Introducing empathy into recommender systems as a tool for promoting social cohesion

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ABSTRACT

Contemporary theories of social cohesion emphasize the importance of people accepting and appreciating differences across social groups. The SPICE project aims to promote social cohesion by researching and developing tools and methods to support citizen curation for groups at risk of exclusion. We define citizen curation as a process in which citizens can interpret cultural objects in order to build representations of their own social group. Other groups can then engage with those interpretations in order to appreciate their perspective. In this position paper we discuss how research into empathy can be used to motivate the design of recommender systems that support people in looking beyond their own group and engaging constructively with alternative perspectives.

CCS CONCEPTS

•Information systems applications • Collaborative and social computing systems and tools •Human-centered computing

KEYWORDS

Social Cohesion, Empathy, Recommender Systems, Citizen Curation

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1. Introduction

Based on work by Pahl (1991) and Friedkin (2004), among others, social cohesion is argued by Fonseca, Lukosch & Brazier (2018), to be "[a] construct that is at the heart of what humanity currently needs" (p. 231). With a specific focus on societies within cities, they argue that social cohesion is one of the main characteristics of a resilient city, as "[..] fostering social cohesion in cities means creating societies where people have the opportunity to live together with all their differences" (Fonseca et al. 2018, p. 232). Albeit, not specifically described, what "opportunity" means in this regard, we argue that at a minimum it must imply an acceptance of the other inhabitants, and as such an acceptance of the differences between oneself, and the "others", if not necessarily an affirmation, nor a complete understanding of these differences. Hence, in this view, social cohesion can be regarded on a "higher" level, as a pinnacle goal of society, embracing individuality, all the while focusing on group unification through the acceptance of the idiosyncrasies of the individual, the groups and the society.

In the SPICE[1] project, we aim to promote social cohesion by researching and developing tools and methods to support citizen curation for groups at risk of exclusion from participating in shared culture and interacting with other groups. Groups we are working with in the SPICE project include older people, asylum seekers, children with serious illnesses, children from lower socioeconomic groups, deaf people, and children from different religious and secular communities.

We define Citizen Curation as a process in which cultural objects are used as a resource by citizens to develop their own personal interpretations (Bruni et al. 2020). Those interpretations are then shared and used within and across groups to reflect on similarities and differences in perspective. Within groups, citizens can use their interpretations to build a representation of themselves and their shared perspective on culture. Citizens from other groups can engage with those interpretations in order to better understand alternative perspectives, build empathy and thereby help to build social cohesion.

Citizen curation can be understood as a form of museum participation (Simon, 2010) in which museum visitors, both physical and virtual, are given opportunities to actively in engage

[1] https://spice-h2020.eu/

in culture. Social media platforms offer one way in which museums can promote participation among visitors. Social media channels, in particular Twitter, Facebook and YouTube are commonly used by museums (Zafiropoulos et al 2015, Badell 2015). However, analysis of museum social media accounts suggests they are largely used for advertising rather than public interaction (Badell 2015). More fundamentally, although social media has the potential to help people take new perspectives and interact with a broader range of people (Kim et al. 2010), in practice the effects of social media are often negative; people follow others they agree with (homophily) (Saleem et al. 2017). This problem is often further exacerbated by social media recommender systems that draw users to people similar to themselves, sharing similar content.

Therefore, although social media platforms may help sub-groups to interact with each other, they often fail to help people to take alternative perspectives. Consequently, existing social media platforms, as currently used, would not provide effective support for citizen curation that requires citizens to not only look within their own group but also appreciate other viewpoints and build empathy toward those that hold them.

Empathy encompasses a number of ways in which people can respond to each other (Zaki 2019). These include understanding what the other person feels (i.e. cognitive empathy), sharing the emotion of the other person (i.e., emotional empathy) and wanting to improve the experiences of the other person (i.e., empathic concern). Historically, empathy was thought of as a genetic trait that operated as an instinct or reflex action toward other people. Contemporary research suggests that empathy is largely environmental, and that it can change through life and toward different groups of people (Bazalgette 2017). In some cases, empathy levels can be changed relatively quickly with appropriate interventions (Zaki 2019).

Currently, recommender systems are in common use that aim at delivering their users with relevant information. These can be particularly important in a social media context, in helping people to manage a high volume of continually updated content. In our work we aim to investigate how empathy can be introduced into the design of recommender systems in order that their users can be supported in appreciating alternative perspectives as a step toward enhancing social cohesion.

2. The Challenge: How Can Recommender Systems Promote Empathy?

Traditionally, recommender systems aim at assisting people in making choices without sufficient personal knowledge (Resnick and Varian 1997). Since they first appeared, in the early 1990s, then called collaborative filtering systems (Goldberg et al. 1992), they penetrated every aspect of our lives, as a means to help users to cope with information overload and especially, collaborate implicitly on the task. The cultural heritage (CH) domain is just one area where recommender systems flourish, as demonstrated by the survey of Ardissono et al. (2012). At first, recommender systems aimed at recommending what seemed to be best for the user according to the mutual taste of similar users (collaborative filtering) or according to personal preferences (content-based filtering). However, over the years, additional aspects were considered, including various contextual aspects (Verbert et al. 2012) and more recently the idea of serendipity (Kotkov et al. 2016). When considering empathy as a means for enhancing social cohesion, the question is how can recommender system technology can be extended to consider the subtle goal of introducing empathy into its process. The first step may be finding a way of representing and reasoning about empathy and then including it in the recommendation process. When considering empathy, especially towards groups, we may find related work in the group recommendation literature where recommendation for a group is not solved as a mere aggregation of individual preferences. For example, in the ARISE architecture (Architecture for recommendations Including Social Elements), Quijano et al. (2014) proposed a recommendation method based on social behavior within a group including group characteristics, such as size, structure, personality of its members in conflict situations, and trust between group members. Humans are social individuals and, therefore, social behavior has a great impact on their group decision-making processes. It is clear that groups have an influence on individuals when coming to a decision. This is commonly referred to as emotional contagion: the effect of individuals' affective state on others in the group (Barsade 2002, Hatfield et al. 1994, Masthoff 2004). This contagion is usually proportional to the tie strength or trust between individuals as closer friends have a higher influence (O'Donovan and Smyth 2005, Golbeck 2006, Victor et al. 2008). However, the influence of the group also depends on the individual's degree of conformity (Masthoff 2004). It has been demonstrated that humans adjust their opinions to conform with those of a group when the majority of the group expresses a different opinion. The degree of conformity is counteracted by the individual's behavior when facing a conflict situation. Here, personality influences the acceptance of others' proposals (Recio-Garcia et al. 2009)

People generally have higher levels of empathy for others from their perceived in-group. De Waal (2011) argues that this is due to the tribal nature of humans (and other mammals) which was necessary for survival. People can characterize their in-group in different ways, for example on the basis of race, gender, class, sexuality, religion, politics or some other characteristic. Fractures between such groups create a challenge for social cohesion, in which people can have empathy toward their own group and a deficit of empathy toward others. Technological developments in the 21st Century can be seen as accelerating the problem. Turkle (2016) makes a link between a rapid decline in empathy and ubiquitous access to digital communications. Spinney (2017) argues that social media can diverge the shared memories and identities of different social groups. Can new technology, and in particular recommender systems, increase as rather than decrease empathy?

A number of interventions can be made to increase a person's empathy toward other groups (Bazalgette 2017, Zaki 2019). Many of these could inform the design of recommender systems. Contact between groups can promote empathy by building understanding and an appreciation of their commonalities. Recommender systems could suggest social contacts and content from other groups in order to promote cross-group contact. Perspective taking, i.e. seeing the World from someone else's perspective can promote empathy. This is particularly the case if the alternative point for view is presented as a story rather than an abstract, factual account (e.g. a day in the life of a homelessness person rather than homelessness statistics). Evidence suggests that empathic responses can also be strengthened if the content is presented in a more intimate media such as audio (Spence et al 2019). Recommender systems could prioritize content that is more personal, narrative-based and uses media such as audio. People tend to respond more empathically if it is seen as a social norm. For example, when reading a story by an out-group member, a person is more likely to respond empathically if their peers have done the same. Recommender systems could promote online comments that are empathic so that this is seen as a social norm. People also tend to respond more empathically to content if explicitly prompted to think about the author's point of view. Recommender systems could wrap suggested content in prompts that encourage a productive response. Finally, people are more likely to respond empathically if they are not rushed and have the available time. Recommender systems could use contextual information (e.g. a person's current activity status) to suggest content when the recipient has the time to respond empathically.

In order to promote empathy across groups, the recommender system also needs a way of identifying or constructing those groups. Within the context of citizen curation, where visitors are supported in interpreting artworks for themselves, groups could be constructed by: 1) Social grouping i.e., explicit communities based on personal attributes such as a group of friends, or groups created based on age, sex, race, religion; 2) Grouping based on preferences for artworks according to their attributes (e.g. artist, subject matter, style, time period); 3) Grouping by based on the content (including emotional content) of user interpretations provoked by the same artwork or similar artworks. Descriptions of artworks and emotions combined with the use of ontologies to bring additional meaning, provides a very rich combination of knowledge with great potential for creating such communities. This type of grouping is related to the semantic similarity assessment between users. Many community detection methods have been introduced in recent years, with each such method being classified according to its algorithm type. A comprehensive review can be found in (Plantié and Crampes 2013). An open research challenge is understanding which type of community detection is most effective for building of empathy and social cohesion.

3. An Illustrative Scenario

The following scenario illustrates how empathy research could motivate the design of a recommender system.

Lara decides to take part in a Citizen Curation activity on the website of her local museum. The activity involves selecting an artwork from the museum's collection, adding her own interpretation and sending this to a friend. She decides to record her interpretation as audio rather than text or video. She also chooses to make her interpretation shareable anonymously with other museum visitors. Later in the day when relaxing at home, Lara is notified of an interpretation of the artwork contributed by someone from another social group with whom she rarely interacts. The interpretation is a personal story prompted by the artwork recorded as audio. The story is accompanied by comments responding positively to the story contributed by people in Lara's social group. Lara decides to listen to it. Before the audio recording starts, Lara is encouraged to imagine how the storyteller feels about what happened. The story is very different to Lara's interpretation of the artwork. She adds her own comment after listening.

4. Practical Challenges and Possible Solutions

When considering the idea of empathy, a number of practical challenges arise: How to reason about it? What reasoning process may enable to enhance empathy towards different groups of people? How this process depends on the personal characteristics of the individual user? When considering the SPICE citizen curation scenario in particular, the following practical challenges arise:

Contact: How to detect group membership and use this to put people in contact with other social groups

Perspective: How to detect and recommend diverse content from alternative perspectives.

Stories: How to detect personal, narrative-based content and prioritize for recommendation (given that it may be more empathic)

Social norms: How to detect and prioritize positive replies from the reader's own social group to content from other groups?

Wrappers: How to wrap recommendations in prompts that encourage an empathetic mindset? How does this relate to personality?

So, we see that empathic recommendation requires much more than just recommending the most appropriate content and goes beyond simple diversity in recommendation. It includes the need to reason about social groups, the nature of the content, social norms, and develop appropriate wrappers for presenting the right content in a way that will promote empathy. Questions concerning ethical considerations also arise, including: What are considered legitimate methodologies to use in order to promote social cohesion via empathy and what would be considered unwarranted manipulations?

In addition, how do we measure social cohesion, in order to evaluate the success of our methodology? Can we measure empathy? Can we measure increases in empathy towards other groups? Previous research suggests ways in which empathy can be measured. Baron-Cohen and Wheelwright (2004) developed the

Empathy Quotient, which is a self-report test of empathy. Zaki (2019) reports on a number of ways empathic concern can be measured from behaviour such as a willingness to help someone in need or to give to charity. Within the context of citizen curation, empathy could potentially be detected from the interpretations and comments of visitors, for example the extent to which they demonstrate perspective taking.

Potential solutions that are considered by the SPICE project include combining a personal user model with models of groups s/he may belong to. The personal user model may include personal characteristics that may help a system reason about what interests the person, together with personality that may guide content selection and delivery. The group models may help in selecting content that may present different groups, similar or different from those the user belongs to in order to cause awareness and possibly promote empathy towards them.

5. Conclusions

Contemporary theories of social cohesion emphasize the importance of appreciating differences across social groups. Social media can potentially support the sharing of alternative perspectives across groups. However, currently such technology often leads people toward content that fits their own viewpoint, promoting fragmentation rather than cohesion. Research into empathy suggests how this problem could be addressed by supporting people in engaging positively with the perspectives of other groups. We are applying this work in the cultural heritage domain, by developing tools and methods for citizen curation, in which citizens are supported in developing and sharing interpretations within and across social groups.

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