*** PRELIMINARY VERSION ***

GENERATIONAL CHANGE IN THE WORKFORCE: EMERGING BEHAVIOURAL TRAITS OF MILLENNIALS IN TEAMS AND ORGANIZATIONS

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Organizations are affected by a continuous generational change in their workforce. Members of the Millennials generations started to supplant previous generations. As per any generational change the incumbent generation is supposed to bring to the workplace peculiar traits and habits which might differ from that of the previous generation, due to the differences in significant life events that the two generations crossed. Millennials are portrayed as digital natives, i.e. individuals deeply immersed in information and communication technologies, used to intensively interact with them for a wide gamut of purposes, and dependent on them so much that when they are taken away from their devices they start to feel a sense of lack and inadequateness. The literature has studied digital natives mainly from the perspective of teaching and education. Few woks focused instead on the collaboration consequences raised by the presence of these individuals in the workforce. This paper is part of a larger research project devoted to study if the intense interaction that digital natives had with information and communications technologies produced consequences in their behaviour in professional contexts. The paper discusses the results of an exploratory study to investigate differences in behavioural traits among digital natives, and to see if the traits that are purportedly associated with the profile of a digital native produce differences on the way individuals cooperate with peers in teams and organizations.

Keywords: Digital Natives, Millennials, Generational Change, Behavioural Traits

1   Introduction

Organizations, especially in the western world, are facing a continuous generational change process, where the portion of workers with age above 65 increases (Joshi, Dencker, & Franz, 2011), and where members of the *millennials* generations supplants older generations in the workforce (Hershatter & Epstein, 2010). Like in any generational change process, the incumbent generation is supposed to bring to the existing workforce different values, habits, and behaviour. The co-presence of members of different generations in the same work-force is an element of heterogeneity out of which consequences for cooperation among members of different generations can be hypothesized (Braccini & Federici, 2013).

Millennials are many times purported as *digital natives,* or as the *net generation* (Prensky, 2001a; Tapscott, 1998), i.e. as a generation of young people mostly born after the year 1980, who grew up in a world permeated by information and communication technologies (ICTs), who developed peculiar skills and habits in the use and interaction with these technologies, who are used to resort on them whenever possible, and who developed usage patterns and the related cognitive structures different from that of the previous generations (called in contrast *digital immigrants*) (Palfrey, Gasser, Simun, & Barnes, 2009; Palfrey & Gasser, 2008). The reason why these individuals might have developed the skills and habits that are usually associated with them depends on their state of continuous immersion in ICTs that characterized their entire lives (Prensky, 2001a). It was indeed estimated that by the age of 20 these individuals would have spent more than 20,000 hours online using different transaction and decision support systems, both for leisure and for cooperation with peers (Vodanovich, Sundaram, & Myers, 2010). For such intense and frequent interaction with ICT it was also hypothesized that they would possess different thinking and cognitive patterns (Marzo & Braccini, 2016; Prensky, 2001a, 2001b) due to the biological phenomenon called *neuroplasticity* (Rosen, 2010) and thanks to their intense usage experience with ICTs, they would have developed a different brain structure.

The topic of the digital natives is the core of a multi and cross-disciplinary debate. Many of the assumptions on the digital native remain at the anecdotal level without adequate empirical evidences (Bennett, Maton, & Kervin, 2008; Brown & Czerniewicz, 2010). At the same time the homogeneity of a cohort

of digital natives inside the millennials was criticized recognizing that this generation shows a high internal variation. Besides the lack of consistent empirical evidences, the digital native debate is characterized also for the fact of having been mainly developed within the boundaries of teaching and education (Braccini & Federici, 2013), as for quite a while digital natives were only sitting behind desks in schools.

Nowadays digital natives are entering workforces with the millennials rise in the generational change process (Howe & Strauss, 2000; Levenson, 2010). It can be questioned if their purported habits and skills with technology would produce consequences on the way they behave and cooperate with peers. This paper is thence motivated by the following set of research questions: *will ICT knowledge and usage intensity show differences in the natives and immigrants profiles? Will natives show differences in cooperation dynamics with peers than immigrants*? The paper discusses the results of an exploratory studies where a group of millennials are investigated to study their behavioural traits related to ICT use, and to study their cooperation dynamics from an organizational behaviour perspective. This approach differs from the one commonly used in the literature natives as these individuals are not only identified by the age (assuming that they all show the same behavioural traits), but are profiled on the bases of a set of behavioural traits which are described by the literature as associated to a digital native (Braccini & Federici, 2013; Teo, 2013). In this work therefore an individual is not assumed to be a digital native just for the fact that she was born after the year 1980, but it is labelled as such only when it shows the behavioural traits which should be developed, according to the literature, as a result of an intense interaction with ICTs. The paper contributes to the digital native debate by focusing on a behavioural perspective investigated with an empirical research strategy. At the same time, it contributes to shed light on the generational change process in progress in organizations.

The structure of the paper is as follows. Section 2 will describe the main theoretical contribution describing the digital natives, their habits and traits, and the consequences expected on the way they be-

have. The subsequent section 3 describes the research design and the methodology adopted for the exploratory studies. The results of these studies are showed in section 4, and discussed in section 5. Some final remarks in section 6 eventually conclude the paper.

2 Theoretical Framework

The debate on the consequences of intense ICT interaction in the early stages of a person's life is recent in the literature. It was motivated by the observation that pupils in schools had more and more difficulties in adapting to traditional (non-interactive) learning methods (Gallardo-Echenique, Marqués-Molias, Bullen, & Strijbos, 2015) being used to resort on (interactive) digital media for most of their lives. The debates originates and mostly developed within the boundaries of teaching and education (Braccini & Federici, 2013), but attracted the attention of communities of scholars across several disciplines (Ryberg & Ryberg Larsen, 2012).

2.1 The digital natives debate

The debate in the literature on the consequences of intense ICT use on individuals' behaviour traces back to the definition of two powerful concepts firstly introduced by Prensky (2005): that of *digital natives* and *digital immigrants*. The idea behind these concepts is a sharp distinction between two cohorts of individuals: one that was born in a digital world, grew up with technologies, and developed an innate digital nature; and the other that was born before the digital revolution, grew up in a world were ICTs were initially not so diffused (or even absent), and encountered them in a later stage of their lives. According to these profiles, the *digital immigrants* are supposed not to be at ease with ICTs as the natives are.

Not all the sources of this debate talk of natives and immigrants. Other times authors refer to a *net generation* (Basar, Rahatullah, Nawaz, & Adnan, 2013; Oblinger & Oblinger, 2005; Ravotto & Fulantelli, 2001; Tapscott, 1998), or to a *generation y*, or to *millennials* in general (Berkup, 2014; Howe & Strauss, 2000) to identify the traits of digitally immersed individuals. In spite of the differences in

terminology there is enough consistence in the characteristics that these individuals shall have, and thence in this paper the terms used will always be *digital natives* and *digital immigrants*.

To distinguish between these two profiles (natives and immigrants) the discriminant is usually the birthdate. People are classified as digital natives if they were born after the year 1980, and immigrants if they were born after. The classification of individuals in this way is based on the assumption that these cohorts of people are homogeneous in terms of habits towards ICT usage, while they have been prove, with time, not to be so (Bennett & Maton, 2010; Brown & Czerniewicz, 2010; Gros, Garcia, & Escofet, 2012; Jones & Czerniewicz, 2010). Access to ICT is uneven in different countries, and across countries, and several mediating factors shall be taken into account to assess the influence of ICT on the behaviour (Braccini & Federici, 2013).

Scholars seem to agree that specific behavioural traits can be observed in digital natives, and that these traits are purportedly associated to the intense use of ICTs they made through the years (Valkenburg & Peter, 2008). Much part of the digital native debate still focuses on studying the characteristics of these individuals. Just a smaller part of the overall debate focuses on the behavioural consequences of mass ICT exposure (cfr. Figure 1), and this trend is more recent within the overall debate on digital natives.
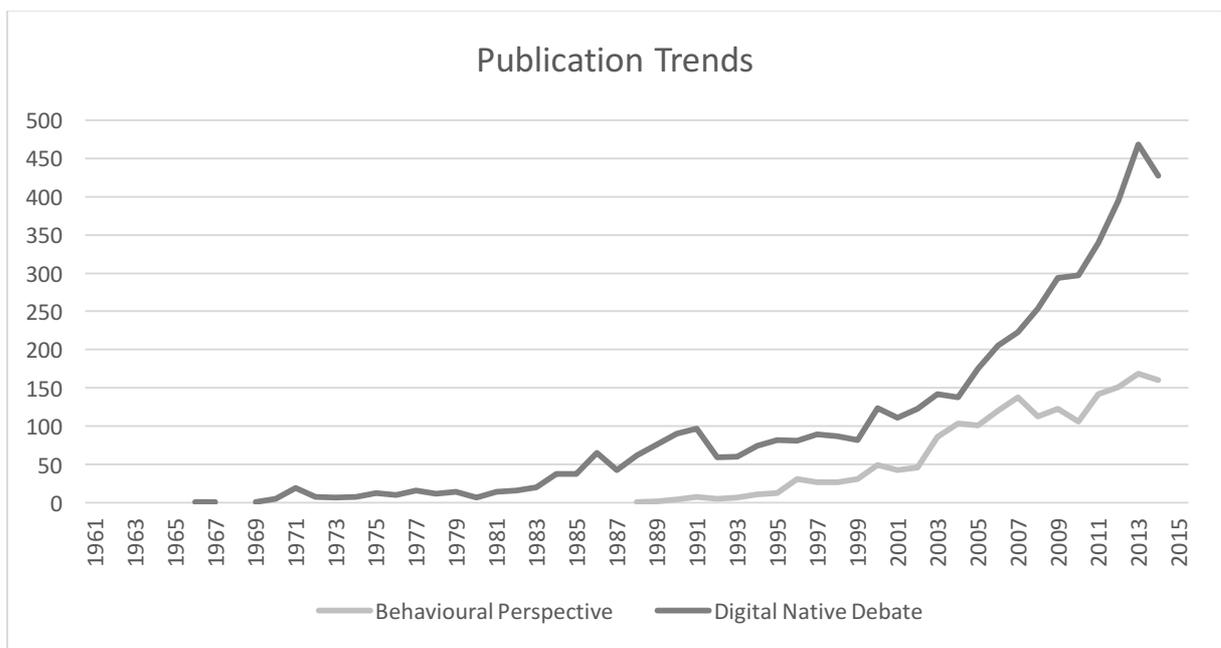

Figure 1. Publication trends on digital natives: structural impact vs behavioural consequences

2.2   Behavioural traits of digital natives

One of the behavioural traits commonly associated with the digital native profile concerns the continuous use of ICT tools, both for personal and for social needs. The natives are used to resort on ICTs whenever they can, and they prefer to do so also to entertain social relationships with peers (Brown, 2000; Hargittai & Hinnant, 2008; Oblinger & Oblinger, 2005). They are said to tend to be connected to the network most of the time, and to be in contact with peers constantly. Moreover, thanks to ICTs they are reported to be in contact with a higher number of connections on-line, and to manage their network mainly through digital media (Oblinger & Oblinger, 2005; Salaway, Caruso, & Nelson, 2008). While face-to-face interaction is not to be considered as of second order for them (Ryberg & Ryberg Larsen, 2012), the natives show the habit of easily admitting persons to groups online also without a strong acquaintance, or without knowing them personally before (Oblinger & Oblinger, 2005).

Being used to interact with ICT tools, and being these technologies used to quickly process and transmit information, speed in information transmission and processing characterizes the profile of the digital natives (Oblinger & Oblinger, 2005; Prensky, 2001a, 2001b; Vodanovich et al., 2010). The natives are used to a technology that gets faster and faster every month, and thence everything that concerns information transmission and processing for them needs to be fast. This need for speed is not only in relation to the way information is delivered and presented to them (Jones, Ramanau, Cross, & Healing, 2010), but also to the way they process it, up to that point that it has been hypothesized that their brains developed different synapses for information processing (Prensky, 2001a).

A consequence of the habit to frequently use ICTs is that of being submerged by an overwhelming quantity of information available on the internet, where untrustworthy information is usually just around the corner (Braccini & Federici, 2013). Digital natives are generally considered to be competent at searching the web, though such habit is not common to all of them (Bennett et al., 2008; Hargittai & Hinnant, 2008). This search ability is not always coped with the capacity to critically assess the quality and the trustworthiness of the pieces of information found online (J. S. Brown, 2000; Lorenzo & Dziuban, 2006; Oblinger & Oblinger, 2005). Unlike the other traits associated to digital natives this one

is not a trait they show, but rather a trait they potentially lack: the capability of critically evaluating the authority, relevance, quality, and significance of online sources seems to be scarce in digital natives (Lorenzo & Dziuban, 2006).

The social nature of the digital natives (J. S. Brown, 2000; Oblinger & Oblinger, 2005; Vodanovich et al., 2010), and their habits of having frequent contact through digital media stimulates the native to work in teams and interact with peers rather than to work in hierarchies (Vodanovich et al., 2010). That habit they developed during their age will potentially produce consequences in professional contexts and on the workplaces where they will be most probably included in a traditional structure based on command and control (Tapscott, 2008)

A final aspect related to the behaviour of digital native is their habit of preferring an experiential strategy for learning. Given the fact that the Internet allows concrete rather than abstract learning, and considering that it is a medium for the social creation of understanding (Brown, 2000), the digital natives prefer to learn by doing rather than to be told what to learn (Oblinger & Oblinger, 2005). They thence prefer to gain a better comprehension of a phenomenon through direct participation and discovery with peers. In such preference their previous experience with video games might play a role. It should not anyhow be assumed that such interest in active learning does not mean that the natives always ask for greater use of technologies during learning processes (Kennedy, Judd, Dalgarno, & Waycott, 2010; Salaway et al., 2008).

3   Research Design

Within the theoretical framework above described, this paper discusses the empirical results of a set of studies on the digital natives behaviour, and of their behavioural traits, following a data and method triangulation strategy (Jick, 1979). The analysis is based on two samples of observations (46 in the first case and 62 in the second case) out of a group of 53 millennials who have been asked to fill a survey, and have been involved in a set of laboratory experiments.

Participants taking part in these activities were informed voluntary who decided to participate in the research project out of their own will. They have been informed prior participation on the objectives of the research projects and on the kind of support and contribution that was asked to them. Participants were profiled with a measurement scale (Braccini & Federici, 2013) to assess the six behavioural traits discussed in the previous section (multitasking, computer mediated communication, critical thinking, peer to peer connection, learning in action, and speed in information processes). According to the results of the survey they were classified in two cohorts: the digital natives (assigned to those who ranked higher than a 66% threshold on the average of all the measured traits), and the digital immigrants (assigned to all the rest of the individuals).

With participants divided in these two groups, a subset of them was engaged in behavioural experiments in a computer laboratory. For this experimental part a modified version of the trust game was used to be able to study cooperation dynamics between participants, and we particularly observed trust and control dynamics in digital natives (Marzo & Braccini, 2016). We engaged pairs of trustors and trustees in three rounds of the trust game: (1) a simple game where the trustors had the choice to bet an amount of money they had been assigned in the game on a third person, the trustee, who in turn had to decide if such trust shall be rewarded by giving back part of the sum she received to the trustor; (2) a game where the trustors had the possibility to pay for an insurance against their potential losses; and (3) a game where the trustors had the possibility to opt for a third-party punishment of the trustee. All the participants to the experiments were asked to play several rounds of the variant n. 1 (unmodified trust game). After half of their games they have been given the chance to opt for variant n. 2 or 3, or keep playing with the unmodified version of the game. Groups were formed by the research team in a way so that it would be possible to observe the behaviour of natives and immigrants when they were either trustors, or trustee, and when they were part of homogeneous or heterogonous groups.

Data were collected anonymously, and only from informed participants who agreed to take part in the research project. Participants who took part in the experiments achieved a performance fee calculated on the bases of their performance (measured by the payoff) in the games they were involved.

4   Discussion of Preliminary Results

This section discusses the results of the exploratory studies on the behaviour of digital natives. The section is divided in two sub-sections, the first one discussing considerations about the profile of the digital natives in terms of presence/absence of their specific behavioural traits, while the second one discussing the potential differences in their behaviour in terms of trust and control choices when engaged in a team relationship.

4.1   Digital Natives Behavioural Traits

The behavioural traits of the digital natives were assessed with a measurement instrument based on a 7 point Likert scale. The sample analysed here consists of a cohort of 46 observations of millennials. The data collected on this sample show that not all the millennials show the traits of the digital native profiles. Figure 2 shows a box plot of the distribution of scores on the six behavioural traits.
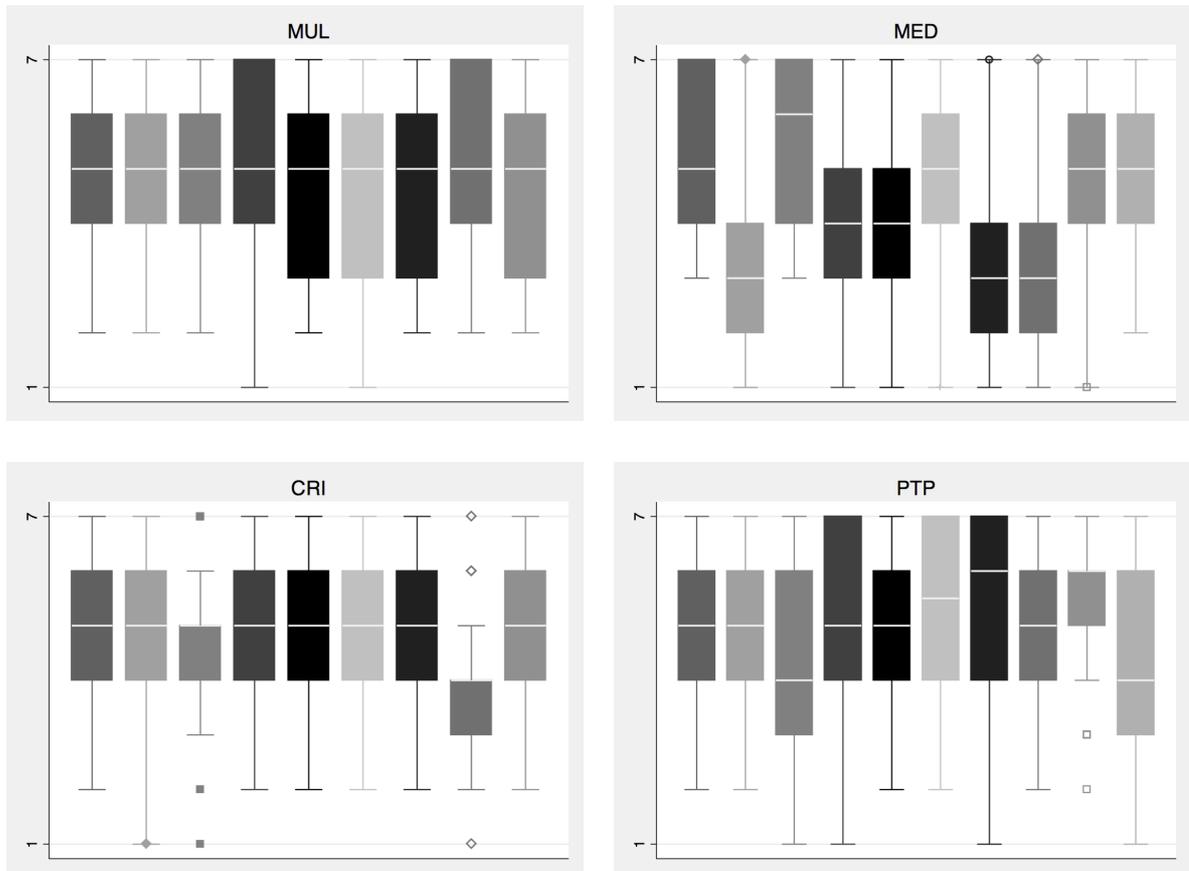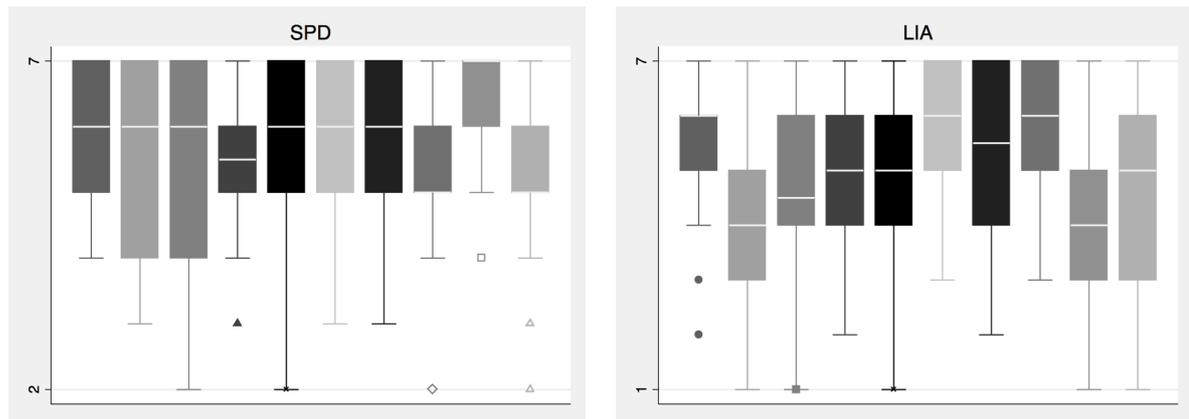
Figure 2. Box plots of the six behavioural traits of digital natives (sample of 46 observations)

The plot visually depicts some internal variation among the distribution of the scores on the six traits. It has to be pointed out that if all the respondents were digital natives it would have been reasonable to expect high average and median scores, with reduced distance between the max and the min value and, hopefully, no (or few) outliers.

With a look at these results a first consideration to be formulated concerns the uneven distribution of scores across all the traits. Out of all the behavioural traits included in the analysis, that showing consistent higher results is that of SPD (speed in information processing). This trait seems to be frequently present among respondents, regardless of the fact that they show also the other traits of a digital native or not. Mostly all the indicators of the SPD trait score higher values equal to the highest value of the scale, and all the maximum values coincide with the top of the scale. Average values are also high, while minimum value stay far from the bottom of the scale in most of the cases. There is anyhow a significant presence of outliers in three of the indicators.

All the other factors show instead a more varied situation, with scores and minimum values not so high on the scale. Factors were scores are on average higher, or equal-higher, than the median of the scale are PTP (peer to peer connections), MUL (multitasking), CRI (critical thinking), and LIA (learning in action). Out of these traits, LIA is the one showing higher internal variation, while outliers can be observed in LIA, PTP, and CRI.

The most problematic, in terms of internal variation, amongst all the behavioural traits assessed here is that of MED (computer mediated relationships), which describes the preference of entertaining communication with other people through digital media. Average scores here are highly diversified, as well as the range is quite high for several indicators. Some indicators also show average values which are lower than the median of the scale. It has to be pointed out anyhow that this result is somewhat comprehensible as amongst all the traits associated to the digital native, that of communicating mainly through ICT is the most extreme and provocative one.

4.2   Digital Natives Behaviour in Trust and Control Choices

A subset of the individuals whose behavioural traits were assessed was engaged in a set of laboratory experiments which in total accounted for 62 rounds. In each round participants were engaged in pairs. Paris were randomly chosen, but pairings were designed to be able to observe the behaviour of both homogeneous and heterogeneous teams, as shown in Table 1, and Table 2. Few participants decided to drop-out of the experiment before taking part into it so it was not possible to ensure an equal size in terms of observations of all the different pairings of trustors and trustees. Homogeneous teams observations are unbalanced with teams composed by two immigrants outnumbering teams composed by two natives.

Player profile	Trustor	Trustee
Digital Native	27	26
Digital Immigrant	35	36

Table 1. Player profiles

Pair	Frequency
Native - Native	11
Native – Immigrant	16
Immigrant – Native	15

Immigrant – Immigrant	20
Total	**62**

Table 2. Player profiles pairings

Game type	Frequency	Of which
Simple	48 (32 + 16)	-
Modified	14	10 with punishment
		4 with insurance

Table 3. Games types and frequencies

		Offer		Giveback		Payoff TR		Payoff TE	
	N	Avg	Dev st	Avg	Dev st	Avg	Dev st	Avg	Dev st
Immigrant - Immigrant	20	1.80	1.99	3.55	1.67	8.95	2.25	3.43	1.37
SIMPLE	18	1.89	2.08	3.56	1.76	9.11	2.33	3.55	1.41
INSURANCE	2	1.00	0.00	3.50	0.71	7.50	1.50	2.12	0.71
Immigrant - Native	15	1.27	1.22	3.60	1.68	7.73	1.67	3.35	0.98
SIMPLE	12	1.33	1.30	3.50	1.83	8.17	1.83	3.61	1.03
INSURANCE	1	2.00	-	5.00	-	5.00	1.00	-	-
PUNISHMENT	2	0.50	0.71	3.50	0.71	6.50	1.00	0.71	0.00
Native - Immigrant	16	2.06	2.32	4.25	1.77	7.38	1.81	2.09	0.98
SIMPLE	11	2.45	2.70	4.45	2.07	7.55	2.00	2.34	1.10
INSURANCE	3	1.00	1.00	3.67	0.58	7.00	1.33	1.00	0.58
PUNISHMENT	2	1.50	0.71	4.00	1.41	7.00	1.50	2.83	0.71
Native - Native	11	0.91	1.38	3.91	1.51	6.09	1.00	2.81	0.89
SIMPLE	7	0.71	1.50	3.86	1.57	5.86	0.86	3.13	1.07
INSURANCE	4	1.25	1.26	4.00	1.63	6.50	1.25	2.52	0.50

Table 4. Summary of all the games (62 observations)

Out of the 62 rounds, participants played 48 times the simple trust game (32 by experiment design, and 16 following their own choice), and 14 times the modified trust game. Out of these 14 times, in 10 cases participants opted for the punishment, and 4 times for the insurance (cfr. Table 3).

Table 4 shows descriptive statistics of the results of the experiments rounds performed. The table shows size (number of observations) and average and standard deviation of the offer, the giveback, and the payoffs of both trustors and trustees in the four different groups (categorized on immigrants/native and trustor/trustee). The data in Table 4 shows that in the homogeneous pairs formed by two natives the average payoffs for the trustors are lower compared to the other three scenarios. Trustees' payoffs are instead low in almost all the four scenarios, with no remarkable differences in relation to the different groups compositions.

Figure 3 shows instead the frequency distribution of offers and givebacks in all the four possible combinations of groups. The graph shows that in terms of repetitions of combinations of offer – giveback, homogeneous pairs tend to concentrate in few combinations. Heterogeneous groups on the other side seem to combine different offers and givebacks, as the distribution of the frequencies is sparser in this case.

Native trustors tend to offer smaller amounts to the trustees. Immigrant trustors in the end explore a wider breadth of the potential offers and there is less concentration among the different values passed to the trustee. A similar behaviour can be observed for native trustees.
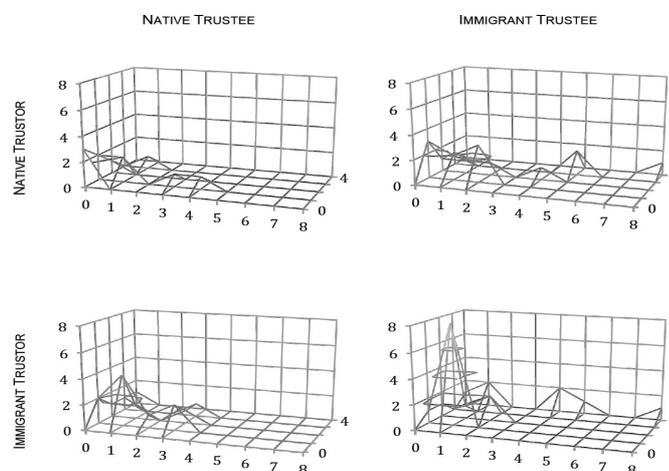
Figure 3. Frequency distribution of offer and giveback with different combinations of trustors and

trustees

To further measure the behaviour of the profiles involved in the experiment the following four indexes are calculated: a trust index for trustors (*TI*), an egoism index both for trustors (*ETR*) and trustees (*ETE*), and a fairness index for trustees (*EI*). The indexes are calculated as follows.

$$TI = \frac{offer_{TR}}{endowment_{TR}} \qquad \text{Max trust level 1, Min trust level 0}$$

$$ETR = 1 - TI \qquad \text{Max trustor egoism 1, Min trustor egoism 0}$$

$$EI = \frac{giveback_{TE}}{2(3 * offer_{TR} + endowment_{TE})} \qquad \text{Max trustee fairness 1, Min trustee fairness 0}$$

$$ETE = 1 - EI \qquad \text{Max trustee egoism 1, Min trustee egoism 0}$$

Average and standard deviation scores of the four indexes are shown in Table 5.

	Trust Index		Egoism TR Index		Egoism TE Index		Equity Index	
	AVG	DEV.ST	AVG	DEV.ST	AVG	DEV.ST	AVG	DEV.ST
Immigrant - Immigrant	56,25%	0,33	43,75%	0,33	92,30%	0,06	15,40%	0,11
INSURANCE	37,50%	0,13	62,50%	0,13	93,93%	0,01	12,14%	0,02
SIMPLE	58,33%	0,34	41,67%	0,34	92,12%	0,06	15,76%	0,12
Immigrant - Native	41,67%	0,24	58,33%	0,24	92,18%	0,07	15,63%	0,15
INSURANCE	25,00%	0,00	75,00%	0,00	85,71%	0,00	28,57%	0,00
PUNISHMENT	25,00%	0,00	75,00%	0,00	96,43%	0,04	7,14%	0,07
SIMPLE	45,83%	0,25	54,17%	0,25	92,01%	0,08	15,97%	0,15
Native - Immigrant	45,31%	0,24	54,69%	0,24	90,27%	0,08	19,45%	0,17
INSURANCE	33,33%	0,12	66,67%	0,12	94,29%	0,04	11,43%	0,08
PUNISHMENT	37,50%	0,13	62,50%	0,13	90,36%	0,05	19,29%	0,09
SIMPLE	50,00%	0,26	50,00%	0,26	89,17%	0,09	21,67%	0,18
Native - Native	25,00%	0,21	75,00%	0,21	93,81%	0,09	12,39%	0,19
INSURANCE	31,25%	0,11	68,75%	0,11	91,07%	0,08	17,86%	0,16
SIMPLE	21,43%	0,25	78,57%	0,25	95,37%	0,10	9,26%	0,20

Table 5. Trust, Egoism, and Equity indexes

Average scores show that the trust level of the trustor is the lowest when both members of the pair are natives. Consequently, the egoism index is the highest in the same situation. The egoism index for the trustee is generally always high, in line with the theoretical results of the trust game where the trustee decides not to give back part (or all) of the amount received.

5   Discussion

The results of the exploratory study performed and discussed in this paper reiterate the statement that there is a high internal variation inside the millennials generations, and that digital natives are not all those who have been born in a world permeated with ICT. To this regard it is possible to hypothesize that part of the variation inside the samples of digital natives depends on the way individuals are classified in the one or the other cohort.

As discussed in the literature there are different ways to identify the profile of a digital native: (*i*) the age, (*ii*) the intensity of usage of ICTs, (*iii*) the knowledge of how to use ICTs, and (*iv*) the possession of behavioural traits connected with ICT usage intensity. In the analysis described in this paper the distinction between digital natives and digital immigrants is based on the criterion *iv* (the possession of behavioural traits). Following this criterion, 17 natives and 29 immigrants are identified out of the selected 46 individuals. Besides assessing the behavioural traits associated with ICT usage intensity, the same survey administered to participant contained also two further scales to measure the level of usage intensity and the level of knowledge of six technologies[1] measured in a 7 point Likert scale. The age of the respondents was also another piece of information that was retrieved out of the survey. Table 6 shows the back-cumulated distribution of frequencies of the number of subjects which reported a minimum score in the frequency and knowledge scale equal or greater than the threshold given in the first column. In the table we divided the frequency and knowledge scale in two versions. One with all the

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[1] Computer, tablet, mobile phone or smartphone, broadband internet connection, Internet browsing and communication tools (including e-mail, SMS, and WhatsApp or other messaging services), database management systems and programming languages, videogames, app for tablets and smartphones.

measures, and the other where we removed the scores of the measure referring to programming languages and databases.

The first consideration about the data is not in the table. If we consider the natives following the criterion *i* (age) all participants to the study are born after the year 1980, so they all should be natives. Thence it would be impossible to distinguish between any profile among the respondents.

Table 6. Back-cumulate relative frequencies of distribution of the minimum score declared by natives

and immigrants profiles on: intensity of ICT usage (FREQ), knowledge of ICT

(KNOWL), intensity of ICT usage excluding database and programming languages

(FREQ NO PROG), and knowledge of ICT excluding database and programming lan-

guages (KNOWL NO PROG)

	FREQ		KNOWL		FREQ NO PROG		KNOWL NO PROG	
	Native	Immigrant	Native	Immigrant	Native	Immigrant	Native	Immigrant
1	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
2	0,18	0,31	0,53	0,55	0,59	0,52	0,71	0,83
3	0,18	0,17	0,35	0,31	0,41	0,34	0,65	0,52
4	0,12	0,14	0,29	0,14	0,35	0,24	0,59	0,21
5	-	0,07	0,18	-	-	0,07	0,35	0,10
6	-	-	0,06	-	-	-	0,12	-
7	-	-	-	-	-	-	-	-

A second set of considerations instead refers to the data shown in Table 6. First of all, the back-cumulated frequency distribution shows that high minimum scores of both intensity and knowledge are seldom associated with a profile showing the characteristics of a digital native. As a matter of fact, none or just few individuals reported high scores of frequent interaction and knowledge of ICT tools. Secondly the knowledge scale ranks better natives than the frequency of interaction scale, i.e. at higher minimum

scores of knowledge we can find more natives than immigrants, while the opposite is true for the frequency of interaction. Thirdly and finally, the scales where we excluded the usage of databases and programming languages scores better than the other where these elements are included. We decided to consider also this variation of the measurement scale since we noticed in the data collected for this study, and also in other projects analysing digital natives, that these skills are not so frequently present in individuals, if not just in experts like software developers.

The difference of distribution between the frequency and the knowledge scale seems to suggest that on average natives consider themselves more knowledgeable than immigrants on ICTs, while immigrants instead report to have more frequent interactions with ICTs. Thence, following the behavioural perspective used in this paper to distinguish between natives and immigrants, it seems not necessary to be an intense user of ICTs to show the traits of the native, but a high knowledge of the technologies is more important. Basing on that, it can be hypothesized that, in terms of behavioural traits, those usually associated with digital natives could be not only presents in millennials, but potentially in further generations, since they all would have had the chance to learn how to use ICTs with proficiency. It is advisable to this regard to include in investigations of behaviour induced by mass ICT exposure not only cohorts of millennials, but also cohorts of previous generations, to search for the determinants of the different behavioural profiles. Further research shall be addressed to tackle such issue.

It has furthermore to be pointed out that the different measures of digital nativity are probably not equifinal, thence different results are expected to be observed according to the different criterion used to classify individuals. To this regard an important caveat is the adequate consideration of control variables like census, education level, or technology level of the residence country (Braccini & Federici, 2013).

Finally, concerning potential differences in behavioural traits by natives and immigrants, the small sample of observations analysed in this paper was not meant for formulating generally valid statements. These early exploratory data show that a potential difference in the behaviour of these two profiles could be observed. It can therefore be hypothesized that in trust and control dynamics natives and immigrants could behave in a different way. Again further research shall be addressed to deepen such issues and in

future steps of this research project a larger cohort of individuals (including both millennials and members of previous generations) will be investigated and a larger number of observations from the designed experiment will be performed.

6   Conclusion

This paper is part of the digital natives debate, and contributes to the literature by showing exploratory results of an empirical investigations on millennials. Following the motivational questions of the paper, the data collection and analysis was targeted to further study differences among the millennials cohort in terms of digital nativity, and to test if a difference in behaviour could be expected in relation to trust and control dynamics with peers.

In relation to the first aspect, the results of the exploratory observations show that the different criteria used to distinguish between the native and the immigrant cohort are potentially not aligned. Individuals are classified in different cohorts if age, knowledge, intensity, or behavioural traits are used as a discriminant. That keeps open the issue of the identification of the traits that qualify a digital native, and further empirical investigations with samples of large size would be advisable to assess which of these discriminant variables are better suited to capture the profile of the digital native.

In relation to the second aspect, though the results have to be considered not significant in terms of general validity, the analysis of the collected data shows that differences in behaviour between natives and immigrants could be expected. Still on this side too further investigations are desired to assess the magnitude of this difference and the determinants to which it shall be ascribed to.

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