Article

Responding to the impact of career echo chambers: A career learning approach

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Abstract

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This article adopts the term career echo chambers to compare and contrast the traditional view of a person's social influences on career decision making and the impact of online sources and influences. The article uses a review of literature to investigate the algorithms which sit behind online career echo chambers and their potential impact on people's career decision making behaviours. It considers the potential of career echo chambers to limit diversity and inclusion within career decision making and will then describe the implications of career echo chambers for young people's career development and the careers education programmes which support them. The article concludes with a process which practitioners can adopt to help them and their clients to understand and challenge the impact of career echo chambers.

Key words: Career development, career decision making, careers education, online echo chambers, algorithms

Introduction

The article investigates the extent to which in-person and virtual echo chambers exert different influences on young people's career decision making. Career Echo chambers are poorly defined in literature. Traditional theories suggest and describe various factors which contribute to young people's career choices and for the purpose of this article, the ideas espoused by theorists such as Krumboltz et al (1976) or Law (1992) who set out to describe the impact of an individual's social circumstances and environment on career choice are deemed to be describing the phenomenon of career echo chambers. The article asks what knowledge, skills and behaviours young people need to overcome the impact of both in person and online career echo chambers including developing a response to the algorithms which sit behind them. It then goes on to set out the arguments for addressing the practical and ethical issues associated with career echo chambers within career guidance programmes.

This paper raises questions about the growing phenomenon of online career echo chambers.

- Does current theory help us to understand the impact of social media algorithms on career decision making?
- Should career development practitioners have concerns about this growing phenomenon?
- How can we mitigate the impact of social media algorithms on young people's career decision making?

What are career echo chambers?

Conventionally, the term echo chamber is defined as an enclosed space where sound reverberates. However, more recently the term has been used to denote an environment in which someone only encounters beliefs or opinions that coincide with their own, so that their existing views are reinforced, and alternative ideas are not considered. For the purposes of this article, the idea of career echo chambers has been developed to describe a situation where individuals are exposed to a limited range of information and perspectives, which can restrict their career options and limit their potential for growth and development. Career echo chambers can arise through interactions with online media and groups, and through in person interactions with networks of family friends and social groups. This article explores and compares the impact of two types of echo chambers: in-person echo chambers and virtual or online echo chambers and their impact on career choice. In both instances, these echo chambers are influenced through human intervention. Whilst human influence is a consistent theme between these two types of echo chamber, there are also differences. The article concludes with some recommendations to help young people to counteract the impact of online career echo chambers, a relatively new phenomenon.

Research methodology

This article uses data collected from a desk-based review of literature. The article was conceived as a contribution to the Norwegian Educational Research Association (NERA) conference in 2023 as a thought piece on the impact of digital technology on career guidance and development. The article was stimulated by the authors growing concern about the impact of young people's online behaviours and the impact this might have on the information they saw which might influence career decision making. Several approaches were used to identify information, for example, drawing on personal knowledge of existing resources, recommendations by colleague scholars and searches of databases

including Google scholar and the University of Derby's collection of online journals. Search terms included those relating to 'social learning', 'impacts on career learning and decision-making behaviours', 'online behaviours', 'impact of social media', 'echo chambers' and 'filter bubbles'. Furthermore, a wider Google search revealed several recent or new books on the subject algorithms, and filter bubbles whose content has contributed to the literature review.

Differences between in-person and online echo chambers

In-person echo chambers occur through the direct, personal, and face- to-face interaction of an individual with their networks of family, friends, and social contacts. In-person networks have more obvious and visible members and therefore a greater level of accountability. Ezioni and Ezioni (1997) note that the relationships developed in online communities are not as intimate or strong as those in in-person communities and therefore have a more limited effect. However, Kraut et al (2008) note that too much emphasis has been placed on the function of online communities being primarily for information exchange and argue that online communities are social systems in their own right. Further to this, Sassenberg (2002) notes the distinction between online common bond groups and online interest groups. He describes the inter-relational nature of members of common bond groups and suggests members may exhibit and value more attachment and perceived similarity to the other members of the group. This is a contrast to members of common interest groups who are organised around a common interest or activity.

In the case of virtual or online career echo chambers, the influencers may be obvious, such as members of an online discussion forum or a group which is mediated by an individual with a particular view or bias. They may also be caused by the more subtle and less obvious intervention of algorithms.

What are algorithms and how do they work?

Algorithms are a series of logical instructions which demonstrate how to move through a task from the beginning to the end. Algorithms exist in everyday life and are easily recognisable, for example the instructions accompanying a flat pack furniture item or the instructions on how to get from one place to another. When the term is used in the context of digital operations, they are a series of mathematical operations (models) which are translated into computer code.

The relationship between algorithms and online media determines the individualised content that users encounter. Pariser (2012) in describing 'filter bubbles' notes that 'every click symbol you create is a commodity, and every move of your mouse can be auctioned off within microseconds to the highest commercial bidder' (Pariser, 2012, p7). In this paper the term online career echo chamber has been used to describe this phenomenon. O'Neil (2016) describes the mathematical model (algorithm) as a process which takes information about an individual and uses it to predict future behaviours in different situations.

Algorithms can create career echo chambers in one of four ways (Fry, 2018). The following examples are based on someone who may have searched for information about accountancy careers.

- Prioritising or making an ordered list, for example a search in Google. This leads to the idea of search engine optimisation (SEO) in which organisations adopt approaches to ensure that their website is prioritised as a result, if people search 'careers in accountancy', if SEO is maximised then certain companies or course providers will always come to the top of the list.
- Classifying based on the characteristics you exhibit (You look like someone who ought to like this...). This results in personalized feeds based on user behaviours, preferences, and interactions. If you search courses in mathematics- maybe you resemble someone who should consider accountancy! This is evident in platforms like Facebook, Twitter, and Instagram, where the order of posts is determined by an algorithm that predicts what content a user is most likely to engage with.
- Finding and making relationships between things (If you liked this, then you might like this!). Connectivity Algorithms suggest potential connections based on mutual friends, shared interests, and other factors, and in this way, foster network growth. In practice, if you make contacts with people who are accountants on LinkedIn then the algorithms will find more accountants for you to be-friend. Algorithms play a crucial role in displaying targeted advertisements to users based on their interests, demographics, and online behaviours. This helps advertisers reach specific audiences more effectively. In our example, this could include education providers who offer accountancy programmes being recommended to our career explorer.
- Filtering based on your interests (news feeds). If you investigate careers in accountancy several times, then you are more likely to start seeing adverts for accountancy programme providers in your news feeds.

While algorithms can enhance user experience and provide valuable features, they have also raised concerns. Issues include the potential for creating filter bubbles (Pariser 2012) and echo chambers (Van Alstyne and Brynjolfsson 1997) by showing users content that aligns with their existing views, as well as concerns about privacy and the ethical use of data. Whilst individuals invest trust in a system which may seem, on the face of it, quite logical, algorithms are based on a series of human assumptions. These assumptions may be based on personal experience and can undermine the impartiality of the information which individuals receive. These challenges have sparked discussions about algorithm transparency, accountability, and the need for user control over the algorithms that shape their online experience.

How might in-person echo chambers influence career choice?

In terms of the influence of in-person echo chambers on career choice, some examples can help understand the impact. Moore et al. (2021) found that one of the most important influences on young people's career choice are parents and that they trusted career and labour market information the most when it was mediated by parents (Moore et al 2021). Roe (1956) suggests that an individual's career choices will be influenced by the experiences of childhood including the behaviours of parents. In this sense, the family unit arguably operates as an echo chamber which reinforces inter-generation experiences of career and imprints this on future generations.

Several theorists have written about the impact of someone's context on their career decision making. These theorists describe the phenomenon of an echo chamber. The term, first coined by Van Alstyne and Brynjolfsson (1997) describes a situation whereby individuals screen out materials which don't conform to their preferences and in so doing, they insulate themselves from opposing viewpoints. This is referred to as confirmation bias (Wason, 1960) and can in turn impact on their decision making.

Bourdieu (1977) for example, developed his concept of habitus which refers to the way someone internalizes and replicates past experiences. Bourdieu suggests that whilst individuals have some agency over the extent to which they replicate behaviours, these are relational and are enacted through and within three sets of personal resources or capitals (economic, social and cultural capital). Bourdieu suggests that an individual's autonomy to engage with their habitus is through interactions between a set of assets or 'capitals'. These are financial, social, and cultural capitals and are derived from the context in which the individual operates. In exerting some agency over the way they interact with their context; individuals may show a bias towards the norms with which they are familiar and apply these in career decision making. In this way life chances may be determined by the cultural norms and values prevalent in their cultural, social and economic context. These cultural assets reinforce an individual's attitudes and behaviours and are largely responsible for the intergenerational persistence of social inequality. In this way, it could be argued that Bourdieu could be interpreted as describing an echo chamber which is derived from an individual's context and the confirmation bias which comes with sticking with more familiar and therefore preferential options.

Krumboltz (1979) argued that agency exists in career decision making but is largely influenced by the lessons learned from someone's social context which in turn influences their values and beliefs. Thus, an individual may apply confirmation bias in their behaviours and career choices as they may stick with what is comfortable or familiar rather than enacting decisions which take them beyond their social and cultural norms.

Law (1991) developed his community interaction theory in response to the work of Roberts' (1968) whose view was that individuals do not have free choice and that career decisions are restricted by the opportunities and structures which surround them. Law considered that it was not the social structures which limited an individual but rather that it is the way individuals engage with those structures that influence the way people think and behave. Law identified five main modes in which this influence occurs:

- **Expectations** pressures to follow particular paths based on what is considered acceptable by family or community groups.
- **Feedback** messages that individuals received about their strengths and weaknesses, and their suitability for particular roles.
- **Support** reinforcement of aspirations and assistance in developing appropriate skills and strategies.
- **Modelling** the availability of influential examples and the extent of identification with others when thinking about work.
- **Information** opportunities to find out about options and the extent to which data is filtered by the norms of the social group.

Law suggests that individuals may apply confirmation bias in their career decision making which is derived from the way they engage with 'career' structures and in so doing could be deemed to be describing a career echo chamber.

How might virtual/online echo chambers influence career choice?

More recently, with the increasing use of social media and other online applications such as search engines and artificial intelligence, echo chambers are an increasing phenomenon due to the algorithms which sit behind them. Pariser (2012) notes that 'The algorithms that orchestrate our ads are starting to orchestrate our lives' (Pariser, 2012, P 9). He goes on to describe the way algorithms extrapolate from personalised data created through online activity to create a filter bubble which alters the way individuals encounter and use information.

Young people are active consumers of unmediated information and researchers are only just beginning to understand the impact of online media echo chambers on people's behaviours. Whilst there is some research on how these impact on election outcomes (Epstein and Robertson, 2015) or young people's well-being (Vallejos et al., 2021), there has been little exploration of this phenomenon on career decision making. It is possible to imagine a situation, for example, where a young person might interact with an online community which has a very specific view about the military which might colour their views of military career paths or may do an online search for university courses in law where the results have been filtered due to geographical location. What is unknown is the extent to which online career echo chambers exert a more limiting impact on career decision making than more traditional in-person career echo chambers and is an important question to explore.

Addressing the impact of career echo chambers through traditional models of career guidance

Although seen as a private as well as a public good (Watts 2002), the availability of career guidance is subject to funding mechanisms determined by governments and are therefore subject to their priorities and influenced by political ideologies. Where the needs of the labour market are seen as the driving force, career guidance will be concerned with trying to prepare people to fit the gaps in the labour market. In other words, career guidance exists as a means of social control. Where a more liberal view is taken, career guidance is seen as a means of addressing social inequity and therefore a means of social change. The extent to which individuals are supported to challenge the impact of career echo chambers is influenced by the availability of public funded career guidance services and therefore on government priorities and ideologies.

Traditional models of career guidance consist of interventions such as access to high quality mediated career and labour market information, effective programmes of careers education and access to personal career guidance throughout secondary and tertiary phases of education. They are aimed not just at providing the material to inform career decision making but also at challenging young people to raise their aspirations and to make career decisions free from negative influence, stereotypes, and biases. Career guidance can help learners develop career management skills which have been defined as 'competencies which help individuals to identify their existing skills, develop career learning goals and take action to enhance their careers' (Neary et al., 2015, p.13). Do these traditional models help young people to confront the potential impacts of the algorithms which create online career echo chambers or are new approaches required? An exploration of frameworks which support the development of programmes of careers education reveals the extent to which this is the case.

The DOTS model (Decision making, Opportunity awareness, Transition skills, and Selfawareness) was proposed by Law and Watts (1977) and describes four learning domains required for an individual to be a competent career manager. It could be argued that whilst not explicit, the ability to navigate the online space successfully could fall into several places for example in transition skills (learning to navigate the interface between one situation and another) or opportunity awareness which requires the skills of research. These skills are important in addressing the impact of online career echo chambers. However, whilst this framework provides a useful high-level view, Law (2001) later revised this model to take account of the changes in career theory and explicitly gave the context of technological change to support his arguments. The 'new Dots' model however, does not make explicit reference to the potential impact of online career management-related activity although Law does suggest that critical thinking is an essential component of good career management. Whilst not explicitly referring to the need to equip young people to address the impact of online career echo chambers, critical thinking skills are a key component of this.

The Career Development Institute (CDI) have produced a framework (The CDI 2021) to support the development of the careers curriculum. In this framework, competences are grouped under 6 headings: Grow throughout life; Explore possibilities; Manage Career; Create opportunities; Balance life and work; and See the bigger picture. Whilst it is possible to imagine online activities supporting all of these broad areas, there is no explicit mention made of the relationship between an individual and the virtual online space and it is only alluded to within the area of 'explore possibilities' through the notion of researching options. Practitioners using this framework will therefore need to ensure that learners understand the need to apply critical digital literacy to their career decision making.

The need for new models of career guidance

Hooley (2012) notes that increasingly the internet is becoming a source of information that informs and relates to individuals' informational needs. He also describes the phenomenon whereby individuals are using the internet as a space for developing online networks as well as for job search. Hooley suggests that to navigate the internet for the purposes of career development there is a specific set of competences which he refers to as digital career literacy. He suggests that these digital literacy competences can be categorized into 7 areas (The 7 C's of digital literacy). Several of these describe competences which would help with understanding and combatting the impact of career echo chambers:

- 1. Changing describes the ability to understand and adapt to changing online career contexts and to learn to use new technologies for the purpose of career building.
- 3. Critiquing describes the ability to understand the nature of online career information and resources, to analyse its provenance and to consider its usefulness for a career.

- 5. Communicating describes the ability to interact effectively across a range of different platforms, to understand the genre and netiquette of different interactions and to use them in the context of career.
- 7. Curating describes the ability of an individual to reflect on and develop their digital footprint and online networks as part of their career building.

Whilst these competences are useful contributions to overall digital career proficiency, they do not provide a framework which would help someone to understand the relationship between online activity and the potential impact on career decision making. Staunton (2018) critiques Hooley's framework and highlights the degree of autonomy suggested by the framework which may not exist due to the unseen nature of algorithms which can manipulate individual decision making through the creation of online echo chambers.

It is possible to conclude that traditional programmes of careers education do, to some extent help young people navigate the impact of traditional career echo chambers. Whilst some career management skills set out in frameworks of careers education are useful for navigating both virtual and real echo chambers there are some specific skills which are required to address the issues that the impact of algorithms introduce. These are not covered in traditional frameworks and therefore further thinking needs to take place to review and revise these to ensure that they help young people tackle these unseen influences.

Whilst the manipulation by algorithms may seem sinister, it is possible to mitigate the impact of online career echo chambers. This requires an awareness of the impact of algorithms, a high level of critical thinking which allows an individual to explore information from different perspectives and an understanding of how to manage online presence for example through the management of cookies which can reduce the impact of algorithms.

Five steps to reducing the impact of algorithms on career decision making

It seems that existing models of career guidance should be enhanced to provide opportunities for learners to gain the competences required to overcome the potential impact of career echo chambers. The implication is that career development practitioners will need to enhance their practices to ensure that they help people to develop the critical skills needed to do this. The author proposes the following as a framework for supporting career development practitioners to develop their competence in this area.

- **Awareness** of the presence of algorithms and their potential biases in the online space.
- **Apply** critical thinking about how algorithms can reflect societal biases and reinforce prejudice and discrimination and impact on career choices.
- **Assess** career-related online information sources and applications for bias caused by algorithms.
- **Alert** organisations when algorithms are discovered which exert bias.
- **Adapt** careers education interventions to encourage an awareness of the impact of algorithms on career decision making and develop approaches to mitigate their impact.

Conclusion

We are all subject to the influences imposed by echo chambers, however this has become more concerning with the increase of online media. Young people are particularly vulnerable to this phenomenon as they are not always aware of how the algorithms which are embedded within online media operate to manipulate their choices. There is research to suggest how this might impact political and other types of decision making but as yet, little research which explores the impact of algorithms on young people's career decision making. It is still early in the debate about online safety and the use of artificial intelligence but there is a growing voice which is demanding that this should receive immediate attention. Given a lack of research into the impact of algorithms on young people's career decision making, one recommendation derived from this article is that more empirical research needs to be done to understand this phenomenon. This article suggests that some aspects of traditional or current programmes of career guidance do address some of the issues presented by career echo chambers however there are specific issues surrounding the impact of online career echo chambers which need to be addressed through such programmes. There are steps which career development practitioners can take to begin helping their clients and particularly young people overcome the effects of online career echo chambers. This will require new knowledge and skills, and as the Career Development Institute (2019) sets out in its code of ethical practice, practitioners have a duty to act in a transparent and trustworthy manner and in the best interests of their clients. This surely underlines the need for practitioners to understand algorithms and the importance and impact on career decision making and to act within their practices. This will involve developing career guidance programmes which help to raise awareness of algorithms and their potential impact on career choice. It will also involve developing young people's skills of critical thinking when undertaking career-related research. Career Development practitioners may need to develop tactics to encourage online social media platforms and information providers to provide explanations for how their algorithms work so that they become more transparent. This would enable young people to understand the reasoning behind the recommendations which are made and to trust sources. Finally, it may mean that practitioners may need to challenge organisations whose online applications exhibit bias.

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