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Language policy 4.0: Agency, readiness and relevance in an increasingly automated future

Helen Kelly-Holmes (*University of Limerick*)

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Agency, readiness and relevance in an increasingly automated future

Helen Kelly-Holmes

University of Limerick, Ireland

Abstract

Media in general, and, in particular new media that are the product of digital technology, have not been a key domain of study in language policy and language planning. However, such media have increasingly become central sites of everyday linguistic practice and, by extension, policy. The investigation of language policy in digital media contexts contributes an important dimension to a comprehensive understanding of language policy and language planning as it focuses on non-traditional actors and non-traditional domains, which are generally free from established regulatory frameworks and national borders. Following a review of developments and studies to date, the paper concludes by speculating about where we are going in terms of digital technology, namely Web 4.0 which will see increasing automation through Artificial Intelligence, augmented reality and big data, and its implications for language policy. By reviewing how we have got to this point, I would like to pose the following questions: Is language policy ready and able to cope with an era in which language management is increasingly automated? What have we learned from earlier eras of language policy? Are our tools, concepts and methods fit for purpose and, if not, how might they need to evolve? And, how can / why should language policy be relevant in this technologized present and future?

Keywords: language policy, agency, Web 4.0, technology

Introduction

Technological mediation has always been integrated into our language, from writing, through the development of print, telecommunications, broadcast media, and, most recently, digital technology. Each of these developments has impacted on and has, in turn, been impacted on by language policy. However, we appear to be in a new phase in which our lives have become suffused with technology and in which technological mediation is more and more integrated into our lives and physical bodies (e.g. smart watches, wearable devices etc.). Writing in 2017, Jan Blommaert predicted

> "[the] shift from a scholarly universe almost entirely dominated by theoretical and methodological preferences for offline, spoken discourse in fixed and clearly definable time-space, socio-cultural and interpersonal contexts and identities, to one in which the world of communication – the most basic level – seen as an online-offline nexus in which much of what we assumed to be natural, primordial and commonsense about language-in-society needs to be revised, rethought, developed" (Blommaert 2017: 70).

This paper represents an attempt to respond to this call in relation to the field of language policy and language planning (LPP).

I begin by clarifying my understanding of the broad scope of LPP, as well as looking at agency, based on Friedman (2007), in relation to language policy. I then go on to review how

the field has responded to changing agency from more established or traditional actors, namely states and their institutions (what I'm terming 'language policy 1.0' based on Friedman's concept of agency), to corporations (language policy 2.0), and in more recent times to individuals supported by new technologies (language policy 3.0). Friedman is a journalist and writer and his thesis is that evolving technology has flattened out geographical, temporal and economic differences. He is too optimistic about the equalizing power of technology and tends to ignore the other inequalities that are created through technology (for critiques see, for example, Leamer 2007 and Muthyala 2008). Despite these failings, I find his a compelling framework for thinking about agency. It is always worth investigating if and how our field can be enriched by perspectives from outside of our own discipline and also from outside of academia. Such perspectives can provide useful checks for us and new ways for looking at ourselves and our work in a slightly different, often uncomfortable way (for example, the agency of companies, highlighted by language policy 2.0, is something that has been neglected by the field of language policy). What Friedman (2007) offers is a framework of agency for examining the development of language policy and language planning and, for me, this allows us to map ourselves roughly against major technological economic and political changes and to see where we might be going and how we might prepare for this. When we look at language policy through this lens, we can trace an evolution from countries as agents in language policy to companies and on to individuals as agents. Unfortunately, Friedman's book was written before Web 4.0 was envisaged. Even though it is only about fifteen years old, the pace of technological development in digital media and artificial intelligence has been such that we need to enter into some speculation about agency in relation to the coming era of language policy 4.0.

I start by reviewing these eras as the build-up to thinking and speculating about language policy 4.0, and ask how we got to this point in time and what we have learned in order to assess what makes us ready and what makes us relevant and why a shift in emphasis or shift in focus might be useful in order to help us to understand and get to grips with this new era. Before we start to chart language policy from 1.0 to 4.0, however, it is useful to revisit our understanding of the field and, also, given the focus in Friedman's framework on agency, to look in particular at how agency has been conceptualized in language policy and how our understanding has evolved over time.

Language policy and agency

One recent definition positions language policy as "…public policy aimed at managing linguistic diversity, and it can be defined as the set of measures introduced by the government to influence the corpus, the status and the acquisition of a language" (Gazzola, 2021 p. 502). We can see in this definition that language policy is still often seen as confined to a narrow range of activities carried out by limited agents. The government and its institutions (which include schools) are certainly not the only agents of language policy and to tie the definition to only one agent does not help us to understand the kinds of processes we are experiencing in the current era, not does it in fact help in the following task set out by the same author: "The role of information and communication technologies in language policy is an underexplored area of research that is worth investigating further" (p. 502). If technology is simply seen as a way of implementing language policy that is designed by government – although this is one aspect – we will miss out on the fundamental shift that has taken place in terms of agency in language policy (see below). The concept of language policy 4.0 is that technology in fact takes on agency.

As Spolsky (2009) has pointed out, language policy involves studying not just the management by agents such as governments, but also practices and beliefs. Thus, language policy can be seen to involve the exercise of authority in relation to macro, meso, and micro levels of decision-making about language, as well as metalinguistic and language-ideological discourse, and finally language practices. The 'what' involves the management of linguistic diversity as highlighted in the above definition – but it is important to go beyond this to ask why governments – and other agents – might want to influence and direct "the corpus, the status and the acquisition of a language". To understand the why, we need to take our attention away from language, since language is not the end goal of language policy. Languages are managed in order to manage or control people, resources to maintain power over those people and resources, and to enable or withhold access to power or resources through language. Monica Heller's definition is always a good one to revisit: for her, language policies are about perpetuating "the naturalization, uniformization and objectification of social groups and hence their cultures, their boundaries and their languages" (2008: 505).

With the wider 'why' question in mind, a focus on agency and the need to ask 'who' is controlling and for what purpose becomes obvious: "decision-making is at the heart of all LPP and thus a focus on who makes decisions, how they are made and what characterizes the decision-making process play a central part in understanding LPP" (Liddicoat & Taylor-Leech 2020: 1). Despite this centrality, Liddicoat and Taylor-Leech (2021) argue that "in much LPP scholarship, an often unreflective view of agency as free will has tended to predominate in representations of human agency" (p. 5). Agency thus needs to be acknowledged as complex, embedded, both communal/institutional and individual (ibid).

Drawing on their own and others' perspectives, notably Ricento (2000), they delineate three eras of agency in relation to the field of language policy and planning. In the colonial period, which they trace to the origins of LPP in the 1960s, they argue that LPP actors were seen almost exclusively in terms of governments and their institutional agents, with individuals being the passive objects of policy. LPP was conceived as rational and ideologically neutral and "actors were essentially neutral and technical designers and enactors" (p. 3) and "the nature of their action and capacity for action as not given much critical attention" (p. 2)). The key question being asked by the field was 'what', in terms of descriptions of (and prescriptions for) language policies.

This era in which agency was clear and undisputed gave way to what has been described as a post-colonial era (Ricento 2000; Liddicoat and Taylor-Leech 2021). What this meant was growing criticality in terms of recognizing that LPP is not ideologically neutral, that the definition of a language problem is subjective, and that LPP cannot solve all social and language problems (see Ricento 2000). However, "in terms of agency … work from a critical perspective tended to focus on the same LPP actors as in the earlier period, although there was a growing recognition that members of a society were not just recipients of policy who could accept or reject policies" (Liddicoat and Taylor-Leech 2021: 3) and also recognition that "resistance to domination could be exacted through language" (p. 3). Thus, the objects of language policy were beginning to be recognised as having capacity for action. In this era there is a greater focus on the 'how' of language policy and on asking questions about the consequences – intended or unintended – of language policy, with a stronger critical lens developing. Nonetheless, the agents were largely considered to be unchanged, and governments and their institutions prevailed as the primary LPP actors.

It was not until the post-modern era (Ricento 2000), when LPP began to be reimagined as "ideological and discursive" (Liddicoat and Taylor-Leech 2021: 3) that there came a recognition that agency is "something that [is] distributed in societies and … not just the domain of governments and institutional actors" (p. 3). Here too we can see the focus moving to the 'why' question, with LPP increasingly understood as "an exercise of power" and an emphasis being put on "understanding how this power [is] exercised at all levels of society" (p. 3). Different actors are considered to be macro, meso or micro depending on the context and local conditions. Despite this, Liddicoat and Taylor-Leech (2021) see macro as the top-most and by implication the most authoritative and powerful level of agency in any particular context. Another important question to ask is 'Who can exercise agency in LPP'? Liddicoat and Taylor-Leech (2021) assert that it is people with power, people with expertise, people with influence, and people with interest (p. 7). This definition widens the possibility for stakeholders also to have some power. In relation to the capacity to act, an important consideration, as Johnson and Ricento (2013: 13) have pointed out, is to understand the balance between structure and agency in order to account for restrictions on freedom to act in LPP and to overcome the unreflective view of agency which the field may have had previously.

A further consideration in relation to agency is the nature of that agency, agency being understood as the ability to influence one's immediate situation, the possibility of action in relation to that situation and the availability of choice in relation to any action(s). Thus, how decisions are made is also significant. Liddicoat and Taylor-Leech (2021) outline three temporalities in relation to agency in language policy and planning: iteration, projectivity and practical evaluation. Iteration prioritizes past behaviours and choices in current and future decision-making around language. Projectivity, is in contrast future-oriented and more creative in relation to imagining possible linguistic futures and associated future behaviours. Practical evaluation favours a problem-solving approach to language decision-making. Again, depending on context, these different approaches can combine or compete in relation to how agency is enacted and ultimately impact on the decision-making that happens in relation to language and, ultimately, the consequences this may have. Iteration is, by definition, conservative and cautious and can result in stagnation with systemic inequalities and learned behaviours reproducing themselves. This can be seen to have been the case in the post-colonial era (Language Policy 1.0, which is discussed below), when the European nation-state LPP model was adopted by many newly independent states in Africa and Asia, under the guidance of European language experts. However, even our future orientations and imaginations are inevitably influenced by our past experience, and our approach to problem-solving likewise is informed by what we see as a problem (multilingualism) as an outcome of our socialization. Thus, all three orientations are also interrelated and interdependent.

Language Policy 1.0 and 2.0

Before looking at the more recent eras, which seem at first glance to be more relevant to the issue of technology and media, it is important to look first at what we have learned from language policy 1.0 and 2.0. The origins of and context for language policy 1.0 include European nation-state building of the modern period as well as colonialism and later imperialism. As already mentioned, the key and perhaps more accurately the sole agents here are states and their agents. Speech communities are primarily geographically or territorially defined, following Herderian ideals of one country, one people, one language. In terms of

policies, these are mainly de jure or explicit policies. Language policy 1.0 is defined by what Pennycook (2004) calls "a striving for singularity" involving segregationist policies in relation to languages, i.e. strict demarcation of languages from each other, and a macro sociological view of language, in other words, a focus on language with a big L (see Wright 2016). While the origins of language policy 1.0 are colonial, the same approach was adopted in newly independent countries in the post-colonial era. Western, mainly European, language experts were called on to 'solve' the language 'problems' of these new nations and they adopted the same segregationist and singularising approach based on the premise that any other solution would not support the nation-building project. Thus, either the extant European language that had been brought by the colonisers was adapted as the new national lingua franca or an indigenous language was upgraded and modernised to take on the role of national language. It was not just in post-colonial contexts that the ideologies and strategies of language policy 1.0 were adopted. With the growing demands for language rights by autochthonous language communities in Europe and elsewhere in the second half of the twentieth century, proponents of language revitalization and advocates for endangered languages also adopted the same policy of singularity in lobbying for rights and access to education and media (see Pietikäinen and Kelly-Holmes 2011). In language policy 1.0, language is very much the work of experts and agency is primarily with governments and their institutions such as schools or economic development agencies (see Walsh 2010).

Many of our foundational theories and concepts of language policy, even where they have been critiqued (Walsh and McLeod 2008, Ricento 2000, Shohamy 2006, Hult and Hornberger 2016), come from this era and in many ways we could say the learning from this era constitutes a kind of mainstream that everything else either defaults to or contrasts with. So, language policy 1.0 is a sort of foundational base even if we have perhaps moved away from it. In relation to our concern with mediating technologies, this era too has been foundational in our thinking. The first broadcasting was so resource-intensive that it needed to be undertaken by national governments. It was also a useful tool for nation-building and for spreading a standard language. There was little room for linguistic diversity in early media – for practical and ideological reasons – and so singularity, in the form of the homogenous monolingual nation, was created and represented through such media. If we were to sum up language policy 1.0, its slogan would be that language is a tool to fix problems in society …. and that language is a problem for society that can be fixed.

In the second half of the twentieth century, the growth in multi-national companies leads Friedman (2007) to argue that their reach, power and ultimately agency rivalled and in some cases overtook that of countries. This is an era that the LPP field knows less about and certainly the role of companies, and in particular multinational companies, is a less well-understood phenomenon in comparison to the wealth of studies of language policy 1.0 in relation to governments and their agencies. We do not automatically think of companies as key agents in language policy, which is why a framework like Friedman's is possibly a good one to introduce to our thinking. The context for language policy 2.0 is the increasing role of corporations and the consequent growth of commercialization and marketization of societal institutions and practices as well as the growth of multinational companies. Companies have grown their reach beyond their national borders and alongside this has been the development of multinational and ultimately global corporations and businesses, which are often perceived as 'stateless' in the sense of not belonging to a particular geographic of lingua-cultural territory. Given this reach, such companies exert a strong influence on language – as well as on many other aspects of life – in the world.

The seeds for the growth of English as a global lingua franca can be seen to have been sewn in the language policy 1.0 era by colonisers, but the more recent growth can be traced to the activities of multinational business. De Swaan's (2001, 2010) taxonomy of the 'World Language System' explicitly recognises the role of business by building the economic influence of languages, both within and beyond their traditional geographic territories, into his evaluation of languages as being 'hypercentral' (only English), 'supercentral' (a small number of global lingua francas or globally economically significant languages), 'central' (of national relevance only), and 'peripheral' (only useful for geographically limited local and social functions). With the exception of English and some supercentral languages, though, the concept of the language tied to a particular region stays the same, and companies tend to segment the global market along linguistic lines. However, in relation to managing global multilingualism, some central (i.e. national) territorially bound speech communities are respected, particularly where they are economically attractive. For example, while consumers who speak very small (on a global scale) European languages such as Icelandic, Norwegian etc. are provided with linguistically localised products, for vast parts of the world, this linguistic localization does not take place and they must use English or another supercentral language (Kelly-Holmes 2013, 2006). We can therefore see the economic attractiveness of potential consumers as driving language policy 2.0. We also see the echoes of language policy 1.0 in the re-establishment or reinforcement of lingua franca speech communities around De Swan's super central languages, such as French being used by multinational companies for North African countries; and at the same time a global speech community has developed around English as the hypercentral language, which in De Swaan's understanding holds the entire system together. I am using 'speech community' very loosely here, in terms of communication potential, however superficial, in a global sense. Language policy 2.0 has also driven multilingualism in digital media. Much of the development of multilingual capacity through the evolution of technology to support more alphabets and scripts has been led by companies rather than countries, and it was the growth of eCommerce and demands by consumers that changed the original functions of the internet and also expanded multilingualism (see Kelly-Holmes 2019 for full discussion of this).

Policies are mainly de facto and implicit, but there are also some corporate de jure policies at meso level in corporations and companies (for some examples of language policy 2.0 studies, see, for example, Kankaanranta, Louhiala-Salminen, and Karhunen 2015, Angouri 2014, Gunnarsson 2013, Millar and Jensen 2009, Atkinson and Kelly-Holmes 2006). Language management theorists have explicitly studied language policy 2.0 in relation to the LPP of multinational companies operating primarily in the Czech Republic (see for example, Nekvapil and Sherman 2015; Nekvapil & Nekula 2006). With regard to learning from this era, there has perhaps been more of a focus on the consequences of this era, which is the increasing role of English globally, but less learning from the decision-making around this by agents such as companies.

If we were to sum up language policy 2.0, the slogan for this era would be that language is a problem for international business. For example, international marketing literature lists multilingual countries as risky and as politically less stable than monolingual countries or what are represented as apparently monolingual countries. So, in this sense language is a problem that companies have to deal with once they go beyond their borders – in fact it is also a problem within those borders if they have defined them monolingually and we can see that becoming an issue as more groups and individuals assert language rights within national borders. While this is the case, internal multilingualism is often easily ignored, especially where businesses take their lead from the agents of language policy 1.0, namely governments

and their agencies, the education sector and media. Language does, however, become an explicit problem that has to be dealt with once they attempt to cross borders to do business. We still see the mindset that language problems can be fixed, however, given the scale of the challenge in a global context – what we can see is that since all language problems cannot be fixed, resources are directed to 'fixing' those language problems that are considered to be 'worth' fixing and, crudely, these are the problems associated with speech communities that are more economically attractive. For others, supercentral lingua francae or hypercentral English are imposed.

Given the strong focus that there has been on governments, nation-states and allied institutions and agencies in language policy literature to date, the 'why' of language policy 1.0 seems much clearer and more well established. Language policy 1.0 is in the service of nation-building and colonising projects. Thus, eliminating diversity and creating singularity are the 'how' with the idea that this will create cohesion, in classic Jacobin style (See Wright 2016 and 2000). The underlying ideology here is that difference is dangerous, divisive and contrary to modernity. The same ideologies underpin the motivations of language policy 2.0, in which, again, diversity is seen as problematic, costly and even dangerous. The global market or any market needs to be divided into manageable segments – generally lingua-cultural segments – in order to make it viable for companies to target those markets. The target consumers need to 'fit' into these segments and need to be managed within these segments which prescribe a certain linguistic behaviour. As with language policy 1.0, the object is control and the creation of cohesion in order to make global selling possible (see Kelly-Holmes 2010 for a discussion).

Language Policy 3.0 and 4.0

The development of digital media and in particular Web 2.0 fundamentally changed media, primarily through the enabling of user-generated content, which effectively heralded the end of the monopoly of mass media (i.e. mediation of language and content from one privileged centre to a mass audience), which had been the premise and the reality for language policy 1.0 and 2.0. According to Friedman (2007), one outcome of this has been a correspondingly fundamental shift in agency from countries and companies to individuals. The context for language policy 3.0 and the growing role for individual agency is the emergence of Web 2.0 as a participatory web to which individuals could contribute content and its evolution to Web 3.0, which is about collaboration and integration of those possibilities into everyday life. Instead of or alongside traditional, territorially bound speech communities, we have seen the emergence of ephemeral communities of practice which are constituted around shared interests and shared recognition of repertoires and resources and shared indexicalities which perhaps go above and beyond the established territorial links or which have perhaps very little to do with top-down government-led language policy (Androutsopoulos's work has been particularly influential here [e.g. 2014, 2013, 2008]). This leads to fragmented and multiplying speech communities, which are being constantly differentiated from each other. Pauwels (2014) coinage of 'hyperlingualism' in relation to the evolution of multiple multilingualisms in superdiverse, fragmenting societies can be usefully applied to the 'superdiverse' digital context to show how individuals working together and being supported by technology can create more and more differentiated, even individualised speech communities. We can think for example of WhatsApp or WeChat groups as micro-speech communities with their own normativities – individuals are simultaneously members of multiple groups and must navigate these and adjust to different norms and styles (e.g. think

for instance of the difference between a family group, a friend group and a club/hobby group).

The internet was initially singularizing, like nation-state driven media and most analogue media up to that point in time – the aspiration was that it would be experienced in the same way everywhere and by everyone, except on a global rather than a national scale. However, this singularity is challenged by the way in which digital media function, which is in contrast to traditional, monologic media. In the case of the latter, authoritative information is transmitted from a single recognised, respected and resourced centre to a mass audience. In the case of the former, all users should have the ability to create and contribute content on equal terms. These competing imperatives (singularity and equality of participation) are products of a monolingual ideology: for example, the programming languages and organisation of the internet and the web are all products of this mindset, as well as the fact that the technology was developed for a narrow group of users in a focussed domain, a very particular speech and communication community (see Kelly-Holmes 2019 for an overview). It was only as the internet and later the web developed that this monolingualism was exposed and challenged and linguistic diversity also evolved. And, as pointed out above, much of this development of multilingualism was driven by eCommerce. From its early, monolingually English origins as a closed speech community of developers, the web started to become a space of partial and parallel multilingualism – partial because initially it was the expected supercentral languages that were represented and parallel because these languages were represented as structurally bounded and demarcated from each other. There is no global governing authority which can lay down a language policy for the web and thus, up to the development of the participatory web, parallel multilingual provision was generally carried out by countries or companies as top-down agents. Countries would develop top level domains for their territories and recreate lingua-culturally congruent states online and put boundaries around those states (see Atkinson 2006). Likewise, companies would target particular markets through particular languages via sites that were lingua-culturally specific, so there was not much difference initially from language policy 1.0 and 2.0. The real change came once users could generate their own content. This meant that individuals became able to create their own content in their own language, create their own spaces, collaborate on those spaces supported by the technology, and set their own linguistic norms for these spaces. This meant movement away from predefined territories and predefined languages, and crucially individual agency.

Although the large social media companies do have language policies, what has been particularly significant beyond these and the de facto policies of businesses and organisations operating in the digital media are locally situated peer-to-peer policies and contingent normativities rather than one-to-many-type policies or mass policies. A crucial aspect of this of course is that there is corporate level management going on and that's something that we perhaps do not pay enough attention to in studying this era. So, in terms of readiness and relevance, we have done a lot of studies of the local level, the micro level management by individuals of their interactions and spaces. But there is not so much known about the corporate level management that facilitates this kind of local level activity. Again, we need to ask: why does language policy and planning happen in digital contexts? And again, it is for the purposes of controlling and directing users, maintaining boundaries (in order to include and exclude), minimizing costs, and generating revenue through user activities, which is the basis of the financial model of social media. To sum it up in a slogan, this era is about how individuals collaborate to solve their language problems with the help of technology and with the market. This ties in with our own evolving ideas as linguists that language is not really the

problem that needs fixing – what actually needs changing is how we think about language, how we think about speakers, and thinking about language differently will help with societal problems, as demonstrated by the post-structuralist turn in applied and sociolinguistics and the development of concepts like translanguaging (García and Li Wei 2014) and much broader concepts such as languages repertoire etc.

Language Policy 4.0 is a whole new world and a lot of what we will say about it is speculative because we are at the time of writing between Web 3.0 and 4.0. Still, what seems clear is that the primary agency in future will be with the technology, and that 'algorithmic agency' will increasingly take primacy over human agency:

> "In the iterative part of internet-based social action, the influence of algorithmic processes needs to be taken seriously … Even if there is presently hardly a way in which we can profoundly and directly examine this – these algorithms are among the best-kept industrial secrets … when investigating online actions, it is wise to keep an awareness that not everything we observe is an effect of deliberate human choice and agency, but an artifact of algorithmic agency." (Blommaert 2017: 39-40)

Evolving artificial intelligence and machine learning are the key drivers of Web 4.0, or the 'smart web'. Technology will be more integrated into our everyday lives and in fact will be probably less visible but, ironically, more pervasive through wearable devices. Agency will be with autonomous technology and, unlike for example individuals working together and being supported by technology as currently, here autonomous technology in the form of an 'intelligent agent' is likely to anticipate our language problems and find solutions to them even before we realise that we have a language problem. This should not be surprising. We have been able to observe how the problem-solving focus has changed to individuals and, more recently, to automation and technology through the evolution of digital technology with the possibility of user-generated content and the growth and application of artificial intelligence. Problems are individualised, anticipated, based on iterative language policy, and solved in advance on an individual basis.

In terms of speech communities, the logical outcome of exponential hyperlingualism or exponential differentiation of speech communities, together with the increasing individualization of language problems and solutions, means that we may have a situation that I describe as idiolingualism (see Kelly-Holmes 2019 for a fuller discussion of this). In other words, we have a type of 'speech community of one' created for us by our 'smart technological agent' which is intimately acquainted with our language behaviours, desires and idiosyncrasies. This is based on the idea in contemporary commerce of the 'market of one' (Gilmore and Pine 2000), which is in fact the opposite to mass markets which were the main paradigm for earlier eras. With smart manufacturing, it is now possible to create through technology a product that is entirely developed for the individual and unique to that individual. In the market of one, individual desires are anticipated and technology offers the solution. The corollary of this would be how the individual's speech norms are learned by the intelligent agent to create a problem-free, tailored linguistic pathway for them. What might this 'speech community of one' look like? What happens when instead of having our language problems selected, solved and managed for us by governments or companies or even by ourselves, this is done automatically by technology to suit exactly what are considered to be our own individual needs?

Algorithmic agency is inherently iterative: it is fully based on past language behaviour. Thus, with the rise of automated agency, it seems increasingly likely that individuals will be managed and regulated in terms of what are deemed to be their current linguistic preferences and behaviours. The scope for projective policy-making and management in terms of an imagined future language behaviour is much more limited in this context. Already, individuals are 'protected' from multilingual realities by being enclosed in linguistic filter bubbles (Pariser 2011). And, even if the 'smart agent' type scenario seems an obvious way in which to deploy a problem-solving approach, where the main input to the solutions is past behaviour by individuals, it seems unlikely that the solutions will stray from the iterative. It will also be worth monitoring how this kind of agency is presented and perceived as rational and even neutral because it is taking place automatically, machines being deemed as the antithesis to emotional, unpredictable people. It is important to remember, as highlighted above, that this was how language policy and language planning was conceived of in its earliest days, namely as rational and ideologically neutral, a practical, problem-solving exercise, with LPP actors seen as "…essentially neutral and technical designers and enactors" (Liddicoat and Taylor-Leech 2021: 3). The deconstruction and critiquing of the ideologies underpinning the assumptions around neutrality, rationality and what is and is not a problem as well as the concept of 'fixing' a language 'problem' has taken much effort since then. However, with the shift to automated, algorithmic agency we risk losing this perspective, as these ideologies become coded into future language behaviours and limit our linguistic possibilities in digital media.

Discussion

Having outlined how we got to language policy 4.0 and speculating about what it might look like, in this final section, I would like to reflect on what previous eras of LPP have taught us and what might remain relevant as we move into this new era. Blommaert (2017) urges us to focus on "small things", in other words

> "actual moments of interaction taking the shape of meaningful social contact … these small things include the kinds of routine acts of communication often qualified as 'phatic' or otherwise 'light'– the use of emojis, memes and likes in social media discourse; sharing, retweeting and reposting; forms of deference, politeness and … in online conversation; the acquisition and deployment of implicit codes for 'normal' conduct in online gaming communities; and the establishment of conviviality in ad-hoc and 'light' online groups" (p. 7-8).

While Blommaert was arguing for this only recently, this has probably been the main focus of language policy studies in digital media. And while these moments are key to understanding the constitution and localised and temporalized management of these ephemeral speech communities, we also need to look beyond this, to the macro-meso-micro connections that make these communities possible, that enable and encourage them in terms of the political economy of the technology. In a sense then, there is a strong argument for refocusing on the macro-level of institutions and the methods and lessons learned from Language Policy 1.0 and 2.0 in order to address these questions. Thus, in moving forward and remaining relevant, I would propose that we focus on also asking the following questions:

- which / whose language problems are anticipated and solved and whose / which are not?

- which speech communities and categorizations can be constituted for and by speakers in Web 4.0? Which cannot?
- what type(s) speech communities are designed for which speakers? Which are not?
- how are these spaces defined, designed, managed and created (beyond the immediate speaker-management level)?
- how are speakers guided to and through these spaces? Where are they not guided?
- how do we trace the macro/meso management of spaces and online speech communities? What is permitted?

In methodological terms, there is an urgent need to reflect on how we are impacted and implicated (personally and professionally) by these processes. We are all online users, speakers and we all have algorithmic identities which we cannot simply cast aside when we seek to undertake research in Web 4.0. Thus, we need to ask also:

- as researchers, how do we work with and around our own algorithmic identities? What speech communities and sociolinguistic data do we (not) find, or perhaps more accurately, what finds us?

A further methodological and ethical issue is the increasing level of privatization in social media and the demarcation of private social media networks (e.g. WhatsApp) from public ones (e.g. Instagram):

- how do we work with increasingly private individualised speech, communities? How do we discover and access these in Web 4.0?

Reviewing different eras of agency in language policy in terms of what has been learned about language policy in its fullest sense, i.e. encompassing management, beliefs and practices at macro, meso and micro levels (see Table 1 below), we might draw the following tentative conclusions.

In relation to management, language policy 1.0 involved studying this explicitly in the form of documentary analysis and description. Beliefs tended not to be studied explicitly and where rather assumed to be correlated with practices and management. Practices then were either assumed and/or reported in language censuses, sociolinguistic surveys and interviews. The focus was on quantitative studies of practices for the purposes of informing top-down policies and studying those practices within particular geographic spaces. In relation to language policy 2.0, although this has not been studied much in comparison to LP 1.0, the focus certainly shifted to studying practices as a way of establishing policies, most likely due to the lack of de jure policies in place in corporate settings. The move away from wholly quantitative to more observational and ethnographic studies of language policies in LP 1.0 agencies such as schools and official institutions (see McCarty 2014) also impacted on methods in studying corporate agents (see e.g. Angouri 2014; Kankaanranta, Karhunen & Louhiala-Salminen 2018 builds on and explicitly references a previous LP 1.0 study of corporate language policies carried out using a survey to carry out a contemporary study of practices to infer beliefs and management practices). In relation to LP 3.0, the macro, managerial level has tended not to be studied (though cf. Auleear, Owodally and Peeroo 2021; Berezkina 2018; Lenihan 2013; Kelly-Holmes 2013 for examples of explicit study of management), and the focus has instead been mostly on virtual ethnographic and computer-mediated discourse analyses of the micro-level (moments) with the understanding of normativities as management and a much stronger emphasis on beliefs (in the form of

language ideological analyses of practices with and without follow-up in the form of interviews – see for example McMonagle et al 2019; De Bres 2015; Leppänen & Piirainen-Marsh 2009; Ivkovic and Lotherington 2009).

Table 1: Schematic overview of developments in research on language policy & planning

Era in LPP research	**Units & agents entering the analysis of LPP**	**Empirical tools and approach to practices & beliefs**	**Conceptions of policy and of language** **Perspective on structure/agency** ***Typifying slogan***
LP 1.0	Territorially based nation-states & autochthonous language communities	Documentary analysis & description; quantitative studies of practice Beliefs inferred/assumed from censuses, surveys and interviews	Experts inform top-down policy in particular geographic places. Languages segregated Agency lies with government policy-makers; structure emphasised. *Language is a tool to fix problems in society and is itself a fixable problem for governments, schools etc.*
LP 2.0	+ transnational commercial corporations	More observational and ethnographic studies in (LP1.0) institutions like schools. Practices studied to understand policies (and beliefs)	Policies are implicit/ de facto. Languages segregated (with hyper-central, super-central, central or peripheral status) Objects of policy have some albeit limited agency *Language is a (fixable) problem for international business*
LP 3.0	+ individuals & micro-speech communities	Virtual ethnographic & computer-mediated micro-level discourse analyses Normativities of management, and language ideological practice	Critical focus on the effects of language policy. Languages integrated (in superdiverse 'hyperlingualism') Agency of local actors emphasised as users generate their own content *Individuals collaborate to solve their language problems through technology & the market*
LP 4.0	+ full / partial automation through AI	All of the above plus new methods? Algorithmic reflexivity	More limited scope for 'projective' policy making? But possibly greater iterative emphasis based on existing policies existing online? Languages integrated (in individualised idiolingualism)?? Algorithmic agency?? *Autonomous technologies anticipate and solve our language problems on an individual basis??*

In relation to our concern with agency as the ability to act and to influence one's immediate surroundings, we can note how this understanding and definition of agency has expanded

considerably as the field has developed, with a widespread understanding now that agency is not just confined to explicit agents who dictate policy but also involves the objects of policy, previously considered passive, who implement, accept, or resist these dictates. We can see therefore that approaches that either accord too much importance to structure (LP 1.0), or, in contrast, invest too much belief in agency (as perhaps in LP 3.0) will not give the full picture, and an approach that unites both will give a richer understanding of the complex situation that is evolving.

The question marks in the sections on Language Policy 4.0 are intentional, since we are currently entering an unknown stage. I would argue that the best way to move forward is to continue asking the fundamental questions about language policy and to understand it broadly: Why is language being managed? Where? By whom? And for what purposes? And we need to keep exploring, in Heller's (2008) terms, what naturalizations, objectifications and uniformizations are manifested / maintained, not just in the moment in the micro-level interactions but also in the meso- and macro level activities that are enabling and encouraging these as well. It is also important to acknowledge that LP1.0 and 2.0 continue to exist; countries and commercial actors are still active in LPLP and in fact a key challenge lies in identifying the interlinkages and imbalances between all potential agents – countries, companies, individuals, automation – at different moments in time and in different spaces. This involves critiquing but also maintaining concepts learned from LP1.0 and 2.0 and balancing a portfolio of concepts and learnings from across these eras. For example, concepts and methods from segregationist or structuralist eras of language policy may prove particularly useful for understanding the macro context of Web 4.0. Thus, what is required is a further closing of the gap between segregationist (LP 1.0 and 2.0) and integrationist (LP 3.0 and 4.0) views of language, as well as between macro and micro-sociologies of language, as called for by Pennycook (2004). Given the challenges of Web 4.0 and LPLP 4.0, one approach alone will not be sufficient, and this is why we also need to develop multidisciplinary perspectives to include technology (see as an example the LITHME network). We also need to seek to impact on the evolution of smart technology to ensure that it can incorporate projective intelligence that allows individuals to critique, reshape and rethink the solutions that are created for them. While, as Blommaert (2017) has pointed out, it may seem impossible to understand and investigate these processes – in his words "there is presently hardly a way in which we can profoundly and directly examine this" – the impetus is there to keep investigating the human agency and direct decision-making behind or indirectly inputting into the regulation of speakers in digital media spaces. Finally, as researchers seeking to understand Language Policy 4.0, what will be needed more and more from us is algorhythmic reflexivity – critically chronically and reflecting on our own digital imprint and how this affects the spaces, practices, and policy outcomes that we encounter.

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