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Collaboration and the Net generation: The changing characteristics of first year university students

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Abstract: This paper reports on the first phase of research that investigates the Net generation entering university. The paper focuses on claims about the Net generation's relationship to collaboration and cooperation and the ways that this relationship is associated with technological rather than social processes. Based on a survey of first year students in five universities across a range of subjects and disciplinary areas, the paper concludes that we should be cautious about the claims that have been made about Net generation learners. It suggests that broad brush approaches to generational changes obscure the subtle but important differences between students. It also suggests that claims that there has been a step change in attitudes takes attention away from the kinds of choices that might be necessary in relation to variations that are indeed taking place amongst new cohorts of students.

The Net Generation

The term Net generation originates in the work of Tapscott (1998 and 2008). His arguments are about an entire generation.

Today's youth are different from any generation before them. They are exposed to digital technology in virtually all facets of their day-to-day existence, and it is not difficult to see that this is having a profound impact on their personalities, including their attitudes and approach to learning. Tapscott (1998 a)

Tapscott uses his arguments about the Net generation to argue that technological changes lead to 'inevitable' consequences for teaching and learning. "But as we make this inevitable transition we may best turn to the generation raised on and immersed in new technologies." (Tapscott 1999 p11). The change favored by Tapscott is a move from teacher-centered to learner-centered approaches and he claims that the ultimate interactive learning environment is the internet itself.

A second common source for arguments about the Net generation comes from articles written by Prensky and the idea of Digital Natives (Prensky 2001 and 2001a). Prensky argues that digital natives are part of a generation that have:

.. not just changed *incrementally* from those of the past, nor simply changed their slang, clothes, body adornments, or styles, as has happened between generations previously. A really big *discontinuity* has taken place. One might even call it a "singularity" – an event which changes things so fundamentally that there is absolutely no going back. (Prensky 2001 p 1)

Prensky's comments were made directly in relation to students but they were about the entire generation in schools and colleges and not limited to those pursuing higher education. The discontinuity described by Prensky focused on *thinking* and *processing* differently. Prensky even makes the claim that the brains of the new generation are different (Prensky 2001a). Prensky's claim was that the biggest problem in education was a disconnect between 'digital native' students and 'digital immigrant' staff who retained the 'accent' of a different era even when they were fully socialized into a digital environment. Prensky argues that if you are not part of the new generation you will always be marked by your earlier experience. In this sense being a digital native or a digital immigrant is not a learned skill it is a fixed product of early development.

Despite having slightly different emphases both Prensky and Tapscott rely heavily on technological determinist arguments. Tapscott's argument that changes to pedagogy are 'inevitable' is a classic example of this flawed approach. A further source of arguments about this new generation of students comes from Diana Oblinger of EduCause who has called the generation born after 1982 the Millennials and claims that this group:

- gravitate towards group activity
- identify with their parent's values and feel close to their parents
- spend more time doing homework and housework and less time watching TV
- believe "it is cool to be smart"
- are fascinated by new technologies
- are racially and ethnically diverse and

- often (at least on in five) have one immigrant parent.

This description of the Millennials unlike the work of Prensky and Tapscott is empirically based and is supported by large scale annual surveys of students in the USA (see for example Salaway et al. 2008). Oblinger's argument is strongly related to Prensky's ideas and Oblinger claims to have found a trend towards an internet age mindset. She also agrees with Prensky that there is a disconnect between the new Millennial students and the institutions that they are enrolled in. However Oblinger and Oblinger (2005) do not agree that the determinant is simply age: "Although these trends are described in generational terms, age may be less important than exposure to technology." (2.9). This difference in understanding allows for older students to have different approaches based on their exposure to new technologies.

Although the arguments of these three authors are actually somewhat different they are used widely and largely interchangeably. There has been relatively little discussion of these themes in recent CSCL conferences (Shih and Swan 2005) or in the international journal of CSCL, but in the wider literature there has been a more developed discussion of the issues that the Net generation raises, and this discussion has included discussion in relation to CSCL (e.g. Nilsen and Instefjord 2000)..

Net generation and collaboration

The Net generation argument has consistently associated the rising generation with new forms of sociality and a desire to work in teams or group. Most recently Tapscott's new book includes this comment: "In education they [the Net generation] are forcing a change in the model of pedagogy, from a teacher-focused approach based on instruction to a student-focused model based on collaboration." (2008 p 11). There are from our point of view two interesting aspects of this argument. Firstly the Net generation are 'forcing' this change, a twist on the technological determinism noted earlier, to which Tapscott has now added a generational determinism as if the Net generation controlled the educational institutions in which they are largely subjects. Secondly the association of the new pedagogy and a student-focus with collaboration, as if this was the sole and specific way that student-focused education could be obtained.

Oblinger and Oblinger express an equally generalized notion of collaboration arguing in relation to teams that:

The Net Gen often prefers to learn and work in teams. A peer-to-peer approach is common, as well, where students help each other. In fact, Net Geners find peers more credible than teachers when it comes to determining what is worth paying attention to. (2005 2.7)

The argument that there is a Net generation has an educational component which suggests that the new generation of learners will be pre-conditioned by their use of technology to drive changes in pedagogy in educational institutions and that these changes will include aspects of collaboration, particularly team work and peer-to-peer learning.

The research

This research which is the first pilot phase of a two year study took place in the spring of 2008 in five universities in the UK. The universities were selected to represent the main 'types' of university found in the UK system and 14 courses were surveyed across a range of applied and pure disciplinary and subject areas (see Table 1). A questionnaire of first-year experiences of e-learning developed by the research team was administered in all five participating institutions. The instrument sought to collect baseline information about some of the key aspects of the students' use of technology in their studies and consisted of four sections: demographic characteristics of the respondents, access to technology, use of technology in university studies in general and finally course-specific uses of technology.

Table 1: University types.

	University A	University B	University C	University D	University E
Founded	Founded 19 th Century	Founded 1970s (Polytechnic) university status in 1992	Founded 1970s	Founded 1970s	Founded 21 st Century from university college
Location	Large urban metropolitan	Large urban metropolitan	Large scale distance	Mid size campus outside small city	Mid size with multi-site, small towns
Course units	English	Sociology	Science	Modern	Journalism

				Languages	
	Bio-science	Information and Communication	Health and Social Care	Computing	Psychology
	Veterinary science		The Arts	Accounting and Finance	Social Work

A total of 596 first-year students completed the survey: 58.6 percent were aged between 18 and 20; 80.3 percent were studying full-time and 19.7 percent were part-time students. The survey was complemented by interviews with staff (n=10) and students (n=12) who were recruited from those surveyed

Table 2 summarizes key demographic characteristics of the respondents by university. In addition to differences in the subject areas that students studied, reported in Table 1, there were significant differences in a variety of demographic features such as gender, student age and nationality.

Table 2. Key Demographic Characteristics (% of the total)

	University A	University B	University C	University D	University E	Overall
Male	22.3	27.3	36.1	43.2	16.3	27.8
Female	77.7	72.7	63.9	56.8	83.7	72.2
UK Students	96.6	95.3	93.3	80.8	98.0	93.9
Non-UK Students	3.4	4.6	6.7	19.2	2.0	6.1
18-25 years	96.0	89.1	12.6	95.9	84.4	75.8
Above 25	4.0	10.9	87.4	4.1	15.6	24.2
Full-time	99.4	96.9	5.1	100.00	99.0	80.3
Part-time	0.6	3.1	94.9	0	1.0	19.7
Total	176	128	119	74	99	596

Overall 50.9 percent of students lived in student accommodation, 8.1 in shared student accommodation that is not student residence, 38.2 percent lived either in their own home or with a partner or parent and 2.7 percent lived in other kinds of residence. 26.0 percent of students had living accommodation located at the university, 32.7 percent lived 0 to 3 miles from the university, 17.7 percent living over 3 miles from the university and 12.0 percent were genuinely distance students, i.e. they lived away from the university.

Key Findings

The findings reported in this paper focus on student use of social networking and Web 2.0 communications technologies such as blogs and wikis. The significance of these technologies is that the Net generation arguments claim that an entire generation who have grown up with technology exhibit different preferences and report different communicative practices to older people. In total, 68.3 percent of the respondents in the sample participated in online social networks (e.g. Facebook, Bebo, MySpace) at least on a daily basis or more frequently, but there was a large variation in terms of frequency of use between different types of universities ($F(4, 587) = 60.20, p < 0.001$) and students aged 25 years of age and under and older students ($F(1, 587) = 332.23, p < 0.001$). For example, only 25.7 percent of University C students reported a daily usage of social networks compared to 90.5 percent of students at University D. Student age is a complicating factor in relation to University C as it has a significantly different age profile. However although University C students comprised a majority of (often older) students who have never used a social networking site, there were also considerable minority groups of students in other universities, e.g. 11.0 and 11.2 percent of students studying with universities A and B also reported not participating in social networking.

To clarify the nature of age differences the sample was split into four age bands – 20 years of age and under, 21 to 25 years of age, 26 to 35 years of age and older than 35 years of age. As was the case with previous comparisons, younger respondents reported more frequent use of social networking websites ($F(3, 584) = 554.20, p < 0.001$), e.g. only 4.3 percent of those aged 20 and younger never used this technology compared to 78.5 percent of those aged 35 years of age and older. Amongst Net generation age students (25 and under) 81.7 percent used social networking on at least a daily basis, whilst only 5.1 percent ‘never’ participated in online social networks. In comparison 55.7 percent of students aged 26 years of age and older reported they had never participated in social networking sites and only 24.3 percent of them reported the frequency of usage reported by most younger students. At a superficial level it would seem that the Net generation hypothesis is confirmed in that use of social networks is highly sensitive to age.

Gender differences did not appear to be quite as pronounced and there were no statistically significant differences in terms of the frequency of participation in social networks ($F(1, 587) = 2.93, p = 0.09$). Female students tended to use social networking sites more frequently (sample mean of 3.83 compared to 3.60 for men)

and fewer women had never used a social networking website compared to men, 15.5 percent compared to 21.3 percent. There were no significant differences in terms of the experience of using social networking sites between the two gender groups before joining university (Cramer's $V = 0.30$, d.f. = 1, $p = ns$), but women were more likely to increase their usage at university than men (Cramer's $V = 1.50$, d.f. = 1, $p < 0.001$).

The picture is further complicated because we can see significant variations in the use of technologies for social life and leisure and for study purposes. Patterns in student use of various technologies for social life and leisure were correlated with the use of the same technologies for study at statistically significant levels ($p < .001$). However, the relationships between the use of these technologies for study and leisure were not equally strong. Using Cohen's (1988) discussion of the strength of correlations the associations between the use of instant messaging ($r = 0.54$) and internet telephony ($r = 0.52$) for study and for social purposes and leisure can be described as strong. The correlations between the use of text messaging ($r=0.42$) and social networking sites ($r=0.41$), chat rooms ($r=0.36$) and virtual worlds ($r=0.46$) were at a moderate level and it was weak for the use of e-mail ($r = 0.29$). Further work is required to clarify what these relationships might mean as it is the ubiquitous technology, email that has the weakest relationship.

Students tended to choose some of the same technologies for study purposes that they were required to use on their courses, including some of the newer Web 2.0 communication tools (Table 3).

Table 3. Use of Web 2.0 Tools in University Studies.

	Chose to Use (%)	Required to Use (%)	Cramer's V (d.f. = 1)
Instant messaging	26.2	3.2	0.22***
Wikis (including Wikipedia)	44.7	10.7	0.31***
Social networking websites	30.4	4.0	0.22***
Blogs	7.7	5.0	0.34***
Virtual Worlds	1.2	0.7	0.27 (n.s.)

*** $p < 0.001$

However the differences in percentage of students who chose to use certain tools were quite considerable and blogs and virtual worlds were used far less often than tools which allowed access to learning resources or interpersonal communication. For example, 26.2 percent of students in the sample chose to use instant messaging in their studies, but only 3.2 percent of them were required to use this technology in their studies. 44.7 percent of the respondents used Wikis (including Wikipedia), while only 10.7 percent were required to use this technology and 30.4 percent reported using social networking websites whilst only 4.0 percent were required to do so. Interestingly, the usages of blogs were at similar levels: 7.7 percent of students used blogs in their studies and 5.0 were required to use this technology. Clearly students chose to use certain technologies in their studies even when they were not required to do so, although more data on how students specifically used social networking sites to support their studies is necessary. Because the Web 2.0 tools were not used for study to a similar degree and were only loosely related to requirements to use them these results suggest that some communicative practices from the world outside the university are influencing student practices in relation to learning.

The interviews we conducted also gave some detailed indications of the motivations that lay behind the statistics and the ways in which particular institutional and course factors influence student engagement with technologies. The student we report below was required to use a specific e-portfolio system PebblePad which she had found relatively difficult despite being given training. The course she was studying was vocational and had a relatively large proportion of older students. In terms of group work and collaboration much of the work that this student reported was informal working around course activities. For example:

Interviewer: Did you communicate or work with other students?

Sometimes because especially I found with the more mature students they hadn't got as much experience as us, the younger ones [laugh] I helped some of them with the computer and some of them helped me ... In sociology we did a group presentation on slides, mainly it (communication) was email we didn't use 'phones. (Social Work student University E)

Interview data such as this can help us understand the course and institution specific character of some of the students' activity. This helps make our approach more sensitive to local conditions than general surveys of large student populations can be.

Conclusions

The work we have done in the initial study suggests that the claim that there is a single Net generation with distinct characteristics is exaggerated and lacks the detail that might be necessary to make it useful for informing the design of collaborative teaching and learning practices. However there do seem to be age related

changes taking place and these are strongly linked to social networking and the use of a range of new communications technologies. To investigate the relationships that might be emerging we are embarking on a second phase of surveys with a longitudinal dimension. This research began in October 2008. We are also going to conduct a further set of interviews and supplement these with a set of cultural probes based on the Day Experience Method (Riddle and Arnold 2007).

Recently Bennett et al. (2008) have taken a critical stance in relation to the arguments about the Net generation. They argue that the discussion of the Net generation has the features of an academic 'moral panic'. We would suggest that our data supports some of their arguments by pointing to internal differences within the Net generation. Selwyn (2008), basing his argument on survey evidence from UK students, has suggested that the new generation of learners are no more homogenous than were previous generations. In particular Selwyn points to the existence of gender differences and he notes that the gender divide he finds in the survey data does not necessarily follow the lines of division that might be expected from earlier research. What we can be sure of is that if there is indeed a Net generation we will need to know more of this kind of detail if we are to respond to the changes in our educational designs and practices.

Finally collaboration and collaborative learning did not seem to be a strong feature of the students experience at university and the kinds of social networking that was done was mainly informal and largely unrelated to formal learning. The survey does confirm results reported elsewhere (Salaway et al 2008) that there are important changes taking place related to age and they are focused on the use of social networking technology

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