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Smart Phones and Online Education

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Abstract: *American university freshmen come to campus with many personal electronic devices, and a high percentage of these students are "glued" to their mobile phones during every waking hour of the day. These digital gadgets, driven by the exponential expansion of technological development, are rapidly changing both quantitatively and qualitatively their interpersonal communication and social relations. Apparently, today's students are profoundly different from those who were educated before the invention of the Internet. Current students juggle a much more complex life with school, work, family and social interactions, and therefore have different expectations form their higher education. They want to access educational material and to work on their assignments at the time, pace, and place that is most convenient for them. However, it seems that most of the students' access to the "universe" takes place through the constricted space of a monitor. Thus, as a consequence of working in solitude rather than with a group, physical interactions get shifted into virtual online spaces, playing a major role in the physical sociofugal aspects of student lives. The 19th-Century vision of education that takes place at a single sociopetally-based institution, in a single classroom, and at a specific time is becoming outdated. Education is shifting to learning that occurs anyplace and anytime, and that is what most students are now already doing on their-own. Online education, which has become more and more popular in the last decade has, among its many challenges, bringing students together though simulative interaction based in having a sense of community. This notion was essential to the now dying-away old educational paradigms, which are being redefined, to say the least. Among other things I will present in this paper how an online class uses the smart phones to incite students' music creativity*

Keywords: *Education, Phones, Internet.*

1. Introduction

The university in America is understood to be an educational institution intended for instruction of students in many divisions of advanced learning. The tradition of the academic campus dates back to the medieval European universities where students and teachers lived and worked together in a secluded environment. The physical layout of the university campuses should ideally be planned as a sociopetal space, which encourages communication while bringing people together through stimulating interactions across overlapping and merging paths. For example, having different departments housed in reclusive buildings across the campus may bring their academic populations together by putting a cafeteria in the middle of campus. This gathering space, where people usually go to eat, may serve as the central place of social interaction though which significant learning may occur. The human brain is a social brain, thus most learning involves other parties socially interacting while building interpersonal relations. Many years were spent scientifically studying learning as experienced by individual learners, but more and more we are coming to realize that learning is fundamentally social and inseparable from engagement in the world. This idea is elaborated in Etienne Wenger's *Communities of Practice* [1]

Community is considered as being essential for powerful learning to occur, and it requires a greatly interactive and loosely organized social network with close relationships grounded in personal encouragement and interdependence. Thus, in a very broad sense, community may be also understood as an environment where paying attention to each other though mindful and responsible interactions takes place. Moving toward important

collective goals while acknowledging each other's needs becomes the essence of community. However, the academic environments and their communities face significant challenges as the incoming students and their ways or life contradict the very notion on which the sense of communities (as described above) was built.

The current educational system, with its sense of communities, was shaped during the Industrial Revolution, and was created to efficiently convey information from the instructor to the students in the traditional classroom setting. This system was based on linearity, conformity, and standardization. Now, since the Information Age took over from the Industrial Age, the educational models are being forced to follow that transformation because the character of the incoming student population is rapidly changing every year. As the American Academy of Pediatrics describes, the dominant forces in children's lives come from the media; either traditional television or the "new media" (including cell phones, iPads, and social media). The average 8- to 10-year-old devotes approximately 8 hours a day to a variety of different media contents, while older children and teenagers devote >11 hours per day [2]. Adolescents now spend more time with media than they do in school—it is the principal activity for children and teenagers other than sleeping [2] [3]. TV still remains the predominant medium of choice (>4 hours per day) but almost 1/3 of the TV programming gets viewed on non-TV platforms such as computers, iPads, or cell phones. Practically all youngsters have access to the Internet (84%), usually high-speed, and 1/3 have access in their own bedroom. The time spent on a computer amounts to 1.5 hours per day; out of which half is spent on social networking, playing games, or viewing videos. New digital technology has made a huge impact on the life of youngsters: 75% of 12- to 17-year-olds now own cell phones, up from 45% in 2004. Nearly all teenagers (88%) use text messaging. They actually talk less on their phones than any other age group except for senior citizens [4] [5]. Half of teenagers send 50 or more text messages per day, and one-third send more than 100 per day [4]. Teenagers mostly access social media sites from cell phones [5]. They are also avid multitaskers, often using several technologies simultaneously [2]. Digital and social media allow today's students to learn from each other in informal settings anywhere and anytime while accessing educational material and working on their assignments at the time, pace, and place that is most convenient for them. Unfortunately, the universities, being large institutions that are consequently "slow in taking action," have an increasingly hard time appropriately responding to these continually changing demands. As virtual dwelling spaces, as well as online educational environments, more and more begin to replace "in the flesh" communication and interaction, there is a pressing need for creating effective virtual learning communities, that may attempt to function as efficiently as the physical ones.

2. Sociofugality of Online Instruction

Today's students are considered "digital natives" that they juggle a much more complex life at school, work, family and myriad of social interactions, and they are profoundly different from those students who attended universities before the invention of the Internet. Now, students are active and proficient in their use of technology while being comfortable at simultaneously navigating both their physical and virtual worlds. Understandably, these students have different expectations form their higher education. They want to access educational material and to work on their assignments at the time, pace, and place that's most convenient for them. However, it seems that most of the students' access to the "universe" takes place through the constricted space of a monitor. Thus, as a consequence of working in solitude rather than with a group, physical interactions get shifted into virtual online spaces. This plays a major role in physical sociofugal aspects of student live. Nevertheless, the convolution of real and virtual is the world students comfortably dwell in, and mobile technology greatly contributes to this fluidity, as it is represents student's preferred method of communication. The ability of connecting anytime, anywhere in students' everyday lives has created an expectation that their educational activities in their academic and student lives must follow the same suit. When they engage in selecting which schools to attend and go through their tenure at a particular educational institution, students expect to receive, comparable to their non-academic life, a kind of interaction in order to fulfill their responsibilities. That is a high benchmark for the universities to achieve and it goes far beyond the 24×7 access to grades, assignments, and calendars of campus events. One of the new educational modalities is the online education, which has become more and more popular in the last two decades. Among its many challenges, online education struggles with bringing students together though simulative interaction, which is based on

having sense of community. This was essential to the fading old educational paradigms, as it is essential to the online education. Today, through technology, students who participate in online virtual learning communities are only separated by space, but not time.

However, as technology developed, it played an important role in the sociofugal reorganization of people. In the fifties, families would gather in the evening in front of the TV to watch their favorite show at 8 PM. Now every family member may watch his/her own favorite show streamed onto individual mobile device at any place and any time, without any need to communally socialize around "an event." The interpretations of "the events" and social interactions related to them may be transferred into the virtual spaces of online forums or social networks. People may get to know each other virtually rather than physically. Though these new technologies and online education create far-reaching opportunities, they also bring substantial social challenges. For example, the university campuses provide a common physical space for a diversity of students to interact in the real world while being educated about prejudice, tolerance, and social justice. This would be hard to attain though online-based instruction alone. Another example may be associated with the inclusiveness of online learning communities as related to the students with disabilities who could have difficulty participating.

3. Virtual Learning Communities

Monastic and madrasa-like educational spaces for meetings, socialization, and exchange of ideas had been effective for centuries because of their ability to initiate the creation and preservation of community, which provided fertile grounds for dialogue and engagement in learning. This educational landscape is rapidly changing, driven by technology that is affordable, user-friendly, and mobile; but at the same time it provides instant access to various types of information. It is safe to say that soon, the most popular student congregational spaces and learning halls are going to be far more virtual than physical, while being available anytime, anywhere, and also individualized to the personal preferences of the user. How can we embrace this change and focus on creating virtual (online) learning communities where, through social networking and computer-mediated communication, students may experience at least a simulacrum of the cloistered-type education?

Let me briefly address some essential aspects of online education. In an online learning community, students share knowledge via textual discussion (synchronous or asynchronous), audio, video, or other Internet-supported media. Synchronously they may exchange instant messages in the online chat rooms or directly communicate using variety of online videoconferencing software applications. Asynchronously they may use message boards and educational blogs (edublogs) as instructional resources where personal journaling may create platforms for deliberation. Collaboration through the use of wikis; where modification, extension, or deletion of its content and structure may be initiated in many creative ways. The inescapable social networking sites may allow students to create their profile and communicate with other students with whom they wish to share information the content.

Most of these notions do fall into a category of social learning where students work as a community to achieve shared educational objectives. Universities that want to promote effective online learning need to pay close attention to the uniqueness of the new virtual social setting. This does not only mean simply providing the technological resources required for online learning, but, more importantly, offering a faculty with the professional development to foster excellence, distinction, and additional compensation. In order to teach an online course, instructors need significantly different skills from those used in the traditional classroom setting. One can find many university courses all over the web, which are simply an electronic version of the classroom instruction course—a videotaped lecture that only challenges the student to watch and read presented material from which to extract information. In this case, the technology is used to transmit the information in a single direction, rather than to create online learning communities that permit and encourage dialogue and bi-directional communication. This is why the lack of interaction and engagement among students in many online education courses are identified as major factors in their failure.

Many of today's students have already been exposed to and have participated in massively multiplayer online games (MMOG), which allow hundreds of thousands of players to play the same game together. The virtual world of these games is housed centrally, and metaphorically exists as a place where individuals arrive from any geographical location. So, the experience of a virtual community already exists, but an online instructor should strive to develop "a virtual community of inquiry" which may resemble a game design to

which students are already accustomed. This is where genuine online discussion should take place, where students offering assumptions and responding to the ideas of other students, becomes the norm. Online assignments should be designed to inspire students to use chat rooms and other ways of online interactions and work with other students through problem-solving activities. In addition, these activities may be helping students to improve their skills in making arguments through engagement in on-line discussions. Knowing how to ask questions has always been a fundamental device to gain information, but also to initiate dialogue through which a sense of community may be fostered. Therefore, in an online virtual learning community, the instructor should facilitate peer-to-peer learning, which goes beyond what is possible today within the physical confines of a classroom. For example, all interactions that are not audio-visually based may engage and empower shy students who are generally hesitant to speak in the physical classroom setting. Being "protected" by the online-created physical "distance" from their peers, students may emphasize their individuality and subjectivity. This may be good but also problematic, and therefore a nonintrusive instructor's moderation of these online student interactions becomes highly desirable and sensitive. One of the difficulties of moderation and/or instructor participation in these online exchanges is that, as mentioned earlier, they take place at any time, and an instructor cannot be omnipresent. Thus, the best we can do is to define chat room protocols and expect that students conduct themselves on the discussion forums with respect towards other fellow students. Constructive criticism becomes a welcome and valued part of educational discussions where students can take advantage of other students' feedback and insights. However, inappropriate posts and comments that lead to flame wars and verbal abuse should be removed, with repeat offenders appropriately sanctioned as violators of the net's ethics. This may contribute to the creation of the student-responsible virtual learning communities that may facilitate negotiation, intimacy, commitment, and engagement. Ideally, through online communication and social interactions, students should form distinct impressions of other course participants and develop a sense of belonging in the course. Different levels of virtual intimacy among the students may be formed as the sense of community develops. This intimacy through student engagement must have the immediacy of embarking onto free and meaningful discourse, where communication becomes essential to the concept of creating virtual online learning communities. To increase the sense of immediacy, prompt (usually one business day) instructor feedback regarding all class communication is essential for the online student to manage his/her learning experience, and have a sense of belonging to the community. Online instructors may punctually provide two kinds of feedback: "information feedback" and "acknowledgement feedback." The former provides information or evaluation, such as an answer to a question, or an assignment grade and comments, while the latter confirms that some event has occurred. In order to achieve this sense of intimacy and belonging, instructors must do the same things they would employ in a face-to-face classroom, which is to interact with students as much as possible and develop intellectual and personal bonds with them. The same type of bonding can happen in an online setting, thus instructors must "be present." This means to show their presence several times a week, and at best, daily. Being clear about when one will be present and not, by setting regular hours when a meeting in a virtual classroom can take place, just like real-time office hours, can be invaluable to students. At no time should students feel abandoned or alone if the virtual learning community is established successfully. Having a supportive online course community ideally requires a class with a balanced set of dialogues: faculty to student, student to student and student to resource. However, the encouragement of peer-to-peer, student-to-student engagement is extremely important in the building of a course community. Indicators of engagement in the online classroom may be monitored through participation in asynchronous discussions, assignment activity, and course involvement. Further assessment of student engagement and success of the online learning community may also be evaluated through examining students' self-motivated class interests that go beyond the graded expectations of the course. The higher the activity, the stronger the community.

4. Discussion

Tensions between the traditional models of education and the new uses of digital media widely exist, in spite of the urgencies of these technologies and their inevitable reshaping of the old system of education. According to a recent U.S. Department of Education study, students who took all or part of their instruction online performed better, on average, than those taking the same course through face-to-face instruction. All this points out that an extremely urgent endeavor will be necessary to develop coherent models for the future of education in a rapidly changing technological age. Perhaps the conviction on how one teacher has affected us all may be rapidly disappearing in this new educational environment. Pondering about the notion how we hardly remembered what the core curriculum was and what the courses were, but how we always remembered the one teacher who affected us the most may be quickly becoming a thing of the past.

In a rapidly changing world, employment opportunities are changing as well. Education needs to facilitate teaching knowledge, but there is a general consensus emerging that we need better prepare young minds for an uncertain future. Universities have been notorious for being slow in adopting changes, but the society and the profile of students who are enrolling into the universities is changing at a speed that is becoming increasingly difficult to adjust to. Accommodating these new generations of changing students is going to be a monumental task for the higher educational institution. We should also keep in mind that online students are mostly students who will otherwise not register for a traditional on-campus course, or even enroll in the university as a degree-seeking student. Online education made higher learning more accessible—especially to working adults, single parents, students with disabilities, and others who have schedules and responsibilities that are incompatible with their attendance in traditional face-to-face classroom instruction, or even international students. Catering to this widely diverse student population requires extremely flexible online delivery techniques and approaches that are less institutionalized and more personalized. Traditional models of teaching and education which were established a long time ago for a rather uniformed student-body are now becoming increasingly obsolete, ineffective, and unattractive for the new generation of diverse students. These educational approaches must change as universities rethink their traditional roles and their modes of operation. Embarking onto completely new roles and missions, driven by the global social, technological, and economic change is going to be a rather painful process. Usually, when we think of culture, we think of a current, established entity that slowly transforms and evolves over long periods of time. But there is another sense of culture, one that reacts to its environment organically. Not only does it adapt to environmental changes, but also integrates the very notion of change into its processes as one of its environmental variables. Only this kind of culture can be flexible enough to survive the exponential rate of change which the information age has brought upon us. Thus, by exploring play, creativity, and the refinement of the inventiveness as foundations of education, we may embark onto the future of learning that is attainable, scalable, and one that flourishes along with technology

5. Teaching Example

I have created at Loyola Marymount University in Los Angeles a class which uses smart phones to stimulate music creativity in college students age 20-22. In this class I ‘substituted’ my lectures to already available online videos. Making eMusic class teaches students the most general concept of musical creativity by using the technology, they are already familiar with. This class belongs to the university core under the category of creative experience. Courses in this area challenge students both to explore their own intuition and imagination and to reflect critically on the work they and others produce. As students engage with the artistic process, they will invoke imagination and informed intuition in the process of giving creative form to ideas. Courses in Creative Expression emphasize both theory and practice; that is, an active, experiential engagement with the creative process informed by critical analysis and self-reflection. Students can fulfill this requirement either through creative arts and creative writing classes that include critical analysis as one component or through critical arts and literature courses that include at least one substantive creative project. While the creative project need not have as its goal artistic perfection, it should engage students in the creation of artifacts

or performances that call for individual and/or collaborative expression and that can be shared with others in coherent and meaningful ways. More specifically, students will

- engage with the process necessary to produce a creative work and, in so doing, use imagination and informed intuition to ask questions and solve problems.
- learn to critically evaluate art and art making—including their own—through aesthetic and structural analysis, discussion and writing.
- strengthen and apply skills of critical analysis, observation, concentration, and imaginative exploration.
- develop an awareness of the diversity of creative expression across and within cultures.
- value the rigorous and often collaborative nature of creative work.
- value imagination and intuition as modes of experience that communicate knowledge.

The class is organized as six-week 100% asynchronous online class during the summer session. Every week there is a new different learning module where students make music on iPhones by using simple music making apps. The modules are:

Week #1 Creativity, Counting Beats, Song Structure

Week #2 Remixlive

Week #3 Launchpad (and BlocsWave)

Week #4 AUXY (and Loopseque)

Week #5 Garage Band

Week #6 NodeBeat (generative music)

Starting week #2 (for the subsequent five weeks) students must do the following every week:

1. Create a 3-minute-long music project draft and send it to the instructor
2. Receive feedback from the instructor
3. Submit the final version of their project
4. Listen to all class projects and provide critique

After the anonymous student critique and ranking of the projects I inform the students of the rankings and provide all the students critique in an Excel spreadsheet. This way, in addition to my feedback, students might learn from the critique provided by their peers. Besides, the rankings might also stimulate the students by sparking competitiveness among them.

At the end of the semester, as the final project, students pick their favorite music making App and create a 5-minute-long musical project. In addition, they must provide the analysis of all e-music making Apps and rank them to their liking.

In my presentation of this paper, I will provide many appropriate audio examples of the projects that students created in my Making eMusic class.

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