

Freehand drawing – a learning and teaching perspective

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Abstract

Freehand drawings are used frequently for 'visual' disciplines and have a range of benefits. Typically, for the social sciences, their utility is framed exclusively for enhancing active learning, but not necessarily as a teaching aid. Emphasising learning and teaching as a dialectical process between student and lecturer, a small-scale qualitative study explored the potential of a freehand drawing to help teach a complex primary text and assist students' subsequent understanding. Students were taught the text in two ways – (1) verbal explanation accompanied by two static diagrams and (2) verbal explanation accompanied by a freehand drawing. Students discussed their experiences in a focus group. Despite mixed learning preferences, with interesting qualifications, students found the dynamic nature of the freehand drawing essential to understanding. Unintended variation in the delivery of each session produced insightful comment, as did the relationship between the lecturer's learning preference and their choice of pedagogy.

Key words: freehand drawing, visual learning, learning styles, teaching social and political theory

1. Introduction

One of the key legacies of COVID-19 is the amplification of tendencies that were already present prior to its arrival. The changes forced upon educational institutions worldwide when adjusting to 'blended' or fully online delivery were dramatic and unprecedented, but to some extent were already on the horizon (Lumsden, Byrne-Davis and Scott, 2019). Indeed, while the turn to Zoom or Microsoft Teams might have caught both lecturers and students off guard, there was already a wide range of uses of technology to support online teaching and learning, including interactive lectures, online quizzes, discussion forums and blogs. For students of our own discipline – social and political thought, and international relations (SPTPIR) – the use of technology chimes well with the dynamic nature of the subject and, though it brings inevitable challenges, it does have a range of benefits when well used (Pleschová, 2015; Kohen, 2013; Rackawat, 2013; Lightfoot, 2013; Thornton, 2012).

While most university curricula apart from 'visual' disciplines such as fine art, photography and film studies (Kedra, 2018) remain text based (Elkins, 2007; Stiles 2004), in our discipline, creative attempts have been made to reflect and emphasise the increasingly visual nature of social and political life (Glover and Tagliarina, 2013, p.66). Examples include Connors' (2013) use of political cartoons and Worcester's (2013) of graphic novels, as well as the use of film, to explore complex moral questions related to social and political theory (Shaw, 2012; Fraser, 2018). Despite these innovations, it would appear easy to fall back on well-worn methods. In his nationwide survey of how and what political theorists teach (in North America), for example, Moore (2011) found that the pedagogic methods remained heavily textual, with most courses opting for the study of either primary texts or textbooks or both.

In what follows, we discuss a teaching method that combined an old-fashioned, 'chalk-and-talk' technique with new technology. This method was used in a political theory class to help teach the basics of Sigmund Freud's (2001) early topographical model of the human psyche. We explored the potential of 'freehand drawing', defined as a spontaneous, creative, "efficient way of recording and communicating a flow of ideas" (Gadelshina, Cornwell and Spoons, 2019, p.143) which was delivered online via the whiteboard software available from Microsoft Teams. Gadelshina et al. have emphasised the benefits to learners of freehand drawings, which, they argue, allow students to develop collaborative autonomy. They also identify benefits from a teaching perspective, though not as a teaching aid, but rather for educators' analysis of their students' understanding of complex phenomena (ibid., p.149).

Lane (2013) notes that the deployment of diagrams as teaching aids has not been extensively researched; nor, we suggest, has the application of freehand drawings. In our study (in contrast to that of Gadelshina et al. (op.cit.), the veracity of whose findings re benefits to students is subject to debate), we took up a suggestion by Carney and Levin (2002) and explored student perceptions of the usefulness of whiteboard drawing activity, investigating whether what students thought about this was related to their self-reported learning style. The aims were thus twofold: 1) to examine the potential of freehand drawings as both a teaching and learning activity; 2) to explore any links between the perceived usefulness of the drawing and students' individual learning preferences.

2. Diagrams, 'freehand drawing' and learning preferences

As a form of 'visual learning' (Eilam, 2012), the literature on the use of diagrams for teaching and learning SPTPIR makes some interesting initial observations. Brady (2011) argues that the relationship between 'spatial_diagrams' and the teaching of political science (specifically, "ideological constraint, cross-pressures, framing, agenda-setting, political competition, voting systems [and] party systems") could – and should – become as "iconic for political science in much the same way as supply-and-demand curves are in economics" (op.cit., p.312). Reflecting on their use for teaching sociology, Toth (1980, p.410) avers that "[P]lanned, drawn-out diagrams can productively accompany the audible words of explanation much as music accompanies a song". Yet in contrast to Brady (op.cit.) above, and central to what we explore below, there is something about the process through which the image is created that marks the practice as distinctive. Toth (op.cit.) thus continues, "A diagram **actively presented**...emerges in front of the students, before their very eyes", and concludes that both understanding and insight can be enhanced (ibid., pp.411 and 423, our emphasis added).

Conceptually, a range of typologies gets us closer to articulating the form above. Reflecting on the use of diagrams for teaching (and learning) systems diagramming, Lane (op.cit., p.322) makes distinctions between analogue, schematic, symbolic and conceptual "representations". The latter – understood as diagrams which "try to describe inter-relationships between ideas or processes that cannot be readily observed or depicted" – are the closest to what we have in mind for this study. Alternatively, building on Levin's (1981) earlier work, Carney and Levin (2002, p.7) make distinctions between "decorational", "representational", "organisational", "interpretational", and "transformational" "pictures". Emphasising their use as specific "text adjuncts", the representational – i.e., "pictures [which] depict or overlap (part or all of) the text content" (ibid., p.11) – and interpretational – i.e., "pictures as clarifiers of difficult to understand material" (ibid., p.13) – are of the most immediate relevance to our study. Another option lies in "visual/spatial displays", defined by Vekiri (2002, p.262) as "displays that represent objects, concepts, and their relations using symbols and their spatial arrangement". The benefits of using such visual forms are well known, although to some extent this can depend on their ultimate purpose. Mayer and Gallini's (1990, p.725) study, which considered a range of factors, found that, when it was combined with instructional text, there was clear potential in "visually based instruction as a medium for promoting students' understanding" and interpretation.

A study (2007, p.369) by McCrudden et al. made similar observations, this time emphasising the significance of "causal diagrams" – i.e., "a visual display that uses arrows to depict cause-and-effect relationships among spatially arranged events" – to "facilitate comprehension of

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causal relationships” from text. Carney and Levin’s (2002, p.7) review concludes that, when contextually relevant and used well, pictures continue to “improve the reading-to-learn process”.

Alongside the generic benefits of visual learning (Kędra and Žakevičiūtė, 2019), then, there seems to be consensus as to the potential of the various forms discussed above. Notable though, is the variation in terminology throughout – i.e., ‘diagrams’, ‘representations’, ‘pictures’, ‘maps’, etc., none of which, we claim, quite grasps the significance of the process or moment out of which those forms are both constructed and practised. For this reason, we prefer to articulate the specificity of the visual form in this study as ‘freehand drawing’, incorporating as this term does both verbal and substantive implications. Defining freehand drawing is usually bound by its artistic form (Afflerbach, 2014; Richards, 2013), but, in accordance with the definition provided earlier, such drawing symbolises a fairly spontaneous means of expressing ideas. The literature on potential benefits of freehand drawing reveals obvious similarities identified above, but here the benefits are framed predominantly as a student-driven activity for the purposes of active learning – i.e., encouraging the development of learner-generated images (Gadelshina, Cornwell and Spoons, 2019, p.150). Though emphasising the potential of freehand drawing in a ‘holistic’ sense (i.e., to redraw, for both lecturer and student, the boundaries of the learning environment), Donnelly and Hogan (2013) focus predominantly on how student-generated freehand drawings created a critical, open and collaborative space for exploring perspectives on Irish politics. Later studies took a similar line and made related conclusions (Feeney and Hogan, 2019; Feeney, Hogan and Donnelly, 2015; Gadelshina, Cornwell and Spoons, 2019; Bobek and Tversky, 2016).

Though there is evidence to suggest that lecturers’ use of visual forms has a positive impact on student learning, there is a lack of literature on whether freehand drawing, specifically, does the same. Similarly, there is little attention to how its use may contribute to a more dialectical understanding of ‘teaching’ (i.e., how freehand drawings can help the teaching of certain material) and ‘learning’ (i.e., how freehand drawing can help an understanding of that material). One preliminary step is to explore the possibility of links between the benefits of visual learning, including freehand drawing, and individual learning style preference. In their list of “ten practical suggestions” for educators who are considering, for example, text-accompanying illustrations – and with such cited relevant studies as Riding and Douglas (1993) and Levin et al. (1974) – Carney and Levin (2002, p.21) advise the ascertaining of students’ preferences beforehand, particularly when considering how effective these sorts of visual techniques might be for aiding student understanding. We take up this suggestion below.

The literature on individual approaches to learning is extensive and when researching this topic it is important to specify exactly which concepts (e.g. learning style, learning preference, cognitive style, learning strategy) are being explored and how they are defined and measured (Cassidy, 2004; Pritchard, 2013). For the current study, we used the 'Visual, Audio, Read/Write, Kinesthetic' (VARK) model developed by Fleming and Mills (1992), with an associated questionnaire available free, online¹. Emphasising the importance of "sensory modality" (i.e., how information is initially assimilated/processed), Fleming and Mills identified four "preferences" of learning – "visual" (through, for example, graphs, charts and diagrams), "aural/auditory" (e.g., through speech/listening), "read/write" (i.e. an emphasis on the written word) and "kinesthetic" (i.e., any of the above, but with an emphasis on putting it into practice). When individuals do not have a clearly identifiable overall preference, they are defined as "multimodal". Given the nature of freehand drawing, one might easily associate it with a 'visual' preference, particularly when considering its initial definition by Fleming and Mills (1992, p.140) as "diagrammatic material often used by teachers to symbolise information". In this sense, a preference for visual learning emphasises precisely the kind of dynamism alluded to earlier – Fleming (2019) is clear that it goes beyond the simple incorporation of pictures or even the use of, for example, Microsoft PowerPoint. Put differently, there are two kinds of visual learners – those who tend to prefer symbolic diagrams and those who tend to prefer words (Fleming and Mills, *ibid.*). Logically, one might also assume an association between a preference for visual learning and relative success in specifically 'visual' disciplines, but here again the picture is actually quite mixed (Boatman, Courtney and Lee 2008; Leung et al., 2014).

Despite continuing debate as to the very "concept and existence" of learning styles – and, in relation to that, continuing doubt as to the veracity of the VARK model (Husmann and O'Loughlin, 2019, p.6) – research nevertheless demonstrates its wide-ranging applicability to a range of disciplines, including dentistry (Shenoy, Sheoy and Ratnakar, 2013), nursing (James, D'Amore and Thomas, 2011) and English as a foreign language (EFL) education (Moayyeri, 2015). In the social sciences, much attention has centred on its (positive) relationship to teaching economics. In their recent review of the literature, for example, Sabiston and Leung (2020, p.1504) conclude that, with respect to the use of visual aids for teaching and visual preferences for learning, the VARK model tends to provide the most "consistent findings". Their conclusions regarding the links between teacher and learner

¹ <https://vark-learn.com/the-vark-questionnaire/>.

preferences are important and we shall return to them later. Another study by Wright and Stokes (2015) made a wider series of observations. Reflecting on the importance of allowing students to gain insight into their preferred learning style, they argued that, when integrated into a variety of appropriate teaching and learning strategies, such awareness not only enhanced students' interest in the subject matter, but in consequence also led to enhanced rates of student satisfaction (op.cit., pp.76-77). Other research also suggests that it can help improve academic performance (Dutsinma and Temdee, 2020, p.2875).

In summary, existing research indicates clear perceptions of the usefulness of freehand drawings, most significantly when students are asked to collaborate and draw their own. The emphasis throughout is on the use of freehand drawings as a learning activity and not as a teaching and learning activity. In addition, whilst arguably being a specifically 'visual' pedagogy, none of the existing studies has sought to align the perceived usefulness of such drawings with individual student learning preferences. The aims of this study are thus 1) to emphasise the potential of freehand drawings as both a teaching and a learning activity and 2) to explore any potential linkages between the usefulness of the drawing and students' individual learning preferences.

3. Method

To achieve these aims, a small-scale qualitative study was conducted with ten United Kingdom (UK) undergraduate students who had just finished the first year of their degree. The project adhered to the ethical guidelines of the Social Research Association and was cleared by Nottingham Trent University's School of Social Sciences' research ethics committee. After completing a VARK questionnaire (v. 8.01) to ascertain their preferred learning style, collectively via Microsoft Teams, students were taught two versions of Freud's theory: 1) auditory-read/write (speech accompanied by two static images on Microsoft PowerPoint); 2) auditory-visual (speech accompanied by a freehand drawing). Owing to the then continuing social distancing measures (UK, June 2021), the freehand drawing was delivered via the 'whiteboard' function on Microsoft Teams. After the class, for about thirty minutes, students in a focus group discussed their experiences. The VARK framework developed by Fleming and Mills (op.cit.) was used to guide discussion and map-related insights. The results of the study are discussed in the next section, which, in keeping with our particular interest in the interplay between teaching and learning, begins with some class lecturer reflections.

4. Analysis

Freehand drawing had been used for a few years for a now defunct undergraduate year two module, which, through a range of thinkers, explored a variety of social, psychological and political notions of identity. The module was heavily textual: as in a reading group, students were given extracts from primary texts, with related questions to help guide them as they prepared for class discussion. They then discussed the readings collectively, debating key issues as they arose, while, throughout, the lecturer highlighted with the in-class visualiser key passages within the texts. Though repetitive, the method proved to be influential in ensuring students' understanding of a series of demanding texts, a critical appraisal of which they were expected to complete as part of their assessment. Although drawings were used in other modules for other thinkers (ten in all), in this module they were used for two thinker-related topics only: Hegel's theory of mutual recognition and Freud's topographical model of the human psyche.

Interestingly, each drawing served slightly different purposes. The Hegel session was the first of the module and the more difficult; yet ultimately – in terms of the themes established at that point – it was the more profound. Given the heavily textual (and thus visually written) nature of the module, the well-known complexity of Hegel's prose presented immediate problems (to be frank, for those unaccustomed to it, it proved to be unintelligible). Thus the aim of the Hegel freehand drawing was twofold: 1) to help the lecturer explain his ideas and 2) to help students understand them. In this sense, the role of the Hegel drawing was precisely as Elkins (2007, p.5) puts it: to assist lecturers to “discuss what they are not able to explain orally or what the students may not be able to comprehend from textual sources” (p.5).

The use of the Freud sketch, which forms the basis of our discussion below, was different. One of the downsides of the module was its relatively repetitive nature: though there was slight variation, the same pedagogy was employed throughout. The Freud session was delivered during the first week after Christmas and, unlike the Hegel material (at least from the lecturer's point of view), wasn't particularly difficult to explain. In consequence, the rationale for the Freud sketch differed. Most significantly – and Kędra and Žakevičiūtė (2019, p.2) saw this as a key characteristic of visual learning – it broke the routine of how the session would conventionally have begun. Before COVID-19, in a face-to-face teaching context, if the lecturer started the class by drawing a shoddy outline of (what was meant to be) Freud's head, there would often be a detectable wry smile from students, perhaps out of amusement... or bemusement! This method seemed to intrigue and engage them from the outset. Though, year by year, the drawing inevitably became less spontaneous, its underlying freehand nature meant that each drawing was never entirely the same, preserving its “immediacy and

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freshness” as well as its “pure and unadulterated form” (Afflerbach, 2014, p.9; Richards, 2013, p.6). The second purpose for the Freud freehand drawing was more conventional: i.e., as an explanatory aid, or ‘text adjunct’, to help articulate something not necessarily complicated, but – on account of Freud’s emphasis on the dynamic nature of the human psyche – to help visualise a process which isn’t easily or suitably expressed through words alone or even static diagrams. In this sense, the Freud drawing clearly represented the kind of causal diagram discussed by McCrudden et al. (op.cit.).

The results of the focus group were interesting. Overall, in terms of students’ different learning styles (because they all identified with some form of ‘multi-modal’ preference), exploration of the utility of freehand drawings and their relationship to – specifically – ‘visual’ learning preferences proved inconclusive. However, students made some insightful comments about the lecturer’s own learning preference and their propensity for using such visual pedagogies as freehand drawings in the first place. We discuss this insight later. What the study did successfully demonstrate were the differences between using a static diagram (figure 1) incorporated into the PowerPoint presentation and the freehand drawing (figure 2) for the purposes of helping understanding of Freud’s theory. We start by discussing this insight below.

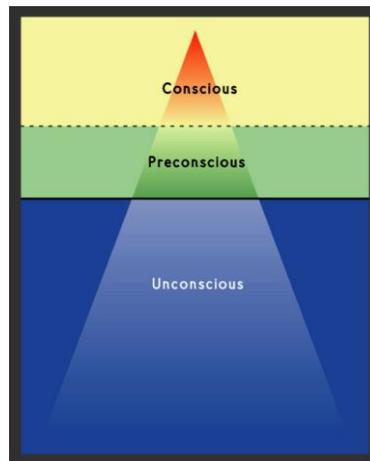


Figure 1. (Static) diagram of Freud’s model used in PowerPoint presentation

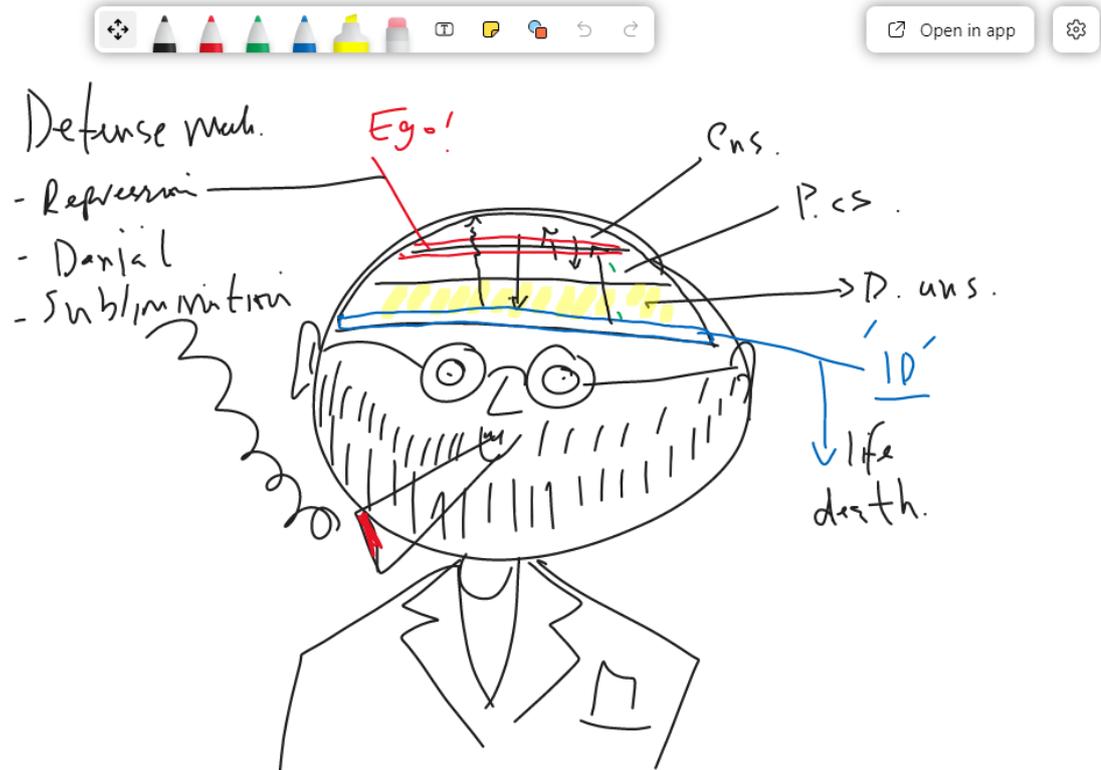


Figure 2. Picture of freehand drawing developed in class using Microsoft Whiteboard.

Six students – four ‘multimodal’ and two ‘mild kinesthetic’ – stated a clear preference for the freehand drawing over the PowerPoint presentation, although for slightly different reasons. For five, their preference was clearly related to the dynamism which freehand drawing permits. As one student commented, when comparing the static diagram used in the PowerPoint presentation and the freehand drawing:

“...it wasn’t the same as when you started drawing, using different colours and arrows...” (S1)

In slightly more detail, another student said:

“...when I’m just listening to it being described it is all just hypothetical, I struggle to see how that can actually happen, but obviously, when the diagram is in front of me and you are showing the arrows and the positioning of the different bits...it makes it more realistic because then I can actually see and understand...it does happen” (S2)

Another student made similar comments, although this time mentioning the use of the drawing as a complement (as opposed to an alternative) to the PowerPoint presentation. Thus:

“...the next stage [i.e., the freehand drawing], that really helped me more...using those arrows and stuff, and how the various functions take place” (S3)

Both insights above reiterate the very essence of how McCrudden et al. (op.cit., p.369) define a causal diagram, particularly how it “illustrates the individual steps in a causal sequence, as well as the holistic causal interconnections among components, by explicitly displaying causal relationships that are implicit in a text”. The remaining students – three multimodal and one mild kinesthetic – seemed indifferent as to their preference, saying that while the freehand drawing was useful, the information (both written and auditory) provided by the PowerPoint slides was perhaps more important, particularly in the first instance.

Putting aside their slightly different rationale, the insights from those who did prefer the freehand drawing thus chimed with the previously mentioned use of drawing for the purposes of teaching – i.e., that its main benefit lay in the dynamism it afforded in helping to explain complex ideas. In this sense, as a ‘causal diagram’, its benefits clearly reiterated the results of previous works such as Mayer and Gallini (1990) and McCrudden et al. (2007). When students were asked about their preference either for a static diagram or for a freehand drawing articulating Freud’s model, it was found that four students – all multimodal – had a strong preference for the freehand drawing; again, on the basis of the insights raised earlier, although in one instance not only for the purposes of understanding, but also for recollection. With only a static diagram, one student commented:

“I definitely wouldn’t understand without explanation...I wouldn’t understand a thing...but when explained step by step, with connections, I would pay more attention and memorise what you had said” (S4)

Another put this slightly differently:

“...[when] looking at the picture without knowing what is going on...[it]...wouldn’t really help...[with]...the movement, I begin to make sense out of the whole process” (S1)

Perhaps the more novel insight at this point was that, for at least four students – three multimodal and one mild kinesthetic – the benefit of the freehand drawing depended on whether they had existing knowledge of the material covered. If they were new to the material their preference lay with the static diagram, primarily because all the information was available at once, “there on the screen” and thus, understanding wasn’t dependent on the dynamism and/or movement found initially as a benefit of the freehand drawing.

Two final student observations were unexpected but relate well to some of themes discussed earlier. First, one student noted the fact that, during the PowerPoint version of the class (which included only text and a static diagram), the lecturer, who had identified as a visual learner, tended to mimic the dynamic elements of Freud’s theory through hand gestures. Hence, whilst the VARK questionnaire did not identify student preferences that were associated with perceived utility of the freehand drawing, there was some evidence to suggest a relationship between learning style and pedagogic style. Second, when comparing the two versions of the class, students identified another interesting difference. This related to discussion about additional concepts in Freud’s theory – e.g., Freud’s notion of the ‘ego’ and its employment of various ‘defence mechanisms’ – which were not included in the static diagram in the PowerPoint presentation, but which were layered into the freehand drawing. On reflection, this suggests that in some cases, rather than a drawing being a mere accompaniment to text or speech, the latter can in fact become an accompaniment to the drawing. Ultimately, and in keeping with the findings of Fleming (2019) and Carney and Levin (2002), the insights above provide some support for the view that it might be just as useful for lecturers to have awareness of their own preferred learning style as it might be for students (Leithner 2011, p.430).

5. Broader reflection

While technological innovations in pedagogy should be welcomed, this does raise the question as to whether some traditional and still effective forms of teaching risk being left behind. When understanding technology instrumentally, we see that at times its pedagogic potential is limited. From a student perspective, knowledge slickly packaged can feel inauthentic: the teacher can simply recite from a screen, stifling any desire to change pace and direction mid-way through the class. Such knowledge is not mutually creative with the student but rather arrives pre-packaged and ready-made, simply spoon-fed to the students. Sophistication of the technological form gives a pseudo-sophistication to the content: knowledge is presented as finished; ideas and their visualisation as neat; the presenter as elevated, sleek and professional, all of which undermines challenge to and engagement with academic knowledge.

This is particularly ironic in the case of social and political theory, where such engagement is its lifeblood. Susceptible to “surface-atomistic” learning (Ramsden, 1992), students are presented with new and complicated concepts and ideas; the teacher can pronounce ex cathedra the dogma of the new language and students learn in a passive way. Freehand drawing, however, can help students’ learning, particularly with abstract material (i.e., where verbal communication alone can often be dense and static pre-created computer diagrams overbearingly authoritative). As has been shown in the analysis section of this paper, freehand drawings, either on a real or simulated whiteboard or on a piece of paper as students watch from across a desk, seek to improve student understanding through complementing verbal communication and images. As the freehand drawing is not pre-prepared, but grows in stages, the lecturer can check understanding as it develops. Students can contribute to the drawing by asking questions as it is drawn, reflecting how they understand it or how they might change or reproduce it.

Freehand drawing allows for layering, complexity and messiness, which reflects the nature of the ideas being represented, whereas static diagrams often suffer from needing to be easily interpretable. Yet this act of verbal and visual communication contains much more than subject knowledge. Freehand drawings are spontaneous; their dynamic mix of doodle, stick-figure, scribbles, underlinings, arrows and back-of-the-envelope diagramming contain a colloquial and rough-hewn quality. They are quick diagrams and might appear uninterrupted to anyone who was not in the class when they were made; and they are potentially different each time they are made. The act of drawing creates ephemeral pedagogical moments: in this conception a diagram is not pre-created, static and (by implication) ontologically settled. Rather, the act of creation coincides with the act of teaching: the diagram is rough-and-ready, develops in real time with student interaction and, as a result, is unique to that interaction – to be disposed of (as gift or garbage) at the end of the teaching session. To throw teaching materials away – whether by deleting an online white board or dropping a screwed-up doodle in the bin – is a minor moment of profundity, the teacher committing to the passing of the moment and to the belief that that moment can be re-created next time. This gives a specificity and spectacle to its creation. If given as a gift to students, say after an office-hour chat, then this too has its small meaning: so much more than emailing a link to an online resource or handing over a photocopied image from a textbook. The idea of making gifts and gift reciprocity is a foundation of all societies (Mauss, 2011) and the same ideas of connection and obligation could be transferred to pedagogy. The very crudeness of the gift decentres the authority of the teacher and orientates students in a co-creative relationship. The distance between students and the teacher is narrowed and so too is the distance between students

and the ideas they are studying: the inept freehand drawing lessens the intimidation of these ideas and perhaps removes the notion that these ideas are excessively esoteric or elite.

6. Conclusion

Because the sample employed in our study was limited, there are therefore obvious limits to any generalisable conclusions. However, we should like to make two key observations.

First, though we broadly accept the increasing emphasis on technological developments in teaching and learning – it would not have been possible to conduct the empirical research for this project (e.g., by using Microsoft Whiteboard) without those – we concur with Gadelshina, Cornwell and Spoons (2019, p.150) that this shouldn't necessarily overshadow the potential of more well-versed and perhaps 'old fashioned' techniques. In addition, the study shows that the use of freehand drawings is unlikely to suit everyone and so, like other visual aids, such drawings need to be used judiciously. Indeed, this was a point that students raised in terms of the potential of freehand drawings when considering existing knowledge about the material at hand. Thus, as Carney and Levin (2002) attest, in the case of more conventional (textbook) diagrams, the extent to which they prove useful (or not) can depend on a range of contingent factors. Our first conclusion, then, is that the selective use of freehand drawings remains an important tool for both teaching and learning purposes. Furthermore, while the freehand drawing used throughout this study was perhaps rather esoteric, we see no intrinsic reason why freehand drawings may not be used for any other academic discipline. As we have said, one important proviso for those intending to explore this possibility is to focus on freehand drawings' potential for explaining dynamic phenomena. Perhaps, then, the use of freehand drawings is tied not so much to any specific academic discipline but rather to instances which require (dynamic) elucidation.

Second, though there wasn't a straightforward match between the utility of the freehand drawing and specifically 'visual' learning preferences, insight suggested that developing an awareness as to their own learning preference/s might prove useful for helping lecturers examine their respective styles of teaching (Fleming 2019, chapter 2). This isn't about 'pigeonholing' any particular 'style' or 'preference' to teaching and learning; rather, it is about being open to the possibility that there might in fact be interesting and/or potentially significant differences. On this basis, aside from (perhaps unintentionally) privileging specific pedagogic techniques – e.g., in the case of political theory (Moore, op.cit.), focusing on exclusively reading-based activities – this could prove useful for understanding students' success (or not) on their particular modules and/or courses (Sabiston and Leung, 2020). According to Leithner (2011, p.430), "If lecturers [as opposed to **students**] have different learning styles, does it not

stand to reason that their preferred method of reproducing that knowledge also differs?’ In fact, even when retaining Leithner’s original emphasis on ‘students’ the matter remains significant, for if we accept that students learn differently – something essential for fostering an inclusive approach to learning and teaching (Valiente 2008, p.73; Liftig, 2021) – then this might also require re-thinking assessment strategy (Fry, Ketteridge and Marshall 2009). Thus, even if the debate over the veracity of learning styles remains contentious, at school or university, linking pedagogy and assessment to differential forms clearly relates also to wider sector initiatives, such as emphasising equality, diversity and inclusion, or maximising student attainment, satisfaction and progression (Wright and Stokes 2015, p.77).

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