

The Theory, Practice, and Ethical Challenges of Designing a Diversity-Aware Platform for Social Relations

Laura Schelenz, Ivano Bison, Matteo Busso, Amalia de Götzen, Daniel Gatica-Perez, Fausto Giunchiglia, Lakmal Meegahapola and Salvador Ruiz-Correa

Diversity-aware platform design responds to the ethical challenges of existing social media platforms. Available platforms have been criticized for minimizing users' autonomy, marginalizing minorities, and exploiting users' data. This poster presents a design solution that centers the well-being of users. It presents the theory, practice, and ethical challenges of designing a diversity-aware platform for social relations. This paradigm was developed in the project WeNet - The Internet of Us.

Problem with existing platforms

An ethical review of existing platforms reveals concerns about:

users' **autonomy**: users aggressively targeted by personalized advertisement to the extent of manipulation (Susser, Roessler, and Nissenbaum 2019); users subjected to feedback loops (Pariser 2012; Sacharidis, Mukamakuza, and Werthner 2020) and popularity bias (Abdollahpour 2019)

users' **privacy**: platforms practice extensive data collection, questionable informed consent practices (Tufekci 2018; Tatlow-Golden and Garde 2020)

users' **well-being**: users subjected to insufficiently regulated hate speech (Lumsden and Harmer 2019), intimidation causes silencing and exclusion from platforms (Maitri 2009)

Hence, **existing platforms risk reducing diversity** in information and human interaction, and **tend to practice data exploitation**.

Diversity-aware platform design paradigm

Solution to problems with existing platforms that promotes diversity-aware interactions

Core design approaches:

- 1) **value-sensitive design** centers on the reflection of values (e.g. diversity) that are inscribed into the technology, and helps weigh different options in the case of value tensions (Friedman and Hendry 2019)
- 2) **participatory approach** involves end users in the analysis of data and design of the product (Morelli, de Götzen, and Simeone 2019)
- 3) **integrated ethics approach** incorporates ethical perspectives from the beginning of the design process (Spindler et al. 2019)

The research and development project **WeNet – The Internet of Us** follows the **diversity-aware design paradigm**. The **WeNet platform** and the **WeNet app** will connect a community of students, researchers, and innovators.

Framework and Operationalization of “Diversity”

Shift in perspective “**from a network of computers**, which in turn may be connected to people, **to a network of people**, whose interactions are mediated and empowered by computers” (Giunchiglia 2020)

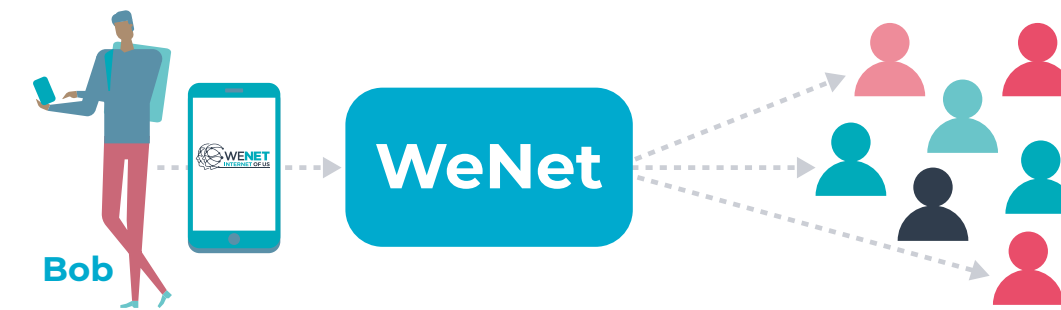


Figure 1: WeNet approach: a diversity-aware platform for social interaction

A Framework of Diversity: Empowering the Collective

The platform is a broker that empowers the collective. As a **broker**, the platform favors interactions between people based on a specific need; in other words, the platform is **aware of the diversity** within and among communities and **selects the best suitable collectivity** based on a need. **Collective** is the set of people which contribute to the achievement of a service, whether they are **producers or consumers of the service** (Giunchiglia and Fumagalli 2017).

Diversity and Diversity-awareness

Diversity-awareness is the **ability to cope with difference** across humans and **capitalize on it** (Giunchiglia 2020). It is a human skill that rises in **interactions**. When individuals interact, initial categorizations of the “other” are accompanied by perceptions of similarity or dissimilarity. These perceptions are based on **surface-level** characteristics (visible attributes like gender, age, etc.) and change when **deep-level** information (character, personality, skills, abilities) is obtained (Harrison, Price, and Bell 1998).

Defining and Operationalizing Diversity

To represent **surface** and **deep** level characteristics diversity is conceptualized with the lens of the **social practices** theory (Shove, Pantzar, and Watson 2012). Individuals are not merely described with skewed attributes, but they are seen as members of a collectivity, also called a **community of practice** (Wenger 1999). They develop a shared practice, which becomes a repertoire of resources: experiences, stories, tools, ways of addressing recurring problems. The platform can then help the collectivity of **practitioners** to improve their performance by leveraging and connecting their different **competences, meaning, and material**.

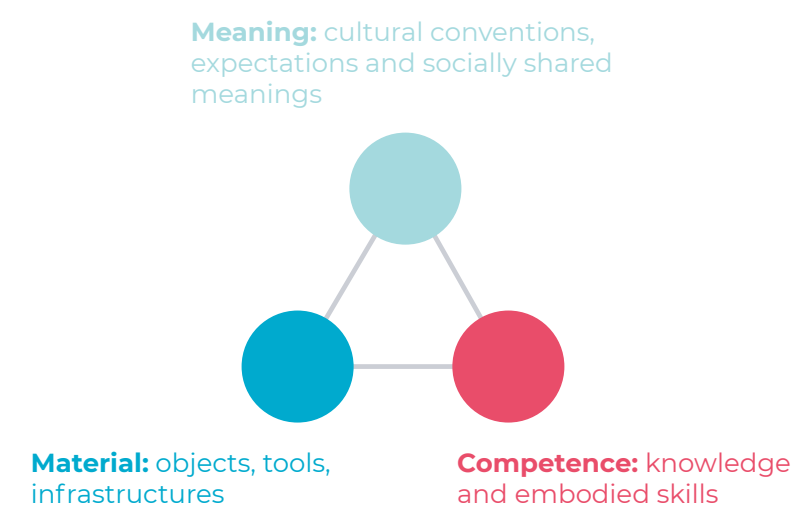


Figure 2: Operationalization of diversity as social practices

Data Collection Process

Both the diversity framework and the platform are empirically grounded and validated with a set of cross-country, longitudinal and real-world pilot cases. **Pilots: Large-scale Data Collection Activity**

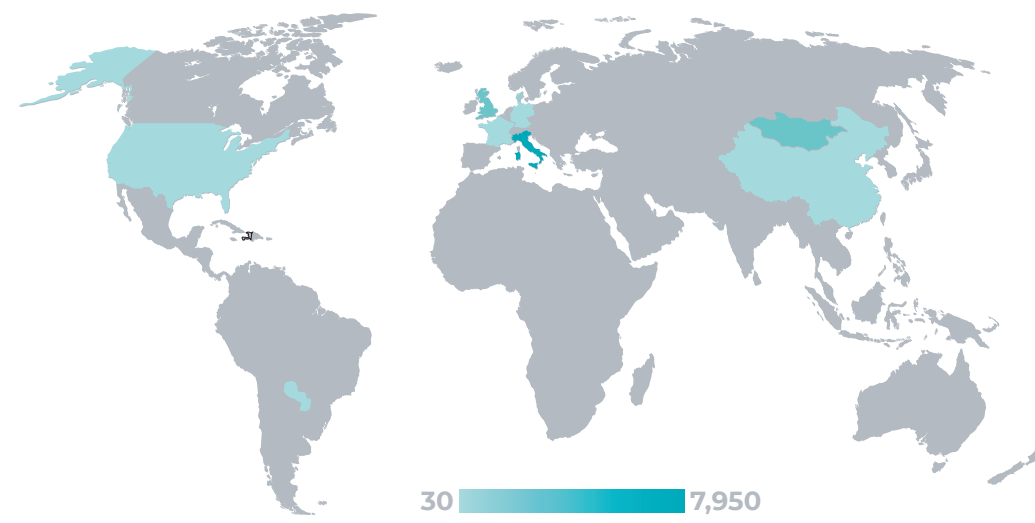


Figure 3: World map representing participating pilot sites and universities

“**Diversity measurement**” pilots, has the aim of collecting the necessary data for the validation of the model of diversity based on social practices and for the training of the algorithms needed to learn those social practices and the students individual and social behaviors.

“**WeNet application**” pilots, instead aim at testing the diversity-aware algorithms and implementing the model of diversity into an application that mediates the interaction between students.

The final study population will be composed by around 10.000 students coming from both European and non-European countries.

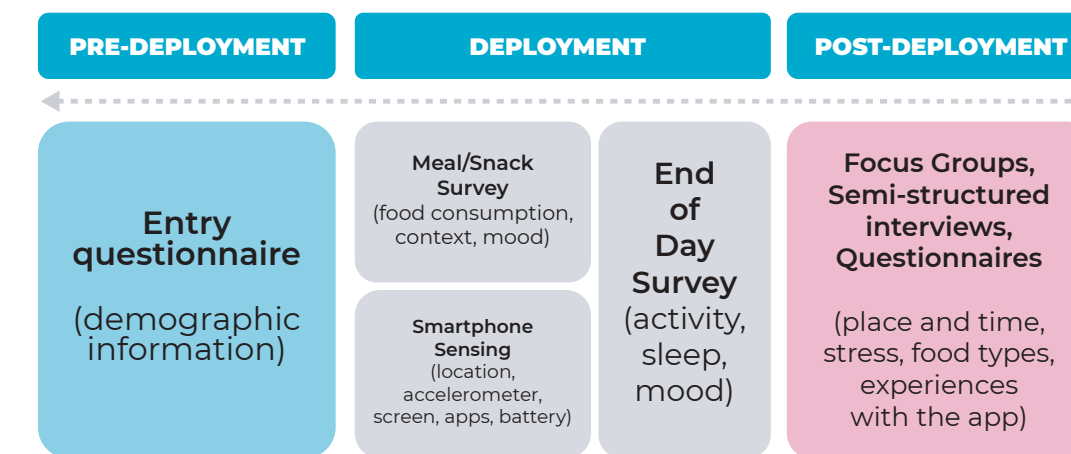


Figure 4: Exploratory Data Collection: Eating Habits of University Students in Mexico

Results from the initial data analysis showed that smartphone sensing can be used to infer self-perceived levels of overeating behavior with an accuracy of 87% in a three-class inference task (Meegahapola et al. 2021). In addition, sensing can be used to analyze the social contexts in which students eat during the day, and infer a basic classification of social eating (eating alone or with others) with an accuracy of 84% (Meegahapola, Ruiz-Correa, and Gatica-Perez 2020).

ETHICAL CHALLENGES

Discrimination through diversity categories and concepts

Bias in data sets (representing diversity)

Power relations in (1) development teams (2) participatory design

Platform/community regulation

Accessibility

Privacy and data protection

Sustainable business models

Evaluation and measures of success

Ethical Challenges of a Diversity-aware Platform

Even when following an ethically sound process to design a diversity-aware platform, challenges emerge. They include but are not limited to:

- concerns regarding **diversity categories**: building diversity categories always means “putting something or someone in a box”; risk of quantifying the unquantifiable; **biases** may emerge from the operationalization of diversity and thus enter the algorithms

- concerns about the **validity of diversity data**: measuring **diversity across cultural regions** requires local expertise and adjustment, e.g. routines change from one culture to the next and data collection at a certain time of day may produce different results for different people

- questions about **power relations** in the design process, particularly considering socio-economic and pragmatic **barriers to participation**

- concerns about the frameworks of research and development: diversity-aware design requires **sustainable business models** that allow for ethical integration and empower users (e.g. data as commons, community self-management)

- challenges in making the **platform accessible to different groups** (removing language barriers, compatibility with screen readers for visually impaired people)

- evaluation of success: what **threshold or metrics of success** should be used to measure the benefits of a diversity-aware approach? Immaterial benefits (autonomy, empowerment, sense of belonging) vs. user satisfaction

Figure 5: Ethical Challenges

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