What Undergraduate Students from Tecnologico de Monterrey, State of Mexico Campus, Learn within Digital Environments
Differences by Gender, and use of Digital Media, and Social Media

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Abstract
Although the first phase of this study analyzing the e-learning of undergraduate students in Campus Monterrey at Tecnologico de Monterrey resulted in several premises about how and what students learn on digital media (DM), the analysis of this paper1 focused on transforming those premises into research questions and measuring them. Thus, the main objective was to discover if there were any gender differences in the use of digital media (DM) and social media. E-learning theory (Haythornthwaite & Andrews, 2011) was mainly used to discuss the findings. A survey of undergraduate students enrolled in courses at the Department of Languages, in the Campus State of Mexico, was applied to collect data. Approximately 650 students answered the survey. Significant gender differences were found in the use of DM, as well as differences of purpose for its use and that of social media. By and large, this study suggested that the idea of Millennials as a generational movement using DM technologies is a questionable one, at least for the case of students in this age category at the State of Mexico campus, and that future study should consider an alternative reason.

Keywords
Digital Media, E-Learning, Campus State of Mexico, Millennials, Social Media, Higher Education, Educational Innovation

Introduction
It is always interesting to discover how the incursion of new technologies propitiates new forms of knowledge; it becomes seductive to identify the ways in which people begin to use the technologies and to explore the actions that will ultimately influence their daily lives. One example of such disruptive technologies is Digital Media (DM), which have become a set of some of the most used tools by Millennials (Strauss & Howe, 2000) to acquire, produce and practice learned knowledge. Haythornthwaite & Andrews (2011, p. 28) define learning as “an internal change in what we bring to a situation and how that transforms our understanding to a new state.” According to them, “when we learn, we make further sense2 of or discover meaning in our surroundings, whether that ‘sense’ is psychological, scientific, logical, social and/or affective, and whether the learning is explicit or tacit. That further

1. Dealing the second phase of the project.
2. Italics from the original.
sense is based on the knowledge we already have, plus the new knowledge that we acquire in the act of learning” (p. 36). Taking into account this definition, in digital environments the understanding of a situation and the acquisition of knowledge provide a double experience, because these offer the possibility of learning both the subject matter and the technology itself.

Generation Y, or Millennials, are the children of the Baby Boomers (Strauss & Howe, 1991). Their births correspond with that of the Internet and with the development of many of the digital media. The Millennials (Strauss & Howe, 2000) outnumber any of their predecessors. The ways in which Millennials learn and what they learn have been discussed in e-learning theory (Greenhow, Walker, & Kim, 2009; Haythornthwaite & Andrews, 2011; Miranda, 2019; Shannon, 2007), where notions such as transduction, remediation, and transformation play prominent roles in the learning process. The emergence of Millennials coincides with the emergence and development of DM, a situation that on the one hand generates opportunities and benefits, but also great challenges, above all, due to the great diversity of digital platforms from which a large amount of information and learning practices are generated, even when compared with those of the generation immediately prior.

According to Miranda (2019), there are four different ways in which millennial Mexican students—Millennials—on the Monterrey Campus learn in their digital environments: a) through the use of computers, b) using mobile phones and tablets, c) through the mix of electronic and physical resources, and d) miscellaneous. This last one includes e-books, video games, voice notes, on-line courses and smart watches. On the computer, websites and apps are the most commonly used tools for exploration and management of different information. Students on the computer commonly consulted self-learning videos, like those on YouTube. Nowadays, multi-platforms provide students the possibility to explore and manage information on different devices. Social media, such as Facebook, WhatsApp, and Twitter, are used for social interactions or to consolidate college assignments or corporate work. The use of mobile phones and tablets is not the exception to complement the tools provided by computers. Although physical resources are currently viewed as old school, students maintain reliance on physical books, writing notes or sticky notes to learn subjects. However, they use these resources to complement the electronic ones in their daily routines.

This scholar has identified slight differences in students’ practices on the computer, on mobile devices, and on social media with respect to what they learn. For instance, students use the computer for themes related to their courses and assignments, and daily life issues, and also to obtain information related to their jobs, national and international news, and information related to their professional growth. In addition to these, on mobile devices, students make quick inquiries about things having to do with their immediate context, lifestyle, and communications related to teamwork. On social media, which they can access on their computers and mobile devices, students are interested in what others are doing, something they define as social information, and they enjoy banal information, such as entertainment. However, this author found slight differences in the quantity of repeated information according to the gender of the students, and this presupposed certain statements.

In the first phase of this study, students commented about their awareness and use of digital media through structured interviews (Miranda, 2019); in particular, they discussed what they consulted and learned on computers and mobile devices and through the use of social media. Their answers to these dimensions resulted in premises that became con-
verted into the research questions of this, the second phase of the investigation. The fact that students showed some awareness through the structured interviews confirmed for us their digital literacy (Gilster, 1997; Koltay, 2011), understood as the ability of students to understand and use information from digital media, and fostered the quantitative measures of this second phase through a survey.

Considering the above, this paper discusses the premises provided by the first phase of the investigation, which took place on the Monterrey Campus of Tecnologico de Monterrey. Although in the second phase field observations, interviews, focus groups and a survey were elaborated, in this paper only the quantitative analysis is reported to discuss some of the premises that were pre-established by the outcomes of the first phase in terms of gender, the use of digital media, and the use of social media. In particular, gender was a focus, given the lack of information among youngsters and their “knowledge management-related activities” (Pedró, 2018, p. 9), and the contrasting responses provided by male and female students on the Monterrey campus (Miranda, 2019).

The variables were measured within the context of the Millennials generation for specific reasons. The most significant one was that this generation was born and grew up when digital media and social media were being boosted by the creation and development of the Internet. Thus, it is worth analyzing the e-learning practices of young people whose ages belong to this generation. Some categories from the first phase were considered in this investigation, mostly those having to do with the kind of information students learn through digital and social media. Although learning can be understood solely as getting to know something about subject content, in this study, we considered learning in broader terms in which searching for information about something was included. Thus, the fact that students were using digital media to improve their knowledge about a particular topic was considered as learning as well. Measurement was taken quantitatively by the use of a survey applied to students from the Department of Languages.6

Given the previous experience on the Monterrey campus, the second phase of the study took place on the State of Mexico campus, which had similar learning conditions, availability of students, and the support of the director of the Department of Languages. It is noteworthy that although learning conditions are similar throughout the campuses of the university system across Mexico, the undergraduate students have slightly different institutional access and support for personal study. For instance, on the Monterrey campus, the library remains open 24 hours, seven days per week, whereas on the State of Mexico campus, the library opens from 7am to 10pm. In addition, students enrolled in the State of Mexico Campus travel long distances, in some cases a three-hour ride each way to reach the campus. Nonetheless, in general, availability of institutional and personal digital environments remains similar for undergraduate students of both campuses in Monterrey and State of Mexico.

**Theoretical Framework**

Although there is a large amount of literature related to learning (Illeris, 2007; Mayes & de Freitas, 2006), in the elaboration of this study, we focused on a theory related to e-learning (Haythornthwaite & Andrews, 2011), since it differs from previous theories and encompasses information related to digital media (DM) in digital environments. In the theory of

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6. The Department of Languages is an academic department that offers courses to undergraduate students belonging to the different schools within the Campus.
e-learning, the following principles prevail: First, it alludes to pedagogical distance, which refers to the transgression of the physical space of learning and its transfer to a virtual space of interactions between instructor and apprentice. The second includes communal constructivism (Fernández-Cárdenas & Carrión-Carranza, 2008; Fernández-Cárdenas, 2009; Lave & Wenger, 1991; Padilla-Rodríguez & Fernández-Cárdenas, 2012; Piaget, 1964; Piaget, 1999; Piaget, 2001; Reyes-Angona, Fernández-Cárdenas, & Martínez-Martínez, 2013; Snyder & Wenger, 2010; Wenger, 2010), which suggests that learning is the result of communities and their interactions. The third is multimodality (Fernández-Cárdenas, 2009; Fernández-Cárdenas, 2013), which refers to the importance of resorting to different methods to learn, for example, through speech, videos, dance, and games. Finally, the fourth principle is called transformation, where the initial state of the individual becomes something different after learning.

The analysis tools that were used in the study to contrast the empirical findings were: engagement, transformation, re-framing, and positive consolidation (Haythornthwaite & Andrews, 2011). Engagement entails the process of internalization of knowledge, extracting it from some external site to the personal domain, and having to do with a kind of temporality and spatial control. Thus, one can learn from videos on the Internet or from a family member’s cooking recipes. For example, Greenhow, Walker and Kim (2009) identify that the most common activities in which the students of low-income families say they get involved when they are on the internet are: communicating with others via e-mail, conducting online searches related to their school projects, viewing or sharing YouTube videos, and updating their spaces on social networks. The same study highlights an example of how a non-native student confesses to resolve questions about the English language and translate or improve his knowledge using the Internet. Another study carried out in Monterrey (Miranda, 2019) identifies the students’ use of the following tools to learn on the Internet: e-mail, YouTube, and websites to learn a second language. In addition, the use of quick searches about topics that come up spontaneously is a frequent practice. In the case of YouTube, students looked for educational channels of prestigious colleges.

The second tool employed in our study was transformation, which implies the movement from one state of knowledge to another. Shannon (2007), in her study, discusses the digital literacy of students using DM and their comfort levels in digital-life environments. She identifies slight differences related to the variables of gender and ethnicity of millennial university students. In the specific case of gender, her study found that women show a slightly lower literacy level about DM compared to their male colleagues. However, men participating in the study have a comfort level less favorable to digital-life environments than their female counterparts. In another work related to the mental models of the students and the way in which they search the Internet, Holman (2011) found that no student has strong mental models of search mechanisms. However, those with stronger models seem to elaborate more sophisticated searches.

Transformation contains two analytical sub-tools, namely, transduction and remediation. Transduction is the change from one mode of learning to another, from example, from writing to speech or from sound to images. Miranda (2019) finds out that although it is true that Millennials seem to have learned to use technology intuitively, in the case of the Monterrey students, the opposite also happens because students express learning from the content of DM as in the case of learning from YouTube channels. On the other hand, remediation is the change in the media through which one learns—for example, from conven-

7. Google being the most cited search engine.
tional, physical books, to digital books stored on mobile devices or tablets. In a study on the distribution of virtual and online content within the framework of the institution of polytechnic higher education, Burkle (2011) identified three challenges, among which is the transformation of practical learning content to online educational resources. Murray (2011) developed a quantitative analysis related to the use of digital media technology by students of the University of Denver, finding that this technology is constantly used for personal use (64.6%), but not for an educational use (44.3%). That is, students use it to consult information related to their daily lives, and not so much for consultations about their academic training.

Based on the information in this report, both students and teachers learned to use this technology personally, without the help of anyone else. The results show that the Millennials generation does not seem to report a significant difference in the use of technology compared to other generations of students from the same institution. In another investigation, Miranda (2019) finds that Monterrey students seem to enjoy the benefits of some online tools due to an educational model adopted by their institution for the incorporation of these tools into undergraduate and graduate education. However, some students show a certain lack of motivation to learn and use these tools, while others seem to interact with physical and online resources on a daily basis. Furthermore, these students state that they use digital media differently. That is, some electronic devices are used more intensely than others, and for different purposes. For example, the students use the computer mainly to study, and the tablet and mobile phone to complement the information seen in the class sessions and for quick searches.

Another tool that was used was re-framing, where an apprentice draws from his knowledge or past experiences to contribute an addition to the new experience and the learning itself. It involves a kind of re-appraisal and continuous reflection of ongoing learning. The other tool is positive consolidation, which has to do with the understanding of a learning circle linking a continuum of human elements with the environment that intervenes in the acquisition of knowledge during learning. This tool is complex, but it implies the explanation of a successful learning of the individual in a given moment.

As for what students learn, Miranda (2019) finds that in terms of the number of mentions, there are differences between genders when they refer to what they learn on their computers, mobile phones, tablets and social media. On their computers, for instance, the subjects that males and females consult are very similar. However, there is a slight distinction in a couple of topics that men and women consult on the computer. Women seem to have a greater preference for learning subjects related to their school performance, while men show a preference for knowing about current national and international news. On mobile phones, 88% of the mentions by women suggest their interest in making quick searches related to their courses or news of daily life, whereas only 12% of the men’s mentions were about doing this on mobile phones. With respect to the use of tablets to learn something new, women prefer this more than men do. Female students use tablets for the consolidation of teamwork, resorting at all times to the use of applications, and relying on the e-clouds. Men seem to be interested in tablets only to consult current national and international news.

Finally, these authors add, practices and themes seem to suggest a difference between the use of social media on the computer versus their use on mobile devices. Students seem to originate routines of academic and professional work on their computers, while the subjects they consult and learn on their mobile devices are related to their immediate social and cultural contexts. In this case, there is a sharp distinction between what women and men con-
sult on their mobile devices; while women seem to be very interested in the use of social networks to learn things related to their immediate social and cultural context (77%), men only show a slight interest in this (23%).

The following are the research questions guided by the premises of the studies mentioned in this section, but mostly they are derived from the first phase of this investigation (Miranda, 2019):

- **RQ1** Do women have a greater preference for learning subjects related to their school performance, while men show a preference for knowing about current national and international news?
- **RQ2** Do Millennials originate routines of academic and professional work on the computer, while on mobile devices they consult and learn about topics that are related to their immediate social and cultural context?
- **RQ3** Are women more likely than men to use social media to learn things related to their immediate social and cultural context?

**Data and Methodology**

Although in a recent study (Miranda, 2019) interviews were used to define undergraduate students’ e-learning processes in northern Mexico, in this analysis a survey was used to measure the research questions given in the first phase. The survey provides a quantitative understanding of the phenomena in terms of gender. Our universe was a group of undergraduate students from different study fields in the State of Mexico campus of the Tecnológico de Monterrey during the semester August to December 2017. Approximately 4500 undergraduate students were at that moment enrolled in courses on the campus, based on information from the corresponding office at the institution. The survey was applied to students taking subjects in the Department of Languages. The courses managed by this Department are compulsory for undergraduate students of all study disciplines. Only Mexican undergraduate students, men and women, were considered for this investigation. Given the purpose of the study, foreign students were excluded. Several teams collaborated in the data collection for this investigation.

The survey (Balnaves & Caputi, 2001; Lawrence, 2006), which had qualitative origins in the study of Campus Monterrey (Miranda, 2019), helped us to measure quantitatively. All research questions based on gender were useful in elaborating the survey questions with their corresponding attributes. A census was used to collect data with the survey. All students taking subjects in the Department of Languages at the State of Mexico Campus were considered. Thanks to the Director of the Department of Languages, access to students was granted for short-term visits to the classrooms to apply the surveys. Approximately 1000 students were enrolled in the courses of this Department during the surveyed semester, and around 650 students completed the survey correctly.

The census was selected based on the technique applied. Surveys are not normally time-consuming to answer, and only require a proper elaboration prior to their application. Thus, a census of students in the Department of Languages was preferred due to the accessibility and availability of students provided by the director. In addition, courses from

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8. The Department of Languages on this campus administers the courses of Analysis and Verbal Expression, Verbal Expression for the Workplace, and Basics of Writing, among others.
9. Teams were organized within the courses on quantitative methodology that the author of this report taught during the semester August to December 2017 on the State of Mexico Campus of Tecnologico de Monterrey.
Department of Languages enrolled students from different academic disciplines, which provided a rich and broad research profile. Limited economic resources to expand the application of the survey to students of all campuses were also a significant factor in choosing just the State of Mexico campus. No funding was obtained to develop the study; only the institutional support of students, teachers and the administrative staff from the Campus.

A total number of 650 surveys, properly answered, were collected. The variables measured were deliberately narrowed to the research questions provided by the previous study in Monterrey (Miranda, 2019). The survey mostly covered topics related to what students learn through commonly used digital media and social media, including Facebook, Twitter, and YouTube. Based on those dimensions, several indicators were elaborated in order to achieve a proper and balanced quantitative measure. Then, the indicators were transformed into questions to be put into the survey. These were mostly multiple-choice questions and questions with Likert scales. In the majority of these questions, the findings of the first phase of the investigation were used to create the multiple-choice questions. All the questionnaires included an open question where students were able to add a new dimension to the survey. Demographic questions were also added. Approximately 38 questions were included in the survey in total.

The application of the survey presented a challenge for the study. Although the students were gathered in their corresponding classrooms, some of them refused to answer the survey properly; some of the surveys were only partially completed without any explanation by the respondents. Student absences and lectures cancelled by teachers were also reasons for the failure to reach the complete census.

Results

The outcomes reported here correspond to the second phase of study. They are primarily linked to how and what millennial university students learn throughout digital environments. As explained previously, the first phase was carried out a year ago on the Monterrey campus of the Tecnologico de Monterrey. The main results of that study (Miranda, 2019) were used to write the research questions, the results and discussion of which are presented in the tables and charts below. They suggested the idea of analyzing the differences by gender in the present study. Although there were several research questions at the beginning, we are reporting on the ones with results that showed significant differences among variables by the Pearson Chi-Square tests, which consistently confirm previous findings on gender matters. Thus, these questions were selected to be discussed in this paper. The research questions and their corresponding charts or tables are presented from the general to the particular. The following are the research questions that led the investigation: RQ1 Do women have a higher preference for learning subjects related to their school performance, while men show a preference for knowing about current national and international news? RQ2 Do Millennials originate routines of academic and professional work on the computer, while on mobile devices they consult and learn about topics that are related to their immediate social and cultural context? RQ3 Are women more likely than men to use social media to learn things related to their immediate social and cultural context?

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10. Although the latter most of the time is only considered as a website or application, and not as a communication tool for students.
Table 1 presents the breakdown of students who answered the survey by gender and by the school in the university. Although ‘other’ as a subcategory of gender was considered within the survey, none of the students selected this as an option; thus, all the surveys were answered under the gender categories of male and female. There are five schools in Tecnológico de Monterrey, State of Mexico Campus, namely, the School of Engineering and Sciences, the School of Humanities and Education, the School of Social Sciences and Government, the School of Architecture and Design, and the Business School. All students who answered the survey belong to one of those schools. 656 students answered the survey properly; approximately 58.4% (383) men and 41.6% (273) women. Most of the students were from the School of Engineering and Science, 51.4% (337), followed in proportion by those from the Business School, 22.4% (147), and the School of Social Sciences and Government, 9.1% (60).

Table 2 Breakdown of gender of students with type of information that they learn on their computers

As seen in Table 2, the recurrent type of information that millennial students learn on their computers is topics related to their courses and assignments (31.6%), academic content related to their exams (25.4%), and matters of daily life (17%). One of the research questions asks if women have a greater preference for learning subjects related to their school performance, while men show a preference for finding out about current national and international news. According to Figure 2, males are the ones that have greater preference for learning topics related to their courses and assignments (55.4%) and academic content related to their exams (51.2%), significantly higher percentages than the women. This can
be understood as men’s greater preference for learning subjects related to their school performance. Although national and international news is not a type of information recurrently consulted by such students, 13% mentioned it compared to the other kind of information; the numbers confirm that men (59.5%) show a slightly greater preference for this type of information than women (40.5%). A chi-square test of independence showed that there was a significant association between gender and type of information that students learn on their computers, $X^2 (6, N = 646) = 19.39, p = .005$.

![Figure 1](image_url) Comparison of type of information from which students learn on their computers & mobiles
In Figure 1, we see the comparison between what students learn on their computer versus their mobile phones. The table reveals that although students browse information about topics related to their courses and assignments (30.8%) and academic content related to their exams (24.7%) on their computers, they are also interested in matters of daily life (17%). On the other hand, mobile phones are mostly used to search information quickly (52.2%) about immediate situations or topics related to their activities, including academic activities. In that sense, the research question about students originating routines of academic and professional work on their computer, while consulting topics related to their immediate social and cultural context on their mobile phones, is partially answered. Putting it all together, more than half of the students surveyed, 55.5%, look for information related to their academic and professional work on their computers. Nonetheless, there is a slight inconsistency, or an information gap, about what they look for on their mobile phones if quick searches on this device are assumed to be only about immediate topics surrounding their daily activities.

Table 3 Breakdown of gender of students with type of information that they consult on social media

| Type of Information that Consult in Social Media                              | Gender |
|-----------------------------------------------------------------------------|--------|
|                                                                           | Male   | Female |
| National & International News                                              | 64     | 32     |
| Videos of Contemporary Local, National, & International Relevant Topics    | 103    | 61     |
| Content of Contemporary Local, National, & International Relevant Topics   | 63     | 59     |
| Academic Content                                                           | 17     | 9      |
| Content related to their Professional Growth                                | 21     | 12     |
| Content related to Daily Life                                              | 99     | 91     |
| Other                                                                       | 14     | 5      |

Social media is mostly used to consult information about the immediate social and cultural context. 88% of the information consulted by the students pertains to content related to their daily life (29.2%); videos of contemporary topics that are locally, nationally and internationally relevant (25.2%); content of contemporary topics that are locally, nationally and internationally relevant (18.8%); and national and international news (14.8%). A research question asks if women are more likely than men are to use social media to learn things related to their immediate social and cultural context. The results in Table 3 slightly support this idea. While 90.3% of women look for information on social media about their immediate social and cultural context, 86.3% of men do the same. A chi-square test of independence showed that there was no significant association between gender and type of information that is consulted on Social Media, $X^2 (6, N = 650) = 12.13, p = .059$. 
Table 4 Breakdown of gender of students with type of information that they consult on Facebook

| Type of Information Consulted on Facebook | Gender |
|------------------------------------------|--------|
|                                          | Male   | Female |
| National & International News             | 103    | 74     |
| Teamwork                                 | 30     | 8      |
| Topics related to Lifestyles             | 89     | 87     |
| Information related to their Social Circle| 83     | 73     |
| Banal or Unimportant Information         | 63     | 26     |
| Other                                    | 10     | 2      |

The results of students’ consultations on Facebook (see Table 4) show an intense interest in information about their social and cultural contexts compared to other students. 78.6% of information consulted on this website pertains to national and international news (27.3%); topics related to lifestyles (27.2%); and information related to their social circle (24.1%). Women (86.6%) are more interested than men (72.7%) in the use of Facebook for this purpose. A chi-square test of independence showed that there was a significant association between gender and type of information that is consulted on Facebook, $X^2 (5, N = 648) = 21.46, p = .001$.

Conclusions

Few things can be said with any accuracy about how students learn at the State of Mexico campus compared to the Monterrey campus, because analysis in this paper focuses on what they learn. Nevertheless, the institutional conditions of learning remain the same in both cases. In a future analysis, possible differences among the students of both campuses will be discussed. Yet, in this paper, the quantitative measures about what students learn were obtained in order to pack the premises of previous experiences (Miranda, 2019) into research questions. Thus, in the following paragraphs, old and new information is contrasted based on the analysis.

Although not all research questions were supported by a significant difference, the ones that were supported show that the premises raised by the number of mentions during the first phase of investigation (Miranda, 2019) are quite close compared to the results with quantitative measures, because the gender differences in the use of digital media (DM) in the majority of the research questions were confirmed. The research questions about what students, men and women, learn in general on DM, and in particular on social media, show that gender matters in an e-learning process. In the case of Monterrey (Miranda, 2019), for instance, 77% of women’s reports compared to 23% of men’s were about an interest in the use of Facebook to learn things related to their immediate social and cultural context. In another study, Pedró (2018, pp. 8–9) finds that girls are more likely than boys to use phone calls and emails to organize their social lives and keep up affective contacts with those they like.

In the case of the State of Mexico, 86.6% of women compared to 72.7% of men in this aspect had a Pearson Chi-Square of .001, meaning that even though the differences between the genders were weak, they were statistically significant. Therefore, it suggests that men
and women do have markedly different preferences in terms of their routines and what they learn from. There are no possible consequences if immediate social and cultural context corresponds to teamwork (see Figure 5), which is one of the types of information consulted on Facebook, because it could be understood as being for educational purposes. Nonetheless, if preferences of female students for this type of information are extrapolated to society, topics related to lifestyles or student’s social circles, for instance, the results have a link to gender differences in roles that men and women play in a patriarchal society (Stern, 1995). More research is needed for this aspect.

In addition, the evidence towards the research question of how and what students learn on their computers compared to mobile devices suggests that DM use by students slightly supports the concept of remediation from the e-learning theory (Haythornthwaite & Andrews, 2011). The evidence not only contributes to our understanding of Millennials’ use and learning practices by digital media (DM), but also unpacks somewhat their digital literacy (Gilster, 1997; Koltay, 2011) in terms of their awareness of the topics they learn on computers and mobile devices; their ability to find and identify information. Whereas this category considers a shift from one medium to another in an e-learning process, the students at State of Mexico Campus use various digital media, but each for different purposes; i.e., computers mostly for academic activity, and mobile devices to look for information related to their immediate social and cultural context. Thus, a reconsideration of remediation as a category needs to be suggested to enrich it or to create a new category with different attributes that take into account the shift of digital media among students to use them for different e-learning processes.

If students use computers to search for information about their courses and assignments and academic content related to their exams and daily life, and use mobile devices to complement that information in the short term, it suggests multi-tasking students are being fostered by the use of technology (Silverstone & Hirsch, 1992). According to the digital environment where these students are using such technology—a private educational institution—a digital class divide (Ragnedda & Muschert, 2013) could be increased and made visible by the ones having access to mobile devices and a Wi-Fi connection, and the ones who do not.

By and large, the results of the analyses in both cases, in Monterrey and the State of Mexico, of students who belong to a generational category suggest inconsistencies among Millennials (Strauss & Howe, 1991; Strauss & Howe, 2000). On the one hand, this singular concept considers a generation with homogenous properties and attributes, but in both cases mentioned, students had different approaches to the use of DM depending on gender. On the other hand, coincidences between the use of DM and learning practices among students could be explained by the technological conditions triggered by the institutional policies of the university to embrace and adopt the technology. Thus, in that sense, it would be the institution, not the historical movement conceived by a whole generation that is the factor that predisposes students to use DM technologies. Further research is needed to study this idea.

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