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DOUBT IN DIGITAL EDUCATION CRITICAL THINKING IN THE AGE OF TRUMP

Robert Nelson

Abstract

Based on a taxonomy that includes discourse and ideology as well as logic and truth, this article identifies doubt as the element most critical to critical thinking. Not only is doubt intrinsic to questioning but it has a dynamic relationship to purposeful thinking. Despite its heightened relevance in an age when the separation of truth and falsehood is deliberately blurred in media, doubt is not sufficiently recognized in scholarly literature on critical thinking and is also not favoured by contemporary syllabus design. Using philological methods, the article reveals that doubt has been handled imaginatively and positively throughout the history of ideas; and its relative marginalization in pedagogy is a historical anomaly, aligning only with the early days of Christianity. The article argues that if critical thinking is taught without doubt, the syllabus is structurally hostile to critical thinking.

Keywords: critical thinking, doubt, uncertainty, imagination, syllabus design, alignment, learning outcomes, logic, discourse, inconsistency, thought, truth

Introduction

University lecturers, schooled on the rigours of the refereed literature, are concerned about the quality of information that their students get from the internet. Knowing that anyone can post almost anything and that the process of vetting is patchy at best, academics worry that students have immediate recourse to repositories like *Wikipedia* instead of reliable editions written by respected scholars. Despite all monitory discouragements, students love *Wikipedia*, because it covers all popular topics; it alluringly appears as the top of many internet searches and is instantly available. Further, *Wikipedia* often has more detail than is needed and a bibliography, plus useful links. A YouTube video is also likely to leap from the search page, promising a more accessible and entertaining treatment than anything that they are likely to gain from the refereed literature. Academics regularly warn their students of the danger of trusting internet sources—meaning, sources neither in the refereed literature nor on the official subject guide—but students are not to be put off. The study-practices of undergraduate students can hardly be invigilated; and the warnings about the unreliability of unrefereed digital assets, given that they consult them regardless, simply leave the student feeling a bit shabby in their dependency, undignified and miserable, engaging in renegade unacademic practice instead of good and wholesome bibliographic discipline.

The internet as an untrustworthy repository is not the only cause of suspicion. Truth claims, fake news and their supporting discourses are now more likely to reach the public not through a search engine—which in some sense parallels the catalogue of the library—but through social media. Politicians like Donald Trump are skillful in bombarding the electorate and world beyond with sound-bytes that pop up on your Twitter feed and are trafficked beyond because of their ingenious balance of cheek and

belligerence. For anyone seeking to understand the complexities of global politics, the tweets are pernicious. Instead of clarifying issues, they reinforce an impulse to produce a blast, to act on the impulse as a sign of personal certainty, with appeal to gun-slinging mythologies, where the shooter who is quicker on the draw is successful. Meanwhile, sites like Facebook harvest our personal interests and plies us with suggestions based upon our previous activity, thus creating an echo-chamber of our prejudices and reinforcing the discourse that figuratively owns our thinking. It is understandable that academics react to the new digital environment with discouragement.

Against this negative culture, I argue that the profusion of unrefereed sources that tempt the student are one of the best resources for a university education if they are relocated in a process of critical thinking. If academics can contain the reflex of wanting to isolate students from the messy vitality of the internet, we tantalizingly have the golden opportunity to cultivate critical thinking skills through the welter of open-source information and the tendentious bots that populate our suggestion bars. Sifting the truth and balanced view from the thick digital landscape of belief and nonsense, confidence and prejudice and confirmation bias, students have at the ready an authentic challenge that bridges academic and professional activity: how do we rapidly overcome our ignorance so that we can make convincing and accurate representations of our own? What is the essential ingredient that I can apply in good faith to sort out the unwieldy bulk of opinion and purported fact that I immediately encounter in my favourite digital environment? In this article, I want to show that this priceless challenge that we mostly pass up will only work for us if we have an elegant and functional view of critical thinking. For too long, I suggest, we have located critical thinking in a mechanistic framework which will not function happily in our dense environment of informational overload and self-generating prompts, suggestions and mystifying political sound-bytes sprayed like semantic shrapnel. Rather, the simple processes of questioning and doubting (when actually all that the student wants is certainty) will serve the purpose perfectly.

What is critical thinking?

Critical thinking, which is highly valued and central to the claim of a university education (Halpern, 2014), is difficult to define and hard to teach (Fisher, 2001). Many definitions sit within a mechanistic paradigm, where the validity of conclusions is assessed through interrogating the suppositions and logic of an argument (McPeck, 1983 and 2016). For example, the facts upon which an argument rests need to be challenged, either because the reported details (i) may turn out to be untrue, (ii) may be partial and incomplete or (iii) are correct in themselves but are incorrectly applied to a given circumstance.

Sometimes critical thinking is even defined as separating fact from assumption; sometimes, it is seen mechanistically as a process, where input is funnelled into analysis and an output ensues which is marvellously without prejudice, as if anatomizing an argument somehow strips it of bias. But critical thinking is not guaranteed by analysis, as you can tell by various proverbial religious traditions—Talmudic or Jesuitical, for example—in which arguments are scrupulously and exhaustively unpicked in a discourse that nevertheless carries assumptions that the exegete considers axiomatic but which an atheist would consider illusion.

This article argues that critical thinking depends on the thinker entertaining doubts concerning fact, opinion and positionality, all inextricably mixed in digital environments. In identifying doubt as the cornerstone of critical thinking—a case that appears to have

escaped due attention in the literature—it further argues that there is a structural problem in syllabus design throughout English-speaking universities, which is based on learning outcomes that are aligned with assessment. Structurally, the paradigm of constructive alignment favours certainty and has difficulty accommodating doubt: we do not, and often cannot, teach doubt. In this article, the rich creative and imaginative dimensions of doubt are philologically identified in the history of ideas of western Europe; and the relative hostility toward doubt in today's syllabus design is found to have no counterpart other than the anxious doctrine of the biblical period.

The three zones of critical thinking

We could distinguish three zones of doubt involved in critical thinking: questions of fact, questions of logic and questions of discourse. Questions of fact cast doubt on the veracity of the information adduced in a case. Questions of logic cast doubt on the connexions drawn between facts and the inferences that an audience is invited to make. Questions of discourse cast doubt on the cultural inclusiveness or terminology or interests that animate the case.

Using the example of education itself, we could begin by imagining a body of evidence that demonstrates how children who play violin or piano subsequently do better in education and enjoy better life prospects than those who do not. The first critical response to the claim is to interrogate the facts. What does it mean when we identify 'children who play violin or piano'? For how long? At what level? Does it mean sight-reading or playing Suzuki method? These questions of fact easily shade off into questions of the completeness of the facts. Does the study distinguish children who play piano or violin from children who listen to violin or piano, where classical music, say, is a part of children's lives irrespective of how active they are in playing either instrument? What about flute or oboe? What about guitar?

Sticking all the while to the claim over violin and piano, questions of logic enter in the next zone where we contemplate the implications. For many, the claim immediately implies that violin or piano is the reason for the superior academic performance of the children. There could be a kind of cognitive development through playing piano or violin—both difficult and demanding instruments—that gives children a special ability to concentrate and predisposes them to the challenges of academic disciplines. Thinking critically, however, we would be cautious about ascribing the better academic fortunes of the musical children to the practice of their instrument, because 'correlation \neq causation'. There may be a correlation between classical musicianship and student success; but even if playing piano or violin is considered a predictor of student success, it does not follow that it is the reason for student success.

Critical thinking at this level scrutinizes the logical connexion between two phenomena, musical aptitude and academic performance, and distinguishes cause from effect. The children who practice classical music are relatively privileged. Their parents are not only wealthy enough to afford a violin or piano but involved and ambitious enough to arrange and pay for lessons and books and concerts; so perhaps the children's background gives them the head start in academic progress, not necessarily the music or instruments that they play. It could be, for example, that children who know the word '*bors d'oeuvres*' also excel at school. If so, the knowledge of the French culinary term indicates social advantage rather than some necessary component of cognitive development, as if teaching a gastronomic word to disadvantaged children—who may never have seen a menu with foreign terms in it—will somehow result in new

scholastic capabilities. Until cause and effect are distinguished, any assertion from the findings is likely to remain controversial.

Questions of discourse follow. The third zone of critical thinking focuses on the cultural premises by which the claim has been framed. It might be observed that the whole discourse of children excelling according to how well prepared they are belongs to a middle-class preoccupation among zealous globalized parents, boastful institutions and other ambitious stakeholders. There is a subtext that the relative performance of children should be measured in assessments that set one child against another child, that produce rankings, the concern for which belongs to anxious tiger-parents and is answered by institutional swagger. If music is seen to help, it is credited with a promotional agency along with numerous other advantages that might be sought by parents and others who 'want the best for their children'. Though a legitimate area of social science, the discourse is culturally predicated on competitive bourgeois assumptions of excellence and ambition at stakes in which billions of people have no claim or interest. In the traditional Indigenous cultures of Australia, for example, the eagerness to see your children excel at the expense of other children might be seen as repugnant and somewhat sickening.

Discourse is dialectical. Any thorough interrogation of the premises of a discourse equates to an issue of perspective. From whose reality do we examine the world? It is an imaginative exercise which is value-ridden; and because discourse is so infused with values, it is equally riddled with doubt. All critical thinking, if it is really critical, must handle doubt. Yes, it is good for children to do well; and maybe learning classical music is axiomatically a good thing. But the terms on which we determine 'good' are not universal and our preoccupation in seeking good outcomes often involves a collateral abolition of doubt, regrettably, because the good that we do not doubt may be judged by others to be rotten. Especially if we can reassure ourselves that our inquiry is scientific, we are more likely to discount the need for doubt, because science suggests the absolute, even though good scientists are by nature modest and are quick to recognize the limitations of their inquiry.

Hence, there is special value in a digital environment that does not immediately have the authority of science. Students can more easily recognize the agency of discourse when a paper does not sit behind reams of citations and empirical data, with their persuasive air of universal principles. It is much easier to approach digital assets with a spirit of doubt than to wage spiritual warfare against the systematic professors whose writings have been juried to the n^{th} degree for scientific probity. As part of a learning experience, the information on the internet is much likelier to yield insights through critical thinking. Further, they have a useful cue in the way that social media channels propagate what they want to hear, thus giving the student a basis to exercise suspicion for rhetorical material that circulates in sneaky tendentious ways.

Clear distinctions between the three zones of critical thinking cannot always be drawn, because the theme of partiality is shared by all of them. Data gathering, logic and discourse all involve choices and emphasis; and this overlap heightens the need for doubt at all levels, because even the most objective phases of an inquiry are infused with partiality. The single most necessary element of critical thinking is doubt, because all findings at all levels must be checked for their partiality. In an educational context, this partiality is easier to detect when the material does not enjoy the imprimatur of the scientific or scholarly community.

Alas, cultural communication generally and education in particular, do not enjoy expressions of doubt. When we hear from experts, we like certainty, because by and large we seek reassurance in explanations and advice. If we want to be persuaded one way or the other, it is disappointing to waver. Sometimes, it can be fatal. We have to

decide, even though not all doubts can be resolved. A commercial, clinical or legal judgement that is full of doubts is held to be unhelpful or worse than useless, because wayward interpretations can spawn from the obscurities, shamelessly exploited by anyone who can see an opportunity to profit from a regulatory equivocation. Students also expect certainty from their lecturers and seek it in their subject guides, assessment criteria, marking rubrics, past exams or essays and other hints and templates. There is a widespread assumption that a lack of certainty may be equated with a lack of clarity—a regrettable defect—and consequently a kind of academic dereliction, an invitation to chaos, arbitrary judgements and irresponsible chance. We demand certainty over any issue where fairness and equity are at stake, because no student should be disadvantaged thanks to a misunderstanding or an ambiguity in the assessment; and we owe it to each student to have the same level of certainty as every other.

This deep and abiding attachment to certainty creates a problem in coursework programs that seek to cultivate critical thinking. Critical thinking lives in the cracks, the gaps, the possible breakages. It is most powerfully cultivated not when students follow or copy their lecturers and conform to their templates but when they doubt them, when they question the apparent certainties and react against them, when they sense a poor fit, an annoying supposition, a disagreement, a fault. I am most interested in a question if it contains doubts or if I can doubt the terms of the challenge; but my personal disposition is also not universal and there are powerful cultural reasons to marginalize doubt, which are just as notable as the appeal of doubt in discourse.

Doubt as the one certainty in critical thinking

The peculiar virtue of studying doubt is that doubt greatly antedates the term ‘critical thinking’, which appears in the twentieth century close to the time when universities began formulating graduate attributes (Ennis b, 1962). It is philologically frustrating to work with a term that has no ancestry, because it is clear that intellectuals have practiced critical thinking for many millennia but not by that tag. So what to make of an ancient practice that lacked a name? Either other terms existed, like doubt, or the new term of critical thinking is in some sense unnecessary.

There is a near synonym, ‘skepticism’; but skepticism is not quite the same as critical thinking. Certainly, it is venerable, deriving from Greek philosophical traditions—and with impeccable roots in thought itself (σκεπτομαι, to look around carefully, examine, consider, hence the adjective σκεπτικός, thoughtful, reflective)—but it seldom enters popular language throughout the early modern period, when it was mostly tinged with theological negativity. Even in the enlightenment, Vico considered skepticism an abasement of philosophy. He believed that philosophy had fallen so deeply into skepticism that it was professed by learned fools (*stolti dotti*) to damn the truth (*calonniare la verità*), Giambattista Vico, *Scienza nuova*, conclusion).

Skepticism means that you do not believe something but it does not indicate a good reason for the negative persuasion, which is why we say ‘climate skeptic’ for someone who espouses climate denial or ‘Holocaust skeptic’ for someone who denies that the Nazis committed genocide. Arguably the opposite of a critical thinker, the skeptic may simply be obstinate before the evidence and does not want to check the science; either by reactionary bias or by some maverick complacency, the skeptic persists with outdated information and conclusions.

Critical thinking is also close to unbiased—a difficult noun—but critical thinking is not confined to unbiased. Unbiased is a precondition of critical thinking, already observed by Jonathan Swift in 1708 (*OED s.v.*); but a person can be fair and open-minded yet still

lack the ability to think critically. Critical thinking entails a motivation to seek out shrewdly the missing element, the fault, the uncertainty in what seems to be assumed. It is not quite argumentativeness but critical thinking nevertheless includes a talent for picking holes in an argument. To be unbiased only ever means to lack bias: it is a laudable but passive condition rather than a critical one; and almost by definition, it does not act to a purpose. To be critical, the thinker actively identifies and assays an assertion or an attitude. Lacking bias does not entail discovering bias in someone else; in fact, good academics though we be, we could be suspected of having our own unconscious bias to protect; and our jealousy on account of it gives us a motive to snoot out the bias in someone else's inquiry. Our doubting has a purpose. To this suspicion we will return with historical evidence to hand; but our brief search for the antecedents of critical thinking suggests nothing so appropriate as doubt.

Doubt is also not the whole of critical thinking and, like unbiass, doubt can only be considered a necessary but not sufficient condition of critical thinking. Nevertheless, doubt strongly connects all three zones of critical thinking described above, which unbiass does not do, because identifying the ideological underpinnings in language—that is, to appreciate problems of discourse—requires more than a freedom from bias. In contrast to unbiass, doubt is active. It purposefully does the work. And finally, unlike unbiass, doubt is a commonly accepted idea with an enormous and colourful history. Even though it does not exactly equate with critical thinking, it runs enough in parallel to reveal many telling elements of critical thinking. In the next sections, this article turns to the history of ideas and unpicks the origins and agency of doubt in western thought, observing how various cultural circumstances either cause doubt to be spurned or embraced, and on what terms. In these sections, the investigation follows a philological method, citing the evidence of language to uncover the structures of thought that underlie contemporary values. Apart from short entries in standard dictionaries, these concepts have not, to my knowledge, been systematically examined before.

The aversion to doubt in the Christian tradition

It is difficult to overestimate the spiritual pressure in western culture that discourages doubt. At the heart of Christian tradition, there is a need for faith which is contrary to doubt. In the New Testament, there are numerous exhortations berating folk for their feeble belief: 'O thou of little faith, wherefore didst thou doubt (εις τί ἐδίστασας; *Matthew* 14.31). If you have faith and do not doubt (μὴ διακριθῆτε), miracles and blessings will come your way (*Matthew* 21.21–22). It is a binary relationship between worship and belief: some worshipped Jesus and some doubted (ἐδίστασαν, *Matthew* 28.17). Actually, the person who doubts (ὁ δὲ διακρινόμενος) is damned, because everything outside faith is sin (ἁμαρτία, *Acts* 14.23), 'as it were sin to doubt', as Shakespeare says (*Coriolanus* 1.6). Right down to the organ of feeling, one must not doubt (μὴ διακριθῆ ἔν τῇ καρδίᾳ, *Mark* 11.23), that is, one must not doubt in the heart. Do not search elsewhere or be of doubtful mind (μὴ μετεωρίζεσθε, *Luke* 12.29).

The words used for this kind of doubt are different to the unsureness that you might experience in not knowing anything else, like 'are you speaking to him or to me?' When Christ issues his dire prophecies of betrayal to the disciples at the last supper, the twelve are in doubt (ἀπορούμενοι) as to who is implicated (*John* 13.22). When the doubt is legitimate, it is a case of selecting the likeliest, which can be difficult. They were startled (ἐξίσταντο) and in doubt (διηπόρου) as to what it meant (*Acts* 2.12; cf. 5.24, 10.17, 25.20). It is a little different to the kind of doubting that one might do in a failure of

trust. With faith, you follow and do not waver, ‘doubting nothing’ (μηδὲν διακρίναντα, *Acts* 10.20, 11.12).

There is understandable doubt—like the uncertainty about which road to take to reach a good destination—and bad doubt, which impinges upon faith. There is necessary doubt, where one has to sort something out, and reprehensible doubt where one questions doctrine and, being thus weak in faith, one enters into doubtful disputations (εἰς διακρίσεις διαλογισμῶν. *Romans* 14.1). If Paul says that ‘I stand in doubt of you’ (ἀποροῦμαι ἐν ὑμῖν, *Galatians* 4.20) it means that I do not have the confidence when in your presence or I do not know exactly how to handle you. Doubt in this case is an indisposition caused by a tough circumstance. Life throws up problems that cannot always be resolved by faith, like when the pious Peter is faced with the decision of whether or not to deny Christ and opts, as Jesus predicted, for denial. That is forgivable and radically different from going against doctrine. In matters that touch upon prayer, one has to act without disputatious doubting (χωρὶς...διαλογισμοῦ, 1 *Timothy* 2.8).

There are echoes of this distaste for doubt for many centuries (directly rehearsed, as in Torquato Tasso, ‘Di poca fede, / che dubbii? *Gerusalemme liberata* 8.29) like Milton’s unequivocally negative ‘horror and doubt distract / His troubl’d thoughts (*Paradise lost* 4.18–19) or his council of devils with ‘their doubtful consultations dark’ (2.486). Seen from this perspective, there is nothing good about doubt. But in the larger history of doubt, the biblical anxiety over spiritual uncertainty can be seen as a chronic aberration.

A history of doubt

The words adopted in this anxious culture of faith represent only a small part of the large Greek vocabulary concerning doubt, which antedates the *New Testament* by hundreds of years. The Greeks had numerous other conceptions to indicate doubt, often using the motif of ‘two’ or ‘both’, acknowledging that a doubtful circumstance is often a split in the road where one route might either be more circuitous or dangerous or will take you to the wrong place. The large number of words beginning with the particle for both (ἀμφί) represents the same pattern as the Romans followed in the Latin word for doubt (*dubium*, two-ish), which is also the origin of our word ‘doubt’ and its counterparts in romance languages. It is also the motif in languages like German (*Zweifel*) where the concept of doubt hinges on the particle ‘two’; and in common speech, we might express our uncertainties by saying that ‘I am in two minds’ about a given issue.

The Greeks had adjectival forms for ‘contested on both sides’, disputed, doubtful (ἀμφήριστος), with doubtful mind (ἀμφίδοξος), disputed, doubtful (ἀμφιδήριτος); and around these conceptions, there are strong verbs for being in doubt (ἀμφιβολέω, ἀμφιδοξέω) to think both ways and so be in doubt (ἀμφινοέω). There is a further category that has its roots in ‘two’ to express the idea of doubt, already in Homeric Greek (δοιή; cf. ἐπιδοιάζω, ἐνδοιάζω) which can also mean perplexity. The motif carries into being divided in mind (δίφροντις) or doubting, indicating a kind of uncertainty which is frequently justified, as acknowledged through numerous later poetic evocations, such as Shakespeare’s ‘perplexity and doubtful dilemma’ (*Merry wives of Windsor* 4.5). If a dilemma is named—such a good Greek word!—the legitimacy of the doubt around it is automatic, ‘a shrewd doubt’ as Shakespeare says (*Othello* 3.3).

In classical dialectic, philosophers had long pondered the impasse of thought (ἀπορία, literally having no route) or difficult question for discussion, difficulty itself but

in the form of a puzzle (ἀπορία σχόμενος, Plato, *Protagoras* 321c, 324d, Aristotle, *Topics* 145^b1, *Politics* 1285^b28) or wicked problem. It had other forms to describe a matter of doubt, question (ἀπόρημα), with adjectival forms indicating ‘inclined to doubt’ (ἀπορητικός) and strong verbs to describe doubting in the sense of being at a loss (διαπορέω; cf. ἐξαπορέω, συνδιαπορέω) as well as abstracted substantives indicating perplexity (διαπόρησις).

The ancient conceptions suggest a rich variety of responses to doubt, some of which are negative, like doubtful in the sense of uncertainty and hesitation (δίσταγμα), again with a direct verbal form (διστάζω, already noted in the *New Testament*), as well as being at a loss (δίζω). One even spoke of a doubter (ἐνδοιαστής). Of course, not all uses of doubt are positive. Hesitation could have dire consequences in fighting, say; but on the whole, the impression gained from Greek thought, which is so linguistically rich around the question, is heroism. To entertain doubts is to confront doubts, which is brave in the same way that confronting death is brave; hence the value of the concept in dialectic. To evade doubts is to prevaricate or to fail to grasp what lies in contention. All decisions are, in a sense, dialectical, because attractive prospects are at variance with one another. The stuff of Greek tragedy is largely about doubt; and even Greek mythology is full of it, as with the anecdote reported in Xenophon with Heracles at the crossroads (*Memorabilia* 2.1.21–34), a scene that fascinated artists later in the baroque, like Annibale Carracci (Museo di Capodimonte, Naples, 1596) and celebrated by poets like Marino (*L’Adone* 2.1.3). The hero encounters the allegorical figures of Vice and Virtue, who entice him in split directions: a voluptuous lady with translucent veils offers a pleasant and easy life of luxury, while a stern preceptress offers him a stressful but glorious life of duty and social contribution. Heracles responds heroically, opting for the worthier course with greater net benefit for humanity, even though strewn with tribulations to himself. This exemplar of entertaining a doubt supplies the renaissance with much heroic spirit. Heracles would not be such a hero if he were like an automaton, programmed in favour of virtue, and were not torn somewhat by the decision.

Doubt in the renaissance

From the very dawn of the renaissance, doubt was understood as a poetic condition that taunts the mind over something existential, possibly unresolvable, perhaps essentially contested, but around stakes in which the individual has a purpose. That is why it features hugely over love. For example, Petrarch tells about doubt assailing him as he wonders how he can live so far from his lover (*Canzone* 15.9–11); and the soul itself he sees as ‘doubtful and beautifully vague’ (*l’alma dubbiosa et vaga*, 125.65).

Far from the biblical repudiation of doubt, one can be playful with doubt, because two possibilities are in competition. For example, there is doubt as to whether his Laura ‘is a mortal woman or a goddess’ (157.7). Love itself is a doubtful feeling, with doubtful satellites in its symptoms, both ardent and freezing, such that the intellect is in doubt as to which is greater, hope or fear, flame or ice (182.3). Elsewhere, the poet says that his state is in doubt: now he cries, now sings, both fearing and hoping; and he discharges the burdens in sighs and rhyme (252.1). Love and life are all temptation and impossible investment; and our early European poet, prefiguring many centuries of neurosis in love, finds that he lives in such fear and eternal war that he no longer resembles what he once was, like a person who is scared and lost on a doubtful path (*per via dubbiosa*, 252.14), echoed in later poets (e.g. Ariosto, *Orlando furioso* 1.39.1–4; or Marino, ‘Onde dubbiosa ed impedita il mira / e di foco e di gel trema e sospira.’ *Adone* 17.54.7–8).

There is also much truth to the portrait, because judgement in courtship concerns timing to make a move; and of course it is riddled with doubt. You can be too hasty but, as Petrarch says, ‘waiting is also doubtful’ (264.35). The critical choice of moment is always doubtful and recurs much in the seventeenth century with the poet Marino who loves the suspense of a kiss forestalled by doubt (*Adone* 3.98.5–8), the tension of one about to make move with a doubtful heart (3.111.1–2 and 3.128.5–8)

Doubt is not purely an epistemological condition, where one lacks evidence or the information is incomplete. It acts in the psychological domain, reflecting a person’s desires in contention, a sense of being lost in the woods, inadvertently becoming waylaid, as the sixteenth-century poet Ariosto says, where a hero is so preoccupied in fantasy that doubt sits among hate and fear (*Orlando furioso* 2.68.1–3; cf. 25.46.8). But doubt can also be implicated in joy, where you are so happy that you doubt that it is reality and not a vain dream (11.6.1–4 and again ‘*se son sogni questi?*’, 25.67.3–8). Doubt often comes with indisposition, paralysis, stupefaction (18.115.8) and sometimes it is dangerous because decisiveness is called for (*stare in dubbio era con gran pericolo*, 19.56.1). You can be so wracked with doubts that your timidity makes a bridge tremble (31.68.6–7).

But doubt is also legitimate, because one may need to know more to gauge the truth (31.103.4) or involve the kind of tormented decision to move or to stay (*pur travagliando la dubbiosa mente*, 40.68.1–4). In matters of affection, there is also no given certainty. If your spouse is faithful, you have every reason to love and honour, as opposed to one who is in doubt; but some are wrong in jealously, questioning a chaste spouse, while cuckolds may feel totally reassured (42.101).

Love, thanks to jealousy, is a mixture of affections, as the later sixteenth-century poet Tasso reminds us, where new suspicions mingle with solicitous doubts and cold fear (*Rime* 100.1–3). Proof of faith and love remains a task of banishing doubt (*Rime* 221.12–14, 230.1–2, 330, 374) because doubt in itself is not good. If a pathway in the wooded mountains among thorns and broken rocks is precipitous, it is also described as steep and dubious (*erta e dubbiosa*, 388.4). Just the same, for Tasso, doubt is not related merely to faith or predicting the future but the extent of titillation, which is a kind of torment where doubt is beautiful (*belli i miei dubbi ancor, belli i tormenti*, 476.5). The same might occur with writing poetry (*Rime* 487) which is also an immense weight, the teasing of Olympus, no less, the risky loftiest peaks of Parnassus that call you to such a ‘dubious pass’ (1545.5–8). Love itself fills you with doubts and confusion (*dubbia e confusa*, 569.77) because it represents a change, removing your previous contentedness or self-containment in scorn or shyness (569.66–81).

Tasso is a poet of exquisite doubts. The sight of a handsome young woman in a skirt, which he presumably tries to penetrate imaginatively, makes him exclaim: ‘O beautiful doubts, O dear tricks’ (*O bellissimi dubbi, oh cari inganni!* Tasso, *Rime* 1019.5; cf. *oh dolcissimi dubbi! oh cari inganni!* 1202.9). Even the dawn in his large epic is described in its thinness of light as ‘dubious and unformed’ (*Gerusalemme liberata* 11.19.1) and the element of doubt that might embarrass a beautiful woman makes her more attractive (19.114.3–4).

Even in decision-making, doubt is not condemned. Prudence calls for doubt to be the measure of certainty: ‘you weigh the bad with the good, the certain with doubt’ (*Rime* 691.12–14, cf. *Gerusalemme liberata* 7.58.1–2). You might vacillate because of an ‘irresolute doubtful heart’ (5.11.6) but a sage understands that the turn of events belongs to doubtful fate (6.63.6). Doubt is not a weakness but indicates something legitimately unresolved, possibly tragic, as when love and honour are in contention (*Gerusalemme liberata* 6.70.7–8; cf. 17.88). The doubtful circumstances indicate that one must apply

special powers of reflexion, turning things around in your mind, to gain a better perspective (19.65.5–8).

Growing doubts in the baroque

By the seventeenth century, doubt had moved from a window of titillation to a position of value. The sober Milton links doubt and realism when describing how ‘the careful Plowman doubting stands / Least on the threshing floore his hopeful sheaves / Prove chaff.’ (*Paradise lost* 4.983–85). In his large love-epic, Marino speaks of interpreting doubtful texts, meaning obscure or recondite (*Adone* 9.70.5), so that the very idea of doubt is drawn into the lofty world of scholarship. Adonis has an audience with Mercury, no less, to explain the secrets of science; and in asking an astronomical question he begs the god to untie a knot ‘that has heftily bound up his doubting mind’ (10.13.6). The job of science is to wrestle with doubt. Adonis has further questions about the moon: ‘tell me why; I flux among a thousand doubts and cannot find a solid theory among them’ (10.34.3–4). Most valuably, the discourse turns to the borders of science: if our studies are so faulty and vain over such easy and simple material, ‘what can guide human judgement in things that are more doubtful and exquisite’ (*nele cose più dubbie ed esquisite?* 11.205.1–4). Admittedly, the exquisite in the line means ‘searched out’ or sought for and does not necessarily mean exquisite in the modern sense of exceedingly beautiful. Nevertheless, the term still carries connotations of being highly desired, which rubs alongside doubt. And it makes sense. In science or any investigation, one is seldom insecure about the things that do not matter much: the doubt enters when something crucial or decisive seems to be at play. But one is never contented with doubt: one hopes that clear truth is revealed and does not remain as ‘dubious oracles’ (13.75.1–2). Doubt is a necessary phase between wanting something and being befuddled over it, either what it means or how to get it, which is why Marino sees Adonis reflecting over doubts ‘between stupor and piety’ (*tra lo stupore e la pietate / Adon dubbio tra sé ristette alquanto*, 12.251.1–2).

The enormous artistic output of the baroque is in certain senses aesthetically predicated on doubt. Beginning with the grainy vigorous styles of the late Titian, artists already in the renaissance enjoyed painting that was somewhat indistinct, not necessarily because the brushwork is imprecise but because the light is too dim for the full explication of volumes; and a fulsome exploration of this tenebrism is proper to baroque painting, with its dramatic chiaroscuro and dark depths. Art celebrates a world, as Marino says, beneath a doubtful light (*sotto dubbia luce*, 14.61.3), often seeking shady retreats and times of day where the light fails somewhat, an inn lit by candles or a ‘doubtful wood’ that brings relief to the beautiful limbs of a body (*sì belle membra a sì dubbioso bosco*, *Adone* 17.62.2). The indistinctness of the light makes one want to penetrate the fulness of bodies more completely, giving us a paradoxical awareness of the parts that we do not see so well. The dubious light of the baroque invites curiosity. It ignites your fancy, your interest, the desire to improve your perception. You become motivated to see more.

The strong emphasis on the emotionality of doubt during the baroque reveals not just that doubt is an inspired condition but it is specifically inspired by somewhat negative emotions in contention with positive desire. Doubt is persistently associated with jealousy that makes a ‘great tussle in the dubious breast’ (*Adone* 18.104.3–4, cf. 18.159.1–2) and which is captured in the grand poetic paradoxes of Shakespeare: ‘who dotes, yet doubts, suspects, yet strongly loves!’ (*Othello* 3.3), where doubt is directly linked to jealousy (‘my most jealous and too doubtful soul’ *Twelfth Night* 4.3) and is

treacherous: ‘Our doubts are traitors’ (*Measure for Measure* 1.4). Doubt may be rational, as noted, but it is riddled with vertiginous energies, ‘Giddy in spirit, still gazing in a doubt’ (*Merchant of Venice* 3.2), ‘as doubtful thoughts’ are associated with ‘rash-embraced despair’ (*Merchant of Venice* 3.2).

Dark motives for doubt

Among the advantages of examining doubt in an age that does not want to know about it is that the inquiry reveals some of the psychological structures that underlie critical thinking. To be critical may be an objective mission, where a researcher, for example, rigorously checks all the imaginable indices of fault, each claim, each method, each jump in logic. But because these processes of scrutiny depend on doubt, they are sharper when there is a motive to doubt, a desire to seek a reason why something may not be so. This purposeful desire reaches passion, as the seventeenth-century La Rochefoucauld explains: ‘jealousy is nourished by doubts and they become fury at the end, so that one moves from doubt to certainty.’ (François de La Rochefoucauld, *Maximes et réflexions morales* 32). But because it is an element of jealousy, doubt is handled perversely and, when one is in love, one often doubts that which one believes most (*on doute souvent de ce qu’on croit le plus*, 348) and with similar perversity, La Rochefoucauld recommends that the best remedy for jealousy is the certainty of what one fears, because it either causes the end of life or the end of love; it is a cruel remedy but sweeter than the doubts and suspicions that would otherwise continue (18).

Once jealousy enters—and how does one prevent it?—the mind becomes twisted: ‘you want to hate and you want to love but you continue to love when you hate, and you still hate when you love; you believe everything and you doubt everything; you are simultaneously ashamed and scornful of having believed and having doubted’ (*Réflexions diverses*, ‘De l’incertitude de la jalousie’ 8). La Rochefoucauld says that we are never happy enough to dare to believe what we wish for nor even happy enough to be assured of what we fear most. We are buffeted by eternal uncertainty (*Réflexions diverses* 8).

Every doubt in the history of ideas has a context, which we cannot examine in detail. Into the eighteenth century and beyond, we encounter circumstances which intellectually call for doubt—‘your doubt is justified’ (Goldoni, *Il servitore di due padroni*, 1.3)—and other doubts are a mighty inconvenience alongside ‘suspicions and palpitations’ and ‘a thousand fleas in the head’ (Goldoni, *Il ritorno della villeggiatura* 1.4). By the eighteenth century it must have become apparent that there are so many occasions for doubt and such diverse moral reactions to each that doubt would need to be predicated with an adjective. And so in Klopstock we read of ‘anxious doubts’ (*anges Verzweifeln*, Friedrich Klopstock, *Der Messias* 1.2.523) or furious doubting (*wilde Verzweiflung*, 1.2.797) or even later the despondent doubts (*verzagten Zweifel*) that Nietzsche entertains in comparing Greek and German culture. (Nietzsche, *Die Geburt der Tragödie* 20).

As the ontological consciousness of European writing deepens, doubt becomes more essential, more the sign of insight and refinement. Among artists and intellectuals of the industrial period, the grand certainties of bourgeois existence crash in poetic credibility; and in their place, we witness imaginative identifications with the pessimistic, the down-and-out, the misfit, the rebel, the *flâneur*. The whole of romanticism can be described as doubt for the old world and the enlightenment of the *ancien régime*; and so too the development of modernism can be seen as the offspring of doubt, doubt about the validity of one-point perspective, perceptual drawing, linear authorial narrative, harmonic melody or representation. The pattern of questioning the work of the old

masters was incipient throughout the whole western tradition, which Nietzsche acknowledges in imagining the scrutiny with which the young Euripides critically reviewed the tragedies of Aeschylus. As in the language of Klopstock, there is much *Sturm und Drang* as he observes something incommensurable in every trait, a certain deceptive accuracy and at the same time a mysterious depth (*räthselhafte Tiefe*). For the young playwright, everything in the old exemplar becomes problematic, like the use of the choir; and how ‘dubious (*zweifelhaft*) was the solution to ethical dilemmas! How questionable (*fragwürdig*) the handling of the myths?’ (Nietzsche, *Die Geburt der Tragödie* 11). In this narrative, there is no suggestion that the great dramas of the master are anything but grand and sublime. But there is a kind of fault that Euripides sees in them, which invigorates his own creative urge with a kind of impatience. This restless zeal to unsettle the masterpiece—to see behind its perfection an occasion for doubt—lies at the heart of European artistic culture, as suggested in the title of a book by the artist Wyndham Lewis, *The demon of progress in the arts*.

Doubt, dissatisfaction, impatience, these are the somewhat Oedipal motivations to lead change in the arts and sciences, metaphorically killing the father, deposing the previous generation, making room for the new, the radical, the rebellious. The rejection of achievements that belong to one’s parents is logical within the dialectical structure of western development and it would seem somehow unnatural to suppress this urge, even though we also encourage respect for a previous avant-garde. Nietzsche says that it is not doubt but certainty that makes for madness (*Nicht der Zweifel, die Gewissheit ist das, was wahnsinnig macht*, Nietzsche, *Ecce homo* 2.4). This logic of doubt accords with Nietzsche’s belief that the wisest people in all epochs have judged the same thing in relation to life itself: it is worth nothing (*es taugt nichts*) and for that reason ‘always and everywhere you hear the same sound from their mouth: a sound full of doubt (*einen Klang voll Zweifel*), full of melancholy, full of fatigue from life, full of resistance against life’ (*Götzen-Dämmerung* 2.1).

Doubts about our approach to education

Doubt in the European tradition, despite the influence of the Christian tradition, has been richly inflected with poetic meaning, understood as essential to feeling, to the terms of existence, to philosophy and ontology. Our brief history of doubt has revealed a charming peace that the poetic mind has struck with uncertainty, where ambivalence of thought and feeling has been expressed in harmony with curiosity and the critical spirit. Far from being seen as a threat to faith or orthodoxy, doubt is handled imaginatively, entertainingly, gravely, penetratingly, at times tragically. One could argue that doubt is essential to all existential thought, whether critical or rhapsodic.

These heroic trajectories of doubt, as faithful as they are to critical thinking, do not match the rhetoric of our age. As a culture, we are devoted to quality control, the management of risk, strategic planning, positivistic quantifiable assessments, the realistic setting of expectations and reliable delivery. Doubt is a poor fit. And that is why education struggles with the noise of the internet, which requires heightened powers of doubt for productive use.

In education, especially, we try to eliminate doubt in every quarter. We do not want students in any doubt as to expectations, learning activities and assessments, any more than we would have them doubting the value that they get from their studies: we ply students with learning outcomes, assessment criteria and templates for their work in the form of past papers and marking rubrics and assure students that all delivery and learning activities will be in alignment with the learning outcomes and assessment. The

purpose of these anxious objects is to provide certainty and, as far as possible, minimize student doubt. A positive student experience is equated with certainty. The problem, alas, is that the more certainty you provide, the more is craved, because students are in competition with one another and seek competitive advantage in any margin of greater certainty that can guide them. As more information for success is proffered, the more doubt becomes a scandal and the more sclerotic is the dependence on certainty in the ever-proliferating blueprints for learning and assessment. Uncertainty is seen as a failure of method. So as students are more and more supplied with certain instructions and templates that enable them to fulfil the criteria well, the basis for discrimination in assessments becomes more and more stressful and dependent on any minor details that remain somewhat capable of doubt.

For the development of an autonomous critical mind, it is not so clear that we do our students a service with all of these provisions. For critical thinking, it would be better if students could doubt the teacher and doubt the available sources rather than slavishly follow instructions and scope their work strategically in accord with the published criteria. Not long ago, subjects (or units or modules) were set up with teaching objectives rather than learning outcomes. In the age before John Biggs and constructive alignment, the inseparability of learning outcomes and assessment was not contemplated. The teacher's objectives in the program were one thing; but the use that a student would put them to was quite another. And likewise, the resources that were supplied or gestured at had an autonomous existence that the student grappled with and either reconciled with the immediate purpose or left to the side.

The suspected incompatibility of doubt and constructive alignment perhaps explains why critical thinking is so often exported to the central study skills area at a university rather than being embedded in the core of syllabus (Davies, 2013). Thanks to constructive alignment, critical thinking does not find a ready fit in the pedagogical design of syllabus, even if it belongs in the syllabus as method intrinsic to the subject area. But if a lecture or tutorial does not have critical thinking in it as an integral part of the student experience, it is almost pointless trying to tack it on outside the class (Wingate, 2006). Meanwhile, in private study for the discipline, we have the student immersed in a digital environment that can only be navigated with doubt.

Conclusion

Doubt, which is the dynamic purposeful element most critical to critical thinking, is also the element least observed in scholarly literature on critical thinking and least favoured by contemporary syllabus design that conscientiously seeks certainties. We are consequently not in a mood to exploit the opportunities of our richest resource for the creative application of doubt, the internet and even the operation of social media. When critical thinking is promoted in universities beyond the rhetoric of graduate attributes, it is conceptualized and taught in mechanistic terms that also do not seem to accommodate doubt. As a result, the teaching of critical thinking—with its armoury of gated flow charts and tables of fallacies—is denuded of its natural poetic magic, its impulsive purposes, its peculiar intellectual charm as a suite of moments of indecision, where imagination is enjoined to create alignments between improbable or irregular statements and possible or probable motives. The unrefereed literature freely accessed on the internet is the best stimulant for this consciousness. If critical thinking is drawn out of its natural substrate of doubt through the convenience of positivist teaching paradigms, it is a pedagogical crisis, because doubt is an indispensable ingredient in critical thinking; and if critical thinking is taught without doubt, the teachers are

teaching something under the name of critical thinking which is hardly critical thinking at all.

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Note: primary material before 1900 is cited in text according to philological conventions that are standard in lexicography, so that any edition can be checked (e.g. *Matthew* 6.2). Plays are cited by act and scene; poems by canto, stanza and line; and philosophical texts by chapter and paragraph.

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Biography

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