text51> (Accessed: 1 September 2024).

In response to prevailing lack of clarity, I base the EMA Toolkit on the NHS, RCN Toolkit (a set of medical practitioner, evidence-based publications), within UAL, and DfE/PSHE guidelines – so it is factual with ethical rigour.
 118. CRASH Lecture (03.11.20), 'Public Engagement: Engaging with Healthcare Practitioners as Medical Historians',
The Centre for Research in the Arts, Social Sciences and Humanities (CRASH), Cambridge University.
Available at: <https://www.crash.cam.ac.uk/events/29356/> (Accessed: 3 November 2020).
 119. CRASH Lecture (17.11.20), 'Roundtable: Birth Control and Sex Education in Cultural and Historical Perspectives',
The Centre for Research in the Arts, Social Sciences and Humanities (CRASH), Cambridge University.
Available at: <https://www.crash.cam.ac.uk/events/29357/> (Accessed 17 November 20).
 120. Kesterton, A., Cabral de Mello, M. (2010) Generating demand and community support for sexual and reproductive health services for young people: A review of the Literature and Programs. *Reproductive health*, Vol. 7, p.25. <https://doi.org/10.1186/1742-4755-7-25>
 121. "The primary data of experience are differences. From these data we construct our hypothetical (always hypothetical) ideas and pictures of the external world". Bateson, G. (1991) *A sacred unity: Further steps to an ecology of mind*. (ed.) Donaldson, R. New York: Harper Collins. (p. 188)
 122. In *Phenomenology of Spirit*, Hegel's "sense-certainty" is "the richest kind of knowledge" enhancing deductive reasoning via the senses.
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Available at: <https://explore-education-statistics.service.gov.uk/find-statistics/participation-in-education-and-training-and-employment> (Accessed 4 May 2023).
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The National Association of Head Teachers (NAHT)
The NASUWT, the Teachers' Union
The Association of School and College Leaders (ASCL)
129. Laisk, T., Kukuškina V., Palmer, D., Laber, S., Chen, C.Y., Ferreira T, Rahmioglu, N., Zondervan, K., Becker, C., Smoller, J.W., Lippincott, M., Salumets, A., Granne, I., Seminara, S., Neale, B., Mägi, R., Lindgren, C.M. (2018) 'Large-scale meta-analysis highlights the hypothalamic-pituitary-gonadal axis in the genetic regulation of menstrual cycle length'. *Human Molecular Genetics*. 2018, December 15; 27(24):4323-4332. doi: 10.1093/hmg/ddy317. Available at: <https://pubmed.ncbi.nlm.nih.gov/30202859/> (Accessed: 12 September 2024).
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133. The endocrinology of the menstrual cycle is a negative feedback loop of pulsatile, interdependent, catalysing, and cascading events through-out the hypothalamic-pituitary-gonadal (HPG) axis.

Barbieri R.L. 'The endocrinology of the menstrual cycle'. *Methods in molecular biology* (Clifton, N.J.) Vol. 1154 (2014): pp.145-69. doi:10.1007/978-1-4939-0659-8_7 Available at: https://link.springer.com/protocol/10.1007/978-1-4939-0659-8_7 (Accessed: 23 September 2021).
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Available at: <https://www.theguardian.com/commentisfree/2018/oct/05/trump-assault-abortion-kavanaugh-women-voices-bodies> (Accessed: 5 October 2018).
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144. Brierley, M. (1948) 'International Journal of Psychoanalysis', 29: pp.251-254 Available at: <https://pep-web.org/search/document/IJP.029.0251A> (Accessed 14 October 2023).
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The following research paper illustrates how easily flawed "scientific truths" manifest:

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309. Plato's "khôra", later explored by Aristotle, Heidegger, Derrida, Kristeva, Lacan, et al.
310. Ettinger's "matrixial" is discussed further in section: The Phenomenological Subject.
311. Deleuze 's "plane of immanence" is oppositional to transcendence; a residing, process, or becoming within, with "an unqualified immersion or embeddedness".
312. In cosmic philosophy "monad" (Ancient Greek (*monas*) 'unity', and (*monos*) 'alone' 'unit') is the most basic or original substance. As originally conceived by the Pythagoreans, monad is the first (supreme) metaphysical being, the Absolute, and/or the totality of all things. Leibniz hypothesised there are infinite monads, which are the basic and immaterial elementary particles or simplest units, which make up the universe.
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314. A heterotopia is "a placeless place" like "in the mirror, I see myself there where I am not, in an unreal, virtual space that opens up behind the surface; I am over there, there where I am not, a sort of shadow that gives my own visibility to myself, that enables me to see myself there where I am absent: such is the utopia of the mirror. But it is also a heterotopia in so far as the mirror does exist in reality".
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- Approximately 3-8% of women are affected by severe premenstrual syndrome, including premenstrual dysphoric disorder (PMDD); a chronic, debilitating disorder with severe emotional and physical symptoms and functional impairment. PMDD significantly affects women's quality of life; recent evidence suggests that 86% of patients have considered suicide, with 30% having attempted suicide at least once. In 2019, PMDD was added to the International Statistical Classification of Diseases and Related Health Problems, (ICD–11), which validates PMDD as a legitimate diagnosis and acknowledges growing scientific and medical understanding of this previously under recognised condition. Symptom relief can often be achieved through medical management; therefore it is important to increase awareness among healthcare professionals at all levels.
- Learning objectives: To understand the pathophysiology, diagnosis and treatment options for premenstrual disorders, including PMDD. To know the different classifications of premenstrual disorders, including DSM-5 and World Health Organization (WHO) ICD-11 classifications of PMDD. To understand the potential benefits associated with multidisciplinary care for women with premenstrual disorders like PMDD. Ethical issues: Should women with severe premenstrual syndrome be classified under mental health disorders in the ICD classification?
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364. "Epigenetic information not only controls DNA expression but links genetic factors with the environmental experiences that influence the traits and characteristics of an individual. What we eat, where we work, and how we live affects not only the activity of our genes but that of our offspring as well".
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382. Autocatalysis: Ilya Prigogine, 'Time, Structures and Fluctuations' Nobel Lecture, 8th December, 1977.
383. Ibid
"... [N]on-equilibrium may become a source of order and that irreversible processes may lead to a new type of dynamic states of matter called dissipative structures". Ilya Prigogine in his 'Time, Structures and Fluctuations' Nobel Lecture (1977).
384. Kurt Gödel's incompleteness theorems "acknowledge the limits of provability in formal axiomatic theories". (Basically, anything you can draw a circle around cannot explain itself without referring to something outside the circle – something you have to assume but cannot prove). Kennedy, J. (2020) "Kurt Gödel", *The Stanford Encyclopedia of Philosophy*. Available at <https://plato.stanford.edu/archives/win2020/entries/goedel/> (Accessed: 13 April 2022).
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386. Humberto Maturana and Francisco Varela's autopoiesis (not sociologist Niklas Luhmann's adaptation).

Maturana, H., Varela, F. (1972) *Autopoiesis and cognition: the realization of the living*. Boston studies in the philosophy and history of science (1 ed.). Dordrecht: Reidel. p. 141.
387. (Francisco Varela.) Saramago, J. (2002) *The Double*, Massachusetts: Houghton Mifflin Harcourt.
388. "It is not possible to step twice into the same river according to Heraclitus, or to come into contact twice with a mortal being in the same state".
Plutarch's Lives (Volumes I and II).

Graham, D. (2021) "Heraclitus", The Stanford Encyclopedia of Philosophy (Summer 2021 Edition), (ed.), Zalta, E.N.
Available at: <https://plato.stanford.edu/archives/sum2021/entries/heraclitus/> (Accessed: 1 November 2022).
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Available at: <https://www.britannica.com/science/chaos-theory>. (Accessed: 6 May 2024).

This is contentious, in *La Fin des Certitudes* (1996), Prigogine argues that determinism is no longer a viable scientific belief: "The more we know about our universe, the more difficult it becomes to believe in determinism."

Prigogine, I. (1997), *The End of Certainty: Time, Chaos, and the New Laws of Nature*. New York: Free Press. p.155.
390. Ibid.
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Available at: <https://fractalfoundation.org/resources/what-is-chaos-theory/> (Accessed: 6 May 2024).
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Available at: <https://doi.org/10.1155/2013/540912> (Accessed: 20 January 2015).
393. Gregory Bateson's "schismogenesis".
Bateson, G. (1935) "Culture Contact and Schismogenesis", Man, Vol. 35 (Dec) pp.178-183.
394. Ibid
395. Scale invariant: "... the macroscopic and microscopic aspects of the second law of thermodynamics".

Prigogine, I. (1977) 'Time, Structures and Fluctuations' Nobel Lecture, 8th December, 1977, Université Libre de Bruxelles, Brussels, Belgium and the University of Texas at Austin, Austin, Texas, USA.
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(Accessed: 5 April 2024).
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doi:<https://doi.org/10.2307/3034369>
401. (Later in more detail, I discuss Foucault's argument that "everyday practices" "reproduce power relations".)
Foucault, M. (1982) The Subject and Power. Critical Inquiry, 8(4). pp.777–795.
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405. "[E]thnographic and phenomenological data triangulation may enable the researcher to highlight their interpretation of the phenomenon under review, whilst at the same time considering that phenomenon in terms of the participant group, their cultural background and day-to-day experiences".

Maggs-Rapport, F. (2008) 'Combining methodological approaches in research: ethnography and interpretive phenomenology'. January, Leading Global Nursing Research, Vol. 31, Issue 1, pp. 219-225.
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408. Ibid.
409. Ibid.
410. For example, interoceptive changes can systemically affect the neuro-endocrine, hypothalamic-pituitary-gonadal (HPG) axis, adjusting hormone secretion to attune the menstrual cycle.
411. Petzschner, F., Critchley, H., Tallon-Baudry, C., (2022) 'Interoception', Scholarpedia, 17(5):55569. doi:10.4249/
412. The constant (conscious or unconscious) monitoring of interoceptive states by the brain has also been proposed to be a basis for a basic form of self-the organism which needs to be fed, regulated, and protected.

Damasio, A. (2010) *Self comes to mind: constructing the conscious brain* (1st ed.). New York: Pantheon Books. ISBN 978-0-307-37875-0.
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420. Ibid.
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Available at: <https://curiosity.lib.harvard.edu/contagion/feature/humoral-theory> (Accessed: 10th June 2023).
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Available at: https://dl1.cuni.cz/pluginfile.php/741545/mod_folder/content/0/Foucault%20%28Security%2C%20Territory%2C%20Population%29.pdf (Accessed: 10 June 2020).
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Available at: https://dl1.cuni.cz/pluginfile.php/741545/mod_folder/content/0/Foucault%20%28Security%2C%20Territory%2C%20Population%29.pdf (Accessed: 10 June 2020).
434. "The individual is not to be conceived as a sort of elementary nucleus, a primitive atom, a multiple and inert material on which power comes to fasten or against which it happens to strike, and in so doing subdues or crushes individuals. In fact, it is already one of the prime effects of power that certain bodies, certain gestures, certain discourses, certain desires, come to be identified and constituted as individuals. The individual, that is, is not the vis-à-vis of power; it is, I believe, one of its prime effects. The individual is an effect of power, and at the same time, or precisely to the extent to which it is that effect, it is the element of its articulation. The individual which power has constituted is at the same time its vehicle".

Note his arcane usage of "atom" is as in "atomism", a term linked to 'individual' and 'indivisible'.

Foucault, M. (1980) 'Body/Power' and 'Truth and Power' in C. Gordon (ed.) Michel Foucault: Power/Knowledge, U.K.: Harvester, p. 98.
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(Nietzsche, F. (1887) *Will to Power IX* (91) Fall 1887 p.552.)
444. (Gilles Deleuze and Felix Guattari.)
445. Deleuze, G., Guattari, F. (1987) *A Thousand Plateaus Capitalism and Schizophrenia*. University of Minnesota Press: Minneapolis. p.504.
446. Ibid. p.504.
447. "Schismogenesis literally means "creation of division". The term derives from the Greek skhisma "cleft" (borrowed into English as schism, "division into opposing factions"), and genesis "generation, creation" (deriving in turn from gignesthai "be born or produced, creation, a coming into being"). Anthropologist, Gregory Bateson coined schismogenesis in the 1930s in reference to certain forms of social behaviour.

Wikipedia (2024) 'Schismogenesis'. Available at: https://en.wikipedia.org/wiki/Schismogenesis#cite_note-CCS-1 (Accessed: 11 February 2024).
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461. Judith Butler further critiques 'the social demand' to respond to heteronormative 'interpellation' of the subject.
Butler J. (1990) *Gender Trouble: Feminism and the Subversion of Identity*. New York: Routledge.
462. Althusser, L. (1971) 'Lenin and Philosophy and Other Essays. Ideology and Ideological State Apparatuses. (Notes towards an Investigation)', (trans.) Brewster, B. Monthly Review Press, 1971; pp. 121–176.
463. Ibid.
464. Intriguingly, in the Online Etymology Dictionary, identity stems from the Latin, *identitas* "the same, oneness". Individual (adjective) means "one and indivisible, inseparable" *individualis*, from Latin *individuus* "indivisible", meaning from [with]in – "not, opposite of". Whereas an individual (noun) is "a single object or thing"; "a single human being" (as opposed to a group) or a colloquial sense of "person". Latin *individuum* translates as "an atom, indivisible particle".

The Online Etymology Dictionary, Available at: <https://www.etymonline.com/> (Accessed 22 October 2022).
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Available at: Oxford Reference <https://www.oxfordreference.com/display/10.1093/acref/9780191843273.001.0001/acref-9780191843273-e-148>
(Accessed: 10th June 2020).
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Quote by Martha Graham's father (ibid).
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Studio, P. (2024) PRIME Study Progress Update Blog, Neuralink. Available at: <https://neuralink.com/blog/prime-study-progress-update/> (Accessed: 12 April 2024).
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Kamsma, T.M., Kamsma, T.M., Kim, J., Kim, K., Boon, W.Q., Cristian Spitoni, Park, J. and van Roij, R. (2024) 'Brain-inspired computing with fluidic iontronic nanochannels'. *Proceedings of the National Academy of Sciences of the United States of America*, 121(18). doi:<https://doi.org/10.1073/pnas.2320242121>.
620. "Space defined by an autopoietic system" as "self-contained", a space that "cannot be described by using dimensions that define another space".

"... Don Quixote's dilemma of whether to follow the path of arms (praxis, action) or the path of letters (poiesis, creation, production), I understood for the first time the power of the word "poiesis" and invented the word that we needed: autopoiesis. This was a word without a history, a word that could directly mean what takes place in the dynamics of the autonomy proper to living systems."
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621. Deep neural networks (DNN) are described and illustrated using geometric topology.
622. Darwin, C. (1859) *On the Origin of Species*. John Murray: London. (In closing statement.)
623. "In reconnaissance, reverie, and further reimagining: air, land, and water ecologies, animal totems, matrilineal, genealogical blood, and cultural antecedents – in the apeiron place where we shimmer-reflect in existential constellation". (Scovell, L.)
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626. FemTech (Female Technology) is a rapidly expanding industry that focuses on research and the creation of products, technology and services that target female health. FemTech was coined by Ida Tin co-founder and CEO of the menstrual tracking app Clue.
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630. Algorithmic decision systems (ADS)
The European Parliament (2019) 'Understanding algorithmic decision-making: Opportunities and challenges'. EPRS | European Parliamentary Research Service. Available at: [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/624261/EPRS_STU\(2019\)624261_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/624261/EPRS_STU(2019)624261_EN.pdf). (Accessed: 18 December 2018).
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Available at: <http://visual-memory.co.uk/daniel/Documents/S4B/sem02.html?LMCL=gWTre7> (Accessed: 19 September 2019).
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- Women's human rights:
Available at: https://www.ohchr.org/sites/default/files/Documents/Issues/Women/WRGS/SexualHealth/INFO_Abortion_WEB.pdf (Accessed: 27 May 2023).
- Relevant human rights standards:
Available at: <https://www.ohchr.org/en/women/sexual-and-reproductive-health-and-rights> (Accessed: 27 May 2023).
- CEDAW (article 16) guarantees women equal rights in deciding "freely and responsibly on the number and spacing of their children and to have access to the information, education and means to enable them to exercise these rights."

CEDAW (article 10) also specifies that women's right to education includes "access to specific educational information to help to ensure the health and well-being of families, including information and advice on family planning."

The Beijing Platform for Action states that "the human rights of women include their right to have control over and decide freely and responsibly on matters related to their sexuality, including sexual and reproductive health, free of <https://www.gov.uk/data-protection-coercion>, discrimination and violence."

The CEDAW Committee's General Recommendation 24 recommends that States prioritise the "prevention of unwanted pregnancy through family planning and sex education."

The CESCR General Comment 14 has explained that the provision of maternal health services is comparable to a core obligation which cannot be derogated from under any circumstances, and the States have to the immediate obligation to take deliberate, concrete, and targeted steps towards fulfilling the right to health in the context of pregnancy and childbirth.

The CESCR General Comment 22 recommends States "to repeal or eliminate laws, policies and practices that criminalize, obstruct or undermine access by individuals or a particular group to sexual and reproductive health facilities, services, goods and information."

Human rights standards in this area are summarized in the OHCHR information series on sexual and reproductive health and rights

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(Accessed: 12 August 2022).
806. The International Convention on the Rights of the Child (OHCHR) considers everyone under the age of 18 "a child". Young people are those aged 10-24 years; this group combines adolescents – aged 10-19 years and youth – aged 15-24 years. (Accessed: 17 May 2020)

Kesterton, A., Cabral de Mello, M. (2010). 'Generating demand and community support for sexual and reproductive health services for young people: A review of the Literature and Programs'. *Reproductive health*, Vol. 7, p.25. Available at: <https://doi.org/10.1186/1742-4755-7-25>
807. The National Education Union (NEU)
The National Association of Head Teachers (NAHT)
The NASUWT, the Teachers' Union
The Association of School and College Leaders (ASCL)
808. Robert Schirrmacher's paper also starts with this familiar experience of art teachers.
Schirrmacher, R. (1986). 'Talking With Young Children About Their Art'. The National Association for the Education of Young Children.
809. Derrida, J. (1966) (1970) 'Structure, Sign, and Play in the Discourse of the Humanities'. Macksey and Donato. pp. 262.
810. *In Phenomenology of Spirit*, Hegel's "sense-certainty" is "the richest kind of knowledge" enhancing deductive reasoning via the senses.
811. Pedagogy using Super-structure-alism; Structuralist, Semiotician, Althusserian Marxist, Foucaultian, and Post-Structuralist, (etc.) theories.
Harland, R. (1987) *Superstructuralism: The Philosophy of Structuralism and Post-Structuralism*. Methuen: Routledge. p.1.
812. Alvesson, M., Skoldberg, K. (2000) *Reflexive Methodology: New Vistas for Qualitative Research*. London, Thousand Oaks.
813. Tonkiss, F. (2004) *Researching society and culture*, CA, Sage: Thousand Oaks.
814. Illich, I. (1973) *Deschooling Society*. Available at: https://monoskop.org/images/1/17/Illich_Ivan_Deschooling_Society.pdf
(Accessed: 10 March 2014).
815. Psychologist Mihaly Csikszentmihalyi's "optimal flow state".
816. "It's just Art who cares! It doesn't matter what you do. Nobody cares about Art." Early Years Foundation, Infant, and Junior teacher at A. school.
817. House of Lords, Hansard records, Vol. 783, 3rd July 2017. Available at: <https://hansard.parliament.uk/lords/2017-07-03/debates/4AC97B74-6896-4BDA-908E-F0188DB1E757/EducationEnglishBaccalaureate> (Accessed: 3 July 2017).
818. Embedded, practice-based work, two-three days a week, over nine years as a part-time Primary school teacher. I went to work at A. school to understand how best to support children and tackle bullying. I wanted to work out *in situ* a fun, engaging way neurodivergent children could feel special and flourish ("Little Flowers") to reach their potential. A way of learning that values every child as uniquely special, helping them to thrive and altruistically lift each other via peer-to-peer support.
819. This section does not comment on other staff members' teaching practice, their students, or outcomes. Any critique is a questioning of normative *doxa* and is not about A. School *per se*.
820. Prerequisite: Updating DBS certificate, observing Safeguarding and Pastoral Care Guidelines, and General Data Protection Regulation (GDPR).
Photodocumentary had parental permission and the school secretary screened every image for GDPR compliance. Stored securely in the school archives, photos were shown to Ofsted during two school inspections (2020, 2022).
821. Anonymised.

822. Lave, J., Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.
823. Only Key Worker's children attended during COVID-19 Lockdowns.
824. <https://www.iscovell.com/co-designly-practice-1> (zoom out for the entire drop-down menu).
This site is password protected to restrict public access. Parents signed a form consenting that their child be photographed while at school. After each project documented class, the school Secretary, Head, or Deputy Head screened all photographs. Some photos were selected for use on the school website.
825. Badiou, A. (2014) Alithia Review, Open City, SYRIZA 'Left Union', Nikos Poulantzas Institute, 25 January, 2014
826. The school has an almost 100% culturally diverse cohort.
827. "Kinship is a structured system of relationships ... bound to one another by complex interlocking ties".
Murdock, G. (1949) *Social Structure*, New York: The Macmillan Company.
828. Creswell, J. (2009) *Research design: Qualitative, quantitative, and mixed methods approaches*. (3rd ed.) London: Sage Publications Ltd.
829. Harland, R. (1987) *Superstructuralism: The Philosophy of Structuralism and Post-Structuralism*. Methuen: Routledge.
830. Hirschquor, S. (2008) 'Die Empiriegeladenheit von Theorien und der Erfindungsreichtum der Praxis'. Kalthoff, H., Hirschauer, S. and Lindemann, G. (eds.),
Erschienen: 21.07.2008
831. Reason, P., Bradbury, H. (2008) (eds) *The Sage Handbook of Action Research: Participative Inquiry and Practice*. CA: Sage Publications Ltd.
832. Sanders, E. and Stappers, P. (2008) "Cocreation and the New Landscapes of Design." *CoDesign* 4 (1): pp.5-18.
833. Ibid.
834. Ibid.
835. Ibid.
836. Ibid.
837. Mackay, W.E., Beaudouin-Lafon, M. (2020) 'Participatory Design and Prototyping', (eds.) Vanderdonckt, J., Palanque, P., Winckler, M. *Handbook of Human Computer Interaction*, Cham: Springer International Publishing, pp. 1–33. Available at: doi:10.1007/978-3-319-27648-9_31-1
(Accessed: 18 August 2024).
838. Service design was first introduced as a design discipline by Michael Erlhoff at the Köln International School of Design in 1991.
Moritz, S. (2005) 'Service design – Practical access to an evolving world'. Köln International School of Design (KISD), Köln, Germany.
839. Sanders, E. and Stappers, P. (2008) "Cocreation and the New Landscapes of Design." *CoDesign* 4 (1): pp.5-18.
840. Ibid.
841. Moritz, S. (2005) 'Service design – Practical access to an evolving world'. Köln International School of Design (KISD), Köln, Germany.
842. In my findings, CDLY P considers heterogenic individuals with differing abilities, gaps in learning, and supportive needs. CDLY P was additionally optimal for neurodivergent learners within mainstream education.
843. As egalitarian, CDLY P is not paternalistic or patronising. I posit an "egalitarian", humanitarian approach over Western notions of "democratic" within a Capitalist realm.
844. Schwartz, S.H. (2012) 'An Overview of the Schwartz Theory of Basic Values'. *Online Readings in Psychology and Culture*, 2(1).
Available at: <https://doi.org/10.9707/2307-0919.1116> (Accessed: 5th September 2012).

Schwartz, S.H. (1994) 'Are There Universal Aspects in the Content and Structure of Values?' *Journal of Social Issues* 50: pp. 19-45
Available at: <https://doi.org/10.1111/j.1540-4560.1994.tb01196.x> (Accessed: 5th September 2012).
845. Oxford English Dictionary. Available at: <https://www.lexico.com/definition/service> (Accessed: May 2019)
846. Online Etymology. Available at: <https://www.etymonline.com/> <https://www.etymonline.com/search?q=service> (Accessed: 23 March 2019)
847. Behaviour relating to 'intrinsic' and 'extrinsic' cultural values by social psychologist Shalom Schwartz and later, Frederick Grouzet and Tim Kasser.

Schwartz, S. H. (2012) 'An Overview of the Schwartz Theory of Basic Values'. *Online Readings in Psychology and Culture*, 2(1).
Available at: <https://doi.org/10.9707/2307-0919.1116> (Accessed: 5th September 2012)
Schwartz, S. H. (1994) 'Are There Universal Aspects in the Content and Structure of Values?' *Journal of Social Issues* 50: 19-45
Available at: <https://doi.org/10.1111/j.1540-4560.1994.tb01196.x> (Accessed: 5th September 2012)
848. Thompson, E. (2010) *Mind in life: Biology, phenomenology, and the sciences of mind*. Harvard University Press.
849. Psychologist Julian B. Rotter's "Locus of control" (1954), is an individual's "locus" (plural "loci", Latin for "place" or "location") is internal (a belief that one can control one's own life) or external (a belief that life is controlled by outside factors which the individual cannot influence, or that chance or fate controls their lives).

Rotter, J.B. (1966) 'Generalized expectancies for internal versus external control of reinforcement'. *Psychological Monographs: General and Applied*. Vol. 80 (1): pp. 1–28.
850. Élan vital. Bergson, H. (1911) *Creative Evolution*. New York: Henry Holt and Company.
Available at: <https://archive.org/details/creativeevolu1st00berguoft> (Accessed: 10 March 2014)
851. Elinor Goldschmied's "heuristic play" and "treasure baskets"; children are allowed to play freely and unselfconsciously, without adult intervention.
852. Foucault, M. (1990) *Discipline and Punish: The Birth of The Prison*. (ed.), Sheridan, A., New York: Vintage Books.
853. Ibid.
854. Illich, I. (1973) *Deschooling Society*. Available at: https://monoskop.org/images/1/17/Illich_Ivan_Deschooling_Society.pdf
(Accessed: 10 March 2014)
855. Bourdieu, P., Passeron, J.C., Nice, R., Bourdieu, P., Bottomore, T.B. (2013) 'Reproduction in education, society, and culture'. Los Angeles; London; New

- Delhi; Singapore; Washington, D.C.: Sage.
856. Illich, I. (1973) *Deschooling Society*. Available at: https://monoskop.org/images/1/17/Illich_Ivan_Deschooling_Society.pdf (Accessed: 10 March 2014)
857. Socialisation means here social: implying both socialising and socialism.
858. Freire, P. (2000) *Pedagogy of the Oppressed*. New York: Continuum.
859. Ibid.
860. Crenshaw, K. (1989) 'Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Anti-discrimination Doctrine Feminist Theory and Antiracist Politics'. *The University of Chicago Legal Forum*.
861. Thompson, E. (2010) *Mind in life: Biology, phenomenology, and the sciences of mind*. Harvard University Press.
862. "It's just Art who cares! It doesn't matter what you do. Nobody cares about Art". Early Years Foundation, Infant, and Junior teacher at A. school.
863. Rogoff, I. (2000) *Terra infirma: Geography's visual culture*. London: Routledge.
864. Dewey, J. (1938) *Experience and Education*. New York: Macmillan Publishing Company.
Dewey, J. (1933) *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Boston: D.C. Heath.
865. Nancy, J.L. (2000) *Being Singular Plural*. Stanford University Press, California. Chapter 1 (p.1-100).
866. Dewey, J. (1938) *Experience and Education*. New York: Macmillan Publishing Company.
Dewey, J. (1933) *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Boston: D.C. Heath.
867. Nancy, J.L. (2000) *Being Singular Plural*. Stanford University Press, California. Chapter 1 (p.1-100).
868. Biggs, J. (2003) 'Aligning Teaching and Assessment to Curriculum Objectives'. Imaginative Curriculum Project, LTSN Generic Centre.
869. This website documents some examples of our CDLY P: <https://www.lscovell.com/co-designly-practice>
870. Polanyi, M. (1966, 2009) *The Tacit Dimension*. Chicago: University of Chicago Press.
871. Ibid.
872. Lave, J., Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
873. Vygotsky, L. (1978) 'Interaction Between Learning and Development.' Gauvain and Cole (ed.) *Readings on the Development of Children*. New York: Scientific American Books.
874. Biggs, J. (2003) 'Aligning Teaching and Assessment to Curriculum Objectives'. Imaginative Curriculum Project, LTSN Generic Centre.
875. Kolb, D.A. (1984) *Experiential Learning: Experience as the Source of Learning and Development*. Case Western Reserve University: Prentice-Hall. ISBN: 0132952610. pp. 20-38.
876. Wood, D., Bruner, J., Ross, G. (1976) 'The Role of Tutoring in Problem Solving' *Journal of Child Psychology and Psychiatry* Vol. 17. Available at: https://www.researchgate.net/publication/228039919_The_Role_of_Tutoring_in_Problem_Solving. (Accessed: 5 April 2017)
877. Freire, P. (2000). *Pedagogy of the Oppressed*. New York: Continuum
878. With a spark of brilliance/originality.
879. The DfE's the Education Endowment Foundation (EEF), (2018). Available at: <https://educationendowmentfoundation.org.uk/school-themes/> (Accessed: 1 September 2020)
880. Ettinger, B.L. (2006) *The Matrixial Borderspace*. (Essays from 1994–1999). Minneapolis, London: University of Minnesota Press.
881. Ettinger, B.L. (2005) 'Copoiesis'. *Ephemera*. Available at: www.ephemeraweb.org Vol. 5(X): pp.703-713 (Accessed: 26 April 2013).
882. Puig de la Bellacasa, M. (2017) *Matters of Care: Speculative Ethics in More than Human Worlds*. Minneapolis; London: University of Minnesota Press.
883. UNICEF (2023) 'UN Convention on the Rights of the Child (UNCRC)'. Available at: <https://www.unicef.org.uk/what-we-do/un-convention-child-rights/>. (Accessed: 10 May 2024)
884. Husserl, E. (1964) *The phenomenology of internal time-consciousness*. Bloomington: Indiana University Press. p.182
885. "Joseph Kosuth proposes a mode of artistic operation that somehow addresses the work's context ... the difficulty of distinguishing "the meaning of cultural forms outside of a network of power relations" could imply that art/[] risks losing sight of its critical role and thus descending into pastiche, fashionable decoration, or bombast. ... [H]e proposes that art/[] be reflexive, and consider "the uses of its elements within the work and the function of that work within its larger cultural societal framework," he sees in Wittgenstein's philosophy of the limits of language a useful model for structuring such an artistic method. What distinguishes art/[] from informative language is that it not only describes or shows reality, but it can potentially describe how it describes. By inhabiting the gap between visual and linguistic forms, the work can articulate that which falls outside the scope of language ... [the] 'unsayable'".
O'Riley, T. (2006) 'An inaudible dialogue. Working Papers in Art and Design 4'.
886. Derrida, J. (1978) *Cogito and the History of Madness. From Writing and Difference*, (trans.) Bass, A., London, New York: Routledge. p. 75.
887. Schultz, W., Fried, L. (1992) *Jacques Derrida Bibliography*. London; New York: Garland. p.12.

888. "A [work] is made up of signs that speak of other signs, which in their turn speak of things". Eco, U. (1980) *The Name of the Rose*, California: Harcourt.
889. Constructive learning: learners construct new knowledge - understandings and meanings synthesise with what is already known. Jean Piaget's theory of cognitive development; Lev Vygotsky considered sociocultural perspectives, Mikhail Bakhtin, Jean Lave and Etienne Wenger, Brown, Collins and Duguid; Newman, Griffin and Cole, and Barbara Rogoff incorporated a situated cognitive approach.
890. The philosophies of Immanuel Kant, George Berkeley, Jean Piaget, and John Dewey's "action research".
891. This website documents some examples of our CDLY P: <https://www.lscovell.com/co-designly-practice> password: PhD
892. Depraz, N., Varela, F., Vermersch, P. (Ed.) *On Becoming Aware. A pragmatics of experiencing*, John Benjamins Publishing Company: Philadelphia.
893. Teachers routinely download lessons from subscription websites such as Twinkl, Tes, Primary Resources, or Classroom Secrets. They lessen teacher workload whilst adhering to the national curriculum, there is, however, a formulaic, lowest common denominator uniformity in these materials. This is characterised by the Twinkl Sans font (a Calibri and FF Meta *comb*) to carry the Twinkl brand across learning platforms "combining a valuable educational tool with a powerful branding asset". In the descriptors "strong corporate branding" and "powerful branding asset" livestock branding of cattle comes to mind. Shouldn't we question this sort of herd conformity and mentality? Isn't to learn a uniquely subjective experience anyway, and, literally, a non-conforming irregular verb: a *doing* word?
894. Merleau-Ponty, M. (2005) *Phenomenology of Perception*. Trans: Colin Smith. London: Routledge.
895. Behnke, E. (1989), Husserl, E. (1952) 'Edmund Husserl's Contribution to Phenomenology of the Body in Ideas II' Issues in Husserl's 'Ideas II'. (ed.) Nenon, T., Embree, L. Dordrecht: Kluwer Academic Publishers, (1996), pp.135–60.
896. Metanarratives: "Simplifying to the extreme, I define postmodernism as incredulity toward metanarratives. ... The narrative function is losing its functions, its great hero, its great dangers, its great voyages, its great goal. It is being dispersed in clouds of narrative language ... Where, after the metanarratives, can legitimacy reside?" Lyotard, J. (1984) *The Postmodern Condition: A Report on Knowledge*, Minneapolis, Minn.: University of Minnesota Press. Interestingly, algorithms are the new metanarratives/legitimacy.
897. Rogoff, I. (2000) *Terra infirma: Geography's visual culture*. London: Routledge.
898. Rogoff, I., (1998) 'Studying Visual Culture'. *The Visual Culture Reader*, edited by Mirzoeff, N., London, Routledge, pp. 24-36.
899. "The eye exists in the wild". Breton, A. (trans.) Seaver, R., Lane, H.) Available at: https://monoskop.org/images/2/2f/Breton_Andre_Manifestoes_of_Surrealism.pdf (Accessed: 12 March 2023).
900. (*Il n'y a pas de hors-texte*.) Derrida, J. (1967) *Of Grammatology, Part II*, Introduction to the Age of Rousseau, section 2 "...That Dangerous Supplement..." The Exorbitant. Question of Method, pp. 158–59, 163.
901. Da Vinci, L. (1270) *Codex Urbinas Latinus*: (1956) *Treatise on Painting* (trans. Philip McMahon) Princeton University Press, Princeton, NJ.
902. Barthes, R. (1981) *Camera Lucida*, Hill and Wang: New York.
903. Pythagoras (est. 500BCE) *Quadrivium, Tetraktys*.
904. Plato's extramission theory. A smooth, gentle "fire" is emitted by the eye and fuses with ambient light to form a sentient "body of vision". (from *Grüsser*, 19XX).
905. "... with a sun/entirely", Poet Jean Daive. Available at: https://monoskop.org/images/4/41/Continent_2.2.pdf (Accessed: 10 February 2019)
906. Deleuze, G. (1981) *Francis Bacon – Logique de la sensation*, (trans.) Smith, D. (2003), London: Continuum.
Deleuze, G. (1968) *Difference and Repetition*, (trans.) Patton, P. (1994), Columbia: Columbia University Press.
Deleuze, G., Guattari, F. (1987) *A Thousand Plateaus*, (trans.) Massumi, B. (2003), London: University of Minnesota Press.
907. Gestalt, meaning the essence or shape of form. Based on the gestalt psychology of Johann Wolfgang von Goethe, Ernst Mach and Christian von Ehrenfels, and the research of Max Wertheimer, Wolfgang Köhler, Kurt Koffka and Kurt Lewin. "Gestalt psychology observes the 'integrated whole' as a perceptual pattern or structure possessing qualities as a whole whereby 'the whole is other than the sum of the parts.'" Koffka, K. and Hothersall, D. (2004) *History of Psychology*. Cambridge: Cambridge University Press. pp.185-217.
908. E.g., <https://www.lscovell.com/fourth-plinth-schools-award?pgid=kw2fastm-5c4adb96-d41e-42c1-869c-25a67a7c6ba5>
<https://www.lscovell.com/theatre?pgid=kv5hzikp-4c58c13b-fa32-4493-ad7f-f139b79a09a3>
<https://www.lscovell.com/flora?pgid=kv6zctgv-614c437d-5ca8-4de9-a5b7-aaa69db6de18>
<https://www.lscovell.com/flora?pgid=kv6zctgv-cf738396-f18f-4841-9f8c-4b8ffc465b95>
909. Kenny, A. (2005) *Wittgenstein*, Williston, VT: Wiley-Blackwell.
910. Fincher, W. (2015) *Logocentrism* Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781405165518.wbeos1055.pub> (Accessed: 27 May 2020).
911. Burton, R. (1621) *The Anatomy of Melancholy*, Part 2, Sect. II, Mem. IV
Available at: https://www.gutenberg.org/files/10800/10800-h/10800-h.htm?fbclid=IwAR1SkNbOh65C6WbcYCY_gz-_fMDGfcH26nps9HRZfwgftU9iXrX1cW-WYafA (Accessed: 1 September 2020).
912. Saussure, F. (1974, 1983) *Course in General Linguistics*, (eds. Bally, C., Sechehaye, A., (trans.) Harris, R. Illinois: Open Court.
913. Gadamer, H.G. (2004) *Truth and Method*, (2nd ed.), (trans.) Weinsheimer, J., Marshall, D.G. New York: Crossroad.
914. Ibid.
915. Manen, M. (2007) *Phenomenology & Practice, Volume 1*, No. 1. Alberta: University of Alberta. pp. 11-30.
Manen, M. (2016) *Phenomenology of Practice: Meaning-Giving Methods in Phenomenological Research and Writing (Developing Qualitative Inquiry)*. New York: Routledge, Taylor & Francis Press.
916. The term "plasticity" was first applied to behaviour in 1890, by William James in *The Principles of Psychology*. Neural plasticity was coined by neuroscientist Jerzy Konorski (Livingston, 1966 and LeDoux, 2002).
917. "[S]ubjectivity in formation," and "questionable-subject-in-process," resonating with Irit Rogoff and Julia Kristeva.

918. From Hegel's "of molding" and "to mold, form" from Latin *plasticus*, the Greek *plastikos* "fit for molding, capable of being molded into various forms ..." also in reference to the arts, from *plastos* "molded, formed", verbal adjective from "*plassein*" to "mold."
Available at: <https://www.etymonline.com/word/plastic> (Accessed: 10 June 2020)
919. A major theme of Malabou's work is plasticity and neuroplasticity.
920. Newen, A., Gallagher, S., De Bruin, L. (2018). *E Cognition: Historical Roots, Key Concepts, and Central Issues*. Oxford: Oxford University Press.
921. Merleau-Ponty, M. (2005) *Phenomenology of Perception*. Trans: Smith, C. London: Routledge.
922. Autopoiesis: Maturana, H., Varela, F. (1980) *Autopoiesis and cognition: The realization of the living*. Boston: Reidel.
923. An idiographic approach to personality considers each person is unique and perceives and understands the world differently.
Available at: Oxford Reference <https://www.oxfordreference.com/display/10.1093/acref/9780191843273.001.0001/acref-9780191843273-e-148>
(Accessed: 10 June 2020)
924. Moustakas, C., (1994) *Phenomenological Research Methods*. Sage Publications, Thousand Oaks California.
925. Foucault, M. (1966, 1994) *The Order of Things: An Archaeology of the Human Sciences*, New York: Vintage.
926. "The phenomenological gaze". "Male gaze" is discussed in Berger, J. (1977) *Ways of Seeing*, London: Penguin.
927. Affect: Baruch Spinoza, elaborated on by Henri Bergson, Gilles Deleuze, and Felix Guattari places emphasis on bodily, embodied experience.
Deleuze, G., Guattari, F. (1987) *A Thousand Plateaus*. Minnesota: University of Minnesota Press.
For Deleuze and Guattari "affect" or "affection" is the ability "to affect" or "be affected", it is register of interaction with stimuli and the material world. There is a "self" and its affective or affecting "field". I posit that enactivity is a better, more consciously cognitive and pro-active (socio-political) term than "affect".
928. Rogoff, I., (1998) 'Studying Visual Culture'. *The Visual Culture Reader*, ed. by Mirzoeff, N. London: Routledge. pp. 24-36.
929. Rogoff, I. (2010) 'Practising Research: Singularising knowledge', *Journal of Artistic Research*. (Rolnik, S. (2008) 'Molecular Revolution in Brazil', *Semiotexte*: 51, Summer.)
930. E.g., <https://www.lscovell.com/our-utopia-1>
Rogoff, I. (2010) 'Practising Research: Singularising knowledge', *Journal of Artistic Research*. (Rolnik, S. (2008) 'Molecular Revolution in Brazil', *Semiotexte*: 51, Summer.)
931. Churchman C.W. (1971) *The Design of Inquiring Systems: Basic Principles of Systems and Organization*. New York: Basic Books.
932. Husserl, E. (1929, 1960) *Cartesian Meditations*, (trans.) Cairns, D. The Hague: Martinus Nijhoff.
933. The gestalt theory of Johann Wolfgang von Goethe, Ernst Mach and Christian von Ehrenfels, and the research of Max Wertheimer, Wolfgang Köhler, Kurt Koffka and Kurt Lewin.
934. Autopoiesis: Maturana, H., Varela, F. (1980) *Autopoiesis and cognition: The realization of the living*. Boston: Reidel.
935. Gardener, H. (1983) *Frames of mind: the theory of multiple intelligences*. New York: Basic Books.
936. Gardner, H. (2020) *A Synthesizing Mind*. MIT Press: Cambridge.
937. Gardener, H. (1983) *Frames of mind: the theory of multiple intelligences*. New York: Basic Books.
938. <https://www.lscovell.com/copy-of-fourth-plinth-schools-award>
<https://www.lscovell.com/children-s-day-and-the-koi-fish>
939. Gardner, H. (2020) *A Synthesizing Mind*. MIT Press: Cambridge.
940. Piaget, J. (1980) 'The Psychogenesis of Knowledge and its Epistemological Significance', (ed.) Piatelli-Palmarini, M. *Language and Learning*, MA: Harvard University Press. pp. 23-34
941. Newen, A., Gallagher, S., De Bruin, L. (2018) *E Cognition: Historical Roots, Key Concepts, and Central Issues*. Oxford: Oxford University Press.
942. Hamalainen, K., Siirala, E. (1998) 'Experiential Learning: From Discourse Model to Conversation' Interview with David Kolb, *Lifelong Learning in Europe*.
Available at: <https://learningfromexperience.com/downloads/research-library/experiential-learning-from-discourse-model-to-conversation.pdf>
(Accessed: 20 February 2020).
943. Kuang, X. 3rd Century BCE, "For the things we have to learn before we can do them, we learn by doing them". (Aristotle, *The Nicomachean*.)
944. Hamalainen, K., Siirala, E. (1998) 'Experiential Learning: From Discourse Model to Conversation' Interview with David Kolb, *Lifelong Learning in Europe*.
Available at: <https://learningfromexperience.com/downloads/research-library/experiential-learning-from-discourse-model-to-conversation.pdf>
(Accessed: 20 February 2020).
945. Depraz, N., Varela, F., Vermersch, P. (ed.) (2003) *On Becoming Aware. A pragmatics of experiencing*. Vol. 43. Philadelphia: John Benjamins Publishing Company.
946. Being is always "being in common". Nancy, J.L. (1991) *The Inoperative Community*. Minneapolis: University of Minnesota Press.

Rogoff, I. (1998) "Studying Visual Culture". *The Visual Culture Reader*, (ed.) Mirzoeff, N., London: Routledge. pp. 24-36.
947. <https://www.lscovell.com/fourth-plinth-schools-award-1>
<https://www.lscovell.com/fourth-plinth-schools-award>
948. <https://www.lscovell.com/mazes-labyrinths-and-games-info>
<https://www.lscovell.com/mazes-labyrinths-and-games-1>
949. Ofsted (2019) 'Inspecting the Curriculum' Available at: <https://www.gov.uk/government/publications/inspecting-the-curriculum> (Accessed: 4 January 2019).
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Today, Class 2 were researching Ancient Egyptians, B.,(5), started telling us about her family holiday to Giza, Egypt to see the pyramids. "I felt very, very tiny, like a little, little ant and they were so big, they block-out the sun. When we went to the tomb with the tourists, it was dark under the ground. I was scared. After we rode a camel and I had my photo taken with my family hugging the camel. Then a coach came and took us to The Valley of Kings. Down in the tomb there were [Egyptian] drawings and writing all over the walls and there were unwrapped mummies in wooden, gold boxes and a gift shop where we brought souvenirs. Then the coach took us back to our hotel on the side of the river [Nile] and we ate ice cream in the cafe under the [date palm] trees. Then we went swimming in the pool because it was very hot and dusty, and the desert was there". The class listened enthralled. At home time, B.'s mother told me they've never been on a holiday to Egypt.

B.'s reflexivity about her imaginary 'lived experience' attunes with shared interpretations of meaning (hermeneutics). In this instance, Interpretative Phenomenological Analysis would be about meaning-making statements that reference known epistemes; a truth (*her truth*), not necessarily the truth. Moreover, B.'s (gifted) Early Years Foundation Stage child-ish viridity raises the question not only whose truth, but what truth? B. was tracing: from here-to-there, this-to-that, carefully diagramming a non-authentic experience; something impressive and quintessential, but not sentient (*sensi*).

Recently, my father showed me his Art book from Primary school. Pages of meticulous tracings of birds, a car, a hospital bed (he was in the hospital for a while) – tentative, light, but precise pencil outlines with no fill, colour, or texture. His drawings weren't his and Art lessons consisted of learning to trace with robust discipline and tense accuracy. A series of taciturn, flat-grey, and vacuous outlined shapes – perfunctory blank vacuoles, one-after-another, missing insides (little frets of line here and there), dimensionality, character, or any self-expression. His tracings, like B.'s story, missed the essential point of presence/participation.

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The Academy of Medical Sciences (WRH0033); This Independent Life (WRH0026); Evidence submitted in confidence (WRH0030).
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1059. "...contraceptive pills were often "seemingly the answer to any and every female issue" which is "perpetuated by current guidelines and medical training"; with doctors preferring to prescribe oral contraceptives to treat the symptoms of heavy menstrual bleeding and endometriosis, "instead of developing a plan that met the needs of the individual".
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- Possibly, all of this could have been prevented if I had learned to chart, track, and monitor my menstrual cycle. The GP would have been able to see data visual and signifying menstrual changes earlier for medical expert intervention. About 10% of females experience endometriosis, with early intervention, specialist endocrine monitoring, and hormonal management endometriosis need not be cause for concern. Polycystic ovary syndrome usually takes about 6.5 years * to diagnose, again expert early intervention and monitoring can stall pathology progress.
- * <https://www.endometriosis-uk.org/getting-diagnosed-endometriosis>
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You've done too much,
 Much too young
 Now you're married with a kid
 When you could be having fun with me
 Oh no, no gimme no more pickney (Jamaican Patois meaning child)
 You've done too much,
 Much too young
 Now you're married with a son
 When you should be having fun with me
 We don't want, we don't want
 We don't want no more pickney
 Ain't he cute?
 No he ain't
 He's just another burden
 On the welfare state
 You've done too much,
 Much too young
 Now you're married with a kid

When you could be having fun with me
 No gimme, no gimme,
 No gimme no more pickney
 Call me immature
 Call me a poser
 I'd love to spread manure in your bed of roses
 Don't want to be rich
 Don't want to be famous
 But I'd really hate to have the same name as you
 (You silly moo)
 You've done too much,
 Much too young
 Now you're married with a kid
 When you could be having fun with me
 Gi we de birth control, we no want no pickney
 You've done too much,
 Much too young
 Now you're chained to the cooker
 Making currant buns for tea
 Oh no, no gimme no more pickni
 Ain't you heard of the starving millions
 Ain't you heard of contraception
 Do you really a program of sterilization
 Take control of the population boom
 It's in your living room
 Keep a generation gap
 Try wearing a cap!

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Appendix:

Please also refer to: 1. **The Embodied Menstrual Awareness Toolkit**

2. **lscovell.com**
password: PhD

Join a research study & learn to track your periods!

Calling UAL students!

I am looking for volunteers to participate in a research study about learning to track the menstrual cycle, in real time, using a pencil and paper, data visualisation, and encoding (for privacy). This makes it easier for each of us to explore, express, and understand the hows and whys of what's (exactly) going on when we menstruate.

A simplified version of the Sympto-Thermal Method (STM), Embodied Menstrual Awareness (EMA) is a group-based, "Co-Designly Practice" (CDLY P) toolkit for understanding the menstrual cycle in detail. By taking your temperature on waking each morning, EMA allows you to chart and track your ovarian and uterine cycles; establish their link to menstrual flow and connectedness to physiological changes.

(Menstrual tracking apps are unregulated and commercially vested; they use predictive, "partially accurate" and less precise algorithmic methods. Personal data is uploaded and may not be secure (possibly sold to or intercepted by third parties). In addition to subscription fees, apps can rely on the production, analysis, and selling of users' data for financial sustainability. Accessing and sharing your past data with a medical practitioner could also be problematic.)

This research addresses the lack of a custom, accurate, GDPR data-secure and confidential, analogue tool for learning how to track the menstrual cycle for schools (and across a wider, reproductive health cohort).

The base toolkit designed to be continuously iterative via visual, creative interplay and has various cut-out and folding templates, grids, and physiological diagrams for drawing on and retooling. There is a choice of projects to do and as "co-researchers" you will be working in groups to further 'CDLY P' materials and exercises (using core information that references 'The Royal College of Nursing's (RCN) Women's Health Pocket Guide' and their RCN toolkit 'Promoting Menstrual Wellbeing').

Used on-screen or remotely online, the toolkit will be yours to keep digitally and is downloadable for print-out and use.

This research is non commercial and not-for-profit, and will be Creative Commons (shared for free).

Where?

The research study will mostly take place at LCC, UAL (some sessions will be online via Miro).

When?

13/04/23 - 08/06/23 (tbc)

There will be a series of four two-hour workshops. Sessions will be on a Thursday, starting at 6.00 pm (once every other week, over a two-month period).

What?

Research study field:

Visual communication, social design, Co-Designly Practice, phenomenology, experiential learning, embodied awareness, reproductive health awareness, research skills, data visualisation: drawing, diagramming, and encoding.

I am a PhD Doctoral Researcher, Professor, Lecturer, and Teacher specialising in "Co-Designly Practice" arts-design praxis, research, and advocacy. An experienced practitioner in visual communication, I work within the academic and educational field, cultural milieu, and UN/NGO international development sector.

Who?

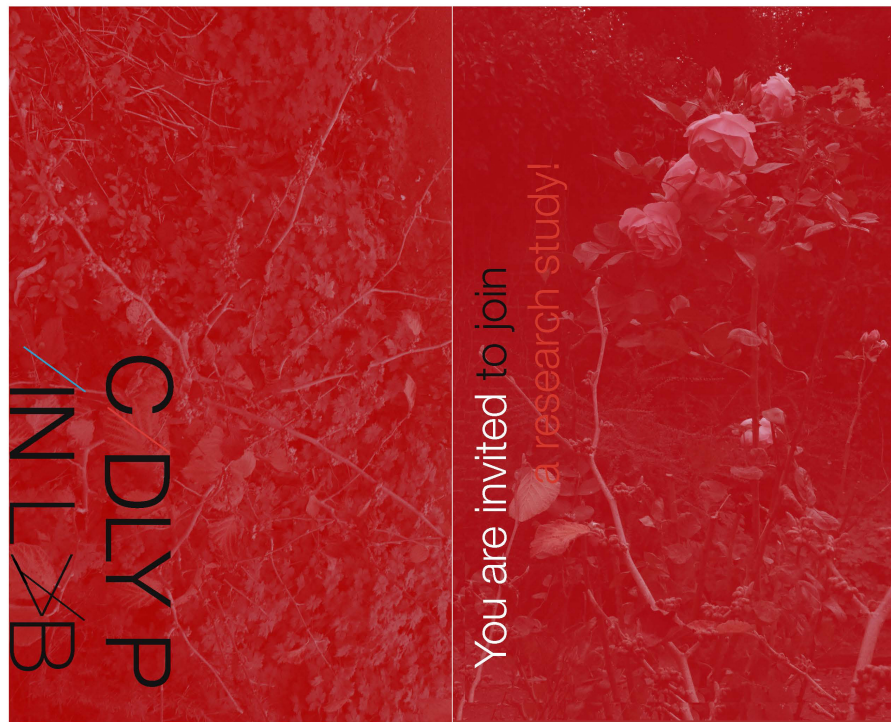
This study is inclusive, acknowledging and welcoming gender-diverse input and experiences. Anyone can join with an interest in learning about the menstrual cycle and further contributing to the toolkit.

How?

Places are limited to sixteen throughout UAL and will go quickly:

1. Check out the Participant Letter of Information with this poster.
2. To register, fill in the (confidential) Consent Form.
3. Email to l.scovell1.arts.co.uk by 17/03/2023.

CDLY P IN LXB VIA EM >



ual: university
of the arts
london

Join us to think about how best to learn about periods!

A simplified version of the Sympto-Thermal Method (STM), Embodied Menstrual Awareness (EMA) is a group-based, "Co-Designly Practice" (CDLY P) toolkit for understanding the menstrual cycle in detail. By taking your temperature on waking each morning and observing subtle changes in cervical fluid, EMA allows you to chart and track your ovarian and uterine cycles; establish their link to menstrual flow and connectedness to physiological changes.

(Menstrual tracking apps are unregulated and commercially vested; they use predictive, "partially accurate" and less precise algorithmic methods. Personal data is uploaded and may not be secure (possibly sold to or intercepted by third parties). In addition to subscription fees, apps can rely on the production, analysis, and selling of users' data for financial sustainability. Accessing and sharing your past data with a medical practitioner could also be problematic.) This research addresses the lack of a custom, accurate, GDPR data-secure and confidential, analogue tool for learning how to track the menstrual cycle in schools and across a wider, reproductive health cohort.

The base toolkit designed to be continuously iterative via visual, creative interplay and has various cut-out and folding templates, grids, and physiological diagrams for drawing on and retooling. There is a choice of projects to do and as "co-researchers" you will be working in groups to further 'CDLY P' materials and exercises using the core information provided. (This references 'The Royal College of Nursing's (RCN) Women's Health Pocket Guide' and their RCN toolkit 'Promoting Menstrual Well-being'.) The toolkit is designed to be continuously adaptive and updating: responsive to NHS Healthcare input and synergy, the RCN's Women's Health Forum, the Royal College of Obstetricians and Gynaecologists, the FSRH (Faculty of Sexual and Reproductive Healthcare), the World Health Organisation (WHO), UN (UNFPA), the PSHE Association, the DfE, Ofsted, Secondary school adolescent, and UAL student feedback.

Used on-screen or remotely online, the toolkit will be yours to keep digitally and is downloadable for print-out and use.

This research is non commercial and not-for-profit, and will be Creative Commons (shared for free).

If you have any questions, please contact Louise Scovell (she/her) at UAL: l.scovell1@arts.ac.uk

The EMA toolkit is free, allows you to understand exactly how your menstrual cycle works using a pencil and paper, is visually encoded by you so it is private, and is in actual time.

This makes it easier for each of us to explore, express and understand the hows and whys of what's (exactly) going on when we menstruate.

Where?

The research study will mostly take place at LCC, UAL (some sessions will be online via Miro).

When?

13/04/23 - 08/06/23 (tbc)

There will be a series of four two-hour workshops. Sessions will be on a Thursday, starting at 6.00 pm (once every other week, over a two-month period).

What?

Research study field:

Visual communication, social design, Co-Designly Practice, phenomenology, experiential learning, embodied awareness, reproductive health awareness, research skills, data visualisation: drawing, diagramming, and encoding.

I am a PhD Doctoral Researcher, Professor, Lecturer, and Teacher specialising in "Co-Designly Practice" arts-design praxis, research, and advocacy. An experienced practitioner in visual communication, I work within the academic and educational field, cultural milieu, and UN/NGO International Development sector.

Who?

This study is inclusive, acknowledging and welcoming gender-diverse input and experiences. Anyone can join with an interest in learning about the menstrual cycle and further contributing to the toolkit.

How?

Places are limited to sixteen throughout UAL and will go quickly:

1. Check out the Participant Letter of Information with this card:
2. To register, fill in and sign the (confidential) Consent Form,
3. Email to l.scovell1@arts.co.uk by 24/03/2023.

Learning to track and visualise your own menstrual cycle and its unique set of rhythms, flows, and frequencies.

Field of study: visual communication, social design, “Co-Designly Practice” (CDLY P), phenomenology, experiential learning, embodied awareness, menstrual reproductive health awareness, research skills, data visualisation: drawing, diagramming, and encoding.

Join us to think about how best to learn about our menstrual cycles in school!

My research explores if we can better understand the menstrual cycle by learning to track the timing and flow of our periods via data visualisation and diagramming.

Where?

The research study will mostly take place at LCC, UAL (some sessions will be online via Miro). There will be a series of four, two-hour workshops. Sessions will be on a Thursday, starting at 6.00pm (once every other week over a two-month period between 13/04/23 - 08/06/23 tbc).

How?

Using Embodied Menstrual Awareness (EMA), a simplified version of the Sympto-Thermal Method (STM), we will learn to track, encode, and visualise our menstrual data using diagramming, geometry, and graphics.

By taking your temperature on waking each morning and observing subtle changes, EMA allows you to chart and track your ovarian and uterine cycles and establish their link to menstrual flow and connectedness to physiological changes. Pivotal, EMA helps you to understand how your menstrual cycle works in real-time using a pencil and paper, and your data will be visually encoded by you so that it is private. (Menstrual tracking apps usually use less precise, algorithmic methods that require online access. Unregulated and commercially vested; personal data is uploaded and may not be secure – possibly sold to or intercepted by third parties. In addition to subscription fees, apps can rely on the production, analysis, and selling of users’ data for their financial sustainability or profit. Accessing and sharing your past data with a medical practitioner could also be problematic.)

Interactive and continuously iterating, the base toolkit is designed for visual, creative interplay and has various cut-out and folded templates, grids, and physiological diagrams. There is a choice of exercises to do, and you will be actively encouraged to design your own projects and activities in response to evidence-based content. As co-researchers, we’ll rigorously test the toolkit and further ‘CDLY P’ workshop activities and exercises – tackling gaps, questions, issues, or concerns as they arise in an informal and friendly Social Design setting. The research study will generate two versions of the toolkit – one for schools and one for 51% of the UK population of reproductive age.

Who can join?

If you have periods (or are menstruating but not ovulating, or non-menstruating, pregnant, or using hormonal products, medications, or contraceptives) - you are encouraged to join the research study and participate. We will learn about the menstrual cycle *in detail* and be discussing physiology, hormonal changes, reproductive health, and possible symptoms. Places are limited to sixteen throughout UAL and will go quickly. **If interested, please download the Participant Information Letter and the Consent Form. Open in Adobe Acrobat, you will need to enter the password EMA to access the “fill & sign” (pencil icon) option. Please fill-out and sign the Consent Form and sign or initial the Participant Information Letter – then return via email to me, Louise Scovell (she/her) at l.scovell1@arts.ac.uk (before March 24th).** (If oversubscribed, there will be a reserve list.)

This research study is to develop an informational resource for raising awareness about menstruation. Research is non-commercial, not-for-profit and will be Creative Commons – shared for free via the PSHE Association across UK Department of Education (DfE) Secondary schools and be part of the Royal College of Nursing’s RCN toolkit.

Louise Scovell is a PhD doctoral researcher in social/advocacy design, reproductive health, Co-Designly Practice, and child and adolescent pedagogy at the University of the Arts London; a DfE Teacher/Researcher; an experienced Professor and Lecturer in visual communication; a designer; UN consultant; and an artist.

I am happy to answer questions about the research study at l.scovell1@arts.ac.uk
Alternatively, please contact Dr Ian Horton (Director of Studies) at LCC: i.horton@lcc.arts.ac.uk
or the UAL, Research Management and Administration at: researchethics@arts.ac.uk

This research has been approved by the UAL, RKEESC Ethics Committee.

Consent Form for co-researchers taking part in the research

(Relating to (confidential) questionnaires or interviews, workshop and Co-Designly Practice activities.)

Learning to track and visualise your own menstrual cycle and its unique set of rhythms, flows, and frequencies.

For yes please tick box, for no please leave blank

- ☐ I understand this research study is thinking about how best to learn about menstruation in schools.
- ☐ I consent to learn about: menstruation, menstrual-related physiological changes, and how to track a menstrual cycle. I understand that I will need to record my temperature upon waking each day using a supplied Basel Body Thermometer (BBT). (A BBT looks and works like an ordinary thermometer; however, it has a more precise reading.)
- ☐ Using Co-Designly Practice, I understand that I will work in a group to design a series of pencil-on-paper diagrams that visually encode and protect my unique data. Later, I will test these diagrams by tracking my menstrual cycle.
- ☐ Using "Co-Designly Practice" reflexivity, I will have the opportunity to give feedback about the toolkit - via audio recordings of group discussions or a brief, written questionnaire at the end of each session.
- ☐ I understand that my personal information will be made anonymous. From the onset, any identifying details will be removed from my workshop contributions, all discussions, and my questionnaire answers.
- ☐ Research study participants may have different menstrual practices and/or beliefs. As much as possible, we will endeavour to be sensitive, kind, and considerate of each other; however, I understand I could be upset by the opinions, comments, ideas, or visual designs of others.
- ☐ I understand that my participation is voluntary. At any time, I can freely leave the room or withdraw from the study without explanation or prejudice. At the end of each session, I can informally ask to see my contributions and have the opportunity to edit or withdraw these if I want. At the end of the project, I will be invited to a debrief to discuss our discoveries in a friendly, relaxed setting (again, participation will be voluntary).
- ☐ I understand that audio recordings and documentary images will be stored in a secure location during the project and when the research is finished, these files will be destroyed.
- ☐ I understand that audio and images of me will only be used with my consent.
- ☐ I understand that (anonymised) information generated by me may be used in future research, articles, or presentations by the researcher.
- ☐ I am over 18.
- ☐ I confirm I am menstruating and: not pregnant, not using hormonal contraceptives (for example, the pill), not using an IUD, and not taking any hormonal medication, hormonal supplements or hormonal suppressants – as these affect the menstrual cycle. (Please leave this box blank you are non-menstruating, pregnant, using hormonal contraceptives (for example, the pill), or using an IUD, or taking hormonal medication, supplements and/or suppressants. Everyone is encouraged to join the research study.)
- ☐ I confirm that I have read and understood the Information Sheet for the study. I have had the opportunity to ask questions and have understood the answers given.

Name (in capitals): _____

Signature: _____ Date _____

Researcher's signature: _____ Date _____

If you have any questions, please contact Louise Scovell: l.scovell1@arts.ac.uk
Dr Ian Horton (Director of Studies at LCC): i.horton@lcc.arts.ac.uk
or the University for the Arts London, Research Management and Administration: researchethics@arts.ac.uk

(Please note: UAL Research Ethics was sent the signed and dated originals by Dr Sai Gnanasambanthan via her email.)

Dr Sai Gnanasambanthan,
Specialist Registrar,
Obstetrics & Gynaecology Department,
Princess Royal University Hospital - King's College NHS Trust,
Farnborough Common,
Orpington,
Kent, BR6 8ND.

Dr Jonathan Hardy, Chair,
UAL Ethics Review Committee,
University of the Arts London,
272 High Holborn,
London, WC1V 7EY

Dear Dr Hardy and the UAL Research Ethics Sub-Committee,

I have agreed to support Louise Scovell in her PhD doctoral research as medical expert advisor. This ensures that the information in her Co-Designly Practice (CDLY P), Base Toolkit (for increasing menstruating adolescents' understanding of their menstrual cycle in Secondary schools - via Embodied Menstrual Awareness (EMA)) uses facts and is not misleading/unethical. (Factual data references 'The Royal College of Nursing, Women's Health Pocket Guide' and their toolkit 'Promoting Menstrual Wellbeing,' other content cites published medical research in academic literature.)

In addition to my role as Specialist Registrar in the Obstetrics & Gynaecology Department of the Princess Royal University Hospital - King's College NHS Trust; I am a Clinical Key Student Assessment Editor for Elsevier inc., an article author for the Obstetrics, Gynaecology & Reproductive Medicine Journal, a co-author of SBAs for the MRCOG Part 1 Exam Book, and a Peer Reviewer for BMJ Case Reports.

Yours Sincerely,
Dr Sai Gnanasambanthan

Dr Sai Gnanasambanthan,
Specialist Registrar,
Obstetrics & Gynaecology Department,
Princess Royal University Hospital, King's College NHS Trust,
Farnborough Common,
Orpington,
Kent, BR6 8ND.

Dr Jonathan Hardy, Chair,
UAL Ethics Review Committee,
University of the Arts London,
272 High Holborn,
London, WC1V 7EY

To Whom This May Concern,

I have reviewed the CDLY P EMA Menstrual Toolkit in detail, and feel it is very informative and well set out. I have analysed it in detail, and made suggestions for corrections, as well as disclaimers to include for when readers should seek health-professional advice. I believe this toolkit would be a worthwhile accessory for increasing menstruating adolescents' understanding of their menstrual cycle in Secondary schools.

Yours Sincerely,

Dr Sai Gnanasambanthan
Obstetrics & Gynaecology Speciality Trainee (ST6)
Princess Royal University Hospital, King's College London NHS Foundation Trust

