

A Theory of Opinion Formation

Andy Blunden April 2021

The classical conception of knowledge formation, i.e., opinion and belief, is an individual observing a natural object or process and trying to understand it by rational reflection and experiment. Having this scenario in mind, Cognitive Psychologists isolate individuals in a laboratory and pose them questions and Sociologists circulate survey forms for members of the public to render their lives into check boxes. In this way, the original question is transformed into one of individual linguistic responses to texts, a scenario which is already distant from opinion or belief in itself, having been filtered through symbolic interaction.

Hegel and Marx made this approach obsolete by taking people's knowledge and beliefs to be an integral part of their social practices and those of the social strata, cultural community and state of which they are a part as well as their personal experiences. In this view, opinion formation is an *irreducibly social process* which is nonetheless carried out by individual human beings in and through the activities they are involved in and the relationships they form in the course of that activity. The process of opinion formation cannot be studied however by isolating individuals from their social involvement. The artefacts, especially texts, produced and used by the community play a crucial role in the formation of opinions, but they do so only insofar as and in the manner they are used by individuals alone or in definite interactions with one another.

Knowledge can be distinguished from opinion and belief in that knowledge is taken to be an ideal, or universal, the property of an entire social formation, whilst opinion and belief are taken to be ideal aspects of the commitments of individuals. Opinions and beliefs become knowledge when institutionalised by means of definite forms of practice and their associated artefacts which transcend the actions of individual actors within those institutions. Science and the Judiciary are instances of such institutions. Knowledge is not rendered static, absolute or objective by these institutions; rather, these archetypal truth-making institutions are instantiated by definite systems of enquiry and truth-testing – quite formal in the case of the Judiciary, less so in the case of Science – which allow for once universal truths to be revised and for degrees of doubt to co-exist with certainty. The only absolutes are procedural.

The subject matter of this study is individual opinion formation, examined on the understanding that universal standards exist in any community. The opinions of individuals differ from these standards in ways which reflect the unique life experiences of individuals as well as particular beliefs connected with specific social practices associated with social class, education, ethnic and religious commitments and industrial activity.

Cultural Historical Activity Theory (CHAT)

The first resource I shall turn to for a foundation for a theory of opinion formation is A.N. Leontyev's theory of personality and the work of Fedor Vasilyuk on life crises. Both of these sources are problematic in one way or another. In particular, for Leontyev, consciousness had universal moments (which he erroneously took as objective) and individual moments, but he was blind to the particularity associated with class, industry, ethnicity, etc. Vasilyuk on the other hand focussed exclusively on critical or 'impossible' situations in people's lives requiring therapy, to the exclusion of everyday processes. Nonetheless, both writers approached the topic I am referring to as 'opinion formation' within the tradition of Soviet Psychology based on the work of Lev Vygotsky

which will play the central role in this study. The key works of Leontyev (1978) and Vasilyuk (1984) are reviewed in Blunden (2021e & 2021d). Here I will draw out just a couple of concepts which are key to the subject matter at hand.

The Russian word *lichnost* is usually translated as ‘personality’ but this is not accurate. Normally, by ‘personality’ we understand the cognitive, affective and moral character of the person manifested in interactions with the world. *Lichnost* however refers (as Leontyev put it) to a hierarchical structure of ‘commitments’ – family, work, nation, etc. – which in English are usually discussed in terms of axiology, i.e., value ethics, not psychology. This concept of the person can be quite shocking for non-Soviets, because it sidelines moral aspects of character. It is nonetheless of great interest for a study of opinion and belief formation. Further, the Soviet study of *lichnost* is of interest because, in line with the traditions of Cultural Historical Activity Theory (CHAT), *lichnost* is studied *in formation* and never as a fixed, let alone innate, psychological formation, built by the subject in the course of their social practice.

In connection with her study of the ‘radicalisation’ of young European Muslims, Cristina Archetti (2015), makes a point, basic for any Marxist, Hegelian or Vygotskian study of opinion formation, that while beliefs and opinions make sense only within the larger ‘narrative’ of which they are a part:

narratives arise from a specific constellation of relationships – a social network. It is possible, in fact, to say that where there is a narrative there must be a network. ... narratives are not merely the product of words, but of social practices.

The point here is that any specific opinion or belief (i.e., a matter of facticity) is held as part of a wider, more developed ‘narrative’, but ‘narratives’ are associated with *social practices*, on the basis of which can they only be understood. ‘Narratives’ mediate between commitments to social practices or projects and specific opinions and beliefs. The concept of ‘narrative’ here is not essential. As I argued (2012), narratives and concepts are inextricably bound together and neither can stand without the support of the other. By ‘narrative’, Archetti references that broader system of concepts and beliefs in which a specific claim has meaning and standing. The word ‘ideology’ is not appropriate for this idea, because ‘ideology’ connotes a far too totalising conception, an entire, consistent worldview. On the other hand, mutually contradictory ‘narratives’ can coexist even in the same person. A ‘narrative’ is a ‘view’ but not necessarily a ‘worldview’. I shall continue to use the term ‘narrative’ in order to convey this idea of a view which falls short of an ideology, but is more extensive than a single judgment, without accepting the dichotomy between concept and narrative implied in the so-called ‘narrative turn’.

The Russian word *otnosheniya* may be translated as ‘life relation’ or ‘contract’ or ‘orientation’, but in the context of these writings it is better rendered as ‘commitment’, or as Alex Kozulin (1991) put it: ‘calling’. The importance of the concept of *otnosheniya*, henceforth ‘commitment’, is that it expresses the relation between the personality (*lichnost*) and social practices. A person’s commitment to a narrative is not dependent on their actual, personal participation in or contact with the relevant practices. ‘Commitment’ is a psychological orientation, and it may be very abstract and general or it may be very concrete and specific. Thanks to these Russian psychologists we can learn how these commitments are *formed* and how their place in the structure of a person’s commitments change.

‘Confirmation bias’ is a term attributed to the English psychologist Peter Wason, and expresses in psychological terms the fact known for centuries, that a person interprets every experience

through the lens of their prior beliefs and is predisposed to interpret the experience so as to confirm their existing beliefs and resist interpretations which threaten their existing commitments. This phenomenon is so well-known that it does not require proof, but I will illustrate the strength of this tendency with a study (Boven et al, 2018) of opinions on climate policy among Americans affiliated to either the Republican Party or the Democratic Party. Contrary to the beliefs of the majority of all participants, a great majority of the participants on both sides believed that climate change was real and action needed to be taken. When presented with two alternative policy statements each labelled either as being that of the Republican Party or the Democratic Party, 2/3 of subjects opposed the policy labelled as that of the opposite party and 2/3 supported that of their own party irrespective of which policy document had been presented. People interpreted the policy document in line with the preconception produced by being told whose policy it was. US politics is an extreme case, but the effect is well-known and universal in its impact. However, little is gained by dwelling on the phenomenon. The point is to understand how a person *forms* such commitments, how opinions and beliefs come to be associated with a commitment and how opinions are formed and changed. There are a plethora of explanations for the failure of people to change opinions in the face of challenging experiences. This situation is a negative instance of the general process of forming or changing commitments in the face of 'impossible' situations, and adopting or modifying the range of opinions and beliefs that go along with that commitment.

Some opinions are formed out of real personal experience, without any filtering by preconceptions. Sometimes these experiences can be traumatic, or life-changing in less dramatic ways, and these experiences, which commonly form the chapters of a person's autobiography, the Russians call *perezhivaniya* (See Blunden 2016).

The work of Fedor Vasilyuk is particularly important in how people form, abandon and change their commitments during episodes of crisis, and it seems reasonable to suppose that less dramatic forms of the same process may be entailed when people form or change opinions without fundamental shifts in their outlook. According to Vasilyuk, *perezhivaniya* occur when people are confronted with 'impossible situations'. These are of four kinds: (1) the infantile crisis in which the person has no commitments and even minor threats or difficulties trigger anxieties, (2) the fanatic crisis in which a person's commitment is blocked and life loses meaning and demands realism and/or patience, (3) the value crisis in which a person is faced with a conflict between commitments and must revalue their commitments, and (4) the creative crisis which demands a complete reconstruction of the personality. Vasilyuk's work went beyond the truism that people *resist* challenging experience and studied the variety of ways in which different kinds of challenge can be *survived*. All these processes entail the subject in strategies of restructuring commitments. Commitments to people and practices and symbols are meaningful relations which are vital for the integrity of the person's self-consciousness. Behind commitment to a person or symbol is a commitment to a social project, a unit of the social formation of which the person is a part. In Vasilyuk's view, the personality is a structure the units of which are commitments to specific practices or projects. The world is also a structure the units of which are the same practices (or activities or projects). Although the person and the social formation as a whole have effectively the same units, each self-evidently has a distinct structure. Conflicts and other processes affecting the social structure self-evidently affect citizens' commitments and consequently their opinions about various questions, but not in a homogeneous way.

At the psychological level, *perezhivanie* is the most efficacious concept shedding light on the formation of commitments and thereby opinions and beliefs. However, this concept does not give

us the structure or network of practices characterising the social formation. The social structure is however of considerable interest. This was illustrated graphically by the work of Boven et al cited above where we have seen opinions on almost every question sorted into almost mutually exclusive 'tribes', and where people's very identity is tied up with membership of one tribe or the other. This despite the fact that there was far more overlap in individuals' opinions than anyone believed.

This 'tribalism' is a societal pathology and is far from being a rational or necessary outcome of citizens forming commitments. The formation of 'tribes' has been called 'politicisation'. To explain politicisation and the range of possible alternatives to tribalism, I will introduce the concept of 'trust networks' and in particular '*expert-trust networks*'.

By *expert-trust network* I mean a network of people, linked by relations in which a person A trusts person B to give good advice with respect to question Q in which A evidently deems B to have expertise. Each link is a *expert-trust vector*: $A \leftarrow B(Q)$. A church provides an expert-trust network for matters of faith; a university provides an expert-trust network for matters of science; a political party or movement provides an expert-trust network in matters of public political policy. 'Politicisation' means the collapsing of all networks into a single network of trust which leads to the phenomenon of tribalism, toxic to the rational and constructive formation of opinion and belief. I take it that this process of politicisation is a major social problem which this research ought to shed light upon.

Although politicisation manifests itself at the societal level of activity, the roots, the germ cell lies in how an individual forms an opinion with the advice of another trusted person, in the expert-trust vector.

Trust

While the practical basis for trust remains an open question, there is broad consensus that it is trust which is the central characteristic of social bonds which underpin knowledge, belief and opinion formation. Interest in trust and trust networks burgeoned in the late-90s and early 2000s simultaneously with interest in the related the concept of 'social capital' and this is confirmed by Google Ngrams.

Robert Putnam, in his study of democracy in Italy (1993) and the United States (2000), demonstrated that 'good' 'social capital' was built by citizens socialising together irrespective of the particular nature of that socialising because it built trust. Jane Jacobs (1961) had already demonstrated that the cohesiveness and social and political strength of a community depended on the opportunity that the urban environment provided for secure interaction between strangers. Francis Fukuyama (1995) argued from a conservative point of view for the need to promote trust between and within sections of the community. There is a fair basis for conceiving of 'good social capital' as a disposition towards trust, having its basis in a widespread disposition towards sociality. (See Blunden 2004 for an extended critique of this literature, including the confusing distinction between good and bad social capital).

The claim that determination of truth is reliant on trust, notably trust in the source of information, is compelling. As pointed out above, Science and the Judiciary are institutions founded on procedural rules designed to make information reliable irrespective of judgments about the character of informants. Here trust is embedded in institutionalised practices, such as peer review, juries, rights of appeal, documentation, publicity, and so on. The editors of *The Lancet* may never

have met or even heard of the author of a submission, but they have a list of peer reviewers qualified to judge the paper and the institution in which the author is employed. So much for the problem of trust in these age-old institutions, but how is the ordinary citizen to determine the trustworthiness of the source of a specific piece of information? And irrespective of how they *should*, how *do* people determine the trustworthiness of their sources?

A number of social policy problems have stimulated study on this question. In the 1980s, the HIV/AIDS epidemic caused governments to seek support for public health measures from communities normally beyond the reach of government influence and in the early 2000s, efforts to ban asbestos were successful, at least 65 years after the producers first became aware of the lethal nature of their product. Studies have shed light on how the relevant groups came to change their minds. The rise of ISIS in the early 2010s led to investigations into how foreign fighters were recruited; in the 2010s, a rise in vaccine hesitancy led to a plethora of studies in how people made decisions about vaccination; in recent decades, the contentiousness of US politics has led political professionals to look more closely at if and how voters change their minds on contentious issues; and finally in my article on *perezhivanie* I cited autobiographical reports of people changing their minds on asbestos issues. I now shall review evidence from these studies.

1. HIV/AIDS. The Australian government was successful (Power 2014) in promoting “safe sex” among gays and prostitutes by handing control of the publicity campaign over to existing community organisations. Messages were received by gay men and prostitutes from individuals known to them or in publicity designed by members of their community and circulated in their own venues. The US government was less successful with its top-down advertising which was more or less hostile to the target communities, but it was in the US (Epstein 1996) that HIV/AIDS activists made a success of the medical science project to develop medicines by forcibly intervening in scientific conferences. Scientists were persuaded to abandon double-blind trials only by the direct intervention of AIDS activists, and involvement of activists in research led to willing participation by vulnerable groups.

2. Asbestos. Efforts to eradicate asbestos production and use in Australia had been thwarted ever since the principal manufacturer took steps to protect itself from legal claims in 1935. Regulators, legislators and medical science had been nobbled. Like in the US, where the EPA was ‘public enemy number one’ in asbestos towns, the workers themselves denied its deadly effects even as they died in numbers from asbestos disease. In the end it was an alliance of their own union with self-groups of those dying of asbestos disease, who gathered legal, scientific and media allies and forced the government to ban asbestos (Beaton & Blunden, 2014). No amount of scientific evidence or media exposés had been able to break through for 60 years, before this collaboration was successful.

3. Foreign fighters. Governments were concerned that young Muslims were being recruited to fight in Syria by ISIS internet campaigns but ‘counter-narratives’ broadcast over the internet proved a dismal failure. No wonder. Closer investigation showed that fighters in the Middle East were simply using the internet to communicate with their friends back in the European suburbs in which they had grown up. This was illustrated by the observation that almost all of Norway’s 60 recruits came from the *same street* (Neumann, 2015; Blunden 2021a). Against this personal communication between friends, government propaganda broadcasts were less than useless.

4. Vaccine hesitancy. Public commentators frequently point to antivaxxers spreading disinformation over the internet or blame alternative therapists. Blume (2006) however showed that neither of these groups could explain the rise of vaccine hesitancy, and were better

understood as products of the same process which produced vaccine scepticism. He found that vaccine hesitancy was an integral component of a disposition that was suspicious of authorities and advocated individual responsibility in health choices. According to Blume, only 2% of parents consulted the internet in making their vaccination decision, and only a proportion of these would even have read an anti-vaccination website, let alone trusted it. He found that 85% of parents usually had accessed expert advice whether or not they followed that advice, while few had seen antivaxxer websites. For the majority it was information from *trusted peers* which was most decisive in forming their opinion. The great majority of antivaxxer publicists were people who had unfortunately had personal experience of rare adverse vaccine side effects.

5. Political persuasion. The broadcasters, 'This American Life' (2017) interviewed professional political campaigners on how they had changed people's mind on abortion and gay marriage. These professionals agreed that mass communications could 'get out the vote' but never changed anyone's opinion. Successful pollsters had to be able to establish empathy with a voter (e.g., the pollster has a gay son or has had an abortion) and be prepared to spend several hours of careful listening and conversing with a voter to establish rapport, before they could be successful in changing a voter's mind. The cost of this method of campaigning is prohibitive unless it is already at work spontaneously in the community.

6. *Perezhivanie*. I reported (Blunden 2016) on autobiographies of James Lawson (the architect of Martin Luther King's nonviolence strategy) and Sally Rugg (a lead campaigner in same sex marriage referendum). Both described youthful experiences which flipped their worldview 180 degrees. Both experiences entailed emotion-laded interactions combined with a parental interpretation which cut through. These type of experiences are well-known and similar to the resolution of crises under the influence of a therapist as described by Vasilyuk (1984).

All the above evidence point to the fact that by far the most powerful and decisive impact on a person who is forming an opinion, including the judgment a person makes of the trustworthiness of the source of information, will be the advice of *people they already know* and with whom have a trusting relationship. The shortcomings of this observation are (1) it leads to an infinite regression in that it shifts the source of truth back one link on the trust network, and (2) it does not tell how this or that person come to be trusted, and more importantly (3) trusted for advice on *this specific question*. Further, no one claims that publicly available information from genuinely authoritative sources is never trusted by a subject. The question (4) is open as to whether this or that authority is to be trusted for this specific question. The disposition to trust this or that authority is itself a product of the 'narratives' circulating on expert-trust networks.

Distrust of public authorities and corporations is an historical product which is now well established in certain sections of the community (See Beck 1986) and generally had quite a rational foundation at the time it first arose, but continued to circulate long after it had been disproven or corrected. ALLEA (2018) discussed at length how governments could regain this trust which has been lost. In their conclusions they emphasise the role of statutory advisory bodies independent of government and industry which include members from a wide array of cultural locations. The experiences in HIV and asbestos described above point to the need for authorities to mediate their communication through community organisations and leaders. But this is not the question at hand at the moment.

The above summary points to three problems: (1) the formation of the expert-trust vector for a given individual, (2) the shape of the expert-trust networks for any given issue and (3) the correlation between expertise and trust on different issues. Falcone & Castelfranchi (2007) have

developed a ‘theory of trust’ as a mathematical model of trust networks. The important finding which bears on my aims here is that they confirm the observation of Blume and the ‘American Life’ program mentioned above that it is not the activity of a few ‘influencers’ which can explain the rapid spread of ideas which is frequently observed; rather it is the presence of a large number of people who are, in the given circumstances, easily persuaded, or perhaps it would be more appropriate to say, *disposed to be persuaded* of the given idea. This kind of mathematical network analysis is beyond the scope of this study however. My focus now is to be the formation of the expert-trust vector for a given individual.

Opinions and child development

Aristotle’s maxim: “Give me a boy until the age of 7 and I’ll give you the man” is a relative truth. As described by Vygotsky (1934b; see Blunden 2021b), beginning from birth the human child gains their independence from their mother successively physically, biologically, psychologically and finally socially, some time in their teens depending on cultural norms. Each of the critical phases of development in which the child develops their will entails a period of ‘difficulty’, from labour pains and the ‘terrible twos’ up to that phase which we find in our culture generally around years 8 and 9 at secondary school. At this time, the child endeavours to break from their parents’ social position. Frequently they cause great distress to parents and teachers by rejecting the basic values, social attitudes and norms of behaviour in which they have been raised. At first the child simply does not have the breadth of experience to accomplish this transition in a rational way, leading to the seemingly irrational behaviour for which teenagers are infamous. After a few years, the child has established themselves, and they usually reconcile with their parents, but now on their own terms. But I believe that it is in these years when the young person has just achieved social independence from their parents (though in our times, not yet financial independence – a contradiction which is the source of much familial conflict) that a person begins the process of building up the structure of commitments, the *lichnost*, which will characterise the rest of their lives. I believe that in this period young people are most open to advice, whether from peers, trusted adults or official sources. Accordingly, I believe that it is in these years, the middle years of secondary school, that are most suitable for a study of the formation of the expert-trust vector.

The expert-trust vector

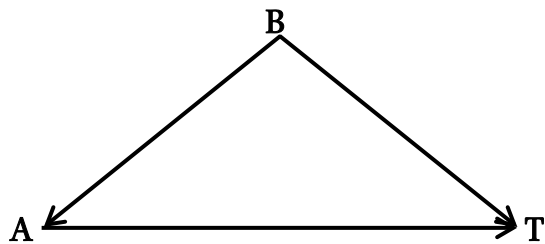
By ‘the expert-trust vector’ I mean the measure referred to above of the extent to which person A trusts the advice of person B in connection with question Q: $A \leftarrow B(Q)$. A special case of this vector is $A \leftarrow A(Q)$, the extent to which a person trusts their own judgment on question Q. The data reviewed above suggests that the strongest vectors are those in which B is personally known to A, in particular, where B collaborates with A in some activity. I will indicate by $A \leftarrow E(Q)$ the case in which E is an expert accredited on question Q to a greater or lesser extent. For example, the religious leaders in Northern Nigeria who advised their flock to refuse the polio vaccine in 2003 were an instance in which $B(Q)$ was trusted but not worthy of trust with respect to Q. The institutionalised expert-trust networks give us a *standard*, $E(Q)$, against which it is possible to measure the degree to which $B(Q)$ is trustworthy. Thus, every instantiation of $A \leftarrow B(Q)$ has an individual and a universal value, such that the difference between the two is an indicator of a pathology in opinion formation. If we can trace the shape of this expert-trust vector, and the conditions which contribute to shaping it. then we can leave to mathematical sociologists the problem of analysing the networks generated by the expert-trust vector. The ideal, or universal,

value of the expert-trust vector is that given by $E' \leftarrow E(Q)$ in which E' is a fellow member with E of an institutionalised expert-trust network for the question Q , $N(Q)$.

Unit of analysis

As Vygotsky explained in his magnum opus, *Thinking and Speech* (1934; see also Blunden 2021c), it is possible to form a clear concept of a complex process only to the extent that it is possible to identify a unit of analysis of it – a concrete, simple something, which typifies what is universal for the entire process. As A.N. Leontyev was first to identify, it is generally necessary to identify *two* such units, a molecular unit (e.g. commodities, actions) and a molar unit (e.g. firms, activities). In what has been said above I have identified a pair of such units: the expert-trust vector and the expert-trust network. Although it is really the expert-trust network which is of interest, networks which are currently shaping our world in ways that are less than ideal, the key question is the shape of the expert-trust vector (or field) and the conditions shaping it. An opinion is the product of the operation of this vector, but in essence it should not be seen as a product distinct from the process of production, but the structure itself. This was demonstrated by the study of Boven et al

cited above showing that *who* was believed was much clearer and firmer than *what* was believed.



To further clarify the unit of analysis for this study of opinion: the self-consciousness of classical epistemology envisions an individual contemplating some natural object or process. The reality is that in our cultural world, however, it is extremely rare that a person forms an

opinion, with or without advice, of a controversial natural object or process with which they are personally acquainted $A \leftarrow A(N)$. These situations exist and are common enough, but they are not what is significant in opinion formation. What is more significant in opinion formation is the interpretation of a culturally acquired text, in particular, the interpretation of a text under the advice of another. Thus, instead of the 'question', Q , I shall insert the text T . Thus $A \leftarrow B(T)$. This is the unit of analysis for opinion formation in a modern society such as ours. For example, the mother whose child developed the paralysing Guillain-Barré Syndrome as a side-effect of an H1N1 vaccination, and becomes a militant antivaxxer may not be what is crucial in the generation of hesitancy in respect to the H1N1 vaccine. The network of wellness enthusiasts who convinced their friends to avoid this vaccine may be more significant.

I have not explicitly included the source of the text because I take the source to be part of the text, but we could express this idea as $A \leftarrow B(T,S)$ and $A \leftarrow A(T,S)$ represents the case when the person A interprets the text having in mind the source. But $A \leftarrow A(T,S)$ is better taken as $A \leftarrow S(T)$ where the expert-trust vector points to the extent to which the subject trusts the source with respect to the context of the text. But given our expectation that it will be people known to the subject who are decisive in opinion formation, $A \leftarrow S(T)$ is a derivative case arising from $A \leftarrow B(S)$, the opinion which the subject A forms of the source, S , with advice from B . All this said, $A \leftarrow B(T)$ remains the key unit of analysis.

The molar unit, the expert-trust network, $N(Q)$, is the entire network which forms and transmits judgments in relation to the question, Q . $N(Q)$ is a network each link of which is a recursive expert-trust vector, as in $\dots \leftarrow B(Q) \leftarrow C(Q) \leftarrow \dots$. I follow Archetti as quoted above in taking it that $N(Q)$ is indicative of a system of social practice. In line with the praxis reading of Hegel (Blunden

2019), the social practice is captured in a concept, such as 'Republican', 'Socialism', 'Australia' or likely more concrete versions of these concepts indicating concrete systems of social practice. In Vasilyuk's (1984; see Blunden 2021d & Blunden 2014) conception, this would be a *project* to which a subject is committed. However, the project and the expert-trust network are not identical; the project may be the material foundation for the expert-trust network, but it is not identical with it. Nonetheless, the projects which produce and reproduce the lifeworld of which we are a part are the ultimate source of our opinions.

What is known or not known about the expert-trust vector

That trust is key to opinion formation is widely recognised, but I have not found research which distinguishes between a trusted source and a trusted adviser. That there has been a loss of trust in expertise and authority has been widely recognised for some time. Studies which look at the intersection of trust in expertise with partisanship have shown that people will differentiate between experts and authorities on a partisan basis. But I have found no research which explores the limits of this tendency or the extent to which inexpert but trusted advisers can override the advice of a public expert who is less trusted or vice versa. All rational opinion formation relies on trust. However, for anyone not part of a relevant system of institutionalised trust, there are grounds to believe that people may trust peers who do not have the required expertise in the relevant question. Further, a person may quite rationally trust a scientist but not a politician, trust a judge but not a policeman, trust a nurse but not a doctor. Loss of trust in authorities is not a homogeneous process. Which authorities are trusted and which not is itself a product of expert-trust networks.

Also, while vaccine hesitancy has been widely studied, there has been less attention to hesitancy which is specific to one but not another vaccine, or which is informed by expert hesitancy. I have seen no research which explores how personal experience interacts with expert interpretation of that experience, although this must be a daily activity in doctors' surgeries. While research has shown that the majority of people rely on medical advice from peers, I am not aware of research which elucidates the extent to which that reliance is dependent on the peer's actual relevant expertise as opposed to their sympathetic worldview.

With the exception of career choice, I have not seen research which explores the question of *which* peers – family, neighbours, colleagues, friends or comrades – are more or less effective in providing advice to subjects. In this case, whether family, teachers or personal inclination was decisive was strongly culturally determined. Sheila Jasanoff's (2005) study of 'civic epistemology' also showed that *which* institutions and/or processes of truth-determination varies between the UK, USA and Germany, and is presumably culturally determined in general.

Everyone knows that misinformation circulates on the internet. False information is also published in mass circulation newspapers and on TV. That 'traditional media' have known curators may not be as clear or significant as some believe, if one accepts that it is the *disposition* of a person to trust an informant which is more significant. The impact of social media is because people receive interpretations from people they know and trust, frequently without interrogating the original source. It is undeniable that these media have a role to play in disorienting opinion formation. However, it is far from proven that falsehoods circulating on the internet changes the mind of someone who was not already disposed to believe the falsehood and would have heard of the falsehood by other means if it had not been delivered on the internet. In other words, it remains to be proven that the internet ever persuades anyone.

In summary, while research has identified the significance of an expert-trust vector, there has been precious little research exploring the *shape* of this vector. (Really, it's the shape of the vector *field*, but let's not complicate the terminology any further). This is where empirical research, centred on the unit of analysis mentioned above, is needed.

Methodology

A great deal can be learnt from quantitative analysis in this domain, and indeed, quantitative analysis by Blume (2006) in the wild, by Boven et al (2018) in the lab, for example, has helped to focus this research. However, the range of shapes and formative processes of the expert-trust vector cannot be revealed until the right questions have been identified by a close qualitative analysis of the expert-trust vector in some relatively limited case studies.

Further, in an initial study, at least, it will not be possible to formalise the investigation. It will be necessary to conduct the research by personal interviews which will be exploratory rather than scripted. The recent COVID pandemic has had the benefit of accustoming school students to working over zoom, which makes the scheduling and recording of interviews very convenient so the research can be conducted using zoom interviews with year 10 high school students to track the subject's opinions. But not for the purpose of persuasion.

It is essential for ecological validity that the subjects are offered advice as represented in the unit of analysis so far as possible 'in the wild', that is to say, in situations which are part of the subjects' normal daily life: conversations with their family at home, with peers at school, attending to teachers or other speaker in the classroom, or making their own assessment of material extracted from the internet or books.

The general scheme of research will be that the teacher or the researcher will present all members of a class with a brief limited text making some potentially contentious claim. So far as possible, problems of interpretation or evidence will be avoided, with the text containing just a simple, unambiguous claim. The researcher will enquire into the subjects' response to the text on successive occasions and direct the subject to seek assistance in interpreting it or organise a speaker to address the class.

The process will be repeated over a period of say, six months, with a variety of texts calling on diverse kinds of expertise and with varying degrees of controversy around them and varying degrees of scientific certainty possible. The aim will be to explore how the subject's opinion changes in response to the variety of advice that they receive. A variety of texts will be needed to explore the limits of the expert-trust vector.

If possible the class teacher will explicitly participate as a collaborator in the research and the researchers will promote the participation of the subjects' family in the research.

Professionals in opinion-making have pointed to the need to distinguish between changes of opinion which are stable and changes which prove to be temporary. Further, it has been found that opinions can change as a person comes closer to making a decision – fear of *not* doing something may overturn the earlier fear of *doing* something. Accordingly, after the initial research period, the subjects will be tracked at six monthly intervals to observe changes of opinion over a longer span of time in the wild.

Topics

Topics will be chosen as research progresses and the researchers are able to get a feel for the issues which will elicit relatively pliable opinions. Example questions could be selected from the following:

- are no-jab-no-play laws in childcare centres fair and necessary?
- is 50% efficacy sufficient for a covid vaccine?
- are allergies more common these days and why?
- what causes migraines?
- are exams a good way of deciding who can enter a university course?
- were the bushfires in the summer of 2019-20 caused by climate change?
- what is wrong with GM food / nanotechnology?
- is radiation from mobile phones dangerous to human health?
- do wage increases tend to increase unemployment?
- was Brexit the right move for the UK?
- do you favour building nuclear power stations in Victoria?
- is a sugar tax on soft drinks a good idea?
- will you get vaccinated when offered?
- what is your choice of career or university course after year 12?

The aim will be to identify the most fruitful questions and have the class teacher present them to the whole class for class discussion. Once the program is under way, the lead researcher will interview each of the selected subjects (probably 5 or 6 students will be selected) before the question is presented to the whole class, to determine a base line $A \leftarrow A(T)$. From then, after each text has been presented to an individual subject, the subject will be invited to seek advice on the text:

- in full class discussion.
- doing a Google search.
- in discussion at home, with family.
- in a class discussion in which the teacher facilitates a class consensus.
- with advice from an expert invited to address the class, or
- in a one-on-one zoom discussion with an expert.

After each consultation, the research subject will be interviewed by the lead researcher to determine whether the subject has changed their opinion and if so, why?

Not all questions will be used and not all possible mediators will be used for every question, having in mind the exploratory character of the research.

The subjects will be interviewed on selected questions at six monthly intervals after an initial six month period of more intensive interaction, so as to determine how stable the subjects' opinions are and if and how they change their opinions.

Summary

The research accepts that expert-trust networks and interactions between them play a decisive role in opinion formation. Before the dynamics of these networks can be elucidated, it is necessary to explore the nature of the 'expert-trust vector' – the way an individual subject forms an opinion

of a text in collaboration a more or less trusted, more or less expert other. Since at the moment of beginning this research we cannot be sure of the shape of this vector, the research will be qualitative and of an explicitly exploratory character. The research can only be meaningful to the extent that it can model opinion formation in the wild. Consequently, the research will be carried out in collaboration with subjects' teachers and family.

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