Anno 2018
VirtHuLab Journal
Journal Homepage: http://virthulab.complexworld.net/virthulab_journal

Digital Conformism, from Asch to non-human agents: If and how people conform when using the Internet

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Keywords:
Digital conformism
Online environments
CMC
Peer pressure
Social norms

A B S T R A C T

The most popular idea that communication technology has certain fixed effects on human interaction is increasingly challenged by research showing the different effects of these media; in fact researches show that even in the online environments social influence would be a multifaceted and dynamic phenomenon. In the light of these considerations the study of the digital conformism poses a non-banal challenge to the research which have to consider a larger number of aspects about the peer pressure in online environment (e.g. physical isolation, anonymity, identifiability) and their interactions then in the f-t-f environments.
The purpose of this review is to show some of the latest research that has been carried out to study digital conformism in CMC, also in light of the development of increasingly advanced technologies; in particular we want to highlight the evolution of research applied to the most modern ICT, not only with regard to the classical paradigms (e.g. Asch), but also with respect to new and increasingly sophisticated procedures.

Highlights

- Conformism is a phenomenon that is also found in the online environment.
- One of the most promising models to explain the phenomenon of conformism in online environment is the SIDE model which considers among the variables anonymity, physical isolation, identifiability and group salience.
- Online Conformism also occurs when the majority are robots and non-human agents.

Introduction

As a social psychologist, Asch (1951) examined the thoughts, perceptions, and behaviours of the individual within complex environmental conditions. In a series of studies, Asch (1952) demonstrates that when an individual encounters information from the group that is contrary to his own understanding, he is likely to revise his response to match that of the group's. This conformity occurs, moreover, in response to incorrect information provided by the group members. Asch concluded that there are two forces within the group environment: the need of every individual to belong to the group, and the need for organization within the group. This need of every group member initiates the process of group equilibrium, whereby each person acts in accordance to the group structure (Beran, 2015). In this way, individuals psychologically organize themselves in relation to one another: conformity can be used to satisfy social motives; to answer correctly (i.e. informational conformism), to increase one's membership or to increase or protect one's self-esteem (Cialdini & Goldstein, 2004). Conformity in terms of increasing one's membership can be conscious, socially accepted and strengthening social ties, or unconscious, for example by incorporating and mimicking other group member's facial expressions, gestures and language (Rosander & Erikson, 2012). In doing so, a group can be a powerful source of social influence and a century of studies has shown various aspects of it.

In particular, during the last few decades an aspect of our life that is not negligible is the increase of the use of Information Communication Technology (i.e. ICT) which led to birth a new focus of the study of social influence in the online environments. An investigation of Eurostat (2017) has showed that ICTs have become widely available to the general public, both in terms of accessibility as well as cost. A boundary was crossed in 2007, when a majority (55 %) of households in the EU-28 had internet access. This proportion continued to increase, passing three quarters in 2012 and four fifths in 2014. In 2016, the share of EU-28 households with internet access rose by 2 additional percentage points compared with 2015 to reach 85 %, 30 percentage points higher than in 2007. More in particular, since the beginning of 2016, more than 82 % of all individuals

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Peer review under responsibility of Serena Coppolino Perfumi, Department of Sociology, Stockholm University.

in the EU-28, aged between 16 and 74 years, used the internet (Eurostat, 2017).

On the Internet there are many ways to connect to people and many sources of identification and influence (Rosander & Eriksson, 2012), consequently groups on the Internet, virtual groups, are in many ways similar to groups that exist in the ''real'' world (McKenna & Green, 2002). Although even if a lot of electronic communication exist (e.g. telephone, text messaging, fax), CM communication is a popular form that allow individuals to communicate with each other, regardless of time, space and familiarity (Hoffman & Novak, 1996). CM communication is defined "*as any form of communication via computers, but in practice, describes any text-based interaction between individuals via a computer network"* (Baltes, 2002; Postmes, Spears, & Lea, 2002). As such, it often lacks the auditory and visual information conveyed in FTF communication and other forms of electronic communication such as phone or video conferencing (Kiesler & Sproull, 1992; Postmes, Spears, & Lea, 1998). In light of the above, it's clear that the study of digital conformism has to take into account a lot of different aspects which at least in part make the online social influence more articulated than the influence in real context. Probably therefore it is not surprising that there is disagreement in the literature regarding whether those in CM groups are less likely to modify their public responses than in the FTF (Schlosser, 2009); in fact, there is evidence suggesting that CM communication can produce more "truthful" responding compared to FTF communication (Kiesler & Sproull, 1986; Sussman & Sproull, 1999) and less conformity to group norms (e. g Weisband, 1992). Yet, other research suggests that those in CM groups are aware of the presence and influence of others (Weisband, Schneider, & Connolly, 1995), and can be influenced by others (e.g. Schlosser, 2005). Therefore, the study of the digital conformism poses a non-banal challenge to the research which have to consider a wide number of aspect about the social influence in online environment (e.g. physical isolation, anonymity, identifiability) and their interactions.

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Main text

In light of the many characteristics that the phenomenon of conformism can assume, the digital environment has allowed us to expand this investigation's field taking into consideration a wide spectrum of interacting aspects that characterize the social influence in online environment with the aim of detecting any differences or similarities with respect to the original model, using experimental paradigms that are also very different from each other. It is not surprising that one of the most used methods to study this phenomenon resumes the experimental procedure used by Asch in his famous experiments (Asch, 1951), that is, using accomplices instructed to provide, before the experimental subject, in a large part of the cases wrong answers to the experimenter's task.

The recent literature in which the Asch paradigm has re-proposed has generally shown a minor tendency to conform to the majority responses in CMC environments compared to the f-t-f ones when the task to be performed for the experimental subjects was translated into a perceptive task (Cinnerella & Green, 2007; Fujita & Mori, 2017); nevertheless there has been an increase in conformity when the task increases in difficulty (Rosander & Erickson, 2012) or ambiguity (C. Perfumi, Cardelli, Bagnoli, & Guazzini, 2016) or when the questions asked to the subjects fall within the sphere of culture or personal opinions (Laporte & Uyttendaele, 2010).

"*These preliminary results suggest that Asch's paradigm changes in a virtual, anonymous environment, and that normative influence might be less effective due to the characteristics of the setting and social norms might take longer to become effective. The percentages emerged in the cultural and apperceptive tasks, however, showed a growth of conformity with more ambiguous items (C. Perfumi et al., 2016)."*

Cinnirella & Green (2007) also came to similar conclusions, who stated that the lack of a significant increase in conformism in these conditions may be due to the fact that the experimental subjects within these groups failed to form a sense of belonging to the group itself and therefore the social identity takes a longer period of time to form, typically through an exchange of communications between the group members (Postmes & Lea, 2000). These results would therefore be in line with the SIDE Model (Reicher, Spears & Postmes, 1995), which argues that developing a social identity linked to belonging to one's group and retaining the latter as salient and meaningful would be able to produce a greater level of conformism, even in an online environment; in fact, perceiving as salient their social identity would cause individuals to become more susceptible to social cues present in the environment, which in turn make them more prone to adapt to the local regulations in force in that group (Johnson & Downing, 1979). From this point of view, it is clear that the salience of social identity is closely connected with the context in which individuals find themselves acting (e.g. the social cues present); in particular, Klein, Spears & Reicher (2007) argue that to explain the role played by group salience we must consider two closely related aspects that refer to the two components of the SIDE model: the cognitive and the strategic. In fact, the cognitive aspect of the SIDE model considers that in contexts where information is relatively poor (e.g. in CMC) this makes people more sensitive to the salient social norms; moreover anonymity facilitates the process of depersonalization which in turn makes social identity become salient. Similarly, it is believed that the CMC, able to produce better the deindividuation by its typical characteristics, makes the members of the group more susceptible to the influence of the rules, to the social attraction, to the stereotypes and to the favouritism towards the ingroup (Postmes, Spears & Lea, 1998). In addition to the importance of cognitive aspects, Klein, Spears & Reicher (2007) have suggested that the manipulation of the antecedents of deindividuation (e. g. anonymity) may also influence the ability to express behaviours relevant to identity once an identity is salient and have indicated this aspect as the "strategic" dimension of the SIDE model. The *performance of identity* can take on a variety of forms, such as physical action and manipulation of the physical aspect (e.g. symbols and signs), the verbal expression of representations and attitudes seen as normative within the group (e.g. stereotypes and prejudices). For performance of identity then, we mean the intentional expression (or suppression) of behaviours relevant to those norms conventionally associated with a salient social identity. Thus all of this can be ascribed to a recursive process in which the context is able to foster the salience of identity which in turn impacts on attitudes and behaviours of group members determined by salience; in fact, if people's identities are influenced by the social context (the cognitive side), identities can also be selected and constructed in a performing way to induce people to act together to change the social world (Reicher & Hopkins, 2001). Finally, the performance of identity, starting from the reaction that induces (e.g. depending on the fact that it generates resistance or collaboration), models the context in a particular way and this will in turn determine which types of identity are sustained (and sustainable) and what will be the type of group behavior possible. There is therefore a dynamic relationship between practice (performance of identity), social context (made up of others' practices) and social identity, as also shown by Postmes, Spears, Sakhel & de Groot (2001) that in CMC they found a higher level of conformism to the rules generated experimentally in the group anonymity/salience conditions, rather than in the conditions in which the subjects were identified.

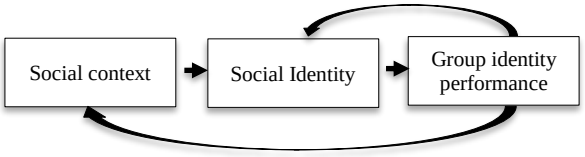

Figure 1. Reciprocal flow of influence from social context to identity Performance (Klein, Spears & Reicher, 2007).

In light of this analysis, it appears simplistic to artificially separate the cognitive side from the strategic side of the SIDE model (Klein, Spears & Reicher, 2007) . In accordance with this model, the characteristics of the communication medium interact with the characteristics of the social context and therefore with the particular definition of the self that these media produce. Therefore the study on the influence of the majority in online environments should also take into account this particular aspect.

Together with the salience of the social identity, there is a further characteristic which can affect the phenomenon. Postmes, Spears & Lea (2002) argue that the effect of conformism in CMC is typically stronger if the subjects interact anonymously and are therefore not identifiable, as also show some results of recent studies that, by making the exposed subjects interact anonymously to aggressive rules, they recorded a greater number of aggressive or flaming expressions than those who interacted in

a non-anonymous way (Bae, 2016; Rösner & Krämer, 2016). Anonymity has been recognized as a critical antecedent because it is believed that the loss of personal cues attenuates personal identity and at the same time increases the salience of group identity (e.g. Postmes, Spears & Lea, 1998). Likewise, Lea, Spears & de Groot (2001) also found this effect linked to the anonimity, but their research allowed to take a further step forward to understand the phenomenon, in fact this study found that the visual anonymity it has improved both group-based self-categorization and group attraction, considered two components at the base of the group identification process. Furthermore, Lee (2007) manipulated the availability of personal information to induce depersonalization: before the discussion task, the participants in the non-anonymous condition presented themselves to their partners and exchanged information (e.g. age, hobby, favorite color, preferred music genre and favorite TV or movie program) without disclosing their personal identities; on the other hand, in the anonymous condition, the participants did not have any information about their partners. The results showed that post-discussion attitudes shifted in the direction of group norms and showed greater group polarization in the anonymous condition with respect to the non-anonymous condition. In addition to the different types of anonymity that have been manipulated in these studies, another not negligible aspect is related to the critical role linked to the presence of an outgroup; in fact, its presence makes individuals more attentive to the characteristics of their in-group than others and therefore facilitates the identification of the group. Individuals in this way tend to favor members of their group more than they do with members of the external group and are also more likely to shift their attitudes in line with the ingroup rules (Galinsky & Moskowitz, 2000). This perspective has been demonstrated in various researches in CMC (e.g. Robertson, 2006) in which although there was no direct interaction between the groups, the mere perception of an existing outgroup was in itself sufficient to create an intergroup context that did so that the salience of social identity increased and strengthened the anonymity effect on conformity. In conclusion, it is interesting to report the result of the meta-analysis conducted by Huang & Li (2016) which analyzed 13 studies (from 1990 to 2013) with the aim of deriving the effect of anonymity in CMC on online conformism and found that "*with a confidence interval of 95%, the correlation coefficient between anonymity and compliance is significantly different from zero and the direction of the relationship is positive*". This result is a clear evidence to support the SIDE model; in fact it has been shown that anonymity, associated with a salient group identity, in online contexts results in adherence to group norms.

Realizing the complexity of the phenomenon is therefore henceforth a non-trivial challenge; in fact, these studies require further study since the variables taken into consideration do not only concern the characteristics presented up to this point, but also the mode of communication used in CMC; in fact in this communication are absent or at least reduced, the typical auditory, textual and visual channels (e. g. McGrath, 1984), therefore the richness of the information conveyed is typically reduced (Daft & Lengel, 1986). Tipically FTF communication can transfer information not only through the text but also through such visual and auditory cues (e.g. non-verbal language), consequently individuals can observe not only the speaker, but also his reactions. In contrast, verbal and visual cues are in many cases absent in CM groups; in doing so the number of channels available (and thus how many information conveyed) likely affects how close individuals feel toward the group: the more (less) information conveyed, the closer to (further from) the group they will feel (Bar-Anan, Liberman, & Trope, 2006). This is not a negligible aspect of CMC if we are going to study social influence and in particular the conformism in online environments. The research of Schlosser (2009) tooks into consideration the different level which individual change their attitude after a group discussion about a topic in CMC or in f-t-f, the results show that there is actually an effect due to the medium of communication; in fact it is stated that *"when visual information was absent, participants (like those in CM groups) did not conform, even when the group was unanimous. The mediation results are consistent with this: adding visual information to CM communication affected feelings of social distance and thus conformity."*

On the other hand, study by Devers et al. (2012) compared the difference between social conformity considering two synchronous online environments: text and video; in this research the experimental subjects act each other using Hangout (i.e. communication platform developed by Google which includes instant messaging, video chat, SMS and VOIP features) and was used the Asch paradigm, but in place of the lines, there were circles. Results showed that there are no significant differences in conformity due to the way in which the experimental subjects interact, even though the results were not statistically significant, participants conformed in both conditions. According to the authors "*it may be the case that our results reflect changes in participants comfort level in online environments such that social influences that used to be present only in face to face environments are becoming more common in online environments".*

The new technologies have a growing importance in our lives and have become part of many daily activities, to the point that the expression "digital natives" has been coined to indicate the generations since the 1980 are described as "*living in technology, surrounded by computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age* "(Prensky, 2001). These individuals have a new approach with respect to technology, both as regards the importance attributed to it, and as regards its methods of use (Bennet, Maton & Kervin, 2008), so it is interesting to study how the most advanced technologies can represent an important source of influence towards people's attitudes and behavior. Starting from these assumptions, in recent years research has been expanded to integrate the study of conformism using the most advanced technologies, e.g. by interacting subjects with robots (Brandstetter, Rácz, Beckner, Sandoval, Hay & Bartneck, 2014) and non-human agents (Brandstetter, 2017; Xu & Lombard, 2017). In particular in the study of Brandstetter et al (2014), conformism was investigated using the Asch paradigm, in both the classical perceptual task and a verbal task, but in this case the social influence was studied both with respect to that of the peers and robots; the results, even if they did not reach significance, showed a greater effect of conformism than the baseline performances even when the group members were robots. This partial failure has led to mature the idea that the lack of social influence on the part of the robots is due to the fact that the experimental subjects had not developed a sense of belonging to the group, also due to the fact that the robots did not have very human characteristics; therefore Brandstetter (2017) has further developed the experimental protocol by measuring conformism based on the rate of change in attitude or verbal behavior of those exposed to social pressure by the robots. In this second experiment the group salience was manipulated and the competition element was introduced (i.e. with an outgroup), succeeding to confirm the experimental hypotheses for which also a group of robots is able to produce a degree of conformism. Ultimately, the study by Xu & Lombard (2017) went on to investigate whether conformism occurs even when experimental subjects interact with non-human agents; in particular, the research of starting from the experimental procedure of Asch (1951) and the paradigm of the minimum groups (Tajfel, 1970) has once again shown the robustness of the SIDE model (Reicher, Spears, & Postmes, 1995)making the social identity salient (choosing a colour for the identity of the group) and interacting anonymously, the subjects modified their attitudes and behaviour in line with the majority, even if they were informed that the members of their group were software; therefore it would seem possible to create a bridge between the CMC (e.g. SIDE) and the interpersonal influence phenomena, extending such phenomena of social influence to non-human agents as well.

Conclusion and Discussion

Although the research on social dynamics in the online environment is relatively recent, it is very much the interest that this field of inquiry raises in the scientific world. Understanding these dynamics, however, appears to be a non-trivial challenge since they are psychological phenomena with many facets and that their study must probably adopt an integrated perspective; in fact, globally, research shows the importance of considering the interaction that some variables have in determining the phenomenon of conformism in online environment, starting from those related to the degree of difficulty of the task (Rosander & Erickson, 2012), the ambiguity of the stimuli (C. Perfumi et al, 2016) and the modality communication used from time to time (Schlosser, 2009; Denvers et al, 2012).

To this we must obviously add a series of variables partially contained in the SIDE model (Postmes & Spears, 1991) that includes aspects such as anonymity, physical isolation, the degree of identifiability and the salience of social identity which contribute to determine different effects with respect to such social dynamics. The modeling of social influence in online environments is also extending to include such variables in models related to interpersonal communication (Xu & Lombard, 2017). Finally, given the massive presence of modern

technologies that represent a non-negligible part of our lives, researches are trying to extend these issues on social influence to the field of investigation of robots and non-human agents (Brandstetter et al, 2014; Brandstetter, 2017; Xu & Lombard, 2017), showing promising results in the understanding of this phenomenon

Potential Impact

In the light of the results, the research on virtual dynamics certainly represents an interesting field of investigation, not only from the scientific point of view, but also with respect to the practical applications that these knowledges allow to reach; in fact, being aware of how the social influence is connected in a virtual environment has allowed us to implement many projects of psychological interest. Just to name a few, the use of new technologies combined with this knowledge has led to the development of a series of prevention projects in virtual environments against cyberbullying (Cross, Richardson & Von Kaenel-Flatt, 2009; Wolke & Sapouna, 2012) and for the treatment of some psychiatric diseases, e.g. depression (Pagliari et al, 2012) and phobias (Garcia-Palacios, Hoffman, Carlin, Furness & Botella, 2002). Furthermore the knowledge related to conformism and social influence in online environments are proving useful in many other areas and have opened the way to many different uses even from that of health, e.g. the use of avatars and game-based activities are coming back also useful in the workplace, e.g. for personnel selection (Armstrong, Landers & Collmus, 2016) and are interacting with the development of new ways of learning in a virtual environment (Le Hénaff, Michinov, Le Bohec & Delaval, 2015). These are just a few points in which the search for conformity and social influence in a virtual environment has allowed us to contribute; therefore, given that to date the topic can not be said to be exhausted in literature, we hope for a greater study of the phenomenon also in light of the development of increasingly advanced technologies.

REFERENCES

Armstrong, M. B., Landers, R. N., & Collmus, A. B. (2016). Gamifying recruitment, selection, training, and performance management: Game-thinking in human resource management. In *Emerging research and trends in gamification* (pp. 140-165). IGI Global.

Asch, S. E. (1951). Effects of group pressure on the modification and distortion of judgments. In H. Guetzkow (Ed.), Groups, leadership and men (pp. 177-190). Pittsburgh, PA: Carnegie Press.

Asch, S. E. (1952). Effects of group pressure on the modification and distortion of judgments. In G. E. Swanson, T. M. Newcomb, & E. L. Hartley (Eds.), Readings in social psychology (2nd ed., pp. 2-11). New York: Holt.

Bae, M. (2016). The effects of anonymity on computer-mediated communication: The case of independent versus interdependent self-construal influence. *Computers in Human Behavior*, *55*, 300-309.

Baltes, B. B. (2002). Computer-mediated communication and group decision making: A meta-analysis. Organizational Behavior and Human Decision Processes, 87, 156−179.

Bar-Anan, Y., Liberman, N., & Trope, Y. (2006). The association between psychological distance and construal level: Evidence from an implicit association test. Journal of Experimental Psychology, 135, 609−622.

Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. British journal of educational technology, 39(5), 775-786.

Beran, T., Drefs, M., Kaba, A., Al Baz, N., & Al Harbi, N. (2015). Conformity of responses among graduate students in an online environment. *The Internet and Higher Education*, *25*, 63-69.

Brandstetter, J. (2017). The Power of Robot Groups with a Focus on Persuasive and Linguistic Cues.

Brandstetter, J., Rácz, P., Beckner, C., Sandoval, E. B., Hay, J., & Bartneck, C. (2014). A peer pressure experiment: Recreation of the Asch conformity experiment with robots. In *Intelligent Robots and Systems (IROS 2014), 2014 IEEE/RSJ International Conference on* (pp. 1335-1340). IEEE.

Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. Annual Review Psychology, 55, 591−621.

Cinnirella, M., & Green, B. (2007). Does 'cyber-conformity'vary cross-culturally? Exploring the effect of culture and communication medium on social conformity. *Computers in Human Behavior*, *23*(4), 2011-2025.

Cliffs, NJ: Prentice-Hall

Cross, E. J., & Richardson, B. D. T. and Von Kaenel-Flatt, J. (2009). Virtual violence: Protecting children from cyberbullying.

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management science*, *32*(5), 554-571.

Devers, C., Steenbergh, T., Devers, E., Brighton, R., Ayers, B., Carmichael, E., ... & Hannum, P. (2012, October). Social conformity in online environments: A Comparison between text and video. In *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 1777-1781). Association for the Advancement of Computing in Education (AACE).

Fujita, Y., & Mori, K. (2017). Group versus Individual Reward in the Asch Experiment without Confederates. *Open Journal of Social Sciences*, *5*(05), 396.

Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: decreasing stereotype expression, stereotype accessibility, and in-group favoritism. Journal of personality and social psychology, 78(4), 708.

Garcia-Palacios, A., Hoffman, H., Carlin, A., Furness, T. U., & Botella, C. (2002). Virtual reality in the treatment of spider phobia: a controlled study. *Behaviour research and therapy*, *40*(9), 983-993.

Huang, G., & Li, K. (2016). The effect of anonymity on conformity to group norms in online contexts: A meta-analysis. International journal of communication, 10, 18.

Johnson, R. D., & Downing, L. L. (1979). Deindividuation and valence of cues: Effects on prosocial and antisocial behavior. *Journal of Personality and Social Psychology*, *37*(9), 1532.

Kiesler, S., & Sproull, L. (1986). Response effects in the electronic survey. Public Opinion Quarterly, 50, 402−413.

Klein, O., Spears, R., & Reicher, S. (2007). Social identity performance: Extending the strategic side of the SIDE model. Personality and Social Psychology Review, 11, 28–45.

Laporte, L., van Nimwegen, C., & Uyttendaele, A. J. (2010, October). Do people say what they think: Social conformity behavior in varying degrees of online social presence. In *Proceedings of the 6th Nordic Conference on Human-Computer Interaction: Extending Boundaries* (pp. 305-314).ACM.

Le Hénaff, B., Michinov, N., Le Bohec, O., & Delaval, M. (2015). Social gaming is inSIDE: Impact of anonymity and group identity on performance in a team game-based learning environment. *Computers & Education*, *82*, 84-95.

Lea, M., Spears, R., & de Groot, D. (2001). Knowing me, knowing you: Anonymity effects on social identity processes within groups. Personality and Social Psychology Bulletin, 27, 526–537.

Lee, E. J. (2007). Deindividuation effects on group polarization in computer-mediated communication: The role of group identification, public-self-awareness, and perceived argument quality. Journal of communication, 57(2), 385-403.

McGrath, J. E. (1984). Groups: Interaction and performance. Englewood

Pagliari, C., Burton, C., McKINSTRY, B., Szentatotai, A., David, D., Serrano-Blanco, A., ... & Wolters, M. K. (2012). Psychosocial implications of avatar use in supporting therapy for depression. *Annual Review of Cybertherapy and Telemedicine*, *181*, 329-333.

Perfumi, S. C., Cardelli, C., Bagnoli, F., & Guazzini, A. (2016, September). Conformity in virtual environments: a hybrid neurophysiological and psychosocial approach. In *International Conference on Internet Science* (pp. 148-157). Springer International Publishing.

Postmes, T., Spears, R., & Lea, M. (1998). Breaking or building social barriers? A SIDE analysis of computer-mediated communication. Communication Research, 25, 689−715.

Postmes, T., Spears, R., & Lea, M. (2002). Intergroup differentiation in computer-mediated communication: Effects of depersonalization. Group Dynamics: Theory, Research, and Practice, 6, 3−16.

Postmes, T., Spears, R., Sakhel, K., & De Groot, D. (2001). Social influence in computer-mediated communication: The effects of anonymity on group behavior. Personality and Social Psychology Bulletin, 27(10), 1243-1254.

Prenksy, M. (2001). Digital Natives, Digital Immigrants. On the Horizon, 9(5), 1-6.

Reicher, S., & Hopkins, N. (2001). Psychology and the end of history: A critique and a proposal for the psychology of social categorization. Political Psychology, 22(2), 383-407.

Reicher, S. D., Spears, R., & Postmes, T. (1995). A social identity model of deindividuation phenomena. *European review of social psychology*, *6*(1), 161-198.

Robertson, T. (2006). Dissonance effects as conformity to consistency norms: The effect of anonymity and identity salience. *British Journal of Social Psychology*, *45*(4), 683-699.

Rosander, M., & Eriksson, O. (2012). Conformity on the Internet–The role of task difficulty and gender differences. *Computers in human behavior*, *28*(5), 1587-1595.

Rösner, L., & Krämer, N. C. (2016). Verbal venting in the social web: Effects of anonymity and group norms on aggressive language use in online comments. *Social Media+ Society*, *2*(3), 2056305116664220.

Wolke, D., & Sapouna, M. (2012). Fear not: an innovative interdisciplinary virtual intervention to reduce bullying and victimisation.

Schlosser, A. (2005). Posting versus lurking: Communicating in a multiple audience context. Journal of Consumer Research, 32, 260−265.

Sussman, S., & Sproull, L. (1999). Straight talk: Delivering bad news through electronic communication. Information Systems Research, 10(2), 150−166.

Tajfel, H. (1970). Experiments in intergroup discrimination. Scientific American, 223,96e102.

Weisband, S. P. (1992). Group discussion and first advocacy effects in computer-mediated and face-to-face decision making groups. Organizational Behavior and Human Decision Processes, 53, 352−380.

Weisband, S. P., Schneider, S. K., & Connolly, T. (1995). Computer-mediated communication and social information: Status salience and status difference. Academy of Management Journal, 38, 1124−1151.

Xu, K., & Lombard, M. (2017). Persuasive computing: Feeling peer pressure from multiple computer agents. *Computers in Human Behavior*, *74*, 152-162.

SITOGRAPHY

http://ec.europa.eu/eurostat/statistics-explained/index.php/Digital_economy_and_society_statistics_-_households_and_individuals