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WENET
INTERNET OF US

D1.2 PRELIMINARY MODEL OF DIVERSITY

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DEM: Demonstrator, pilot, prototype, plan designs

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EXECUTIVE SUMMARY

In this deliverable, we have further developed the notion of diversity in the context of the WENET project introducing several conceptual clarifications to the aim of supporting the underlying model of the future platform:

- First (*section 1*), we introduce the distinction between diversity on "observable" demographic characteristics or "readily detectable attributes" or "surface level diversity" such as race or ethnic background, age, school years, or gender , and diversity with respect to less "visible/observable" demographic characteristics or "underlying attributes" or "deep level diversity" such as education , technical abilities, functional background, tenure in the organization, or socioeconomic background, personality characteristics, cultural, cognitive, or values. One reason for differentiating between observable and non-observable types of diversity is that when differences between people are visible, they are particularly likely to evoke responses that are due directly to biases, prejudices, or stereotypes.
- Second (*sections 1 and 2*), we want to leverage the similarity based on non-observable traits to favour encounters between individuals that different in visible traits. Knowledge of attitudes, beliefs and the value of similarity between individuals forms the basis for continued attraction and affiliation. Research generally supports the idea that initial categorizations are accompanied by perceptions of similarity or dissimilarity that are based on surface-level demographic data; these perceptions change when deep-level information is obtained. In fact, as people acquire more information, their perceptions are based more on observed behaviours and less on stereotypes driven by demographic characteristics. we define the choice architecture of WENET in terms of suggesting social ties between individuals based on non-observable traits, in order to promote diversity between individuals that might be different from the point of view of observable ones.
- Third (*section 3*), the non-observable traits are operationalised through the notion of social practice. Social practices are defined by their materiality, competence and meaning and each individual can be 'profiled' on these three (sub)dimensions.

Last (*sections 4 and 5*), we present the exploratory empirical research that we have conducted so far and the one planned to model social practices based on survey data that allowed to test the instruments developed to collect information about social practices.

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1 REFORMULATING DIVERSITY

The WeNet's aim is leveraging our diversity. Its goal is to be a virtual community where the diversity of its members is leveraged to improve the "wellbeing" of the members of the community. In this frame **diversity is the key distinguishing feature of life.** In this sense diversity is the **variability that exists across humans and social relations**, e.g., in terms of geographical locations or mobility constraints; personal or interpersonal skills; cultural, religious, economic, or social statuses; beliefs, desires, or intentions. The end is than to implement a sociotechnical system that allow to connect people to achieve their everyday life goals while respecting their differences and embodying fundamental features of transparency, fairness, and accountability. The ultimate goal of WeNet is therefore an end-to-end network of people ('the Internet of us') that will allow any person to find and interact with the person best suited to meet their current needs.

By being built around diversity, WeNet will amplify the positive effects of the Internet and the sharing economy towards a more inclusive society. In this sense, the move from the Internet to WeNet is a move 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. In the same way as Internet connects computers by abstracting over their diversity (of, e.g., hardware, algorithms, programming languages, operating systems, etc.) via the creation of a common communication layer, WeNet will connect people and augment their social interactions, by creating a common communication layer that will abstract over their diversity. In this context, some crucial issues emerge:

- The first is: what is diversity? In fact, as Jackson, May and Whitney stated (1995) the term diversity has little history within the behavioural sciences and is not a scientific construct.
- The second is that diversity is a compositional construct that does not exist at the individual level of analysis. We have diversity only between individuals and not within individuals. This means that we can recognize diversity only when we compare two people and therefore when we move at the level of group, organization, community, society. The problem is therefore to clarify the boundaries, roles, characteristics and differences between these different forms of organization.
- The third is that any individual can be different from (or similar to) any other individual in a social unit on the demographics attribute being considered. Thus, "being different" is a relational concept that applies to everyone, the majority as well as the minority (Tsui, Egan & O'Reilly III, 1991). In other words, there are two basic approaches to describing various aspects of the social world, according to their attributes or according to their relationships (Knoke & Kulinski, 1982). This has a direct effect on how we conceptualize diversity, how it can be exploited and how it can be used.
- The last one problem is that there are many different forms of diversity and not all of them can be leveraged according to the WeNet project. In fact, as we will see later on, there are forms of diversity that instead prevent connections, such

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as socio-demographic traits, from being allowed. The question is: what kind of diversity do we need, and can we leverage?

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1.1 Brief historical context of Diversity

Diversity is an umbrella term that we use in a general sense to indicate the presence of differences among members of a social unit. For example in sociology and political studies, diversity is the degree of differences in identifying features among the members of a purposefully defined group, such as any group difference based on the identity politics on: *sex, sexual orientation, gender & gender identity, age, generation, religion, philosophy, socioeconomic background, social class or caste, occupation, profession, education, culture, racial or ethnic classifications, ethnicity, language, dialect, nationality, political party affiliation, settlement, urban and rural habitation, intelligence, mental health, physical health & disability, physical abilities, personality, behaviour or attractiveness, genetic attributes, and veteran status*[1]. In other words, sociology and political science are grounded in diversity: diversity is their area of study and they have decided to differentiate it in order to better understand it.

However, diversity became a very popular term at the end of the last millennium, linked to human resources management due to the changing demographic composition of the labour market, especially the US labour market. Harrison and colleague (1998) report that "… the projected demographic characteristics of the U.S. workforce suggest that by the year 2000, approximately 80 percent of its new entrants will be women and members of ethnic minorities. The increasing diversity of the workforce necessitates a better understanding of how such individual differences affect the functioning of work groups, as well as which types of differences are most consequential." (p.96). Therefore managing a diverse workforce becomes an oft-repeated challenge confronting managers in the 1990s. Tsui, Egan & O'Reilly III, 1992 highlight that "a clear implication of this increasing workforce heterogeneity is that more and more individuals are likely to work with people who are demographically different from them in terms of age, gender, race, and ethnicity." (p.549).

In this scenario there are two main areas of increased diversity: the first concerns the change in the composition of the workforce due to the loss of the primacy of the white-native man as the main component of the workforce, the second on the nature of the organization and production systems due to globalization.

The changing work-force demographics and new organisational forms are increasing the diversity of work teams in general and decision-making teams in particular. Given these environmental changes, work teams that are diverse in terms of sex, race, ethnicity, national origin, area of expertise, organizational affiliation, and many other personal characteristics are increasingly common (Jackson, May, Whitney, 1995). In other words, over time we see an increase of:

- **Gender Diversity.** Women are entering the labour force in growing numbers and is expected that in few years the work force to be almost completely gender balanced. When this balance point is reached, the work force as a whole will be maximally diverse with respect to this attribute.
- **Domestic Cultural Diversity.** Immigration, the change in fertility rates, new media that increase the visibility of small subcultures, are also changing the cultural composition of the workforce. As the 1980s drew to a close, the U.S. Department of Labour was projecting rapid increases in the cultural diversity of

[1] https://en.m.wikipedia.org/wiki/Diversity_(politics)

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the labour supply. Johnston & Packer, (1987) cited in Jackson, May, Whitney, (1995) report that only 58 percent of new entrants into the labour force were expected to come from the "majority" population of white native-born Americans, the remaining 42 percent were expected to be mostly immigrants (22 percent), followed by approximately equal numbers of African Americans and Hispanic Americans.

- **Age Diversity.** The ageing of the workforce due to reduced fertility rates in industrialised countries also has the effect of increasing age variance in the composition of the workforce.

Teams are becoming more diverse, not only because of changing work-force demographics but also because of the development of new organizational forms due to:

- **The globalization of the business economy.** The presence of international affiliations, although not inevitable, is likely to lead eventually to the formation of teams of people with diverse cultural backgrounds, including management teams, design teams, operation teams, and marketing teams all of which engage in decision-making activity.
- **Interdepartmental and Inter-organizational alliances.** In order to succeed in an increasingly competitive domestic and global environment, many organizations are utilizing teams to pursue new business strategies that emphasize quality, innovation, and speed. For example, R&D teams bring together experts from a variety of knowledge backgrounds with the expectation that, in combination, they will produce more creative thinking and innovation.

While diversity is a problem, it can become a new opportunity. As Cox and Blake (1991) stated, managing diversity can create a competitive advantage. Mainly, Cox and Blake (1991) address cost, attraction of human resources, marketing success, creativity and innovation, problem-solving quality, and organizational flexibility as six dimensions of business performance directly impacted by the management suggestions of cultural diversity (Fig.1 & Fig.2 - Cox and Blake (1991)).

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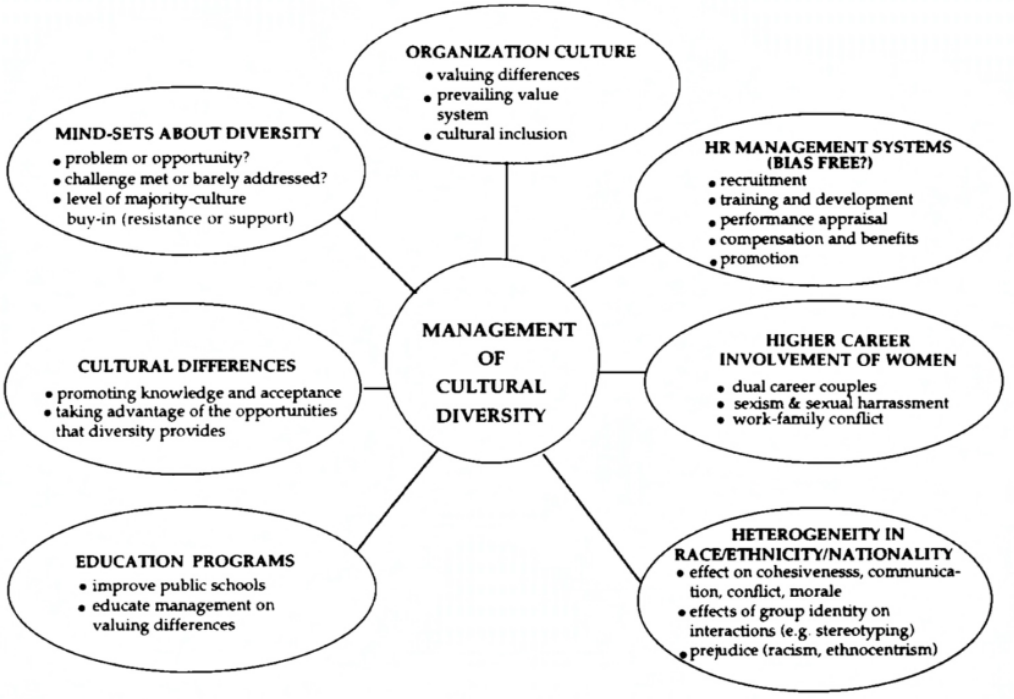

FIGURE 1 SPHERES OF ACTIVITIES IN THE MANAGEMENT OF CULTURAL DIVERSITY (COX AND BLAKE,1991, P.46)

1. Cost Argument	As organizations become more diverse, the cost of a poor job in integrating workers will increase. Those who handle this well, will thus create cost advantages over those who don't.
2. Resource-Acquisition Argument	Companies develop reputations on favorability as prospective employers for women and ethnic minorities. Those with the best reputations for managing diversity will win the competition for the best personnel. As the labor pool shrinks and changes composition, this edge will become increasingly important.
3. Marketing Argument	For multi-national organizations, the insight and cultural sensitivity that members with roots in other countries bring to the marketing effort should improve these efforts in important ways. The same rationale applies to marketing to subpopulations within domestic operations.
4. Creativity Argument	Diversity of perspectives and less emphasis on conformity to norms of the past (which characterize the modern approach to management of diversity) should improve the level of creativity.
5. Problem-solving Argument	Heterogeneity in decision and problem solving groups potentially produces better decisions through a wider range of perspectives and more thorough critical analysis of issues.
6. System Flexibility Argument	An implication of the multicultural model for managing diversity is that the system will become less determinant, less standardized, and therefore more fluid. The increased fluidity should create greater flexibility to react to environmental changes (i.e., reactions should be faster and at less cost).

FIGURE 2 CULTURAL DIVERSITY CAN PROVIDE COMPETITIVE ADVANTAGE COX AND BLAKE, 1991, P.47)

For the author, the cost and resource acquisition arguments are the "inevitability-of-diversity" issues. Competitiveness is affected by the need (because of national and cross-national workforce demographic trends) to hire more women, minorities, and foreign nationals. While, the marketing, creativity, problem-solving, and system

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flexibility argument, are derived from what Cox and Blake call the "value-in-diversity hypothesis" that diversity brings net-added value to organization processes.

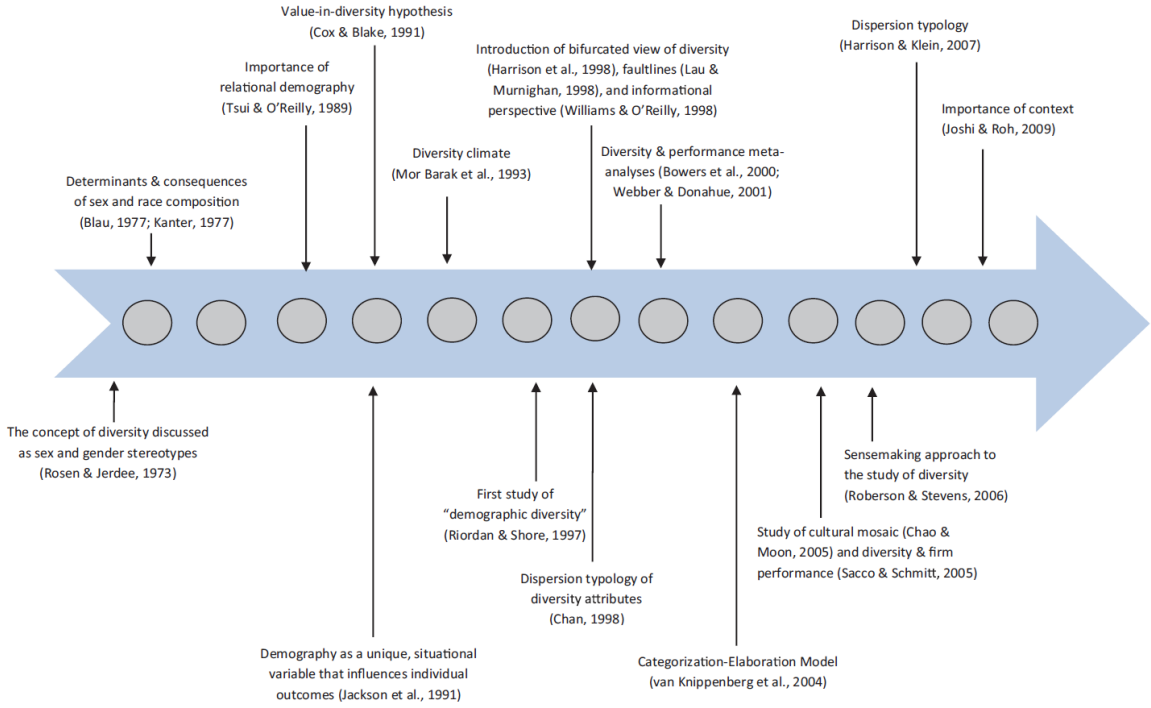

FIGURE 3 DIVERSITY CONCEPT TIMELINE.

Figure 3 provides a timeline that shows some milestones in this evolution both outside and in Journal of Applied Psychology, from the advent of diversity related research to the current state of research in this area. (Roberson, Ryan, Ragins, 2017, p.493)

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What is going on in the market is also happening in other parts of the social structure. Communities are changing and so is the role of human attributes and relationship. Jackson, May, Whitney, (1995) in their model of understanding the dynamics of diversity in decision-making teams suggest a distinction between aspects of diversity, mediating states and processes, short-term behavioural manifestations, and longer-term consequences. They also suggest organizing these constructs within three levels of analysis: individual, interpersonal and group. Therefore, for leveraging diversity is important not only to clearly separate the level of the relationship from the group level where the relationship takes place, but also to take into account the context in which it takes place. The societal/community/organisational/group/team context is relevant to an understanding of the dynamics that characterize relations between members of different demographic groups. It's there that diversity emerges, and it is there that relations take place.

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1.2 Community and Organization

The concept of community involves a subjective emotional sense of being linked with others on the basis of similar norms, religion, values, customs, identity, interests, or experiences. Community is a social unit and comes from the Latin *communitas* "community", "public spirit" which is the combination of two Latin words i.e. 'cam' means together and 'munis' means serve i.e. serve together.

The community concept may refer either to actual relationships among people or to an abstract cultural ideal. In either case a sense of community emerges from similarities and shared interests[2]. Gusfield (1975), for example, distinguished between two major uses of the term community in literature. The first is the territorial and geographical notion of community - neighbourhood, town, city. The second is *relational*, concerned with "quality of character of human relationship, without reference to location".

The relational aspect is also stressed by Tönnies ([1887] 1963) when he formulated his two types of human association: *Gemeinschaft* (community) and *Gesellschaft* (society). This dichotomy is for Tönnies a different way of thinking of the social system as a set of social ties with different value and role in which no group is exclusively one or the other[3]. The first, the *Gemeinschaft,* stress personal social interactions, and the roles, values, and beliefs based on such interactions. The second, the *Gesellschaft,* stress indirect interactions, impersonal roles, formal values, and beliefs based on such interactions.

McMillan and Chavis (1986), in their seminal work on Sense of community develop a definition that can be apply equally to territorial communities (neighbourhoods) and to relational communities (professional, spiritual, etc.). Their proposal definition is based on four elements (McMillan and Chavis, 1986, p.9).

- The first element is *membership*. Membership is the feeling of belonging or of sharing a sense of personal relatedness.
- The second element is *influence*, a sense of mattering, of making a difference to a group and of the group mattering to its members.

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[2] From the other hand, we have the organizations, which in contrast, are formally constructed to achieve goals that individuals are unable or unwilling to try to achieve on their own. Formal organizations, such social formations are intentionally established to pursue various goals.

[3] Johnson (2008) from other hand, stated that "Although Gesellschaft is typically translated "society" it can also be translated as "association," and Tönnies emphasized the notion of a deliberately established social system that is based on the "rational will." The Gemeinschaft (or community), in contrast, reflects a more spontaneous type of social formation based on "natural will" and subjective emotional feelings." (P.254-255). For example, if a small town or residential neighbourhood were to face some kind of threat, this could trigger explicit efforts to "organize" and "do something" about it. When this occurs, the resulting social relations often give rise to a strengthened sense of community. In Coleman's terms, such mobilization generates social capital. And the sentiment that members have to "get organized" can actually lead to the establishment of a formal organization. (Johnson, 2008)

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- The third element is *reinforcement*: integration and fulfilment of needs. This is the feeling that members' needs will be met by the resources received through their membership in the group.
- The last element is *shared emotional connection*, the commitment and belief that members have shared and will share history, common places, time together and similar experiences.

Therefore, communities may share a sense of place situated in a given geographical area (e.g. a country, village, town, or neighbourhood) or in virtual space through communication platforms.

A number of ways to categorize types of community have been proposed. Base on the relation James (2006) have developed the follow taxonomy that maps community relations and recognizes that actual communities can be characterized by different kinds of relations at the same time[4].

1. **Grounded community relations**. This involves enduring attachment to particular places and particular people. It is the dominant form taken by customary and tribal communities. In these kinds of communities, the land is fundamental to identity.
2. **Life-style community relations**. This involves giving primacy to communities coming together around particular chosen ways of life, such as morally charged or interest-based relations or just living or working in the same location. Hence the following sub-forms:
    1. *community-life* as morally bounded, a form taken by many traditional faith-based communities.
    2. *community-life* as interest-based, including sporting, leisure-based and business communities which come together for regular moments of engagement.
    3. *community-life* as proximately related, where neighbourhood or commonality of association forms a community of convenience, or a community of place.
3. **Projected community relations**. This is where a community is self-consciously treated as an entity to be projected and re-created. It can be projected as through thin advertising slogan, for example gated community, or can take the form of ongoing associations of people who seek political integration, communities of practice based on professional projects, associative communities which seek to enhance and support individual creativity, autonomy and mutuality. A nation is one of the largest forms of projected or imagined community.

In this taxonomy the communities can be nested and/or intersecting; one community can contain another—for example a location-based community may contain a number of ethnic communities.

In conclusion Community is a human relational entity, where peoples interact, exchange, include and exclude the others in base of their attributes and their relation.

[4] https://en.wikipedia.org/wiki/Community#cite_note-7

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As Johnson (2008, p.7) stated "Increased awareness of cultural or subcultural diversity does not guarantee that people will try to understand or relate to those who are different. People may still regard their own particular social world and their own beliefs and customs as superior, or at least preferable for them, even after learning that these beliefs and customs are not necessarily natural for everybody. People vary considerably not only in their awareness of diversity but also in their tolerance or acceptance of those who are different." (p.7)

Opportunities to develop relationships with different types of people vary greatly in different social settings. Blau's structural theory[5] was reviewed to emphasize the importance of similarities and differences among people in the formation of social relations. "People tend to initiate encounters with others who are similar to themselves to meet their socioemotional needs. In populations with a great deal of crosscutting forms of diversity, the chances are greater that relationships will be formed across these barriers than in more homogeneous populations. Moreover, interactions among people who are different from one another are crucial for both individual and collective goals as well as for promoting social integration and cohesion in a complex, pluralistic society." (Johnson, 2008, p.220)

"Differences in lifestyles, subcultural tastes, and leisure preferences may also be relevant for one's status in various prestige hierarchies, with distinctions made between opera and classical music lovers and those who prefer country and western music, for example, or between members of golf clubs and bowling leagues. People may regard their own particular subcultural and lifestyle preferences as superior to those of other groups. Or, they may simply show a preference for relating to others with similar tastes and lifestyles as "our kind of people" but without necessarily viewing others as inferior or superior. Still others may learn to appreciate a wide range of subcultural tastes and take pride in being able to relate to a variety of people representing diverse subcultural backgrounds. Such diversity should be expected in a pluralistic society where people are free to make their own choices regarding leisure and lifestyle preferences." (Johnson, 2008, p.295)

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[5] Peter Blau's and James Coleman's develop two different perspectives for linking micro-level exchange processes with macro-level organizational and institutional structures. In Blau's perspective, inequalities in power that emerge from imbalanced exchanges serve as the bridge for macro structures. In Coleman's perspective, meso or macro level corporate actors are intentionally created to achieve goals that are difficult or impossible for individuals to accomplish on their own or through market transactions.
The structural theory developed by Peter Blau (1977; Blau, 2001) can be used to explain both the opportunities and the constraints we have for associating with various types of people. This perspective begins by identifying the criteria used to differentiate people into different categories and positions, as opposed to the interactional dynamics of the exchange process itself.
"Blau starts with the notion that people can be categorized in terms of both nominal and graduated parameters. Nominal parameters distinguish people into clearly distinct groups or categories, but with no rank ordering of the categories. Graduated parameters, in contrast, distinguish people in terms of higher or lower rank on various characteristics, but without sharp breaks between discrete categories. The heterogeneity of a society is based on the number of nominal categories used to classify people. Examples of such characteristics include ethnic background, religious identification, occupation, gender, and residential community. Graduated parameters, in contrast, include characteristics such as height, age, years of school, income, or other characteristics which allow for "more" or "less" ranking. Such characteristics provide the basis for inequality in society, including in particular people's differential positions in the socioeconomic class structure. Both nominal and graduate parameters may overlap or crisscross in many different ways, giving rise to an objective set of social positions that may be defined in terms of multiple criteria." (Johnson, 2008, p.197)

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The physical, observable and immutable, personal and background characteristics, such as demographic characteristics, as well as lifestyles, tastes, values, goals, play a decisive role in the process of initial categorization that leads to the birth of a relationship, as well as, are the foundation of a community. Harrison, Price, & Bell (1998 report that research generally supports the idea that initial categorizations are accompanied by perceptions of similarity or dissimilarity that are based on surface-level demographic data; these perceptions change when deep-level information is obtained (Stangor, Lynch, Duan, & Glass, 1992; Turner, 1987). For example, Byrne and Wong (1962) found that subjects initially perceived greater attitudinal dissimilarity between themselves and a stranger of another race. When more details were provided about the stranger's attitudes, perceptions of attitudinal dissimilarity decreased and interpersonal attraction to the stranger increased.

Demographic attributes such as gender, race, age, occupation, education, or authority level are information that individuals might use to infer one's similarity to others on such things as attitudes or beliefs (Bryne,1971).

The presumed similarity in attitudes or then influences the individual's attraction toward the other individual(s). Consequences of low attraction include less communication, low social integration, and eventual turnover. Turnover, in fact, has been the most frequently studied outcome in organisational demography research. (Tsui, 1991, p.183)

Therefore, attributes and relationship are the other two bricks that play a central role with the community in defining diversity. In the next chapter we will introduce the difference between these two elements.

1.3 Attributes and Relations

As stated Knoke & Kulinski (1982, p.10-11), there are two basic approaches to viewing and classifying the various aspects of the social world according to their *attributes* or their *relationships*.

Attributes are intrinsic characteristics of people, objects, or events. When we think of explaining variance among such units of observation, we almost naturally resort to attribute measures, those qualities that inherently belong to a unit apart from its relations with other units or the specific context within which it is observed.

Relationships are actions or qualities that exist only if two or more entities (e.g. persons, objects, and events) are considered together. A relation is *not an intrinsic characteristic* of either party taken in isolation, but is an emergent property of the connection (e.g. a person's age, sex, intelligence, income, and the like remain unchanged whether at home, at work, at church), *relations are context specific* and alter or disappear upon an actor's removal from interaction with the relevant other parties (e.g., a student/teacher relation does not exist outside a school setting; a marital relation vanishes upon death or divorce of a spouse).

This distinction between attribute and relationship perspective characterise large part of sociological theory. For example, it arises in organization study in sociological field in reaction to the atomistic and rationalist-adaptive assumptions of the organization's previous perspectives. Haveman and Wetts (2019) identify the *demographic, relational* and *cultural* dimension as the dominant perspective of sociological research on organizations in the last four decades. All three perspectives are used to explain behaviour at five levels of analysis: the individual, the group, the organization, the population/industries and inter-organizational fields.

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The first (the *demography*)—focusing on the distribution of individuals, groups, and organizations along salient dimensions of social structure, such as individuals age, race and gender, group size and composition, and organizational form and location—characterises internal organizational demography and organizational ecology.

The second is on webs of *relationships* among people, groups, and organisations is most noticeable in research on social capital, power in organizations, and resource-dependence theory. The *relational perspective* broke with the assumption that individuals, groups, and organizations can be understood as atomistic actors. Instead, all social actors are just that—social—which requires recognizing how webs of social and economic interactions create opportunities for and constraints on action. At the microlevel, relationships determine what actors can do, as well as what actors are motivated to do because people and groups in organizations are interdependent.

The third put an emphasis on *culture*, meaning widely shared norms, values, expectations, roles, and rituals, is reflected in institutionalist approaches and research on organizational culture.

These perspectives propose divergent conceptions of social structure, which provides opportunities for and constraints on action, and identity, which provides motivations for action.

- Demographic analysts view social structure as inhering in multiple cross-cutting distributions and identity and motivation as deriving from position, absolute or relative, along one or more dimensions of social life, such as individual age, gender, race, class, etc.
- Relational analysts view social structure as inhering in social and economic ties between individuals, groups, or entire organisations and identity and motivation as constituted by those ties.
- Cultural scholars, social structure consists of shared, patterned understandings of reality and possibility (i.e., beliefs about what is feasible, acceptable, or valued) that actors use to make sense of and evaluate actions, while identity and motivation derive from those shared.

Below, our attention is focused only on the demographic and relational perspective in micro contexts, for the cultural perspective and the application of all three approaches to the macro context see Haveman and Wetts (2019).

At the individual level, the main issues of demographic perspective are whether focal individuals are similar to or different from others in their workplace and whether they are members of high- or low-status groups. This perspective has four theoretical foundations (Haveman and Wetts, 2019).

- First, sociological theories of group interaction hold that people prefer to interact with similar others—a phenomenon known as homophily.
- Second, demography uses the number of people in different social positions to explain rates of entry into and exit from organisations and rates of social interaction among organizational members.
- Third, social–psychological theories of social identity and categorization hold that we classify people to understand their behaviour and that our identity and self-worth derive in part from the groups we belong to. Together, these processes create in-groups and out-groups, and promote in-group biases.

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- Fourth, sociological expectation-states theory holds that different levels of esteem and competence are attributed to people in different demographic groups, creating interactions in which these expectations become self-fulfilling prophecies—conferring higher status and better outcomes on individuals from higher status groups. (e.g. numerical minorities from subordinated groups become subject to heightened visibility and social isolation. In contrast, numerical minorities from dominant groups benefit from stereotypes.

In the other hand, in the relational perspective, scholars hold that social relations are primary and social-unit attributes are secondary.

"The relations among actors have both content and form. Content refers to the substantive type of relation represented in the connections (e.g., supervising, helping, gossiping), and an inventory of content types is presented below. Relational form refers to properties of the connections between pairs of actors (dyads) that exist independently of specific contents. Two basic aspects of relational form are (a) the intensity or strength of the link between two actors, and (b) the level of joint involvement in the same activities. Conceivably, two relations that are quite distinct in content may exhibit identical or highly similar forms. For example, within a small community the social visits between residents might occur with the same frequency and degree of reciprocation as do their exchanges of minor economics assistance." (Knoke & Kulinski, 1982, p.11)

The relations among actors have a content (Knoke & Kulinski, 1982). Network content is frequently determined by theoretical considerations; for example, a study of psychological balance theory calls for sentiment relations. Thus no single type of connection can be priori designed as the correct network for a population, or even the most important network for all research purposes. In some cases, substantive problems indicate that more than one analytically distinct type of relationship should be investigated, in which case a network compounded of two or more types of linkages (i.e., a multiplex network) may be most appropriate.

There are two main strands of micro-relational research (Haveman and Wetts, 2019). The first examines social capital (Bourdieu, 1980, 2006; Coleman, 1988), meaning the resources people derive from their connections, such as ties to schoolmates, current and former co-workers, or people in other organizations.

Social capital improves access to information and material resources, which in turn enhances social status, reduces uncertainty, and improves many individual outcomes. But social capital also creates mutual obligations, channelling action onto particular pathways and foreclosing others (Lin, 1999, 2001; Portes, 1998).

Different types of social ties—strong versus weak—provide individuals and groups with distinct benefits and challenges.

Strong ties, which bond group members tightly, improve knowledge transfer within groups and facilitate norm enforcement, increasing trust and improving group functioning (Coleman, 1988; Uzzi & Spiro, 2005).

Weak ties can bridge holes in networks, connecting otherwise-unconnected groups, which tend to have different information sources (Granovetter, 1973).

The second main strand of micro relational research focuses on power as an attribute of relationships and assumes power is the inverse of dependence. Within organizations, vertical and horizontal power-dependence relations develop (Pfeffer, 1981).

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Vertically, people at each level have formally invested power over lower levels; this power resides in the position held, not in the person holding the position (Weber, 1968).

Horizontally, power arises because individuals and groups in organizations depend on each other to perform their assigned tasks—they are interdependent (Thompson, 1967). Horizontal power is activated when interdependent actors have different goals or different beliefs about how to achieve their goals, the resources needed to achieve goals are scarce, and actors have different levels of resources.

Both vertical and horizontal power-dependence relations influence whose goals and beliefs are acted upon and to what effect.

Although attributes and relationships are often treated as antithetical and even irreconcilable (Knoke & Kulinski, 1982) some work combining the network and demographic perspectives brings to light network mechanisms for explaining how diversity affects group performance (Haveman and Wetts, 2019). When diversity undercuts cohesion and trust (thus reducing the number of bonding ties within a group), performance declines, but when diversity exposes group members to non-redundant sources of information (through bridging ties to people outside a work group), performance improves (Reagans & Zuckerman, 2001). In this way, network mechanisms mediate the impact of diversity (Haveman and Wetts, 2019).

"Other work reveals how demographically segregated networks alter employment opportunities for members of different demographic groups (for a review, see McDonald & Day, 2010). For example, Black job-seekers' contacts are less likely to refer them to prospective employers than are those of White job-seekers (Royster, 2003; Smith, 2005). Moreover, Black jobseekers are less likely than White job-seekers to have high-status social ties (Lin, 2001; McDonald, 2011), so even when Black job-seekers obtain referrals to employers, they gain get fewer advantages from these referrals than do comparable White job-seekers (Silva, 2018). In sum, these lines of work show that network processes can be sources of (dis)advantage for different demographic groups, and demography can condition network processes." (Haveman and Wetts, 2019, p.11).

Many aspects of social behaviour can be treated from both the attribute and the relational perspectives, with only a slight alteration of conceptualization.[6] For example, the value of goods that a nation imports in foreign trade each year is an attribute of the

[6] "Because researchers' capacities to conceptualize and operationalize various types of networks are almost unlimited, we can only list the more common types of relational content, citing some representative studies:
•Transaction relations: Actors exchange control over physical or symbolic media, for example, in gift giving or economics sales and purchases.
•Communication relations: Linkages between actors are channels by which message may be transmitted from one actor to another in a system.
•Boundary penetration relations: The ties between actors consist of constituent subcomponents held in common, for example, corporation boards of directors with overlapping members.
•Instrumental relations: Actors contact one another in efforts to secure valuable goods, services, or information, such as a job, an abortion, political advice, recruitment to a social movement.
•Sentiment relations: Perhaps the most frequently investigated networks are those in which individuals express their feelings of affection, admiration, deference, loathing, or hostility toward each other.
•Authority/power relations: These networks, usually occurring in complex formal organizations, indicate the rights and obligations of actors to issue and obey commands.
•Kinship and descent relations: A special instance of several preceding generic types of networks, these bonds indicate role relationships among family members." (Knoke & Kulinski, 1982, p.14)

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nation's economy, but the volume of goods exchanged between each pair of nations measures an exchange relationship. Similarly, while a college student's home state is a personal attribute, a structural relationship between colleges and states could be measured by the proportions of enrolled students coming to each college from each state. (Knoke & Kulinski, 1982, p.10-11].

1.4 A Definition of Diversity

Diversity has a relatively short history within the behavioural sciences, especially in the organisational field, which began at the end of the last millennium for some years and was replaced at the beginning of the second millennium with the term inclusion. (Robertson, 2006). Today, given the emergence of new rhetoric in the field of diversity, the term diversity seems to replace (once again) the term inclusion in some research fields.

As Jackson, May and Whitney stated in 1995, the term "diversity is not (yet) a scientific construct". Since then, things haven't changed much. It is not a scientific construct and, as then, even today, this term finds wide use in the "diversity management" activities that organizations and political agendas are adopting in response to demographic changes in industrial society due to globalization, immigration and the emergence of new social values linked to new global social movements, such as Gender, LGBT, Ecology.

Large is the body of social, economic & behavioural science research relevant to understanding the dynamics of diversity in organisations and social system, although it is widely dispersed across sub disciplines that neither cross-reference each other nor have a common terminology. A clear example is what Ferdman, (1992, p.341) wrote on the study of one of the classic themes of diversity: ethnicity. “This growth in ethnicity as an important phenomenon has not been matched by theoretical or research developments in organizational psychology […]. Although an extensive literature relevant to the psychology of intergroup relations exists, it remains relatively dispersed and fragmented. For example, social psychologists who focus on social categorization processes have tended to work independently from communication scholars who consider the implications of cultural differences for interpersonal interactions. These groups have been mostly disconnected from personnel and organizational psychologists, who have tended to focus on issues of bias in selection or appraisal. More importantly, the psychological study of intergroup behaviour has tended to concentrate on developing concepts that cut across group types and **so** has devoted little attention to illuminating the ways in which intergroup dynamics vary as a function of the basis for group differentiation (Ferdman, 1987b). For example, we might expect that explaining gender-related interactions will involve different notions and perspectives than explaining interactions based on race, occupational groups, or organizational affiliations. Yet social psychologists who study intergroup behaviour have tended to use such social categories interchangeably”.

Furthermore, Roberson, Ryan, and Ragins (2017) examines the evolution of “diversity” construct in the Journal of Applied Psychology over the last 100 years. From the 150 articles published their “inquiry showed that a variety of terms have been used interchangeably to refer to diversity.” (Roberson, Ryan, Ragins, 2017, p.485) For example, only to refer to demographic composition as a contextual property they find 12 different keywords — diverse, diversity, demographic, demography, dissimilarity,

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similarity, dispersion, heterogeneity, homogeneity, heterogeneous, homogeneous, and inequality.

For integration of the available scientific evidence into a single framework, the conceptual territory of interest must be identified and labelled. In particular, *the umbrella term diversity***,** which we use in a general sense to indicate the presence of differences among members of a social unit, must be dissected into a set of more precise terms starting from individual attributes and relations.

There are three main approaches in the literature on which the construct of diversity is grounded. Social identity (Tajfel, 1978), self-categorization theories (Turner, 1982) and similarity attraction paradigm (Byrne, 1971), which articulate processes through which individuals make sense of, and locate themselves within their social environments, help to explain the mechanisms through which individuals relate to others via their group memberships. “The theories propose that because individuals’ self-definitions are shaped by their group memberships, they are motivated to enhance their self-concept by seeking a positively valued distinctiveness for those groups. Accordingly, they engage in social comparisons to differentiate between their in-groups and relevant out-groups, which accentuate similarities among individuals sharing group memberships and differences among those belonging to different identity groups. Self-categorization theory also suggests that demographic characteristics may be used to classify individuals into social categories, and therefore may serve as the basis on which individuals define themselves as members of a social group and engage in intergroup behaviour (Turner, 1987). The similarity attraction paradigm (Byrne, 1971) offers a related conceptual justification for diversity effects within social units, as individuals are posited to be attracted to those with whom they possess similar characteristics and attitudes, which subsequently influences social interactions and intergroup relations.” (Roberson, Ryan, Ragins, 2017, p.490)

These theories provide the conceptual foundation for **relational demography**[7] (Tsui, Egan, & O’Reilly, 1992; Tsui, Egan, O'Reilly III, 1991; Tsui & O’Reilly, 1989), which predicts that individuals’ attitudes and behaviour will be influenced by the amount of demographic similarity within work units. For Tsui, Egan, O'Reilly III, (1991) “Attributes are intrinsic characteristics of people, objects, or events. A relationship is the linkage between units of observation, be they objects, events, or people. Demographic characteristics are examples where both direct attributes, such as individuals' gender or age, and relationship on an attribute between two or more individuals are important for understanding social interactions and outcomes.” (p.183) In other words, based on those demographic attributes that are relevant components of an individual’s self-definition, two of more peoples will become more attractive to the degree that such attributes are shared by others in a group. Moreover, as people are motivated to maintain positive self-evaluations, greater demographic similarity within groups will generate more positive attitudes and work relations. On the other hand, as demographic attributes are a basis for intergroup differentiation, dissimilarity on key dimensions of identity is likely to impair social processes, such as communication and cohesion, within work units (Williams & O’Reilly, 1998 in Roberson, Ryan, Ragins, 2017, p.490).

[7] Tsui and O'Reilly (1989) used the term relational demography, in contrast to compositional or distributional demography, to refer to this individual-level difference. (Tsui, Egan and O'Reilly III, 1992)

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1.5 Diversity in a relational demographic approach

Any individual can be different from (or similar to) any other individual in a social unit on the demographics attribute being considered. Thus, "being different" is a *relational concept* that applies to everyone, the majority as well as the minority. (Tsui, Egan, O'Reilly III, 1991).

Demographic attributes such as gender, race, age, occupation, education, or authority level are information that individuals might use to infer one's similarity to others on such things as attitudes[8] or beliefs (Bryne, 1971 cit. in Tsui, Egan, O'Reilly III, 1991). For example, attribute diversity is considered to be a characteristic of groups that refers to demographic differences among members (McGrath, Berdahl, & Arrow, 1995). Similarly, Larkey (1996) defines diversity as differences in perspectives resulting in potential behavioural differences among cultural groups as well as identity differences among groups' members in relation to other groups.

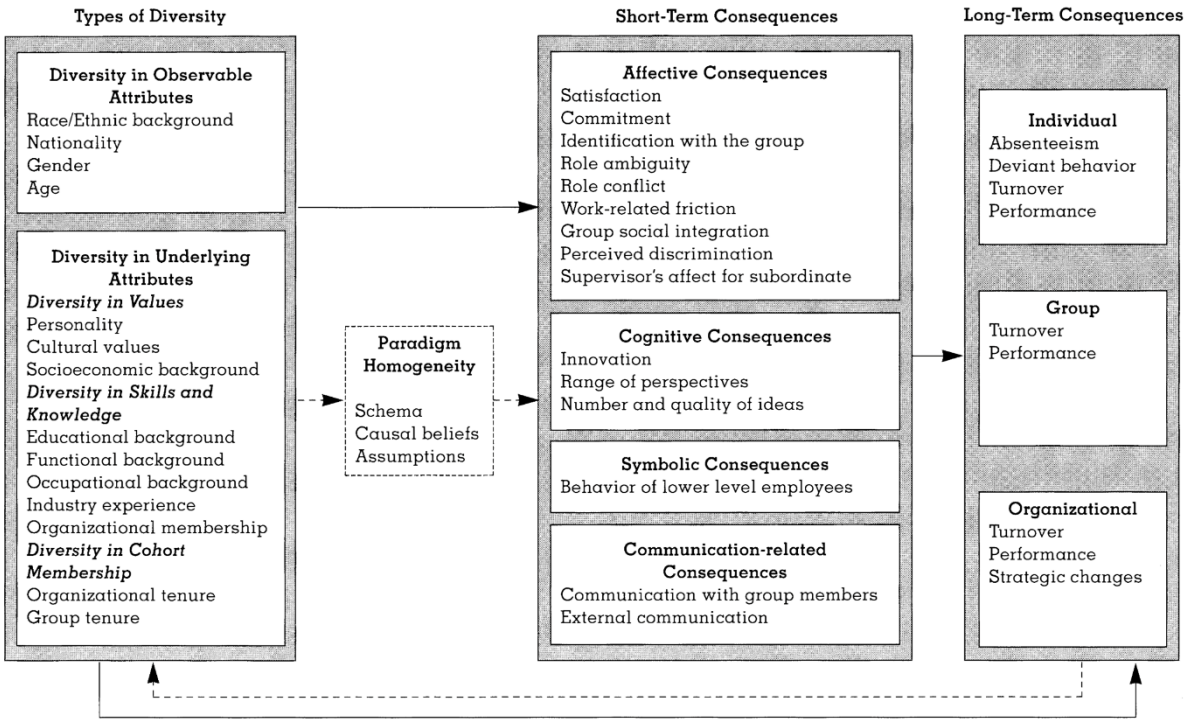

FIGURE 4 OBSERVABLES AND NON-OBSERVABLES DIVERSITY AND LONG- AND SHORT-TERM EFFECTS ON ORGANISATION (MILLIKEN & MARTINS, 1996, P.418)

While attributes are intrinsic characteristics of people, objects, or events, a relationship is the linkage between units of observation, be they objects, events, or people. Demographic characteristics are clearly an example where both direct attributes, such as individuals' gender or age, and relationship on an attribute between

[8] "The presumed similarity in attitudes or then influences the individual's attraction toward the other individual(s). Consequences of low attraction include less communication, low social integration …" (Tsui, Egan, O'Reilly III, 1991, p.183).

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two or more individuals are important for understanding social interactions and outcomes. (Tsui, Egan, O'Reilly III, 1991, p.183). In other words, the concept of diversity more accurately represents "*the varied perspectives and approaches to work that members of different identity groups bring*" (Thomas & Ely, 1996, p. 80).

In an effort to organize thinking about different types of diversity, several researchers (Cummings, Zhou, & Oldham, 1993; Jackson, 1992; Jackson, May, & Whitney, 1995; Maznevski, 1994; Tsui, Egan, & O'Reilly III, 1992; Pelled, 1996; Harrison et al. 1998; Harrison et al. 2002) have suggested ways of categorizing different types of diversity [9]. One common distinction is between diversity on "observable" demographic characteristics or "readily detectable attributes" or "surface level diversity" such as race or ethnic background, age, school years, or gender[10], and diversity with respect to less "visible/observable" demographic characteristics or "underlying attributes" or "deep level diversity" such as education[11], technical abilities, functional background, tenure in the organization, or socioeconomic background, personality characteristics, cultural, cognitive, or values.[12]

One reason for differentiating between observable and non-observable types of diversity is that when differences between people are visible, they are particularly likely to evoke responses that are due directly to *biases, prejudices, or stereotypes*. We should note, though, that these two types of diversity are not mutually exclusive. For example, ethnic differences may be associated with differences on underlying attributes (e.g., socioeconomic status, education, values), but this is not necessarily true. There are many ways in which groups can be diverse with respect to underlying attributes or non-observable characteristics. One type of diversity on underlying attributes relates to differences in personality characteristics or values of the members of a group. Although not readily observable, these differences can create major differences in orientations toward issues and in preferred interaction styles. A type of diversity that is particularly relevant in organizational settings is diversity of skills or knowledge (e.g., educational background, functional background, occupational background, range of industry experience).

Scholar agree that diversity is complex and multi-layered, and it is a compositional construct that does not exist at the individual level of analysis. "Nevertheless, the individual level of analysis is included as an aspect of diversity because individual differences in various attributes, when present in a team, department, or organization, create diversity. That is, individual attributes reflect the *content of diversity*; by contrast, the configuration of attributes within a social unit reflects the *structure of diversity*." (Jackson, May and Whitney, 1995, p.217-218).

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[9] Pelled (1996) classified diversity into job-related human capital differences, and less job-related demographic characteristics.

[10] Nowadays many of these demographic characteristics are legally protected from discrimination in the industrialise country. Furthermore, scholars' increased attention to these characteristics could also be guided by legislation prohibiting discrimination in employment and imposing equal treatment without taking into account race, gender or old age. (Harrison et al., 1998)

[11] About school, scholars in this field discuss whether school is an observable or non-observable attribute. Our opinion is that the school is both. In the sense that the school years are observable, while the competences acquired at school are not observable. Having been enrolled in an academic or technical curriculum makes a difference in terms of competences.

[12] For example, research has shown underlying attributes such as education, functional background, organizational tenure, socioeconomic background, and personality to influence patterns of interaction between group members (Jackson, May, &Whitney, 1995; Tsui, Egan, & O'Reilly, 1992).

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1.6 The content of diversity

Observables, readily detectable or surface attributes can be quickly and consensually determined with only brief exposure to a target person. Generally, they are immutable. Readily detectable attributes that are task related include organizational and team tenure, department or unit membership, membership in task-relevant external networks, formal credentials, and educational level. Those labelled relations-oriented include sex, culture (race, ethnicity, national origin), age, membership in formal (religious or political) organizations, and physical features.

Diversity at observable level can be defined as “differences among group members in overt, biological characteristics that are typically reflected in physical features.” (Harrison et al, 1998, p.97). Such characteristics include age, sex, and race/ethnicity. These characteristics are generally immutable, almost immediately observable, and measurable in a simple and valid way (cf. Jackson et al., 1995; Milliken & Martins, 1996). Moreover, “Social consensus can usually be assumed for each of these demographic attributes (Jackson et al., 1993). That is, one's age (within some range), sex, and race/ethnicity are generally apparent to and agreed upon by observers.” (Harrison et al, 1998, p.97)

From the literature emerges, for variables such as age, sex, and race, that the effects of these attributes are inconsistent within and across studies, both have differed on whether or not relationships were detected, and on their direction. Other researchers have also noted this inconsistency, especially for the effects of race and sex dissimilarity (Pulakos et al., 1989). For example, Kochan et al. (2003) in a study of the relationships between race and gender diversity and business performance carried out in four large firms, report few positive or negative direct effects of diversity on performance were observed. Instead a number of different aspects of the organizational context and some group processes moderated diversity-performance relationships. Moreover, these attributes also suffer from the period effect due to the cultural and political context in which people live and linked to prejudices or stereotypes. For example, many researchers have studied sex differences in job attribute preferences. Konrad, et al, (2000), meta-analysed 242 samples collected from 321,672 men and boys and 316,842 women and girls in the United States between 1970 and 1998. Findings indicated significant ($p < .05$) sex differences on 33 of 40 job attribute preferences examined. The effect sizes were small. Of the 33 significant differences, 26 had average effect sizes of magnitude .20 or less. The directions of the differences were generally consistent with gender roles and stereotypes. Many job attributes became relatively more important to women and girls in the 1980s and 1990s compared with the 1970s, indicating that women's aspirations to obtain job attributes rose as gender barriers to opportunity declined. In other words, over time, many of these observable differences probably (hopefully) will disappear.

It is clear that, from the perspective of valuing diversity, most of the observable attributes are not useful, on the contrary, “theoretical perspectives from organizational behavior (Schneider, 1987), sociology (Allport, 1954; Amir, 1969; Berger, Rosenholtz, & Zelditch, 1980), and social psychology (Byrne, 1971; Newcomb, 1961) support the idea that group members base an initial superficial categorization of other group members on stereotypes and subsequently modify or replace those stereotypes with deeper-level knowledge of the psychological features of the other individuals.” (Harrison et al, 1998, p.98)

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Non-observables, underlying attributes or deep level diversity are more subject to construal and more mutable. Task-related underlying attributes include knowledge, skills, abilities (cognitive and physical), and experience. Relations-oriented underlying attributes include social status, attitudes, values, personality characteristics, behavioural style, and extra-team social ties.

"Heterogeneity at a deep level includes differences among members' attitudes, beliefs, and values. Information about these factors is communicated through verbal and nonverbal behaviour patterns and is only learned through extended, individualized interaction and information gathering. Jackson and colleagues conceptualized a similar form of diversity, termed diversity in underlying attributes, which included attitudes, values, knowledge, and skills. They noted that these aspects of individuals are more "subject to construal and more mutable" (Jackson et al., 1995; 217) than other aspects. Milliken and Martins (1996) made a similar statement.

… social psychological studies have reported that attitude similarity was one of the most important predictors of attraction and friendship (e.g., Antill, 1984; Byrne, 1971; McGrath, 1984; Newcomb, 1961). Similarity in attitudes can ease interpersonal interaction and increase rewards when relationships are viewed within an exchange theory framework (Thibaut & Kelley, 1959). Further, attitudinal similarity may facilitate communication; it may also reduce role conflict, because people have similar conceptualizations of their organizations and jobs, and it may reduce role ambiguity, because communication on the job increases (Tsui & O'Reilly, 1989)." (Harrison et al, 1998, p.98)

In summary, knowledge of attitudes, beliefs and the value of similarity between individuals forms the basis for continued attraction and affiliation. "Research generally supports the idea that initial categorizations are accompanied by perceptions of similarity or dissimilarity that are based on surface-level demographic data; these perceptions change when deep-level information is obtained." (Harrison et al, 1998, 98) For example, Byrne and Wong (1962) found that subjects initially perceived greater attitudinal dissimilarity between themselves and a stranger of another race. When more details were provided about the stranger's attitudes, perceptions of attitudinal dissimilarity decreased and interpersonal attraction to the stranger increased. In another paper Kramer & Ben-Ner (2015) examine the mechanisms by which decisions about others are affected by the information known about them. They find that when presented with surface-level attributes of a target person, subjects demonstrated discriminatory behaviours based on race and sex. However, when subjects were presented with surface-level attributes along with deep-level attributes about a target person, subjects made decisions based on deep-level attribute similarities and disregarded surface-level information. Tsui and colleagues (1992) affirm that: "The conceptual foundation for almost all the research on organizational demography has been the similarity attraction-paradigm (Byrne, 1971). The similarity-attraction hypothesis maintains that similarity in attitudes is a major source of attraction between individuals. A variety of physical, social, and status traits can be used as the basis for inferring similarity in attitudes, beliefs, or personality" (1992: 551).

Also, time play an important role in the diversity process. The researchers noted that over time, as people acquire more information, their perceptions are based more on observed behaviours and less on stereotypes driven by demographic characteristics. (Jackson, May and Whitney, 1995). Evidence from the sociological literature also supports the differential contributions of observable and non-observable attributes over time. Milliken and Martins suggested that "negative affective outcomes

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of diversity in observable attributes appear to decrease with the amount of time that the group stays together" (1996: 415-416)

Moreover, if time play an important role in the process, Harrison et al, (1998), noticed that “the fundamental medium is information.” (p.104). Demographic factors are often a poor surrogate for the deeper level information people need to make accurate judgments about similarity of attitudes among group members. “Time merely allows more information to be conveyed. Indeed, it might be more appropriate to think of the richness of interactions as the conduit for information exchange. That is, time provides the opportunity to acquire interpersonal information; the amount of information acquired is a function of the length of shared experience for group members, the breadth of group activities, the depth of task interdependence, and other factors. These exchanges allow group members to learn deeper-level information about their psychological similarity to or dissimilarity from their co-workers, where before they would have used surface-level demographic data as information proxies. As previously mentioned, work in sociology also supports this contention, by demonstrating that beneficial consequences of contact among members of overtly dissimilar groups are most likely to occur under conditions of equal status and cooperative contact (Ellison & Powers, 1994; Sigelman & Welch, 1993). Interpersonal interactions under these conditions should allow for more accurate, less stereotypical exchanges as group members get to know one another over time.

Had previous research compared the relative contributions of surface- and deep-level variables, their findings may have been more consistent with those reported in this study, given similar opportunities for rich interactions among group members. Watson, Kumar, and Michaelsen's (1993) study of interaction processes and group performance within culturally diverse or homogenous (in race/ethnicity) teams provides some converging support for this idea. Initially, homogenous groups interacted and performed more effectively than heterogeneous groups. Over time, however, interaction processes and performance for both groups improved, with more rapid improvements occurring in the diverse groups. At the end of the study, the diverse groups had grown more effective in identifying problems and generating solutions than their homogenous counterparts.” (Harrison et al, 1998, 104).

1.7 Integroup BIAS and WENET

Related to the notion of diversity is the one of intergroup bias. Intergroup bias, a pervasive and arguably universal phenomenon within and across many cultures (Sidanius and Pratto, 1999), stems from processes associated with prejudice and stereotyping. Prejudice reflects a general negative evaluation of a group, whereas stereotyping reflects the association of specific traits to a group. Prejudice and stereotypes often lead to discrimination, which is the unjustified group- based difference in behaviour that gives one group an advantage over others. Perhaps intergroup bias is a pervasive phenomenon because there are several normal processes that allow people to navigate a complex environment that predispose them to developing intergroup prejudices. For example, the ability to sort people, spontaneously and with minimum effort and awareness, into meaningful categories is a universal facet of human perception essential for efficient functioning (Bodenhausen, Todd, and Becker, 2007). Given the importance of the self in social perception, social categorization further involves a basic distinction between the group containing the self (in-group) and other groups (out-groups)—or between the “we’s” and the “they’s” (Turner et al., 1987). The recognition of different group member- ships shapes social perception, affect, cognition, and behaviour in ways that systematically produce inter-

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group biases (Gaertner and Dovidio, 2000). If, when, and how bias is manifested, however, depends upon cultural norms, individual motivation, the historical relations between groups, and the immediate circumstances (Crandall and Eshleman, 2003). In societies that place high value on egalitarianism, going as far as establishing laws to promote equality, intergroup biases often take the form of subtle, rather than blatant, prejudice (Gaertner and Dovidio, 1986).

The discrepancy between the ideal of egalitarianism and the psychological forces that promote racial bias has been posited as a critical factor leading to the development of subtle forms of racial bias. Whereas the traditional form of racial bias represented the overt expression of dislike and hostility, as well as the endorsement of negative cultural stereotypes, contemporary forms of racial bias involve more complex dynamics and typically more subtle expressions of bias.

This analysis of the psychological complexity of intergroup bias offers valuable insights into understanding the dynamics of interracial contact. Historically, appropriately structured intergroup contact has represented psychology's main remedy for reducing prejudice. Allport (1954) proposed that mere, or superficial, contact with out-group members would not necessarily reduce intergroup bias but instead may reinforce stereotypes and initial suspicion. He argued that contact with out-group members improves intergroup attitudes under the right conditions: specifically, when (a) there is equal status between the group members in the particular contact situation, (b) group members have common goals, (c) there is a high level of interdependence and cooperation among group members, and (d) contact is encouraged and supported by authorities, customs, and laws.

Research on intergroup contact played a large role in the 1954 Supreme Court school desegregation decision in *Brown v. Board of Education*. In the psychological briefs referring to relations between Whites and African Americans, researchers argued that, "Segregation leads to a blockage in the communication and interaction between the two groups. Such blockages tend to increase mutual suspicion, distrust, and hostility" (*Brown v. Board of Education*, as cited in Martin, 1998, p. 145). The ruling made in the *Brown v. Board of Education* court case would pave the way for Allport's (1954) conditions to be implemented in the United States educational system. Since then, an extensive body of research has been conducted on how intergroup contact is an antidote for reducing intergroup bias, and a meta-analysis of 515 studies revealed that intergroup contact is associated with lower levels of intergroup bias across many types of target groups (e.g., racial and ethnic groups, heterosexuals and gays and lesbians, elderly and young adults, disabled and nondisabled) (Pettigrew and Tropp, 2006).

Despite the generally impressive support for contact theory that has accumulated over the years, recent work has also identified an important qualifying factor: majority and minority group members respond to intergroup contact in different ways. Specifically, the relationship between contact and more favourable intergroup attitudes is weaker for ethnic minorities than for Whites (Tropp and Pettigrew, 2005). In fact, some research has shown that African Americans who have had greater contact with Whites tend to have more negative attitudes toward Whites, largely due to their perceptions of Whites' level of bias toward African Americans (Livingston, 2002). Given this difference, it is essential for policy makers to take into consideration that solutions that work well for one group may be less effective for others. Thus, understanding the causes of the

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different reactions of Whites and racial minorities can critically inform the development of social policies.

Much of the work on contact theory has focused on the conditions under which contact occurs (e.g., equal status for participants). We suggest that, in addition, it is important to understand how the complexity of contemporary intergroup bias can influence the affective, cognitive, and behavioural outcomes during interactions. The distinction between explicit and implicit racial attitude, as noted previously, shows how Whites and minorities may have divergent experiences during interracial interactions. For example, Dovidio, Kawakami, and Gaertner (2002) found that Whites who explicitly reported that they had more negative racial attitudes behaved in a less verbally friendly way toward an African American compared to a White partner. However, it was Whites' implicit racial attitudes that predicted how biased their less controllable, nonverbal behaviours were. In other words, Whites tended to send mixed messages to their African American partners that were composed of positive verbal, but negative nonverbal, behaviours. Interestingly, however, African Americans formed their impressions of their White partners' friendliness from those partners' nonverbal behaviours, which were largely negative, causing African Americans to have an unfavourable impression of their White partner.

1.8 Behavioural intervention to promote diversity

We identify two such approaches rooted in the fundamental importance of social categorization in social relations. As we explained earlier, merely categorizing people into racial groups can breed negative feelings toward the out-group and foster in-group favouritism. Thus, policies and interventions might focus on changing the ways roommates from different racial/ethnic groups categorize each other. Specifically, one focus of policies and interventions might be to encourage *decategorization*, that is, reducing reliance on racial group membership in social perception by emphasizing the unique qualities of different people and promoting personalized interactions through self-disclosure. Policy initiatives, for example, can be designed to create opportunities for roommates to get to know one another and become friends *prior* to living together.

Research has shown that reciprocal personal self-disclosure and working together on shared leisure activities is a way to increase friendship and intimacy (Reis and Shaver, 1988). Building upon this idea, Aron et al. (1997) developed a "fast friend" paradigm in which pairs of individuals answer a series of questions that becoming increasingly more personal and also engage in relationship building tasks (e.g., play a game) together. Remarkably, pairs who engage in this fast friend task feel closer and more connected to one another than pairs who simply engage in small talk. Recently, this task has been used to reduce racial prejudice and create closeness among out-group members. For example, this paradigm was successful in building trust and admiration between police officers and Black community members (Aron et al., 2007). Moreover, Page-Gould, Mendoza-Denton, and Tropp (2008) had mixed-race and same-race strangers engage in the fast friend task but adapted it to occur across three days. After participating in the task, participants completed a daily diary for ten consecutive days to assess the number of interracial interactions they initiated during that time and the amount of conflict they experienced during those interactions. The results revealed that individuals' feelings of how close they felt to their out-group partner increased significantly across the fast friend sessions and ultimately reduced the stress individuals experienced, as measured by self-report and physiological (i.e., cortisol)

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measures. Moreover, the fast friend manipulation influenced the quantity and quality of individuals' interracial interactions in general, particularly for the individuals for whom these interactions were the most stressful. Specifically, highly prejudiced Whites who had made a cross-group friend initiated more interracial interactions during the follow-up ten days. Moreover, ethnic minorities who tended to believe that Whites would reject them on their basis of race had fewer interracial interactions that involved conflict during the post-ten-day diary period when they had made a cross-group, compared with a same- race, friend through the fast friend paradigm. Based on these studies, we recommend that the fast friend procedure be implemented during first-year orientation among all roommates, but especially among mixed-race roommate pairs.

Another approach would be to foster recategorization, replacing the focus on separate racial group identities with a salient common group identity. According to the Common Ingroup Identity Model (Gaertner and Dovidio, 2000), when members of different groups recategorize themselves into a single superordinate group instead of perceiving one another as "we's" versus "them's" attitudes and behaviours toward the former out-group members become more positive. In this case, if White and ethnic minorities focus on their common group membership as students of their universities (e.g., Princeton students) instead of as Whites and Blacks, then the dynamics of their daily interactions are likely to become more positive. As we reported earlier, West et al. (2009) found that when roommates from different racial/ethnic groups had a strong perception of common university identity across group lines, they established and maintained high levels of friendship over their first month on campus. Common group identity can be achieved through activities that repeatedly emphasize existing shared memberships (e.g., the same university or residence) or through cooperative activities (e.g., having roommates cooperate to achieve a number of goals during first-year orientation). Moreover, once a common identity is established, roommates are likely to engage in the reciprocal behaviours (e.g., mutual helping and disclosure) that can create a behavioural foundation for a positive relationship and ultimately produce more personalized interactions over time. Thus, recategorization and decategorization can operate in complementary ways as roommate relationships develop. In addition, because friendship with a member of another group is one of the most potent forms of intergroup contact, these positive roommate relationships can have cascading effects by improving intergroup attitudes more generally (Pettigrew, 1997).

1.9 Nudging and libertarian paternalism

In economics and in a large part of the social sciences it is customary to think of observable phenomena, such as pollution or unemployment, as aggregations of individual decisions. From this approach immediately raises two fundamental questions: do we have a good theory to explain human behaviour? Is this theory capable of formulating precise indications for public policies? The answer to both is far from trivial and a careful examination of the empirical evidence can demonstrate how in the past theories based on the rationality of the individual and on the apparent reasonableness of some choices have proven to be wrong and have inspired poorly effective policies. For example, it is common opinion that having more information helps to choose better. However it has been observed, for example in the telecommunications sector, a substantial part of consumers, faced with many possibilities and options, end up not choosing, accepting the default options, not

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changing suppliers, as if they literally went into overload (see Lunn 2014 and 2015); in a report by the competent authority data are reported that in the United Kingdom the rate of passage from one supplier to another in the telecommunications and energy sector is much lower than the expectations of the economic theory that inspired the liberalizations (see OFGEM 2012). Another widespread opinion tells us that if we buy something it is because we like it or need it. In reality, when we arrive in a cafeteria with the idea of taking a tea and eating a fruit, we instead opt for a chocolate and a donut if these are more clearly displayed, or we eat more if the food is served to us. in larger containers (see Wansink 2013 and Wansink and Cheney 2005).

A broad experimental evidence therefore seems to indicate that in various areas of our actions we are unconsciously victims of cognitive distortions, because we make decisions relying excessively on our sensations and emotions. Faced with this awareness, rather than throwing in the towel and giving up any regulatory policy, efforts have been made to identify recurrent patterns that can systematize the irrationality of human action.
Today there is a growing interest in the possibility of acting on this "predictable irrationality" (Ariely 2009) to make public policies more effective, directing citizens through "small nibs", i.e. exposing them to more or less implicit stimuli through particular contextual measures, rather than operating through heavier legislation. Although this trend has proved useful in some cases, it leaves a number of questions open.

Today Governments are increasingly using the theory of the two systems to make public policies more effective. The pioneers of this approach were the American scholars Richard Thaler and Cass R. Sunstein, who in 2009 published the book Nudge - which in English means "push" - a real editorial success (Thaler and Sunstein 2009). It is a perspective of public policy analysis based on two cardinal principles: the rejection of the axioms of the rational decision theory, because they are poorly predictive, in favour of a behavioural theory, that is based on the empirical evidence of human conduct; the idea that human irrationality systematically depends on small contextual measures (such as an image on the pack of cigarettes), which can be modified to promote better regulatory choices, without changing the constraints available to those who choose. The latter approach is called "**libertarian paternalism**". Libertarian paternalism is an instrumental theory, which seeks the most effective policy solutions starting from a positive theory, called behavioural economics (or BE, from the English acronym of the terms Behavioural Economics), which aims to describe how people actually choose. There is no simple and unambiguous definition of BE, which can be framed as the adoption of a psychological perspective in the study of economic phenomena. It also borrows from experimental psychology a scientific inductive method which, instead of testing hypotheses derived from normative and axiomatic models, derives principles and behavioural models from repeated observations and experiments.
BE's research program was born in close dialogue and as a critique of rational decision theory. In the model of rational choice, the behaviour of agents can be represented as a maximization of a target under certain restrictions (as if individuals were calculators). In reality no one thinks that the process is truly that, it is only a representation (technically a rationalization, that is, it models itself "as if" it was the result of a rational decision procedure), which is mathematically precise when people make choices with - form to certain axioms. Uncertainty matters, but the theoretical building does not

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change people have their ideas a priori on uncertain events and update them as they acquire new information. The theory of rational choice has the advantage of being able to be easily tested, testing its validity in even very simple contexts. For example, experiments can be organized by simulating real situations and seeing how ordinary people choose.
On the basis of these experiments, the behavioural sciences have shaken the building of the theory of rational choice from the foundations showing that: a) human behaviour is highly dependent on the context, i.e. it is a function of both the person and the situation (Barr, Mullainathan and Shafir 2013); b) there is no given order of preferences, but these are socially constructed and can be influenced by norms and peers (social influence; cf Slovic 1995); c) the distortion in favour of the present cause an intertemporal inconsistency of preferences (that is, there is a tendency to have problems of self-control, for example long-term savings plans are made, but then they are not respected because at the right moment the temptations to consume are too strong; cf Loewenstein and Prelec 1992); d) actions and decisions are often determined in a non-trivial way by emotions (see Loewenstein and Lerner 2003; Rick and Loewenstein 2008).
Starting from these assumptions, libertarian paternalism aims to leverage heuristics and distortions to modify the architecture of choices in order to "improve" them. Changing the default options, for example by introducing the silent assent for organ donation, in order to increase the number of organs available to save lives, is a classic case of nudge, a "push" that exploits System 1 without, in principle, reducing freedom of choice. We will return to this approach later when discussing the potential operating mode of the WENET platform.
For the moment, we define the choice architecture of WENET in terms of suggesting social ties between individuals based on non-observable traits, in order to promote diversity between individuals that might be different from the point of view of observable ones.

1.10 The Structure of Diversity

Both observable and not observable attributes contribute to the total diversity present in a community/group/team. While surface and deep level attributes do describe the dimensions of diversity in terms of content, it is equally important to consider the structure of diversity. Terms for referring to the structure of diversity differ across levels of analysis, from interpersonal (dis)similarity to community composition.

1.10.1 Interpersonal (Dis)similarity

Similarity is a relational construct that compares the attributes of two entities. In a social system, the two entities compared can be individuals, subgroups within a community, whole community, or some combination of these. Here the focus is mostly on the degree to which an individual and some second entity differ in terms of various attributes (hence the term interpersonal (dis)similarity). Most extant research addresses dissimilarity between two individuals. Relational demography also refers to interpersonal dissimilarity (Tsui & O'Reilly, 1989, and Tsui, Egan, & O'Reilly, 1992). Nevertheless, each unique component of interpersonal similarity has the potential to explain some of the dynamics within diversity community.

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1.10.2 Community Composition

At the community level of analysis, numerous configurations of attributes are possible, and so several terms are needed to refer to the structure of diversity. In the psychological literature, composition is an umbrella term for referring to configurations of attributes within small groups (Levine &Moreland, 1990), and we adopt this terminology here.

One of the most frequently studied aspects of composition is team heterogeneity, which refers to the degree to which members of a team as a whole are similar (homogeneous) or dissimilar (heterogeneous) with respect to individual-level attributes.

Along the continuum of homogeneity-heterogeneity, a few configurations of attributes have attracted special attention. One such configuration is the presence of a demographic "token" or "solo" member (see Kanter, 1977). This configuration exists when a nearly homogeneous team includes a single dissimilar member (a lone male on a team of females; a lone accountant on a team of sales personnel).

Two other psychologically distinct configurations are the presence of a small minority faction (two members who are similar to each other but distinctly different from the other members of a team) and a bipolar team composition, with two equal-size coalitions (a team composed of 50 percent employees from headquarters and 50 percent employees from a subsidiary). Such configurations and be particularly influential in affecting team dynamics (see Kerr, 1992).

1.10.3 Empirical Evidence Linking Diversity

The research conducted to date leaves open the possibility that composition influences the solutions that teams produce in more complex ways. As stated Milliken & Martins (1996), although we generally tend to think of diversity in terms of differences on observable or readily detectable variables such as race, ethnic background, and gender, one of the major reasons why diversity of any type creates difficulty for groups is attributable to complex, and often implicit, differences in perspectives, assumptions, and causal beliefs with which the more superficial or observable differences are correlated. For example, if team members are so heterogeneous that there is no basis for similarity, then they may be unable to work together; taking advantage of task-related heterogeneity may require team members to have some degree of similarity. In the same way, if a group is diverse could be expected to have members who may have had significantly different experiences and, therefore, significantly different perspectives on key issues or problems (Jackson et al., 1991). However, underlying differences in the schemas, or the conscious and unconscious preconceptions and beliefs that organize people's thinking can create serious coordination difficulties for groups. (Milliken, Martins, 1996).

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2 DIVERSITY IN THE WENET CONTEXT

As stated at the beginning of this deliverable, WeNet's goal is to harness the diversity of the community to improve the "well-being" of its members. Diversity as defined here is not a property of the individual, it does not exist within individuals, but exists only between the social units of individuals when two or more individuals enter into interaction. In other words, diversity is a relational construct. However, the individual is included as an aspect of diversity because individual differences in various attributes, when present in a community, create diversity.

Therefore, diversity as a relationship exists only if two or more people are considered together. It is not an intrinsic characteristic of both sides taken in isolation but is an emerging property of the connection. Furthermore, diversity is context-specific (Joshi, Roh, 2009) and changes or disappears when an actor, or one of its attributes, is removed from the interaction with other actors. For example, in a community of students, or in the interaction between two students, being a student is not a trait of diversity, because, on the contrary, being a student could be the trait necessary to be a member of that community, or the attribute that activates the interaction between the two students. At the same time, a diversity attribute can be a sign of identity within the group and a sign of diversity between groups. For example, football supporters, where the football faith plays the role of distinction within the group and outside the group. In summary, knowledge of attitudes, beliefs and the value of similarity between individuals forms the basis for continued attraction and affiliation.

While diversity is a relational construct, diversity, as such, plays different roles, and changes over time, in the process of interaction. Research generally supports the idea that demographic attributes such as gender, race, age, occupation, education, or authority level are information that individuals use to infer one's similarity to others. Moreover, these initial categorizations due to the perceptions of similarity or dissimilarity, that are based on surface-level demographic data, change during the interaction when deep-level information is obtained on such things as attitudes or beliefs, etc.

The relevance of the distinction between surface- and deep-level diversity plays an important role in understanding diversity and its use. On the one hand, the distinction marks a boundary between observable attributes such as demographic characteristics (e.g. gender, age, ethnicity, etc.) or physical characteristics (e.g. skin colour, disability, etc.) and non-observable attributes. The latter, in turn, can be classified into: (a) task-related underlying attributes that include knowledge, skills, abilities (cognitive and physical), and experience; and, (b) relations-oriented underlying attributes that include social status, attitudes, values, personality characteristics, behavioural style, and extra-team social ties. In other words, the observable characteristics are particularly susceptible to evoke responses that are directly due to bias, prejudices or stereotypes, and therefore, they are not useful in a context of valuing diversity because they introduce an ethical problem especially when these characteristics can be used as a selection basis for starting an interaction. For example: *I'm looking for an Italian male student to study mathematics.* Why an Italian man? Why this request? Because it is demonstrated that the male Italian student knows math better or because it is the stereotype of women who do not know math that produced this request?

On the other hand, the distinction marks more clearly which are the diversity that can be leveraged into the WeNet Project and the diversity that are not so useful. With

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a view to enabling a sociotechnical system that allows people to connect in order to achieve their daily life goals while respecting their differences and embodying fundamental characteristics of transparency, fairness and responsibility must be able to respond to the needs expressed. And in order to be able to respond to the needs expressed, the only way is for the respondent to be competent in that particular area. Therefore, except in very rare cases, only the non-observable attributes that can help to identify who, more than others, has the best characteristics (competence) to respond to the needs expressed, and certainly not the socio-demographic characteristics. If I'm looking for a good restaurant, I expect to be answered by someone who knows the area, loves good food and goes to restaurants, better if s/he shares my taste, no matter if it's a man or a woman or black or white.

A third element in support of this distinction is that only deep level diversity can be treated as a resource and can therefore be leveraged for our goals. Indeed, non-observable diversity is an intangible resource, just as much as corporate image, trademarks and patents, and other intellectual property existing in the abstract. Like all resources, deep level diversity, too, can be: (1) Scarce and its availability determines its social and economic value; (2) Transferable, in the sense that a resource can be physically or virtually moved from one subject to another: such as money or a specific competence; (3) Controllable in the sense that it is possible to control its access, for example, access to university requires having acquired a secondary school diploma; (4) Finished or zero sum and therefore can be shared or subtracted. Shared is when two or more people can benefit from the good or service at the same time without reducing the amount available to others. Knowledge can be shared without reducing the amount available to others. The opposite is subtractive when one person consumes a good for a particular purpose, with the result that another person cannot use the same good. For example, the attempt of the leading universities to acquire the best students or professors so that they can maintain or increase their prestige in relation to other universities.

In summary, as Figure 5 shows, diversity is a property of the system or aggregate, i.e. of the company, the company, the team, the group, the community, the couple.

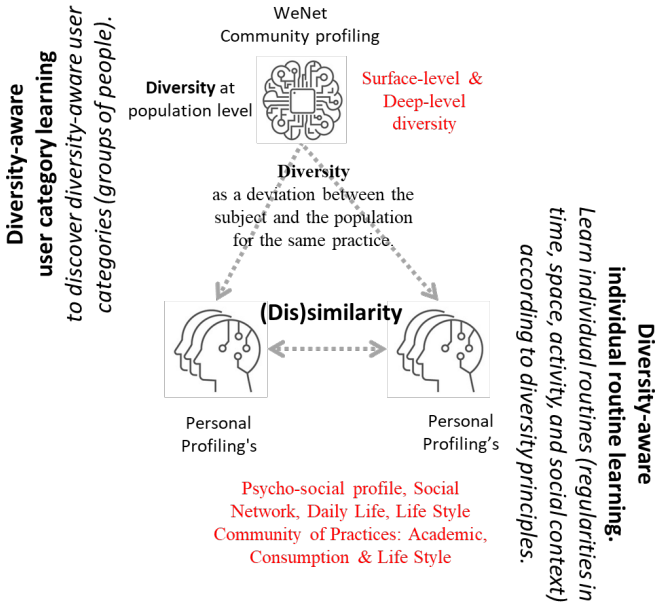

FIGURE 5 A PRELIMINARY MODEL OF DIVERSITY

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On an individual level we can observe and collect information on the attributes of the subject. However, only when this information is compared with the attributes of other subjects and then we move on to the group level, we can begin to observe diversity, in terms of heterogeneity between groups of subjects. And at the end, in the backwards path from the top (the group) to the subject we can finally find that (dis)similarity between the subjects that we can use for our WeNet project.

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3 MODELLING DIVERSITY USING SOCIAL PRACTICES

While diversity takes place at the group level, there is a second type of diversity that we can recognize at the individual level. This second is not recognized by comparing two or more subjects but emerges by observing how the subject organizes his/her life in time, every day. This second level pertain both at how the subject schedule his/her daily activities (e.g. waking up, having a shower, breakfast, taking the car-bus-train, going to work, beginning work, lunch, resuming work, coming back home, then housework and family/child care, relaxation, dinner, and at the end of the day, before they go to sleep, some leisure activity. These routines may change on weekdays and weekends or change according to external and contextual factors day by day. On the other hand, a second level of diversity is related to the way each of these activities is carried out. For example, eating or cooking changes according to the skills, tastes and preferences of the day, lifestyle, opportunities, etc. In turn, both these internal individual levels of diversity can be compared at group level, giving place to a third level of diversity depending on how groups of people organise their lives and how they perform each individual task.

Now, the problem is how we can operationalize these different forms of diversity at different levels in a computational model. On the one hand, our unit of observation is the individual, his/her social and demographic attributes, his/her behaviours, beliefs, abilities, etc., on the other hand we can "observe" the variability only at group level among social units, understood both as surface and deep level diversity. Moreover, we have diversity within the subject, when we compare his/her present with his/her past, how he/she behaves today compared to yesterday, or during the day, the week, etc., and at the same time the same behaviour can be followed or not by the other subjects, generating a new level of diversity linked to the behaviour of groups of people. What appears, at first sight, is that we have to manage different sources of diversity with different meanings at different levels. As said before, diversity is complex and multi-layered and is a compositional construct. We think that in order to capture and model diversity the only way is to move from a representation of diversity as a constellation of individual social units to a holistic perspective, where the person and not his individual attributes are treated as a whole. In other words, to move from a variable-centered to a person-centered approach. [for more details see the deliverable D1.1, § 1.4].

In the common sense, diversity is the distinctive feature of life: there will never be two identical moments, two identical places or two identical individuals. However, if this is theoretically true, it is not so on reality. In other words, there are underlying generative mechanisms that govern the formation of the life cycles of individuals and groups, which ultimately allow us to discover that the world is less strange, bizarre and complex than we really believe.
“For example, consider the following eight conditions of labour market participation: self-employment; pseudo-self-employ; training; fixed contract employment; fully protected employment; employment without a contract; unemployment; not in the labour force. Nothing prevents these eight conditions from combining freely in time. If 60 months (five years) are considered, the number of the possible orders that a working career could assume is around 15 followed by 53 zeros. In other words, if for every

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second that passes the actual world population of 6,7 billion people was entirely replaced by as many people, and every single person followed an order different from all those that had preceded, and within this one second there unfolded a 60-month-long sequence, then completing the entire number of possible sequences would require a number of years equal to 72 followed by 35 zeros; around 5282594473035855334478995 51 times the actual age of the universe. Moreover, but with a probability of $4*10^{-108}$, there is no possibility of observing two people with the same working career.
Is this impressive? Absolutely not! We are considering only the possible combinations that eight conditions can assume in a brief timespan of 60 months and not in the subject's entire lifetime, where other events (educational, familial, etc.) enter in action and in combination with the job, producing a very large number of combinations.
This is obviously if the system were without constraints and the elements that compose it could randomly combine with each other. However, this is not the case. The number of possible combinations is much smaller. An individual cannot change jobs every day, cannot get married and divorced every month, cannot have more than a certain number of children, cannot have more than a certain number of friendly relationships.
If this were not true, if indeed all the possible elements that make up social reality could freely combine with each other, without any constraints, without any rules, we would have perhaps neither a social system nor a social structure. We would have a set of monad-individuals for whom the knowledge accumulated in interaction with one subject would not be of help in understanding another subject. We would recognize nobody, and nobody could recognize in us. Biological, physiological, environmental, social, and cultural bonds drastically reduce the number of possible combinations with which social reality manifests itself.
[…]
Like physical reality, also social reality admits to only a certain number of possible combinations among elements. These in their turn do not give rise to an endless and random number of orders but to a finite number of coherent possible patterns or sequences [of diversity] in which we can recognize similarity and regularity; and in which we can seek the underlying generative mechanisms, constraints and constants that regulate the formation of the life histories of individuals and the groups." (Bison, 2011, p.423)

People, during their lives, continue to learn not only skills, abilities, knowledge, but above all they learn to adapt to the social context in which they live through a continuous process of socialization. In other words, socialization is the process whereby the helpless human infant gradually becomes a self-'aware, knowledgeable person, skilled in the ways of the culture into which he or she was born. During the course of socialization, especially in the early years of life, children learn the ways of their elders, thereby perpetuating their values, norms and social practices. "As Connell has argued: 'Agencies of socialization' cannot produce mechanical effects in a growing person. What they do is invite the child to participate in social practice on given terms. The invitation may be, and often is, coercive - accompanied by heavy pressure to accept and no mention of an alternative …" (Connell, 1987, cited in Giddens & Griffiths, 2006, p.460).
In this process, subjects learn not only social practices, but also how to differentiate themselves with social practices.

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For a very preliminary definition[13] of what are social practices, we can say that "Social practices are routine behaviour like going to work, cooking and showering which integrate different kinds of elements, such as bodily activities, material artefacts, skills and associated meaning." (Holtz, 2013). Likewise, a practice represents a pattern which can be filled out by a multitude of single and often unique actions reproducing the practice (a certain way of consuming goods can be filled out by plenty of actual acts of consumption). A practice is thus a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described, and the world is understood. As Reckwitz, (2002) stated practices are routine behaviour that integrates different kinds of elements, such as bodily and mental activities, material artefacts, knowledge, meaning, skills, and so on.
In a computational social sciences perspective practice is a configuration of three components: material, meaning and competence. The elements are linked within but also across these components to form a 'block' of interconnected elements – the practice (Figure 5). (Shove and Pantzar 2005, Røpke 2009).

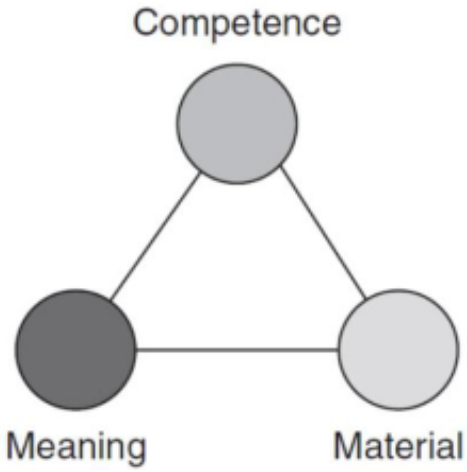

FIGURE 6 THE ELEMENTS OF PRACTICE

The Material covers all physical aspects of the performance of a practice, including the human body. Materials, encompassing objects, infrastructures, tools, hardware and the body itself.
The competence incorporates skills, know-how, background knowledge and knowledge as well as social and relational skill which are required to perform the practice. Competences are embodied in the individual and can neither (easily) be directly observed nor (easily) exchanged between individuals. Still they are social in the sense that they are shared by many individuals and may be reflected also in the wider social structure.
The meaning incorporates the issues which are considered to be relevant with respect to that material, i.e. the understandings, beliefs, value, norms, lifestyle and emotions. As mental activities, emotion and motivational knowledge into the one broad element

[13] For more details see the deliverable D1.1, §1.5

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of ‘meaning’, a term we use to represent the social and symbolic significance of participation at any one moment. The issues considered and the respective understandings, beliefs and emotions are socially shared and may be discussed and negotiated in communication of individuals. Example (Shove et al., 2012) are issues of relevance associated with the travel mode of going to work are for example: environmental effect, social status, lifestyle and flexibility. Someone going by bus regularly may associate it with being cheap, having time for reading, or enjoying the company of others.

Therefore, shift the focus of diversity from subject attribute to social practices and the subject practices can allow to move into a holistic perspective for several reason.
The first, a practice is a combination of competence and meaning that match perfectly with the deep-level diversity.
The second, there is a clear distinction between the practitioner (the subject) and the social practice (the community), and meanwhile both are one and the same thing. Social practices exist independently of the practitioner, they are codified at the social level. As Røpke (2009) stated, practice is a model of interconnected elements that are recognizable in time and space, while practice is reproduced by individuals and new individuals are recruited into practice.
The third, individuals are seen as "carriers of practices" and do not freely choose between practices based on utility or similar individualistic concepts but are "recruited" into practice based on their background and history (Reckwitz 2002). Somehow the distribution of some practices in the population follows the level of inequality of the social system. Of course, this diversity may be ethical or unethical, acceptable for one specific culture but not for another, but this is about the incidence of a practice in a population and how much this is related to surface diversity.
The fourth, over time the individual and the community can increase their diversity. The individual’s involvement in some practice for a certain amount of time leaves traces in the individual, such as acquired knowledge and skills and the accumulation of material artefacts. These “sediments” make it easier and more likely to become involved in some practices but not in others, i.e. the involvement in practices is path dependent (Røpke, 2009).
The fifth, diversity is socially recognized, and practices are social because they are similar for different people at different times and in different places. (Reckwitz, 2002).
The sixth, for the same configuration of deep-level diversity we expect to observe the same regularity at each interaction. Social practices therefore refer to regularity - models of how certain daily practices are typically and habitually performed in (a considerable part) of a society. Holtz, Georg (2013)
Diversity in a social practice perspective can allow us four main improvements.
The first is that the clear distinction between social practice at the community level and the human behaviour routine at the individual level allows us to relate the meso-level (the community/team etc.) with the micro level (the individuals).
The second, considering diversity not only in a specific observable or non-observable attribute, but as a combination of materiality, competence and meaning, allows us to expand the construct of diversity from a variable-centred perspective into a person-centred perspective and thus into a holistic view.

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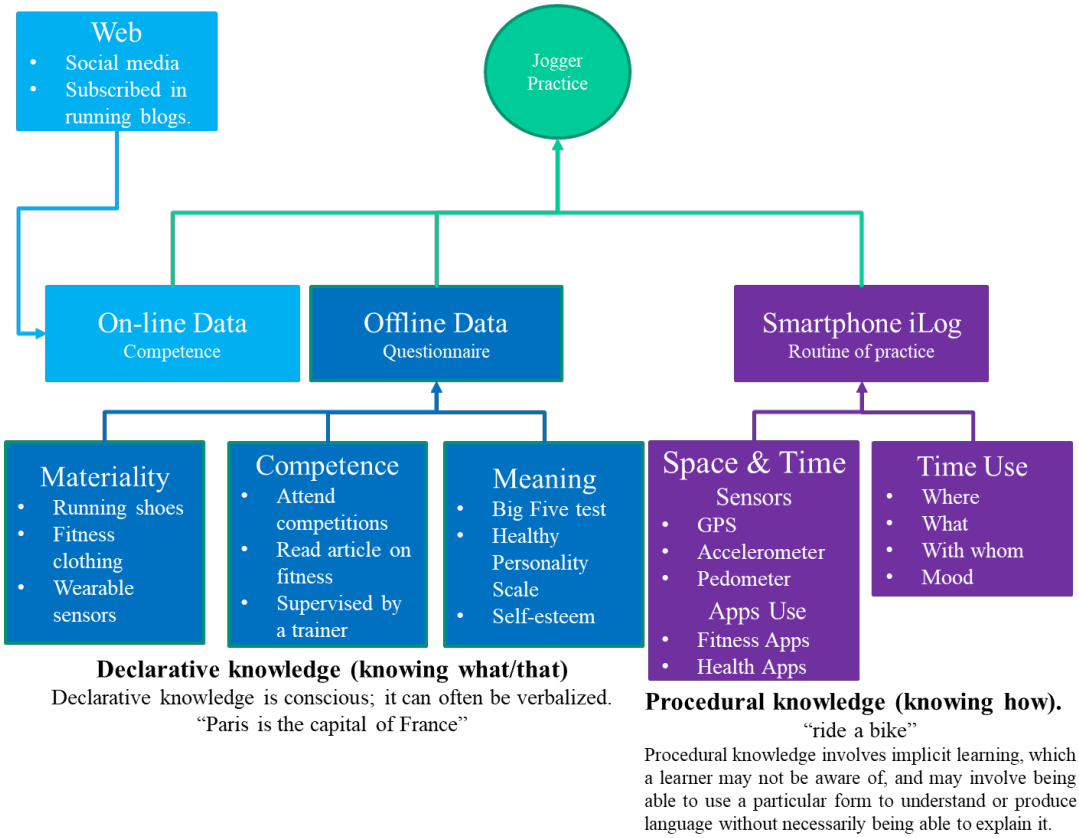

FIGURE 7 DATA COLLECTION ARCHITECTURE

Third, the approach of social practice gives us the possibility to develop both a methodology of data collection and a new way of analysing data in a relational perspective. As Figure 5 shows, we can develop a two-stage data collection. The first, mainly synchronous, usually through a standard closed-ended questionnaire. With this method we can collect self-declared general data on materiality, competence and meaning at individual level. This information, in turn, is added to the information of other subjects so as to compose the diversity archive at the community level. This data on an individual level can be increased in the future with data from activities on the internet, social media, etc. and also in the respondent's WeNet community. This additional information will help to improve the profile of the respondent, especially in the area of competences. The second, diachronic, using streaming data and a Time Diary, will allow us to observe the subject's daily routines.

By combining diachronic and synchronic data at individual level, we can observe the subject's practice in terms of behavioural routine and compare his routine with that of other subjects with the same practice.

The use of both these sources of information can allow us to increase the reliability of how much a declared practice is actually carried out. In fact, we can distinguish between declarative knowledge (knowing what) (e.g. the best shop to buy coffee is the 'TripleStar' shop), and procedural knowledge (knowing how) that involves implicit learning (e.g. weekly trips to the 'TripleStar' shop to buy coffee). This becomes very relevant when our goal is to connect people who are really able to solve the needs of others.

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The fourth major improvement in shaping diversity as a social practice is precisely when our goal is to take advantage of someone's diversity to meet the needs of those who require it. The first is to leverage the real expertise of the potential helper, based on a wide and precise set of information to find the best match. The second is to leverage only deep level diversity while minimizing the risk of surface diversity entering the selection process. This reduces all ethical implications.
In the next chapter we will go deeper into the potential of this use by developing some other examples, a semantic model and some preliminary evidence on real data from a survey conducted in Trento.

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4 MODELLING DIVERSITY: TESTING INSTRUMENTS AND PRE-PILOTS

In collaboration with the WP7 team, in order to capture diversity in a WeNet architecture, we have developed several synchronic and diachronic tools to administer to participants. Following the theoretical path described in §.1.1 these tools try to collect information that correspond to the distinction between surface and deep level diversity in a social practice perspective.

Here it is important to remember that the literature on social practices bases its empirical evidence mainly on qualitative data (e.g. in-depth interviews, observations, etc.), a tool that may be useful to represent phenomena, but useless to model and manage in a computer architecture that will use AI tools to connect people. So, the main need has been to develop tools that capture social practices in a quantitative way. Of course, the limit of the minor richness of information is supplemented by the high flexibility in terms of mixing different information to generate configurations of social practices both in a theoretical and computational way. On the other hand, due to this lack of quantitative approach, we have been forced to develop tools that will need to be accurately tested and analysed before they can be deployed. And this is exactly what we intend to do with the pre-pilot as soon as possible (University offices and GDPR permitting).

The data collection in the pre-pilot experiment (in this case the experiment is used instead of a more common and correct investigation term or case study to ensure the same terminology among the different WP teams) was divided into two phases. The first phase realizes a general map of the students' population, capturing the aspects of macro diversity. The second phase, a randomly selected group of students who responded to the first phase, is observed in depth by collecting data on their daily activities with both synchronic and diachronic tools.

There are three main reasons for planning these two phases. The first is that to start mapping diversity we need to investigate many different aspects of students' lives. To do this we need to administer a very long questionnaire. The problem with very long questionnaires is that there is a high risk that the respondent does not fill in the whole questionnaire due to the effects of the burden, with the consequence of collecting data of poor quality or worse to compromise the representativeness of the sample. The second is related to the need to have a large sample in the first phase in order to be able to make in-depth statistical tests on the validity and reliability of each single information collected at different levels of aggregation, or at different levels of segmentation (e.g. gender, age, department, university). The third phase is related to cost. The only way, coding also in the literature, to obtain reliable data at an in-depth level is to pay the participant. Therefore, in order to maximize the information collected and minimize the cost, the only way is to collect general information in a large sample (not paid), from which a sub-sample (paid) representative of the population is extracted (thus correcting any sample distortions among the participants in the first phase) in which to collect more in-depth information. This second group of participants, although smaller, will allow greater control over the results obtained, during the statistical analysis, as it will be possible to control both the population and the respondents. This, although with caution, will allow to better infer the results of the analysis on the population.

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4.1 MODELLING DIVERSITY: INSTRUMENTS FOR DATA COLLECTION

For our purposes we have developed three different tools. The first is a main questionnaire to be administered to the entire student population. The second is a second questionnaire that deepens some specific social practices (transport, food, physical activities) to be administered only to students participating in the second part of the survey. The third is a time diary to be administered with a smartphone App (I-Log) every 30 minutes for 2-4 weeks in order to observe "at the moment" the behaviour of the subject using both the streaming data of the sensors and the user.

The main questionnaire is organised in eight sections:

- Socio-Demographic section where are collected information mainly about surface-diversity characteristic of the student as gender, age, nationality, etc. plus a Parents Education Attainment & Work Activity section on the social origins about education, occupation condition and profession of both parents.

- University attendance section focus both on routine behaviour and on study competence

- Psycho-Social Profile section collect information on the psycho-social traits of the student using the international Big Five scale and the international Basic Human Value scale developed from Schwartz. The values theory defines ten broad values according to the motivation that underlies each of them. These values are likely to be universal because they are grounded in one or more of three universal requirements of human existence with which they help to cope. These requirements are: (1) needs of individuals as biological organisms; (2) requisites of coordinated social interaction, and, (3) survival and welfare needs of groups. In our perspective, Big Five and Basic Human Value are deputy to capture the general “Meaning” (one of the three components of practice) of social practices. Shalom H. Schwartz, 2006, Basic Human Values: An Overview, The Hebrew University of Jerusalem, Basic Human Values: Theory, Methods, and Applications. https://uranos.ch/research/references/Schwartz_2006/Schwartzpaper.pdf

- Social Relations with Peers/Classmates section cover two different aspects. With the Network size are measure the dimension of network of student but also a form of “materiality” related with the existence of social support. With the Network interest we collect information on interest but also on “Competence” of the student.

- Virtual Social Relations section cover the student activities on the virtual space. We focus on two main area of “Competence” Social Media type (materiality/competence) and Use content (competence).

- Association Activities section continue to investigate on the social relation into association. Here there are two main area: (1) Network size (materiality); and (2) Network activities (Competence)

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- Cultural Activities is the last section of the questionnaire and is one of the largest section where are inquired quite in deep many different dimension of Cultural Activities (materiality/competence) and Cultural consumptions (competence). This section is been adapted from a Eurostat/UNESCO questionnaire. ESSnet-CULTURE European Statistical System Network on Culture FINAL REPORT, 2012, European Commission, Eurostat (ESTAT), https://ec.europa.eu/assets/eac/culture/library/reports/ess-net-report_en.pdf

The second questionnaire only for the I-Log Participants is compose of six main section:

- Accommodation section where collected information on Tools owned (materiality) are and Social relations (Materiality/competence).
- University Attendance section focus on the social practices related with the University Routine activities
- Transport section focus on the social practices related with the mobility: Driving tools (materiality/competence) and Mobility (Meaning/competence)
- Sports and Physical Activities section focus on the social practices related with physical activities: Tools (materiality) and Sport Type & Routine (Meaning/competence)
- Cooking Habits section focus on the social practices related with food behaviour: Cooking activities (competence) and Diet (Meaning, Competence)
- Shopping Habits section focus on the social practices related with shopping: Shopping (materiality, competence, and meaning)

The latest tool developed to capture diversity in a social practice perspective is an App where self-reported data and sensor streaming data are collected for a few weeks. The time diary questionnaire is composed of four questions (Tab.1) administered every 30 minutes, except when the subject goes to sleep or to class or where the smartphone is not allowed.

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TABLE 1 TIME DIARIES ITEMS.

Tab 1. Time Diaries (every half an hour questions)

A3. What are you doing?		***A4. Where are you?***	***A5. With whom are you?***	***A6. What is your mood?***
Sleeping	Coffee break	Home Apartment	Alone	***1.***
Self-care	cigarette beer etc.	Room	Friend(s)	2.
Eating	Phone calling; in	Relatives Home	Relative(s)	3.
Study	chat WhatsApp	House (friends	Classmate(s)	4.
Lesson	Reading a book;	others)	Roommate(s)	5.
Social life	listening to music	Classroom /	Colleague(s)	
Watching	Movie Theatre	Laboratory	Partner	
YouTube Tv-	Concert Exhibit ...	Classroom / Study	Other	
shows etc.	Housework	hall		
Social media	Shopping	University Library		
(Facebook	Sport	Other university		
Instagram etc.)	Rest/nap	place		
Travelling (*go*	Hobbies	Canteen		
to A3a)	Work	Other Library		
		Gym		
A3a. How are you moving?		Shop supermarket		
By subway		…		
By car		Pizzeria pub bar		
By foot		restaurant		
By bike		Movie Theatre		
By bus		Museum …		
By train		Work place		
By motorbike		Other place		
Other		Outdoors		

All the sensors available on the smartphone are collected. In the table 2 the list and the frequencies (up to) of data collection.

TABLE 2 SENSORS DATA

No.	Stream	Frequency (up to)
1	Acceleration	20 times per secc
2	Linear Acceleration	20 times per sec.
3	Gyroscope	20 times per sec.
4	Gravity	20 times per sec.
5	Rotation Vector	20 times per sec.
6	Magnetic Field	20 times per sec.
7	Orientation	20 times per sec.
8	Temperature	20 times per sec.
9	Atmospheric Pressure	20 times per sec.
10	Humidity	20 times per sec.
11	Proximity	On change
12	Position	Once every min.
13	WIFI Network Connected to	On change
14	WIFI Networks Available	Once every min.
15	Bluetooth Connections	Once every min.
16	Bluetooth Device Available (+ Energy)	Once every min.
17	Detect Incoming Calls (No audio)	On change
18	Detect Outgoing Calls (No audio)	On change
19	Detect Incoming Sms (No text)	On change
20	Detect Outgoing Sms (No text)	On change
21	Running Application	Once every 5 sec.
22	Screen Status [ON/OFF]	On change
23	Flight Mode [ON/OFF]	On change
24	Battery Charge [ON/OFF]	On change
25	Battery Level	On change
26	Doze Modality [ON/OFF]	On change
27	Headset plugged in [ON/OFF]	On change
28	Audio mode [Silent/Normal]	On change
29	Music Playback (no track information)	On change
30	[ON/OFF]	10 sec. per min.
31	Audio from the internal microphone	On change
32	Notifications received	On change
33	Touch event	Once every min.
34	Cellular network info	Once every min.

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5 ANALYSING SOCIAL PRACTICES AND DIVERSITY

To do some preliminary tests before the pre-pilots, in April 2019, an extensive survey of 4400 students was conducted at the University of Trento on a preliminary version of the questionnaire which was later developed for pre-pilots. The survey developed in the master course of Survey Design for Social Research of the Department of Sociology and Social Research aimed to implement quantitative and qualitative tools to capture four main social practices: Transport, Body Care, Food and Food Consumption and Social Media. Two different tools were developed. The first was a closed-ended questionnaire in which some new scales were developed and others already existing in the literature were tested. The second was three different in-depth interviews: one for Body Care, one for Food and Food Consumption and one for the use of Social Media.

The survey was conducted between mid-April and mid-May 2019. All 12,000 students who attended the University of Trento were sent a letter of invitation to complete the close-ended questionnaire, of which 4400 filled in the web questionnaire on LimeSurvey. The in-depth interviews were given to 100 students, randomly chosen among students divided by field of study (STEM and non-STEM); Sex; Course level (Master or Bachelor); Nationality (Italian or non-Italian - mainly Erasmus -). Actually, analyses are in progress. In the following we will show in a very preliminary and limited way how, using the quantitative data of the questionnaire, we can begin to observe diversity from the point of view of social practice. The case here is that of eating and cooking style. The first step was to transform the elementary information from the quantitative questionnaire into seven main dimensions.

TABLE 3 DIMENSION USED TO DESCRIBE THE PRACTICE OF EATING, EATING CONSUMPTION AND COOKING STYLE

Dimension	Type of data reduction	Category
Relationship with the food *(Meaning)*	*Typology* & Principal Component Analysis	(1) Pleasure; (2) 4NoDie (for no die); (3) New taste
Eating Diet: Eat Needs *(Meaning - lifestyle)*	Hierarchical Cluster	(1) Vegetarian; (2) Slim; (3) ERF - Eat Real Food; (4) Health; (4) Stay fit; (5) No Diet
Food Preference *(Materiality)*	Raw data	(1) Organic; (2) Zero-Mile; (3) Frozen; (4) R2eat – ready to eat
Shop for food groceries *(Materiality)*	Row data	(1) Grocery; (2) Organic (3) Shop; (4)Supermarket, (5) Street Market
Cook expertise *(Competence)*	Typology & Principal Component Analysis on cooking relation	(1) Expert; (2) Novice; (3) Clumsy; (4) Unfit
Source for info/learn about cook and shop *(Competence)*	Row data	(1) Family; (2) Internet; (3) Books; (4) Apps; (5) TV; (6) Friend
Frequencies of Cooking *(proxy of behaviour, practice)*	row data	(1) Daily; (2) Several Time; (3) Never

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While standard statistics are useful for data reduction and summary data distribution, this is useless when trying to develop an analysis that highlights the relationships between the attributes related to the three dimensions of social practices. To do this, for this preliminary analysis, we use an approach capable of mapping the relationship between attributes, specifically, we use a semantic network approach. In the semantic network approach, the node are the attributes (the categories) while the edges can be either the frequencies or the correlations between two attributes.

As already said, diversity is a relational construct that emerges in a group/community or when two actors enter into interaction. Following this picture, we start first with an analysis among all the students interviewed about food, and then we show an analysis in which only two actors/students are analysed.

Figure 8 shows the semantic network of social practices of food consumption. At least two main groups clearly emerge from the graph. The first one at the top right, where the link between the attributes shows the student's practice mainly linked to a non-practice of cooking (not cooking), poor competence (clumsy; unfit), low materiality (ready-to-eat food), and the relationship with food is that I eat only to not die. On the other hand, at the bottom left, there are the main concentrations of competence and materiality.

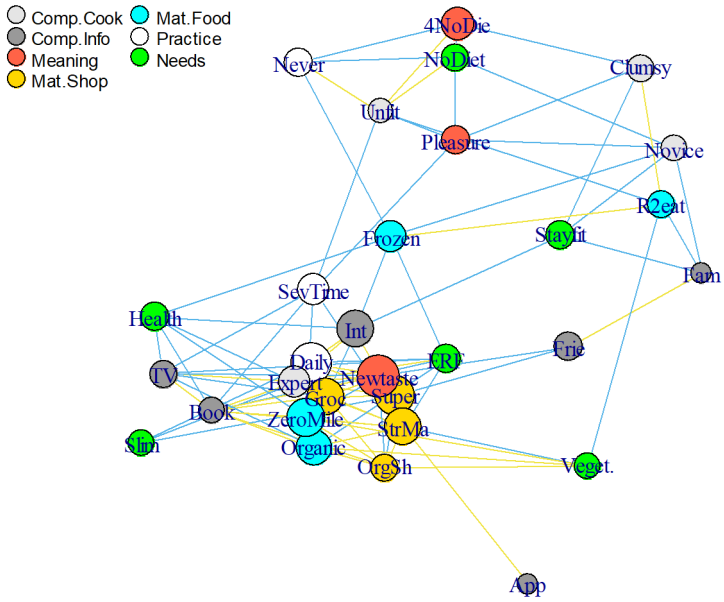

FIGURE 8 SEMANTIC NETWORK OF THE TRENTO STUDENT EATING CONSUMPTION. THE YELLOW EDGE ARE THE CORRELATION GREATER THAN OF 0.05, THE BLUE LOWER THAN 0.05.

The stereotype among men and women is that it is women who pay more attention to cooking and food, thanks to their greater competence. Men, on the other hand, are

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less skilled and less able to survive outside the mother house (Italian stereotype). This difference between men and women does not emerge from the analysis. (fig.9 and 10)

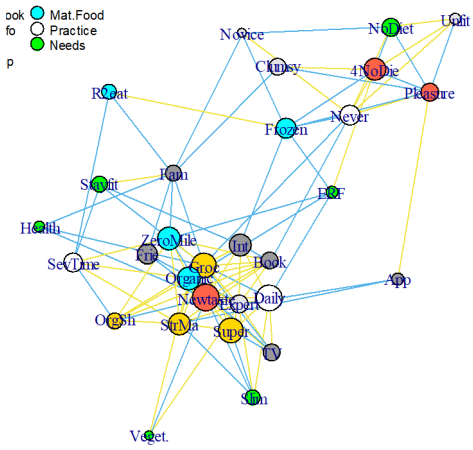

FIGURE 9 SEMANTIC NETWORK OF THE TRENTO MEN STUDENT EATING CONSUMPTION

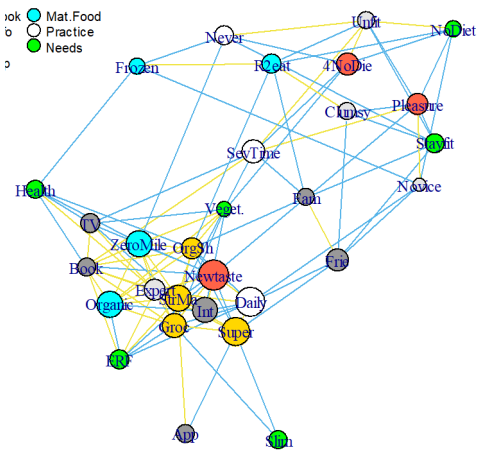

FIGURE 10 SEMANTIC NETWORK OF THE TRENTO WOMEN STUDENT EATING CONSUMPTION.

What emerges clearly is that the diversity is not among gender but within the gender as show in the figure 11 & 12.

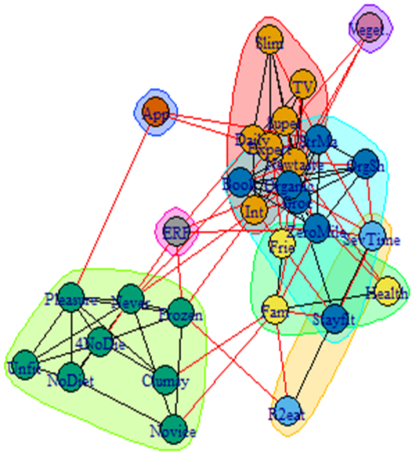

FIGURE 11 CLUSTER SEMANTIC NETWORK OF THE TRENTO MEN STUDENT EATING CONSUMPTION.

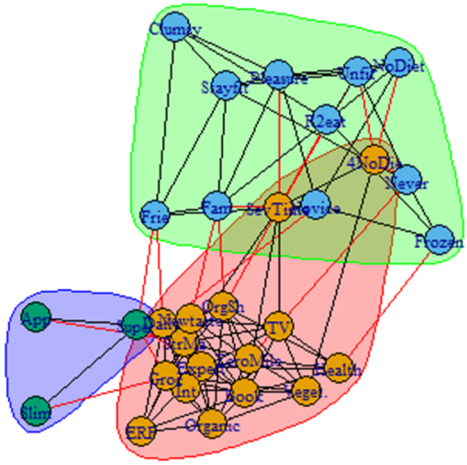

FIGURE 12 CLUSTER SEMANTIC NETWORK OF THE TRENTO WOMEN STUDENT EATING CONSUMPTION.

This example shows the possibility of capturing social practice hidden in a quantitative way by its components (materiality, competence and meaning). In other words, at the community level we can not only observe deep level diversity, but also how it relates to the other components of deep level diversity. In this way we can find not only known

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social practices, but also less frequent social practices, i.e. with this approach we can also capture emerging or non-standard diversity among community members which can, in turn, be exploited for the whole community. To reduce, in some way, the risk of excluding someone, which we have if we limit our data collections only to standard, official and well-known diversity. Furthermore, with this approach we reduce the ethical risk of excluding someone just because their behaviour is not standard, or their group is small or marginalized.

However, if these results highlight how social practice capture diversity at population level, beside the results offer a great opportunity to the social science field to improve their knowledge on social system, social relation and social dynamics.

A new and different diversity appears when we move from the community level to the level of interaction between the two people. In this case we have randomly selected two pairs of students. The only restriction in the selection is that one was vegetarian and the other did not follow any special diet. In figures 13 and 14 the two semantic networks. In this case it is not possible to calculate the correlations, so the link represents the frequencies. The dark line indicates that both subjects share the same attribute.

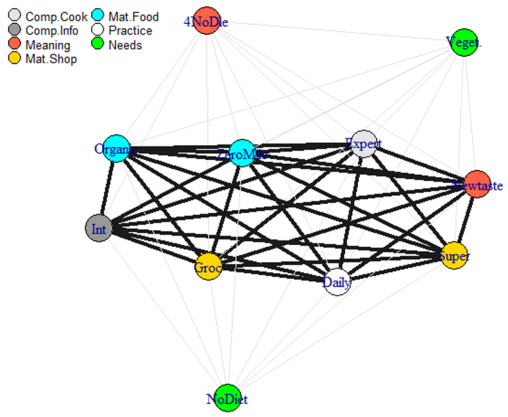

FIGURE 13 ID (294) VS. ID (263)

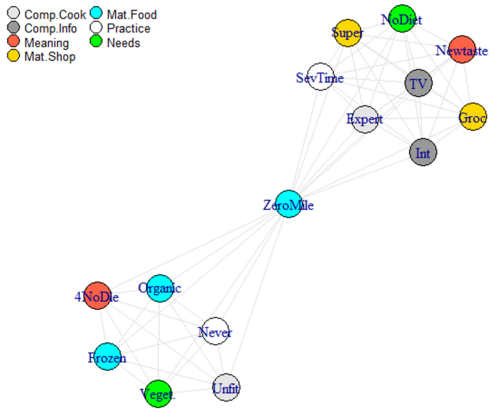

FIGURE 14 ID (365) VS. ID (648)

It is quite clear that the term diversity takes on a new meaning here. If in figure 13 the two subjects share exactly the same practices, with the same competence and materiality, except for diet. In figure 14 the two subjects are completely different; they do not share anything except going shopping in a zero-mile shop.

This is a very important result in relation to the potential encounter that can take place between the subjects of the two pairs of students. In the first one, fig.13, they share everything. In a communication process in which information passes from one to the other there are probably no difficulties of communication because probably they are sharing the same language. In the other case, the only communication between the two will probably be if the shop is open and little more. Moreover, this assume a great relevance when as stated Jackson, May and Whitney (1995), “if team members are so heterogeneous that there is no basis for similarity, then they may be unable to work

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together; taking advantage of task-related heterogeneity may require team members to have some degree of similarity."

In conclusion, this second way of observing diversity shows us exactly that (dis)similarity that is the basis of the WeNet Project. In fact, the greater the number of elements in common the greater the similarity between two people (e.g. fig.13), while the smaller the number of elements in common the greater the diversity between two people (e.g. fig.14).

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6 CONCLUSIONS

The 'social' goal of the WeNet project is create a platform that is diversity-aware and, in line the values of the European Union and its members state, to facilitate people's encounter with the diverse in order to reduce stereotyping, prejudice and intergroup biases. There is not technological fix for such task but what we can achieve is a proof of concept platform that supports other type of interventions.
In the first two deliverables, this one included, we clarified the notion of diversity in the social scientific literature and beyond, its different types and measurements. In this document, however, we have focused on the distinction between diversity at the level of visible traits and one at the level of unobservable ones. This distinction is at the core of most intergroup biases. The distinction between diversity on "observable" demographic characteristics or "readily detectable attributes" or "surface level diversity" such as race or ethnic background, age, school years, or gender , and diversity with respect to less "visible/observable" demographic characteristics or "underlying attributes" or "deep level diversity" such as education , technical abilities, functional background, tenure in the organization, or socioeconomic background, personality characteristics, cultural, cognitive, or values.
One reason for differentiating between observable and non-observable types of diversity is that when differences between people are visible, they are particularly likely to evoke responses that are due directly to biases, prejudices, or stereotypes.

Because the goal of WeNet is a promote a more inclusive society, we want to leverage the similarity based on non-observable traits to favour encounters between individuals that different in visible traits. Knowledge of attitudes, beliefs and the value of similarity between individuals forms the basis for continued attraction and affiliation. Research generally supports the idea that initial categorizations are accompanied by perceptions of similarity or dissimilarity that are based on surface-level demographic data; these perceptions change when deep-level information is obtained.

Therefore, we can imagine a platform in which people acquire more information and their perceptions (of others) are based more on observed behaviours and less on stereotypes driven by demographic characteristics. we define the choice architecture of WENET in terms of suggesting social ties between individuals based on non-observable traits, in order to promote diversity between individuals that might be different from the point of view of observable ones.

In a nutshell, this is a more nuanced and technologically supported implementation of Allport's 'contact theory'. In lay terms, if we favour people's encounter with individuals that have different visible traits but share common unobservable ones, we increase the chances of a social tie not based on prejudice. For example, two people of different ethnic groups that share the passion for food, or theatre or tennis. They are matched based on their unobservable traits that we have conceptualised in the context of social practices. People of different sociodemographic characteristics can share social practice and be matched based on the latter dimension.

Such idea is not without challenges. From the point of view of social scientists, the main challenge is finding adequate instruments to collect information about such unobservable traits, in our context about social practices. In order to answer such

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challenge, we have designed a combination of instruments based on traditional methods like surveys and the use of an app, I-Log, that will collect self-reported and behavioural information using sensors in real-time from a sample of students during the 'pilots' study. The first is a main questionnaire to be administered to the entire student population. The second is a second questionnaire that deepens some specific social practices (transport, food, physical activities) to be administered only to students participating in the second part of the survey. The third is a time diary to be administered with a smartphone App (I-Log) every 30 minutes for 2-4 weeks in order to observe "at the moment" the behaviour of the subject using both the streaming data of the sensors and the user. While contributing to the overall goal of the project, we are also exploring a new territory for social scientific research that is at the verge of significant changes due to the rise of digital methods and big data (Veltri, 2019).

The next step will be to validate our theoretical framework by means of a large data collection that will be based in several countries. Such endeavour will allow us to validate cross-culturally our instruments and it help us to revise our framework in a typical abductive way common to computational social science research.

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REFERENCES

Allport, G. W. 1954. The nature of prejudice. Cambridge, MA: Addison-Wesley.

Amir, Y. 1969. Contact hypothesis in ethnic relations. Psychological Bulletin, 11: 319-342.

Anne S. Tsui, Terri D. Egan and Charles A. O'Reilly III, 1992. Being Different: Relational Demography and Organizational Attachment. Administrative Science Quarterly, Vol. 37, No. 4, pp. 549-579

Anne S. Tsui, Terri Egan, and Charles O'Reilly III, 1991: BEING DIFFERENT: RELATIONAL DEMOGRAPHY AND ORGANIZATIONAL ATTACHMENT. Proceedings, 183–187, https://doi.org/10.5465/ambpp.1991.4976867

Aron, A., Melinat, E., Aron, E. N., Vallone, R. D. and Bator, E. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin*, *23*, 363–377.

Arthur, W., Jr., and Doverspike, D. (2005). Achieving di- versity and reducing discrimination in the workplace through human resource management practices: Im- plications of research and theory for staffing, training, and rewarding performance. In R. L. Dipboye and A. Colella (Eds.), *Discrimination at work* (pp. 305–328). Mahwah, NJ: Lawrence Erlbaum.

Associated Press. (2006, March 12). Officials seek to limit self-segregated dorms at UMass-Amherst. *Boston.com News*. Retrieved from http://www.boston.com/ news/education/higher/articles/2006/03/12/ officials_seek_to_limit_self_segreated_dorms_at_umass_ amherst

Barron, L. G., Hebl, M., and King, E. B. (2011). Effects of manifest ethnic identification on employment dis- crimination. *Cultural Diversity and Ethnic Minority Psychology*, *17*(1), 23–30.

Berger, J., Rosenholtz, S. J., & Zelditch, M. 1980. Status organizing processes. In A. Inkeles, N. J. Smelser, & K. H. Turner (Eds.), Annual review of sociology, vol. 6: 479-508. Palo Alto, CA: Annual Reviews.

Betancourt, J. R. (2006). Cultural competence and medical education: Many names, many perspectives, one goal. *Academic Medicine*, *81*, 499–501.

Betancourt, J., and Maina, A. (2004). The Institute of Medicine report “Unequal Treatment”: Implications for academic health centers. *Mount Sinai Journal of Medicine*, *71*(5), 314–321.

Bison, I. (2011). Lexicographic index: A new measurement of resemblance among sequences, in M. Williams and P. Vogt (eds), The SAGE Handbook of Innovation in Social Research Methods, London, SAGE, pp. 422-441

Blau, Peter M. 1977. Inequality and Heterogeneity: A Primitive Theory of Social Structure. New York: Free Press.

Blau, Peter M. 2001. “Macrostructural Theory.” Pp. 343–352 in Handbook of Sociological Theory, edited by Jonathan H. Turner. New York: Springer.

Bobo, L. (2001). Racial attitudes and relations at the close of the twentieth century. In N. J. Smelser, W. J. Wilson, and F. M. Mitchell (Eds.), *Racial trends and their consequences* (Vol. 1, pp. 264–307). Washington, DC: National Academy Press.

Bodenhausen, G. V., Todd, A. R., and Becker, A. P. (2007). Categorizing the social world: Affect, motivation, and self-regulation. In B. H. Ross and A. B. Markman (Eds.), *The psychology of learning and motivation* (Vol. 47, pp. 123–155). Amsterdam: Elsevier.

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Boulware, L. E., Cooper, L. A., Ratner, L. E., LaVeist, T. A., and Powe, N. R. (2003). Race and trust in the health care system. *Public Health Reports*, *118*, 358–365.
Bourdieu Pierre. 1980. Le capital social. In: Actes de la recherche en sciences sociales. Vol. 31, janvier 1980. Le capital social. pp. 2-3;
Bourdieu, P. (2006). Le capital social. Notes provisoires. Dans : Antoine Bevort éd., Le capital social: Performance, équité et réciprocité (pp. 29-34). Paris: La Découverte.
Brief, A. P., Butz, R. M., and Deitch, E. A. (2005). Organi- zations as reflections of their environments: The case of race composition. In R. L. Dipboye and A. Colella (Eds.), *Discrimination at work: The psychological and organizational biases* (pp. 119–148). Mahwah, NJ: Lawrence Erlbaum.
Brief, A. P., Dietz, J., Cohen, R. R., Pugh, S. D., and Vaslow, J. B. (2000). Just doing business: Modern racism and obedience to authority as explanation for employment discrimination. *Organizational Behavior and Human Decision Processes*, *81*, 72–97.
Burgess, D., van Ryn, M., Dovidio, J. F., and Saha, S. (2007). Reducing racial bias among health care providers: Lessons from social cognitive psychology. *Journal of General Internal Medicine*, *22*, 882–887.
Byrne, Donn E. 1971 The Attraction Paradigm. New York: Academic Press.
Chartrand, T. L., and Bargh, J. (1999). The chameleon effect: The perception-behavior link and social interac- tion. *Journal of Personality and Social Psychology*, *76*, 893–910.
Chartrand, T. L., Maddux, W., and Lakin, J. (2005). Be- yond the perception behavior link: The ubiquitous utility and motivational moderators of nonconscious mimicry. In R. Hassim, J. Uleman, and J. Bargh (Eds.), *The new unconscious* (pp. 334–361). New York: Ox- ford University Press.
Chen, F. M., Fryer, G. E., Phillips, R. L., Wilson, E., and Patham, D. E. (2005). Patients' beliefs about racism, preferences for physician race, and satisfaction with care. *Annals of Family Medicine*, *3*, 138–143.
Coleman, J. S. (1988). Social capital in the creation of human capital. American Journal of Sociology, 94, S95–S120. https://doi.org/10.1086/228943
Cooper-Patrick, L., Gallo, J. J., Gonzales, J. J., Vu, H. T., Powe, N. R., Nelson, C., and Ford, D. E. (1999). Race, gender, and partnership in the patient-physician relationship. *Journal of the American Medical Associa- tion*, *282*, 583–589.
Cooper, L. A., Roter, D. L., Johnson, R. L., Ford, D. E., Steinwachs, D. M., and Powe, N. R. (2003). Patient- centered communication, ratings of care, and con-cordance of patient and physician race. *Annals of Internal Medicine*, *139*, 907–915.
Crandall, C. S., and Eshleman, A. (2003). A justification- suppression of the expression and experience of preju- dice. *Psychological Bulletin*, *129*, 414–446.
Culhane-Pera, K. A., Reif, C., Egli, E., Baker, N. J., and Kassekert, R. (1997). A curriculum for multicultural education in family medicine. *Family Medicine*, *29*, 719–723.
Cummings, A., Zhou, J., & Oldham, G. R. 1993. Demographic differences and employee work outcomes: Effects on multiple comparison groups. Paper presented at the annual meeting of the Academy of Management, Atlanta, GA.
Deutsch, M., and Collins, M. E. (1951). *Interracial hous- ing; A psychological evaluation of a social experiment.* Minneapolis, MN: University of Minnesota Press.

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Dovidio, J. F. (2001). On the nature of contemporary prejudice: The third wave. *Journal of Social Issues*, *57*, 829–849.
Dovidio, J. F., and Gaertner, S. L. (2000). Aversive racism and selection decisions: 1989 and 1999. *Psychological Science*, *11*, 319–323.
Dovidio, J. F., and Gaertner, S. L. (2004). Aversive racism. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 36, pp. 1–52). San Diego, CA: Elsevier Academic Press.
Dovidio, J. F., Kawakami, K., and Beach, K. (2001). Implicit and explicit attitudes: Examination of the relationship between measures of intergroup bias. In R. Brown and S. L. Gaertner (Eds.), *Blackwell hand- book of social psychology: Intergroup relations* (Vol. 4, pp. 175–197). Oxford, UK: Blackwell.
Dovidio, J. F., Kawakami, K., and Gaertner, S. L. (2002). Implicit and explicit prejudice and inter- racial interaction. *Journal of Personality and Social Psychology*, *82*, 62–68.
Dovidio, J. F., Kawakami, K., and Gaertner, S. L. (2000). Reducing contemporary prejudice: Combating explicit and implicit bias at the individual and intergroup level. In S. Oskamp (Ed.), *Reducing prejudice and dis- crimination* (pp. 137–163). Mahwah, NJ: Lawrence Erlbaum.
Dovidio, J. F., Penner, L. A., Albrecth, T. L., Norton, W. E., Gaertner, S. L., and Shelton, J. N. (2008). Disparities and distrust: The implications of psychological pro- cesses for understanding racial disparities in health and health care. *Social Science and Medicine*, *67*, 478–486.
Doyle Paul Johnson, (2008) Contemporary Sociological Theory. Springer, New York, NY
Dunton, B. C., and Fazio, R. H. (1997). An individual dif- ference measure of motivation to control prejudiced reactions. *Personality and Social Psychology Bulletin*, *23*, 316–326.
Elvira, M. M., and Zatzick, C. D. (2002). Who's displaced first? The role of race in layoff decisions. *Industrial Relations*, *41*, 69–85.
Ely, R., and Thomas, D. (2001). Cultural diversity at work: The effects of diversity perspectives on work group processes and outcomes. *Administrative Science Quarterly*, *46*, 229–274.
Epstein, R. A. (2005). Disparities and discrimination in health care coverage: A critique of the Institute of Medicine study. *Perspectives in Biology and Medicine*, *48*, S26–S41.
European Review of Social Psychology, *16*, 113–154. Nier, J. A., Gaertner, S. L., Dovidio, J. F., Banker, B. S., and Ward, C. M. (2001). Changing interracial evalu- ations and behavior: The effects of common group identity. *Group Processes and Intergroup Relations*, *4*, 299–316.
Fazio, R. H. (1990). A practical guide to the use of re- sponse latency in social psychological research. In C. Hendrick and M. Clark (Eds.), *Research methods in personality and social psychology* (pp. 74–97). Thou- sand Oaks, CA: Sage Publications.
Ferguson, W. J., and Candib, L. M. (2002). Culture, lan- guage, and the doctor-patient relationship. *Family Medicine*, *34*, 353–361.
Forman, T. A. (2003). The social psychological costs of ra- cial segmentation in the workplace: A study of African Americans' well-being. *Journal of Health and Social Behavior*, *44*, 332–352.
Gaertner, J. F. and Dovidio, S. L. (1986). Prejudice, discrimi- nation, and racism: Historical trends and contempo- rary approaches. In S. Gaertner and J. Dovidio

Co-funded by the Horizon 2020 Framework Programme of the European Union

(Eds.), *Prejudice, discrimination, and racism* (pp. 1–34). San Diego, CA: Academic Press.
Gaertner, J. F. and Dovidio, S. L. (2000). Reducing intergroup bias: The common ingroup identity model. *Reducing intergroup bias: The common ingroup identity model*. New York: Psychology Press.
Giddens A. (2006), Sociology, Polity Press; 5th Edition. ISBN: 9780745633794.
Gordon, H. S., Street, R. L., Sharf, B. F., and Soucheck, J. (2006). Racial differences in doctors' information- giving and patients' participation. *Cancer*, *107*, 1313–1320.
Granovetter, M. (1973). The strength of weak ties. American Journal of Sociology, 78, 1360–1380. https://doi.org/10.1086/225469
Green, A. R., Carney, D. R., Pallin, D. J., Ngo, L. H., Ray- mond, K. L., Iezzoni, L. I., and Banaji, M. R. (2007). The presence of implicit bias in physicians and its predictions of thrombolysis decisions for Black and White patients. *Journal of General Internal Medicine*, *22*, 1231–1238.Halbert, C. H., Armstrong, K., Gandy, O. H., and Shaker,
Gusfield, J. R. (1975). Community: a critical response. 1st English language ed. New York: Harper & Row.
Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T. 2002. Time, teams, and task performance: Changing effects of surface- and deep-level diversity on group functioning. Academy of Management Journal, 45(5): 1029-1045.
Harrison, David. A., Price, K. H., & Bell, M. P. 1998. Beyond relational demography: Time and the effects of surface- and deep-level diversity on work group cohesion. Academy of Management Journal, 41(1): 96-107.
Haveman, HA, Wetts, R. Contemporary organizational theory: The demographic, relational, and cultural perspectives. Sociology Compass. 2019; 13:e12664. https://doi.org/10.1111/soc4.12664
Hebl, M. R., and Dovidio, J. F. (2005). Promoting the "social" in the examination of social stigmas. *Personality and Social Psychology Review*, *9*, 156–182.
Hebl, M. R., and King, E. (2007). *Reducing interpersonal discrimination*. Paper presented at the Small Group Meeting: Social Stigma and Social Disadvantage. Leiden University, the Netherlands.
Hooper, E. M., Comstock, L. M., Goodwin, J. M., and Goodwin, J. S. (1982). Patient characteristics that influence physician behavior. *Medical Care*, *20*, 630–638.
Huffcut, A. I., and Roth, P. L. (1998). Racial group differences in employment interview evaluations. *Journal of Applied Psychology*, *83*, 179–189.
Ickes, W. (1984). Compositions in Black and White: Determinants of interaction in interracial dyads. *Journal of Personality and Social Psychology*, *47*, 330–341.
Jackson, S. E. 1992. Consequences of group composition for the interpersonal dynamics of strategic issue processing. In J. Dutton, A. Huff, & P. Shrivastava (Eds.), Advances in strategic management, vol. 8: 345-382. Greenwich, CT: JAI Press.
Jackson, S. E., Karen E. May, Kristina Whitney, 1995. UNDERSTANDING THE DYNAMICS OF DIVERSITY IN DECISION-MAKING TEAMS. Source: R. A. Guzzo, E. Salas, and Associates. Team Effectiveness and Decision Making in Organizations. San Fancisco: Jossey-Bass, 1995.
Jackson, S. E., Stone, V. K., & Alvarez, E. B. 1993. Socialization amidst diversity: Impact of demographics on work team old timers and newcomers. In L. L. Cummings & B. M. Staw (Eds.), Research in organizational behavior, vol. 15: 45-109. Greenwich, CT: JAI Press.

Co-funded by the Horizon 2020 Framework Programme of the European Union

James, Paul (2006). Globalism, Nationalism, Tribalism: Bringing Theory Back In – Volume 2 of Towards a Theory of Abstract Community. London: Sage Publications.

Johnson, R. L., Roter, D., Powe, N. R., and Cooper, L. A. (2004). Patient race/ethnicity and quality of patient- physician communication during medical visits. *American Journal of Public Health*, *94*, 2084–2090.

Johnston, M. A. (1992). A model program to address in- sensitive behaviors toward medical students. *Academic Medicine*, *67*, 236–237.

Johnston, W. B., &Packer, A. E. (1987). Workforce 2000: Work and workers for the 21st century. Washington, DC: U.S. Department of Labor.

Joshi, A., & Roh, H. (2009). The role of context in work team diversity research: A meta-analytic review. Academy of Management Journal, 52,

Kanter, R. M. (1977). Men and women of the corporation. New York: Basic Books.

Kawakami, K., Dovidio, J. F., Moll, J., Hermsen, S., and Russin, A. (2000). Just say no (to stereotyping): Ef- fect of training in the negation of stereotypic associations on stereotype activation. *Journal of Personality and Social Psychology*, *78*, 871–888.

Kerr, N. (1992). Group decision making at a multialternative task: Extremity, interaction distance, pluralities, and issue importance. Organizational Behavior and Human Decision Processes, 52, 64-95.

Knoke, D., & Kulinski, J. , 1982. Network Analysis Sage University Papers Series. Quantitative Applications in the Social Sciences; No. 07-028, Beverly Hills: Sage University Papers, Sage Publications, Inc., isbn 9780803919143

Kochan, T., Bezrukova, K., Ely, R., Jackson, S., Joshi, A., Jehn, K., Leonard, J., Levine, D. and Thomas, D. (2003), The effects of diversity on business performance: Report of the diversity research network. Hum. Resour. Manage., 42: 3-21. doi:10.1002/hrm.10061

Konrad, A. M., Ritchie, J. E., Jr., Lieb, P., & Corrigall, E. (2000). Sex differences and similarities in job attribute preferences: A meta-analysis. Psychological Bulletin, 126(4), 593–641. https://doi.org/10.1037/0033-2909.126.4.593

Kramer, A. and Ben-Ner, A. (2015), "The intersection of sex and race in the presence of deep-level attributes", Equality, Diversity and Inclusion, Vol. 34 No. 5, pp. 360-375. https://doi.org/10.1108/EDI-10-2013-0076

L. (2006). Racial differences in trust in health care providers. *Archives of Internal Medicine*, *166*, 896–901. Hall, J. A., Roter, D. L., and Katz, N. R. (1988). Metaanalysis of correlates of provider behavior in medical encounters. *Medical Care*, *26*, 657–675.

Lakin, J. L., and Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science*, *14*, 334–340.

Larkey, L. K. (1996). The development and validation of the workforce diversity questionnaire. Management Communication Quarterly, 9, 296-337.

Lin, N. (1999). Social networks and status attainment. Annual Review of Sociology, 25, 467–487. https://doi.org/10.1146/annurev.soc.25.1.467

Lin, N. (2001). Social capital: A theory of social structure and action. New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511815447

Livingston, R. W. (2002). The role of perceived negativity in the moderation of African Americans' implicit and explicit racial attitudes. *Journal of Experimental Social Psychology*, *38*(4), 405–413. doi:10.1016/ S0022-1031(02)00002-1

Co-funded by the Horizon 2020 Framework Programme of the European Union

Lurie, N., Fremont, A., Jain, A. K., Taylor, S. L., McLaughlin, R., Peterson, E., et al. (2005). Racial and ethnic disparities in care: The perspectives of cardiologists. *Circulation*, *111*, 1264–1269.

Majumdar, B., Browne, G., Roberts, J., and Carpio, B. (2004). Effects of cultural sensitivity training on health care provider attitudes and patient outcomes. *Journal of Nursing Scholarship*, *36*, 161–166.

Majumdar, B., Keystone, J. S., and Cuttress, L. A., (1999). Cultural sensitivity training among foreign medical graduates. *Medical Education*, *33*, 177–184.

Martin, W. E. (1998). *Brown v. Board of Education: A brief history with documents*. New York: Bedford, St. Martin's Press.Monteith, M. J., and Mark, A. Y. (2005). Changing one's prejudiced ways: Awareness, affect, and self-regulation.

Maznevski, M. L. (1994). Understanding Our Differences: Performance in Decision-Making Groups with Diverse Members. Human Relations, 47(5), 531–552. https://doi.org/10.1177/001872679404700504

McDonald, S. (2011). What's in the 'old boys' network? Accessing social capital in gendered and racialized networks. Social Networks, 33, 317–330. https://doi.org/10.1016/j.socnet.2011.10.002

McDonald, S., & Day, J. C. (2010). Race, gender, and the invisible hand of social capital. Sociology Compass, 4, 532–543. https://doi.org/10.1111/j.1751-9020.2010.00298.x

McGrath, J. E., Berdahl, J. L., & Arrow, H. (1995). Traits, expectations, culture and clout: The dynamics of diversity in work groups. In S. E. Jackson &M. N. Ruderman (Eds.), Diversity in work teams (pp. 17-45). Washington, DC: American Psychological Association.

McMillan, D.W. and Chavis, D.M. (1986), Sense of community: A definition and theory. J. Community Psychol., 14: 6-23. doi:10.1002/1520-6629(198601)14:1<6::AID-JCOP2290140103>3.0.CO;2-I

Milliken, F., & Martins, L. (1996). Searching for Common Threads: Understanding the Multiple Effects of Diversity in Organizational Groups. *The Academy of Management Review, 21*(2), 402-433. Retrieved January 12, 2020, from www.jstor.org/stable/258667

Newcomb, T. M. 1961. The acquaintance process. New York: Holt, Rinehart & Winston.

Olson, M. A., and Fazio, R. H. (2004). Trait inferences as a function of automatically activated racial attitudes and motivation to control prejudiced reactions. *Basic and Applied Social Psychology*, *26*, 1–11.

Page-Gould, E., Mendoza-Denton, R., and Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology*, *95*, 1080–1094.

Pager, D., and Western, B. (2006). *Race at work: Realities of race and criminal record in the New York City job market*. Report prepared for the 50th Anniversary of the New York City Commission on Human Rights.

Pelled, L. H. 1996. Demographic diversity, conflict, and work group outcomes: An intervening process theory. Organization Science, 7(6): 615.

Pelled, L. H. 1996. Demographic diversity, conflict, and work group outcomes: An intervening process theory. Organization Science, 7(6): 615.

Penner, L. A., Albrecht, T. L., Coleman, D. K., and Norton, W. E. (2007). Interpersonal perspectives on Black-White health disparities: Social policy implica- tions. *Social Issues and Policy Review*, *1*, 63–98.

Co-funded by the Horizon 2020 Framework Programme of the European Union

Penner, L. A., Dailey, R. K., Markova, T., Porcelli, J. H., Dovidio, J. F., and Gaertner, S. L. (2009a, February). *Using the common ingroup identity model to increase trust and commonality in racially discordant medical interactions*. Poster presented at the Annual Meeting of the Society for Personality and Social Psychology, Tampa, FL.

Penner, L. A., Dovidio, J. F., Edmondson, D., Dailey, R. K., Markova, T., Albrecht, T. L., and Gaertner, S. L. (2009b). The experience of discrimination and Black-White health disparities in medical care. *Journal of Black Psychology*, *35*(2), 180–203.

Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin*, *23*, 173–185.

Pettigrew, T., and Tropp, L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751–783.

Pettigrew, T., and Tropp, L. (2008). How does intergroup contact reduce prejudice? Meta-analytic tests of three mediators. *European Journal of Social Psychology*, *38*, 922–934.

Pfeffer, J. (1983). Organizational demography. Research in Organizational Behavior, 5, 299–357.

Phelps, R. E., Altschul, D. B., Wisenbaker, J. M., Day, J. F., Cooper, D., and Potter, C. G. (1998). Roommate satisfaction and ethnic identity in mixed-race and White university roommate dyads. *Journal of College Student Development*, *39*, 194–203.

Phelps, R. E., Potter, C. G., Slavich, R., Day, J. F. and Polovin, L. B. (1996). Roommate satisfaction and ethnic pride in same-race and mixed-race university roommate pairs. *Journal of College Student Development*, *37*, 377–388.
Plant, E. A., and Devine, P. G. (2001). Responses to other-imposed pro-Black pressure: Acceptance or backlash? *Journal of Experimental Social Psychology*, *37*, 486–501.

Phelps, R. E., Potter, C. G., Slavich, R., Day, J. F. and Polovin, L. B. (2003). The antecedents and implications of interracial anxiety. *Personality and Social Psychology Bulletin*, *29*, 790–801.

Plaut, V. C., Thomas, K. M., and Goren, M. J. (2009). Is multiculturalism or color blindness better for minorities? *Psychological Science*, *20*(4), 444–446. doi:10.1111/j.1467-9280.2009.02318.x

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. Annual Review of Sociology, 24, 1–24. https://doi.org/10.1146/annurev.soc.24.1.1

Purdie-Vaughns, V., Steele, C. M., Davies, P. G., Ditlmann, R., and Crosby, J. R. (2008). Social identity contingencies: How diversity cues signal threat and safety for African Americans in mainstream institutions. *Journal of Personality and Social Psychology*, *94*, 615–630.

Putnam, R. D. (2007). *E Pluribus Unum*: Diversity and community in the twenty-first century, The 2006 Johan Skytte Prize Lecture. *Scandinavian Political Studies*, *30*, 137–174.

Rathore, S. S., Lenert, L. A., Weinfurt, K. P., Tinoco, A., Taleghani, C. K., Harless, W., and Schulman, K. A. (2000). The effects of patient sex and race on medical students' ratings of quality of life. *American Journal of Medicine*, *108*, 561–566.

Reis, H. T., and Shaver, P. (1988). Intimacy as an interper- sonal process. In S. Duck (Ed.), *Handbook of personal relationships* (Vol. 24, pp. 367–389). New York: John Wiley and Sons.

Co-funded by the Horizon 2020 Framework Programme of the European Union

Richeson, J. A., and Nussbaum, R. J. (2004). The impact of multiculturalism versus color-blindness on racial bias. *Journal of Experimental Social Psychology*, *40*, 417–423.
Richeson, J. A., and Shelton, J. N. (2007). Negotiating interracial interactions: Costs, consequences, and possibilities. *Current Directions in Psychological Science*, *16*, 316–320.
Roberson, Q. M. (2006). Disentangling the Meanings of Diversity and Inclusion in Organizations. *Group & Organization Management*, *31*(2), 212–236. https://doi.org/10.1177/1059601104273064
Roberson, Q., Ryan, A. M., & Ragins, B. R. (2017). The evolution and future of diversity at work. Journal of Applied Psychology, 102(3), 483–499. https://doi.org/10.1037/apl0000161
Royster, D. (2003). Race and the invisible hand: How White networks exclude Black men from blue-collar jobs. Berkeley: University of California Press.
Saha, S., Komaromy, M., Koepsell, T. D., and Bindman, A. B. (1999). Patient-physician racial concordance and the perceived quality and use of health care. *Archives of Internal Medicine*, *159*, 997–1004.
Salvatore, J., and Shelton, J. N. (2007). Cognitive costs to exposure to racial prejudice. *Psychological Science*, *18*, 810–815.
Sanchez-Burks, J., Bartel, C. A., and Blount, S. (2009). Performance in intercultural interactions at work: Cross-cultural differences in response to behavioral mirroring. *Journal of Applied Psychology*, *94*(1), 216– 223. doi:10.1037/a0012829
Sanchez-Burks, J., Blount, S., and Bartel, C. A. (2007). Fluidity and performance in intercultural workplace interactions: The role of behavioral mirroring and relational attunement. Working Paper No. 1039. University of Michigan.
Schneider, B. 1987. The people make the place. Personnel Psychology, 40: 437-453.
Schulman, K. A., Berlin, J. A., Harless, W., Kerner, J. F., Sistrunk, S., Gersh, B. J., et al. (1999). The effect of race and sex on physicians' recommendations for cardiac catheterization. *New England Journal of Medicine*, *340*, 618–626.
Schwartz, L. M., Woloshin, S., and Welch, H. G. (1999). Misunderstandings about the effects of race and sex on physicians' referrals for cardiac catheterization. *New England Journal of Medicine*, *341*(4), 279–283. doi:10.1056/NEJM199907223410411
Shapiro, J., and Saltzer, E. (1981). Cross-cultural aspects of physician-patient communication patterns. *Urban Health*, *10*, 10–15.
Shelton, J. N., and Richeson, J. A. (2006). Ethnic minorities' racial attitudes and contact experiences with White people. *Cultural Diversity and Ethnic Minority Psychology*, *12*, 149–164.
Shelton, J. N., and Richeson, J. A. (2005). Intergroup contact and pluralistic ignorance. *Journal of Personality and Social Psychology*, *88*, 91–107.
Shelton, J. N., Richeson, J. A., and Salvatore, J. (2005). Expecting to be the target of prejudice: Implications for interethnic interactions. *Personality and Social Psychology Bulletin*, *31*(9), 1189–1202. doi:10.1177/0146167205274894
Shook, N. J., and Fazio, R. H. (2008). Roommate relation- ships: A comparison of interracial and same-race living situations. *Group Processes and Intergroup Relations*, *11*, 425–437.
Sidanius, J., and Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression.* New York: Cambridge University Press.

Co-funded by the Horizon 2020 Framework Programme of the European Union

Sidanius, J., Henry, P. J., Pratto, F., and Levin, S. (2004). Arab attributions for the attack on America: The case of Lebanese sub-elites. *Journal of Cross-Cultural Psychology*, *34*, 403–415.

Sidanius, J., Van Laar, C., Levin, S., and Sinclair, S. (2004). Ethnic enclaves and the dynamics of social identity on the college campus: The good, the bad, and the ugly. *Journal of Personality and Social Psychology*, *87*, 96–110.

Silva, F. (2018). The strength of whites' ties: How employers reward the referrals of black and white jobseekers. Social Forces, 97(2), 741–768. https://doi.org/10.1093/sf/soy051

Sleath, B., Rubin, R. H., and Arrey-Wastavino, A. (2000). Physician expression of empathy and positiveness to Hispanic and non-Hispanic white patients during medical encounters. *Family Medicine*, *32*, 91–96.

Smedley, B. D., Stith, A. Y., and Nelson, A. R. (Eds.) (2003). *Unequal treatment: Confronting racial and ethnic disparities in health care*. Washington, DC: National Academies Press.

Smith, S. S. (2005). Don't put my name on it: Social capital activation and job-finding assistance among the black urban poor. American Journal of Sociology, 111, 1–57. https://doi.org/10.1086/428814

Sommers, S. R. (2006). On racial diversity and group decision making: Identifying multiple effects of racial composition on jury deliberations. *Journal of Personality and Social Psychology*, *90*, 597–612.

Son Hing, L. S., Chung-Yan, G., Hamilton, L., and Zanna, M. (2008). A two-dimensional model that employs explicit and implicit attitudes to characterize preju- dice. *Journal of Personality and Social Psychology*, *94*, 971–987.

Stewart, M. A. (1995). Effective physician-patient communication and health outcomes: A review. *Canadian Medical Association Journal*, *152*, 1423–1433.

Tajfel, H. (1978). Differentiation between social groups. London, UK: Academic Press.

Taylor H. Cox and Stacy Blake, 1991, Managing Cultural Diversity: Implications for Organizational Competitiveness. The Executive, Vol. 5, No. 3 (Aug., 1991), pp. 45-56.Published by: Academy of Management. Stable URL: http://www.jstor.org/stable/4165021

Thomas, D. A. (1993). Racial dynamics in cross-race developmental relationships. *Administrative Science Quarterly*, *38*, 169–194.

Thomas, D. A., & Ely, R. J. (1996). Making differences matter: A new paradigm for managing diversity. *Harvard Business Review*, *74*, 79-90.

Thompson, J. D. (1967). Organizations in action. New York: McGraw-Hill.

Tönnies, Ferdinand (1887) 1963. Community and Society, translated and edited by Charles P.Loomis. New York: Harper and Row.

Towles-Schwen, T., and Fazio, R. H. (2006). Automatically activated racial attitudes as predictors of the success of interracial roommate relationships. *Journal of Experimental Social Psychology*, *42*, 698–705.

Towles-Schwen, T., and Fazio, R. H. (2003). Choosing social situations: The relation between automatically- activated racial attitudes and anticipated comfort interacting with African Americans. *Personality and Social Psychology Bulletin*, *29*, 170–182.

Trail, T., Shelton, J. N., and West, T. (2009). Interracial roommate relationships: Negotiating daily interactions. *Personality and Social Psychology Bulletin, 35*(6), 671–684.

Co-funded by the Horizon 2020 Framework Programme of the European Union

Tropp, L. R., and Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science*, *16*(12), 951–957. doi:10.1111/j.1467-9280 .2005.01643.x

Turner, J. C. (1982). Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.), Social identity and intergroup relations (pp. 15–40). Cambridge, England: Cambridge University Press.

Turner, J. C. (1987). A self-categorization theory. In J. C. Turner, M. A. Hogg, P. J. Oakes, S. D. Reicher, & M. S. Wetherell (Eds.). Rediscovering the social group: A self-categorization theory (pp. 42–67). Oxford, UK: Blackwell Publishers.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., and Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory.* Cambridge, MA: Basil Blackwell.

Uzzi, B., & Spiro, J. (2005). Collaboration and creativity: The small world problem. American Journal of Sociology, 111, 447–504. https://doi.org/10.1086/432782

Van Laar, C., Levin, S., Sinclair, S., and Sidanius, J. (2005) The effect of university roommate contact on ethnic attitudes and behavior. *Journal of Experimental Social Psychology*, *41*, 329–345.

van Ryn, M., and Burke, J. (2000). The effect of patient race and socio-economic status on physicians' perceptions of patients. *Social Science and Medicine*, *50*, 813–828.

van Ryn, M., and Fu, S. S. (2003). Paved with good intentions: Do public health and human service providers contribute to racial/ethnic disparities in health? *American Journal of Public Health*, *93*, 248–255.

van Ryn, M., Burgess, D., Malat, J., and Griffin, J. (2006). Physicians' perception of patients' social and behavioral characteristics and race disparities in treatment recommendations for men with coronary artery disease. *American Journal of Public Health*, *96*, 351–357.

Veltri, G.A. (2019) Digital Social Research. Cambridge: POLITY. ISBN: 9781509529315

Weber, M. (1968). Economy and society: An outline of interpretive sociology. (Translated and edited by Guenther Roth and Claus Wittich.). Berkeley: University of California Press.

Welch, M. (1998). Required curricula in diversity and cross- cultural medicine: The time is now. *Journal of the American Medical Women's Association*, *53*, 121–123.

West, T. V., Pearson, A. R., Dovidio, J. F., Shelton, J. N., and Trail, T. E. (2009). *The power of one: Strength of common identity predicts intergroup roommate friendship*. Manuscript submitted for publication.

West, T. V., Shelton, J. N., and Trail, T. E. (2009). Relational anxiety in interracial interactions. *Psychological Science*, *20*(3), 289 –292. doi:10.1111/j.1467-9280 .2009.02289.x

Williams, K. Y., and O'Reilly, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. In B. Staw and R. Sutton (Eds.) *Research in Organizational Behavior*, *20*, 77–140. Greenwich, CT: JAI Press.

Williams, K., & O'Reilly, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. In B. M. Staw & L. L. Cummings (Eds.), Research in organizational behavior (Vol. 20, pp. 77–140). Greenwich, CT: JAI Press.

Wilner, D. M., Walkley, R. P., and Cook, S. W. (1955). *Human relations in interracial housing.* Minneapolis, MN: University of Minnesota Press.

Co-funded by the Horizon 2020 Framework Programme of the European Union

Wolsko, C., Park, B., and Judd, C. M. (2006). Considering the tower of Babel: Correlates of assimilation and multiculturalism among ethnic minority and majority groups in the United States. *Social Justice Research*, *19*, 277–306.

Word, C. O., Zanna, M. P., and Cooper, J. (1974). The nonverbal mediation of self-fulfilling prophecies in interracial interaction. *Journal of Experimental Social Psychology*, *10*, 109–120.

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APPENDIX A

Anything that is related but not core to the deliverable can go into appendix.

MAIN QUESTIONNAIRE
(FOR ALL UNIVERSITY STUDENTS)

SOCIO-DEMOGRAPHIC

A01. Were you born…? *(1) Male (2) Female*

A02. Age **|__|__|**

A03. Nationality *[List]*

A04UNITN. Department/College (List)

A05. Type of degree
1) BAs 2) MAs

A06. Programme
1) Full Time 2) Part Time

A07.Course year **|__|**

A08. You are
1) *Regularly enrolled for a BAs/MAs degree*
2) *Register on supplementary year*

A.09. Where do you live during term time?
1) *In the town where the university is located.*
2) *Close to the city where the university is located (less than 1.30 hours of travel). (go to A11.)*
3) *In another city away from where the university is located (more than 1.30 hours of travel) (go to A11)*
4) *Abroad (e.g. Erasmus student) (go to PSYCHO-SOCIAL PROFILE)*

A10. And exactly in which district of the town do you live? (List)

A10LSE. What is your first three digits of post code? *[Only for LSE]* **|__|__|__|**

A11. What kind of accommodation are you living in?
1) *University students' Residence (dormitory)*
2) *University flat*
3) *University campus*
4) *A private sector Hall of Residence (Private students' dormitory)*
5) *Rental house/flat*
6) *in a house/apartment owned (by you, your parents or relatives)*
7) *guest of a private person*
8) *guest of friend or friends*

A12. What is the quality of the internet connection in your accommodation? *answers from 1 "very bad" to 5 "very good" + 9 "I have no internet access in my accommodation"*

PSYCHO-SOCIAL PROFILE

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B01. Describe yourself as you generally are now, not as you wish to be. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are and roughly your same age. Please use the scale below to rate how accurately each statement describes you. *1. Very Inaccurate, 2. Moderately Inaccurate, 3. Neither Accurate Nor Inaccurate, 4. Moderately Accurate, 5. Very Accurate*

- *Am the life of the party*
- *Sympathize with others' feelings*
- *Get chores done right away*
- *Have frequent mood swings*
- *Have a vivid imagination*
- *Don't talk a lot*
- *Am not interested in other people's problems*
- *Often forget to put things back in their proper place*
- *Am relaxed most of the time*
- *Am not interested in abstract ideas*
- *Talk to a lot of different people at parties*
- *Feel others' emotions*
- *Like order*
- *Get upset easily*
- *Have difficulty understanding abstract ideas*
- *Keep in the background*
- *Am not really interested in others*
- *Make a mess of things*
- *Seldom feel blue*
- *Do not have a good imagination*

B02. [*ASK IF RESPONDENT IS MALE / FEMALE]* ***Now I will briefly describe some people. Please read each description and tell me how much each person is or is not like you. Use this card for your answer.***
(1) Very much like me; (2) Like me; (3) Somewhat like me; (4) A little like me; (5) Not like me; (6) Not like me at all; (7) (Refusal); (8) (Don't know)

- *Thinking up new ideas and being creative is important to him. He likes to do things in his own original way.*
- *It is important to him to be rich. He wants to have a lot of money and expensive things.*
- *He thinks it is important that every person in the world should be treated equally. He believes everyone should have equal opportunities in life.*
- *It's important to him to show his abilities. He wants people to admire what he does.*
- *It is important to him to live in secure surroundings. He avoids anything that might endanger his safety.*
- *He likes surprises and is always looking for new things to do. He thinks it is important to do lots of different things in life.*
- *He believes that people should do what they're told. He thinks people should follow rules at all times, even when no-one is watching.*
- *It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them.*
- *It is important to him to be humble and modest. He tries not to draw attention to himself.*
- *Having a good time is important to him. He likes to "spoil" himself.*
- *It is important to him to make his own decisions about what he does. He likes to be free and not depend on others.*
- *It's very important to him to help the people around him. He wants to care for their well-being.*

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- *Being very successful is important to him. He hopes people will recognise his achievements.*
- *It is important to him that the government ensures his safety against all threats. He wants the state to be strong so it can defend its citizens.*
- *He looks for adventures and likes to take risks. He wants to have an exciting life.*
- *It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.*
- *It is important to him to get respect from others. He wants people to do what he says.*
- *It is important to him to be loyal to his friends. He wants to devote himself to people close to him.*
- *He strongly believes that people should care for nature. Looking after the environment is important to him.*
- *Tradition is important to him. He tries to follow the customs handed down by his religion or his family.*
- *He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.*

UNIVERSITY ATTENDANCE

C01. Do you attend at least one course during this semester?
1) Yes 2) No

C02. How often did you come to university in this semester?
- *Rarely / Never (Filter go to next section)*
- *Monthly or less (Filter go to next section)*
- *Once a week*
- *Twice a week*
- *Three days a week*
- *Four days a week*
- *Five or more days a week*

C03. In general, which days do you come to the University (not just for lessons)? :
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday
- There were no specific days

C04. How often it happened to: (*1 "never" – 5 "very often")*
- *participating during the lecture/seminar to express your opinion*
- *asking for clarifications to teachers during or at the end of the lecture/seminar*
- *going to the professor/lecturer's/ teacher's office*
- *attending workshops or other academic activities*
- *take notes in class.*
- *review and arrange notes at the end of the lecture.*
- *audio recording of the lecture.*
- *study and review notes regularly during the class week*
- *schematizing or summarizing books or notes related to a course*
- *be on time for class.*
- *take part in the activities organized by the course.*
- *use specialised websites (e.g. statistics, philosophy, physics….)*
- *use question & answers sites (e.g. Quora, Stack Overflow, Answers.com)*
- *use university websites/platform tools for learning (e.g. Moodle, etc..)*
- *use commercial education platform (e.g. Coursera, Udemy, Datacamp)*

SOCIAL RELATIONS WITH PEERS/CLASSMATES.

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D01. How many university students can you contact for help in studying? |__|

D02. How often do you happen to: *(1 never – 5 always).*

- *Stop and talk to your fellow students before or after class*
- *Exchange course notes/materials*
- *Going to lunch together/taking breaks with your fellow students*
- *Going out/doing extracurricular activities with classmates*

D03. Are you in an informal study group(s) (beside the one you are in for the lab/class project)?

1) *Yes*
2) *No (go to Virtual Social Relation)*

D04. How many informal study groups do you participate in? *No.* |___|

D05. About how many people are in the informal study group? *If you have more than one, think about the one you meet most often.* |___|

D06. How often do you meet? *If you meet more than one, think about the one you meet most often.*

○ Less than once a week ○ Once a week ○ Twice a week	○ Three days a week ○ Four days a week ○ Five or more days a week

D07. In the informal study group you meet the most, how often do you talk about these topics? *Answers from 1 "rarely" to 4 "very often"*

- *Current events/News*
- *Sports*
- *Music and music events*
- *Cinema/movies*
- *Books/Literature*
- *Daily life and personal relationships*
- *University*
- *Culture/Art and related events*
- *Others (please indicate _____)*

D09. Think of the group (of friends) you meet the most during the week. How many people are in this group? |__|__|

D10. Is this group composed mainly of*:*

1. *Men*
2. *Women*
3. *About the same number of men and women*

D11. And are the group members

1. *Only university student*
2. *Only other people who are not university students*
3. *Mainly university students*
4. *Mainly other people who are not university students*
5. *About the same number of university students and others people.*

D12. In the group you meet the most during the week, how often do you talk about these topics? *Answers from 1 "rarely" to 4 "very often"*

- *Current events/News*

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- *Sports*
- *Cinema/movies*
- *Daily life and personal relationships*
- *University*
- *Culture/Art, literature, music*
- *Others (please indicate)*

VIRTUAL SOCIAL RELATIONS.

E01. How often do use the following social networking channels? *(99) No account (1) Several times a day (2) about once a day (3) a few times a week (4) every few weeks (5) Rarely/Never*

	No account	*Several times a day*	*about once a day*	*a few times a week*	*every few weeks*	*Rarely/ Never*
Twitter						
Facebook						
LinkedIn						
YouTube						
Instagram						
Telegram						
Pinterest						
Reddit						
Flickr						
Facebook messenger						
WhatsApp						
Google hangouts						
Skype						
Snapchat						
Tinder						
WeChat						
Viber						
TikTok (Douyin)						

E02. Do you use social networking sites … *(Always=5, Often=4, Sometimes=3, Rarely=2 and Never=1)*

- *… to solve your academic problem?*
- *… to do research work?*
- *… for online academic group discussion?*
- *… for communicate with your friends for preparation of exam?*
- *… for collaborative learning?*
- *… to learn about your curricular aspect?*
- *… to seek help from your teachers?*
- *… to become more sociable?*
- *… to create your social identity?*
- *… to attending social gathering?*
- *… for strengthening interpersonal relationships?*
- *… to keep in touch with my relatives?*
- *… to get information regarding current social events?*
- *… for sharing pictures?*
- *… to look at funny stories?*
- *… for watching movies?*
- *… to get relief from academic stress?*
- *… for reading news?*
- *… to share new ideas?*

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- *… for getting jobs related information?*

ASSOCIATION AND CULTURAL ACTIVITIES

F01. Are you a part of, or are you a member of, any association or group *(e.g. religious, political, sports, etc.)?*
1) Yes 2) No [go to F06.]

F02. How many student societies/associations do you belong to? N. |__|

F03. *[if student society>0]* ***Please mark the groups in which the society(ies) you belong are to be found.***

- *Academic*
- *Faith*
- *Arts and Performance*
- *Careers*
- *Charity, campaigning and political*
- *Media*
- *Sport*
- *Activity and specialist (music, alt music, wine, dance)*
- *Cultural and National*

F04. How many groups/association/societies outside the university setting do you belong to? N. |__|

F05. *[if outside the university >0]* ***Please mark the groups in which the society(ies) you belong are to be found.***

- *Faith*
- *Arts and Performance*
- *Careers*
- *Charity,*
- *Campaigning and political*
- *Media*
- *Sport*
- *Activity and specialist (music, alt music, wine, dance*
- *Cultural and National*
- *Social volunteering*
- *Recreational*
- *Pacifist, environmentalist, civil rights advocate*

997. Other, specify (_____)

F06. In the last 12 months, how often have you with your friends: *0. Weekly, 1. Several times a month, 2. At least once a month. 3. Less than once a month. 4. Once in the last six months. 5. Once in the last 12 months. 6. Never in the last 12 months.*

- *visited a museum*
- *visited an exhibition of art*
- *visited a historic building/church/castle*
- *been to the cinema*
- *been to the theatre*
- *been to a concert*
- *been to a sport event*
- *attended parties/events in the square*
- *attended parties/events in public places*
- *attended parties/events in private places*
- *eaten in the evening in a caffè shop*

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- *eaten in the evening in a restaurant/Pizzeria*
- *visited the shops/shopping*
- *visited department stores / Mall*

CULTURAL ACTIVITIES.
PERFORMING ARTS
Amateur practices

G01. Have you done any of the following activities as a hobby during the past 12 months? *(1) Once a week or more often; (2) 2 or 3 times a month; (3) Once a month; (4) or less Never*

- *Acted in a theatre play*
- *Directed a theatre play*
- *Performed as a stand-up comedian*
- *Sung in a choir, a vocal ensemble, opera/operetta/musical troupe, pop- rock jazz, folk band, rapped*
- *Played a musical instrument*
- *Played a musical instrument in an orchestra or pop/rock/jazz/folk band*
- *Composed music or performed as DJ*
- *Danced (ballet or modern dance, ballroom dance, Latin American dance, jazz dance, hip hop, break dance, street dance, folk dance)*
- *Did choreography for a dance performance*

Social participation/ volunteering

G02. During the last 12 months… *(1) Yes; (2) No*

- *Did you voluntary work for your company, ensemble or group? (This also includes taking care of logistics, requisites, costumes, lights, sound etc.)*
- *Did you follow lessons for your activity?*
- *Did you upload either your own performance or performance of your company, ensemble or group on the internet?*

Attending/ receiving

G03. How often did you visit one of the following performances in your own country or abroad (including festivals and other events) during the last 12 months? *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *A theatre play*
- *A cabaret, or a stand-up comedy*
- *A ballet or a modern dance*
- *A concert of classical music*
- *An opera*
- *A musical*
- *A pop or rock concert*
- *A jazz or blues concert*
- *A folk music concert*
- *A world music concert*
- *A concert or a party of urban (rap, hip-hop, trap)*
- *A dance feast or a house party*
- *A concert of popular national or local music*
- *A concert of a singer/songwriter or a chansonnier*
- *A concert of other music*
- *A professional sport event*
- *A amateur sport event*

G04. How often, in the last 12 months, did you view and/or listen to the recordings of: *(1) Every day or almost every day; (2) Few times a week; (3) Few times a month; (4) Less than once a month; (5) Never*

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- *Theatre plays*
- *Cabarets, or a stand-up comedy.*
- *Ballets or a modern dance*
- *Classical music*
- *Opera*
- *Musical*
- *Pop or rock*
- *Jazz or blues*
- *Folk music concert*
- *World music*
- *Urban (rap, hip-hop, trap)*
- *Dance or house*
- *Popular national or local music*
- *A singer/songwriter or a chansonnier*
- *Other music*
- *A professional sport event*
- *A amateur sport event*

ARCHITECTURE, VISUAL ARTS AND CRAFTS

Amateur practices

G05. Have you done any of the following artistic or creative activities as a hobby during the past 12 months?*(1) Once a week or more often; (2) 2 or 3 times a month; (3) Once a month; (4) or less Never*

- *Made paintings, drawings, graphical works (by hand)*
- *Made photographs as an artistic hobby (excluding family and/or holiday pictures)*
- *Made sculptures, pottery, glass, jewels,textile works*

Social participation/ volunteering

G06. During the last 12 months…*(1) Yes; (2) No*

- *Were you a member of an association, a club or a group of amateur artists or craftsmen?*
- *Did you voluntary work for this association, club or group?*
- *Did you present – alone or with others - own work in an exhibition?*
- *Did you follow lessons for your artistic or creative activity?*
- *Did you upload images of your work on the internet?*

Attending/ receiving

G07. During the last 12 months… *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *Did you view paintings, drawings, graphical works, photos, and sculptures, products of crafts or virtual exhibitions of visual arts or crafts (on the internet or other media)?*
- *Did you view or listen to a programme about visual arts and crafts (on television, radio, video, DVD, internet or other media) during the last 12 months?*

G08. During the last 12 months? *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *Did you visit a museum in your own country or abroad?*
- *Did you visit galleries or exhibitions in your own country or abroad?*

G09 *[IF YES…]* ***What kind of museums, galleries or exhibitions did you visit?*** *(Tick all that apply)*

- *Art*
- *Archaeology and history*
- *Natural history and natural science*
- *Science and technology*

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- *Ethnography and anthropology*
- *General, mixed*
- *Other*

G10. During the last 12 months… *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *Did you visit monuments, historical or artistic places, famous buildings or archaeological sites in your own country or abroad?*

G11. *[IF YES…]* ***What kind of monuments, places, buildings or sites did you visit?*** *(Tick all that apply)*

- *Historic sites (old quarter, monumental city etc.)*
- *Monumental and/or famous buildings*
- *Archaeological sites*
- *Cultural itinerary*
- *Other*

G12. During the last 12 months… *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *Did you view virtual exhibitions of art or any kind of museum objects, monuments, historical or artistic places, buildings or sites (on the internet or other media)?*
- *Did you visit a zoo or animal park?*
- *Did you visit a natural reserve?*

BOOKS AND PRESS

Amateur practices

G13. During the last 12 months…*(1) Once a week or more often; (2) 2 or 3 times a month; (3) Once a month or less; (4) Never*

- *Did you write any poetry, prose, fiction or non-fiction in your leisure time?*
- *Did you have a blog or an own website on the internet?*

Social participation/ volunteering

G14. During the last 12 months…*(1) Yes; (2) No*

- *Were you a member of an association, a group or a club of (amateur) writers or journalists?*
- *Did you follow lessons on (creative) writing?*
- *Did you send at least one letter to the editor of a newspaper or a magazine?*
- *Did you publish your own work on paper?*
- *Did you publish own work in whatever form on the internet (thus including weblogs, ezines and other internet publications)?*
- *Did you attend a reading circle or a book club?*
- *Did you participate in a reading circle or a book club on the internet?*

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G15. Approximately, how many books do you have at home?

- None
- 1-25
- 26-50
- 51-100
- 101-200
- 201-400
- More than 400

Attending/receiving

G16. During the last 12 months … *(1) Yes; (2) No*

- *Did you read a printed book in your leisure time?*
- *Did you read a book in digital form (i.e. on the internet, downloaded from the internet) in your leisure time?*

G17. *[IF YES…]* ***Which kind of books did you read?*** *(tick all that apply)*

- *Literature & Novels*
- *Science Fiction & Fantasy*
- *Mystery & Thrillers*
- *History*
- *Biographies*
- *Health, Mind & Body*
- *Other kind of boos*

G18. In the last 12 months, approximately how many books have you read (not for study)? **|__|__|**

G19. Do you read: *(1) At least five times a week; (2) Every week or almost every week; (3) Few times a month; (4) Once a month; (5) Less often; (6) Never*

- *printed magazines and/or periodicals in your leisure time?*
- *magazines and/or periodicals in digital form (i.e. on the internet, downloaded from the internet) in your leisure time?*
- *printed newspapers?*
- *newspapers in digital form (i.e. on the internet, downloaded from the internet)?*

LIBRARIES

Social participation/volunteering

G20. During the last 12 months… *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

- *How often did you visit a bookshop in your own country or abroad?*
- *How often did you visit an online bookshop and/or search for literature and other material available in a library on the internet?*

FILM AND VIDEO

Amateur practices

G21. Did you make at least one film or one video as an artistic hobby (thus excluding family and holidays films or videos) during the last 12 months?

(1) Once a week or more often; (2) 2 or 3 times a month; (3) Once a month or less; (4) Never

Social participation/ volunteering

G22. During the last 12 months…*(1) Yes; (2) No*

- *Were you a member of an association, group or club that makes films or videos (including video clips)?*
- *Did you voluntary work for or donated to such association, group or club?*
- *Did you follow lesson for film or video making?*
- *Did you show own film(s) or video(s) to an audience?*
- *Did you uploaded own film(s) or video(s) or films or video of the association, group or club you are a member of on the internet?*

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Attending/ receiving

G23. Did you go to the cinema or a film festival in your own country or abroad during the last 12 months? *(1) More than 12 times; (2) 7-12 times; (3) 4-6 times; (4) 1-3 times; (5) Never*

G24. Do you… *(1) Every day or almost every day; (2) Few times a week; (3) Few times a month; (4) Less than once a month; (5) Never*
…watch films on television, videos, DVD, internet or other media? …download films from the internet?

PARENTS EDUCATION ATTAINMENT

H01(f/m). Which is/was the highest educational level of your father/mother?
0 – Pre-primary education
1 – Primary education
2 – Lower secondary education
3 – Upper secondary education
4 – Postsecondary nontertiary education
5 – First stage of tertiary education (not leading directly to an advanced research qualification)
6 – Second stage of tertiary education (leading research qualification)
7 - Doctorate (advanced research qualification)
997 - Other, specify (_____)
998 - Prefer not to say
999 - Don't know

H02(f/m). When you were 14, did your father/mother work as:
(1) Employee
(2) Self-employed
(3) Armed forces employee
(4) Not working
(5) Deceased /absent when I was 14
(998) Prefer not to say
(999) Don't know

H03(f/m). *[If 'employee' or Armed Forces]* ***More precisely, he/she is/was a:***

1. ***High-ranking executive*** *(such as: high government official, judge, University professor, general or colonel)*
2. ***Senior employee – Manager/official*** *(such as: director, head researcher in private institutes, serving members of the military forces with a lower rank to a colonel, etc.)*
3. ***Employee with high technical/scientific and professional qualification*** *(such as: engineer, chemist, physicist, social worker, graduate technician, publicist, etc.)*
4. ***University lecturer***
5. ***Secondary school teacher***
6. ***Primary school or pre-school teacher***
7. ***Employee with high and middle qualification level*** *(such as: university researcher, expert, surveyor, bookkeeper, data analyst, bank cashier, chief secretary, public relations agent, professional nurse, archivist, non-commissioned armed forces officer, etc.)*
8. ***Secretary or similar***
9. ***Managerial employee*** *(front-office worker, receptionist, professional soldier, policeman and/or similar)*
10. ***Salesman or similar***
11. ***Worker in services*** *(such as: barman, waiter, chef, deliveryman, domestic helper)*
12. ***Foreman or supervisor***

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13. ***Skilled worker or similar*** *such as: foreman – motor mechanic – printer – tool and die maker – electrician*
14. ***14.Semi-skilled worker*** *(bricklayer – bus driver – cannery worker – carpenter – sheet metal worker – bake)*
15. ***Unskilled worker***
16. ***Agricultural worker*** *– farm laborer–fisherman*
997. ***Other position as employee*** *(_____)*
998. *Prefer not to say*
999. *Don't know*

H03(f/m). *[If 'self-employed worker']* ***More precisely he/she is/was a:***

17. ***Entrepreneur, CEO, Tenant farmer or similar*** *with more than 50 employees*
18. ***Entrepreneur, CEO, Tenant farmer or similar*** *with 14-49 employees*
19. ***Higher administrator, managing director*** *(banker, executive in big business, high government official, union official)*
20. ***Freelance worker*** *such as: doctor – teacher – engineer – artist – accountant*
21. ***Self-employed worker/ artisan*** *with 1-14 employees*
22. ***Self-employed worker/ artisan*** *without employees*
23. ***Occasional self-employed worker***
24. ***Self-employed workers without specific qualification*** *(such as: conveyer, driver, itinerant salesman)*
25. ***Tenant farmer or similar*** *with 1-14 employees*
26. ***Tenant farmer or similar*** *without employees*
27. ***Family helper in industry and services***
28. ***Family helper in the agricultural sector***
29. ***Member of a Cooperative company***
997. ***Other position as self-employee*** *(_____)*
998. *Prefer not to say*
999. *Don't know*

Final question. (Invitation)

Would you like to find out how you organize your days, including travel, study and lessons? ***Then join our survey!*** *We are looking for 300 students to participate in* ***a paid experiment*** *that will start at the end of February, to test a* ***new data collection application*** *to be installed on your smartphone.*
The experiment will last two weeks, during which you will be sent three short questions every half hour, which you can answer throughout the day. If you complete the task successfully, you will be paid 20 euros and you will have the opportunity to participate in the daily extraction of 5 telephone top up of 5 . You will also have the opportunity to participate in the final extraction of three prizes of 100 euros.
If you wish, you can also continue to use the App for another two weeks. In these two additional weeks your commitment will be reduced and the request to answer the three questions will be every 2 hours. If you complete the task successfully, you will be paid an additional 20 euros and the opportunity to participate in the daily extraction of 5 phone charges from 5 . You have also the opportunity to participate in the final extraction of three prizes of 150 euros.

Your contribution is important to us.
If you are interested, open the link below and answer three questions to be selected:
For any request for clarification you can contact the following email addresses:
smart.unitn.project@gmail.com
In thanking you in advance for your attention, we offer you our warmest regards.
Prof. Ivano Bison

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Questions to accept to participate:

I00. Do you want to participate?

1. *Yes*
2. *No [go to I05]*

I01. Your personal main smartphone is an:

1. ***iPhone*** *[go to I05]*
2. ***Android operating system (Samsung, etc...) with version 5.0 or higher?*** *(Note: in case you do not know the version of the operating system, you can check it in the Settings of your smartphone Info on the device/phone. Alternatively, your smartphone must be purchased after 2015 and you should typically download apps from the Google Play store.)*
3. *Another operating system [go to I05]*

I02. We would ask you the phone number and your university and/or personal mail to contact you.

1. *Cellphone*
2. *University mail*
3. *Personal mail*

I03. How many Mobile phones do you have? *No.* |__|

I04. I agree to report my name to the person in charge of the research project entitled WeNet - Internet of us (https://www.internetofus.eu/) and to be contacted to receive further explanations for my possible participation.

1. *Yes*
2. *No [go to I05]*

I05NoRequirements. We are sorry, unfortunately you are not eligible to participate in the survey, but we thank you very much for your valuable contribution!

I06. Thank you for joining the initiative!
In the next days, you will be contacted by our team who will provide you all the information to participate in the experiment.

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Mail for the ILog participants.

Hi {FIRSTNAME},
You have been selected to participate in the survey!
Below you will find a link to a short questionnaire that I would ask you to complete before starting the experiment, which will start on May 7. As soon as the procedure of initialization of the identifiers has been completed, you will receive an email with instructions and a code to download and install the i-Log app. For any doubt or curiosity, you can contact me at the email address or telephone number that you will find at the bottom. XXX
Click here to access the questionnaire and answer the related questions:
I would like to take this opportunity once again to thank you for your valuable cooperation.
Best regards,
Mobile phone:

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QUESTIONNAIRE: ONLY FOR THE ILOG PARTICIPANTS.

A01. Please indicate your exact home address where you live during term time you are at the University

A02. Please enter the exact address of your parents

A03. With whom do you live? (Y/N)

- *Alone*
- *Other students*
- *Partner*
- *Your children*
- *Parents or other relatives*
- *Other (specify)*

A04. Do you have a: *(only for people who don't live alone).*

- *Single bedroom*
- *Bedroom shared with another person*
- *Bedroom shared with two people or more*

A05. In your home/flat, which items do you have? *Yes/No*

- *Colour television (common area)*
- *Colour television (in your bedroom)*
- *Home theatre/Stereo system*
- *Video recorder/DVD player*
- *Satellite dish / Sky TV*
- *Home computer/PC*
- *Laptop computer*
- *Tablet*
- *Landline telephone*
- *Dishwasher*
- *Wi-Fi*

A06. All in all, what is your commute time and distance from your accommodation/home to university department?
Time in minutes _____
Distance in Km _____ (Note: use decimals to indicate meters. For example, enter 0.800 if you travel 800 meter or write in 2.5 if you travel two and a half kilometres.)

A07. In addition to you, how many people do you share the apartment with? |__|

A08. How many of these people attend university? |__|

A09. During the first semester (LSE: *Michaelmas term)**, how often did you attend university (not just classes)?***

A10. During the first semester (LSE: *Michaelmas term)**, on what days were you at university (not just for classes)?***

A11. In the first semester, on average, how many hours of class did you attend per week?

A12. In the first semester, how many hours a day did you spend at a university (including going to the library, canteen, labs, etc.)?

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A13. How many hours per day did you devote to individual study on weekdays (Monday-Friday)?

A14. How many hours per day did you dedicate to individual study in the WEEKEND (Saturday and Sunday)?

WORK ACTIVITY

A15. Have you been in paid employment in the last 6 months
1) Yes 2) No

A16. Do you currently do any work, including occasional work?
1) Yes 2) No

TRANSPORT PART 1

Let us talk about the daily modes of transportation you use to move around, not just to go to university.

B01. Do you have …?

	Yes	*No*
…a car driver's license?		
…a motorbike driver's license?		
…a bike of your own?		
…a car of your own?		
…a motorbike of your own?		
…access to a car whenever you want?		
…access to a motorbike whenever you want?		

B02. Could you tell us the main method that you use for getting about in your daily life?

- *Walking*
- *Cycling*
- *Car (Filter: go to question*
- *Car-sharing (with friends/relative etc.)*
- *Motorbike*
- *City bus/suburban bus/Tube (Public Transport)*
- *Train*
- *Electric scooters [monopattino elettrico]*

B03 How often do you use public transport in the weekday?
(1) Never (2) Seldom (3) Sometimes (4) Often, (5) Always

COOKING AND SHOPPING HABITS

We would like to study your consumption habits. This section explores your cooking habits and competencies as well as your shopping behaviour.

C01. Would you say you know how to cook?

1. *Yes, I know how to cook.*
2. *Yes, but only basic things.*
3. *No, I don't know how to cook. (go to part 3)*

C02. Is there a kitchen in your accommodation/house that you can use? *(only for student that not living with parents/relatives)*

1. *Yes, there is a kitchen that I can regularly use.*

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2. *Yes, there is one but I don't have regular access to it.*
3. *No, there is no kitchen.*

C03. How good you are at each of the following tasks:
(1) Very poor …. (7) Very good (99) Don't Know/Can't say

- *baking cakes, cupcakes, cookies, bread from raw ingredients*
- *peeling and chopping raw vegetables (including potatoes, carrots, onions, broccoli)*
- *preparing and cooking raw meat (red meat and poultry)*
- *preparing and cooking raw fish*
- *following recipes when cooking*

C04. How often do you cook a main meal?

1. *Daily*
2. *Several times a week*
3. *Once a week*
4. *Less than once a week*
5. *Never*

C05. Please use the 7-point scale below to indicate your level of agreement with the following statements. (*1) strongly disagree - (7) strongly agree*

1. *Cooking makes me happy.*
2. *Cooking is time consuming.*
3. *I am good at cooking.*
4. *Cooking is costly.*
5. *Cooking helps me eat healthy.*
6. *Cooking is difficult.*
7. *Cooking is important to me.*
8. *Cooking is just a chore I have to do.*
9. *When cooking, I like to try new recipes.*

C06. When looking for ideas or inspiration about cooking, what are you most likely to do? *Select all that apply.*

1. *Turn to your family for tips*
2. *Look online for recipes*
3. *Look in cookbooks/magazines*
4. *Use recipe apps*
5. *Watch cooking shows online or on TV*
6. *Ask friends for ideas*

C07. Let us talk about your diet. Which of the following applies to you? *(Indicate all that apply.)*

- *I don't follow a specific diet*
- *I follow a vegetarian or vegan diet*
- *I avoid certain foods for religious or cultural reasons*
- *I avoid or limit my intake of certain foods due to health problems (allergies, gluten intolerance, …)*
- *I have no health issues but follow a health-food diet rigidly*
- *I limit consumption of certain foods to lose/maintain weight*

C08. Could you please tell us to what extent do the following statements describe you? *(1) Not at all (2) To little extent (3) To some extent (4) To a great extent*

1. *For me, eating is a pleasure.*
2. *Eating for me is just a way not to feel hungry.*
3. *I like to try new foods and tastes.*

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C09. Last month, how often did you shop for food groceries?

1. *Rarely/Never (go to C20)*
2. *Once every 2 weeks*
3. *Once a week*
4. *A few times per week*
5. *Everyday*

C10. Last month, how often did you buy the types of food products and supplements:
(1) Never (2) Rarely (3) Often (4) Always

1. *Organic*
2. *Zero-mile*
3. *Weight-loss pills, teas and products - slim fast, weight watchers, meal replacements*
4. *Dietary supplements - vitamins, iron, potassium…*
5. *Frozen items*
6. *Allergen-free products - gluten free, lactose free*
7. *Ready meals - to be just heated or defrosted in microwave/oven*

C11. How much time do you spend shopping for your food groceries? *Do not include the time to get to and from the store.*

1. *Little time, I shop as quickly as possible.*
2. *Time enough to find all I need.*
3. *More time than the strictly necessary.*

C12. How often did you shop at the following super/markets last month? *(1) Never (2) Rarely (3) Often (4) Always (5) there aren't this kind of shops near I living*

1. *Specialised food shops (fishery, butchery, bakery, fruit and vegetable shops)*
2. *Organic Shops (…)*
3. *Supermarkets*
4. *Discount supermarket*
5. *Street markets*

C13. During the past 12 months, How often do you shop *... (1) Once a week or more often; (2) 2 or 3 times a month; (3) Once a month; (4) or less Never*

- *… in shops, malls, etc.?*
- *… shop online/e-shopping?*

SPORTS AND PHYSICAL ACTIVITIES.

D01a Beyond walking about do you engage in other physical activities? (*1) Yes (2) No*

D02b Have you been physically active on a regular basis for the past 12 months or longer.
1) Yes 2) No
(if both answers are "No" go to MECHANISM MEASURES others continue with B28)

D03. During the past 12 months, how often have you done the following types of sport activities?
1. Not at all; 2. Less than once a week; 3. At least once a week; 4. Almost daily.

1. *Cardio/fitness activities like swimming, running, jogging, stair climbing, cycling or rope skipping*
2. *Yoga, stretching and fitness dancing activities like aerobics, dance exercise, pilates*
3. *Water sports like skiing, snowboarding, wakeboarding, diving, canoeing or rowing*
4. *Weightlifting and resistance training including free weights, bench press, leg press, push ups, pull ups or sit ups*

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5. *Team sports like soccer, basketball, hockey, baseball, and volleyball*
6. *Boxing and martial arts like judo, karate and taekwondo*
7. *Racket sports such as tennis, ping pong, and squash*
8. *Outdoor recreational sports like climbing, hill trekking, walking, mountain biking, orienteering, skateboarding*

D04. How often do you exercise?

1. *Every few weeks or less*
2. *Once or twice a week*
3. *Three to five days a week*
4. *Six to seven days a week*

D05. How often do you train … *(1) Never (2) Seldom (3) Sometimes (4) Often, (5) Always*

1. *… alone?*
2. *… with Friends, family members?*
3. *… with Trainer, a group or sport team*

D06. When exercising, which of the following devices do you use? Select all that apply.

1. *Wearable fitness trackers*
2. *Smartwatches*
3. *Smartphone fitness apps*
4. *Headphones*
5. *Other, specify_____*
6. *None*

D07. Read the following statements and indicate how often you do the following: *(1) Never/Rarely (2) Occasionally (3) Often (4) Always*

1. *Look for fitness information on the Internet*
2. *Read specialised magazines about sports and physical activities*
3. *Ask fitness trainers for advice on how to improve your workout routines*
4. *Talk with sporty people about training routines and sports equipment*
5. *Use Apps for fitness information*

MECHANISM MEASURES

E01. Have you given your time to help in any of the following ways outside of school or college hours in the last three months? *(Yes / No)*

1. *…Helped out at a local club, group, organization or place of worship*
2. *…Helped out other organizations*
3. *…Raised money for charity (including taking part in a sponsored event)*
4. *…Contacted someone (e.g. council, media, school) about something affecting your local area*
5. *…Organized a petition or event to support a local or national issue*
6. *…Done something to help other people, or to improve a local area*

E02. Apart from your family have you helped anyone not in your family in any of these ways in the last three months? *Do not include anything you were paid to do. (Yes / No)*

- *...Doing shopping, collecting pension, or paying bills for someone*
- *...Cooking, cleaning, laundry, gardening or other routine household jobs for someone*
- *...Decorating, or doing any kind of home or car repairs for someone*
- *...Baby sitting or caring for children*
- *...Taking care of someone who is sick or frail*
- *...Looking after a pet for someone who is away*
- *...Helping with a university or job application*

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- *...Writing letters or filling in forms for someone*
- *...Helping out in some other way*

E03. Now, think about people you know who you would feel happy getting in touch with to ask for advice or a favor. How many are…*None to Many (4-option Likert scale)*

1. *… from a different school or college to you?*
2. *… from a different race or ethnicity to you?*
3. *… from a different religious background to you?*
4. *… from a richer or poorer background to you?*
5. *… gay or lesbian?*

E04. If I needed help, there are people who would be there for me… *None to Many (4-option Likert scale)*

E05. The next question is about how confident you feel about different areas of your life. How do you feel about the following things, even if you have never done them before...? *Not at all confident to Very confident (5-option Likert scale)*

1. *…Meeting new people*
2. *…Having a go at things that are new to me*
3. *…Working with other people in a team*
4. *…Being the leader of a team*

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