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Validating a social media typology with machine learning and focus groups

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Abstract

Social media networks (SMN) are an established part of the learning landscape in which our students reside as digital inhabitants. Our work is built around an ongoing four-year survey of student attitudes and engagement with SMN and their educational use. Our pre-conceptions were that students would be less keen on engaging with staff via social media. However, the survey results showed only 14% of students against this. Using machine learning to investigate whether those for academic SMN use (dubbed "integrationists") could be separated from those against ("separatists") showed it was hard to predict students' attitudes purely based on their patterns of use of SMN.

The complexity of the issues is reflected by focus group work that identified SMN as just one part of a complex pattern of personal communication. For some, Facebook (FB) consumed more time compared to text/email, but the latter were seen as more privileged with use restricted to higher value conversations and participants. Other insights included conflicted views on the value of SMN, a functional view of SMN alerts, and the lack of immersion in academic SMNs.

These results suggest SMN are not a panacea for student engagement. Care must be taken in designing effective learning conversations using appropriate media and interaction. Slavishly adopting social practices from SMN will not automatically benefit learners and may leave them more disengaged and distracted than ever.

Key Words: social media networks, student engagement, academic engagement

1. Introduction

The outstanding technological phenomena of the past decade has been the largely unforeseen and unexpected growth in the use of technology for social interaction through Social media networks (SMNs). In just ten years the world has seen the introduction and spread of what is now considered to be the primary mode for social interaction, Facebook. From its early developmental stages in East Coast universities in the USA, Facebook spread across the Atlantic Ocean into Europe and across the world. Globally there are now, in 2016, in the region of 1.65 billion Facebook users accessing the website at least once per month, (Zephoria, 2016). A 2014 Ofcom report notes that Facebook remains the default social networking site for 96% of UK adults who are online (OfCom, 2014). Smartphone ownership has also grown dramatically in this period of time since the first iPhone™ was introduced by Apple™ in 2007 and revolutionised internet access. This is reflected in the nearly 1 billion users now accessing Facebook (FB) via their phone (eMarketer, June 2016).

Social media networks (SMNs) have enabled millions of ordinary people to interact instantly electronically and to share their lives more easily than before portable computing technology arrived (Lenhart et al, 2010). Since 2007 a wired connection to the internet has no longer been essential in order to access social media or websites online. The development of smartphones and portable tablets with fast Wi-Fi access and touchscreens led to the rapid introduction of mini applications (Apps). These have further driven the growth of SMN for online, social interaction. Since 2010 we have seen worldwide development and growth of different social media networks such as Twitter, Snapchat and Instagram for sharing photos and third generation mobile messaging networks such as WhatsApp and WeChat.

1.1 Developing Engagement with Social Media

Our longitudinal research among university undergraduates has been undertaken against this whirlwind of change. It is this generation, and their younger siblings currently progressing through primary and secondary education, which increasingly cannot remember a time before social media was a normal part of their everyday life. However, the research group was interested to know how far the students in the course of their studies wanted to engage with SMNs across the staff/student divide. It is an area that has engaged a number of academic investigations over the past 10 years, see for example Corrin and colleagues' work (2010). While Facebook is now ubiquitous in higher education for both staff and students (Dyson, Vickers, Turtle, Cowan, & Tassone 2015) the authors have also examined a range of social networks in use by students to survey their popularity and relevance to study needs.

Our students in HE are increasingly referred to as a type of 'digital native' in popular media .While the description of 'digital natives' has become a popular way of describing the so-called millennial generation who have never experienced life without digital, this is a much-contested area. Challenging Prensky's (2001) assertion of a divide separating 'digital natives from digital residents', academics have sought to develop a more nuanced approach which considers multiple approaches that students make in the appropriation of the technologies they use to support their studies. The authors of this paper prefer the descriptions proposed by White and Le Cornu (2011) of 'digital residents' and 'digital visitors', whereby the different digital experiences of a population are described along a continuum between 'visitor and resident' instead of as a strict 'either/or' choice of which the digital natives/immigrants title allocates according to demographics. Corrin et al in an earlier study articulated a similar point in seeking:

'A more in-depth investigation of the technology practices of these 'digital natives' to understand how technology is transforming their social and academic lives and, importantly, how they are shaping technology to suit their lives.' This is needed because *'… the homogeneity of this generation cannot be assumed and that in reality the technological characteristics of the digital natives are significantly diverse in nature, especially in relation to technology use as part of students' academic study.'* (Corrin, Bennett & Lockyer, 2010).

By way of demographic background the current situation is of a study across male and female student cohorts following undergraduate programmes in Computing (including both Computer Science and IT), Education and Business in a medium-sized Post-92 university with c.25,000 full time equivalent students in South-East England. There is a well-developed VLE and a strong commitment across the university to developing digital resources for all its students. Investment in hardware and software has supported the blended learning philosophy of the university for over ten years and in addition there are several undergraduate programmes which run online and support students located around the world.

1.2 Approach used and methodology

A mixed-methods approach was used and full ethical approval was sought and agreed prior to the start of the study. The primary means of gathering student opinion was through a survey which was presented to students in a face-to-face lecture context by one of the research team. Participation was of course voluntary and the questionnaires were gathered in from participants after a short period of time. This personal approach allowed for a high degree of participation overall.

To gather qualitative feedback from participants, volunteers were invited to participate in a focus group where the issue of SMNs was considered. A series of focus groups (n=3) was held in a study room in the University's learning resource centre. Attendance at each was 4-5 students. The participants were chosen from among the volunteers to include a mix of age, gender and ethnicity which as far as possible would reflect the demographics of the main survey participants. The focus groups were recorded and the analysis was undertaken by two of the researchers listening to the recordings and transcribing the key points according to the themes of the questions. The survey results

are presented below followed by the analysis using machine learning techniques and then the focus group analysis.

2. Survey Results on Social Media Use

The survey data presented in this section is a continuation of the survey described in [Saward et al 2012] which has been administered to both staff and students [Saward, 2012]. Since this first phase of work the same survey has been administered to eleven different student cohorts in three subsequent phases with the number of respondents summarised by subject area below. It provides an important back drop to the question of how students may wish to use SMN as part of their studies. As with earlier instances of the survey, the questions are focused on three main types of information:

- general use of social networks in terms of services and devices used;
- current use of social networks and/or the VLE for communication about studies;
- attitude towards using a social network to receive updates from the VLE about academic issues.

Subject \ Phase	I	II	III	IV	Total
Business		46			46
Computer Science	101	225	60	171	557
Education		114	7		121
Physics, Astro & Maths	81				81
Staff	49				49
Total	**231**	**385**	**67**	**171**	**854**

Table 1 Respondent Cohorts

The variety of students surveyed supports analysis of students' use of and attitudes towards social media, depending upon changing use of social media over time and subject of study. Temporal effects include changes that have occurred in SMN technology and environment over the past four years of the project; and the time spent in the HE environment by students. These two issues are considered separately as general developments in social networks over time appears to be more significant than level of study, which in turn is less significant than the subject of study.

2.1 Effect of Time on Social Network Environment

Analysing computing students (CS and IT students within the school of Computer Science) covers five hundred students in the four survey phases, generating six pair-wise comparisons between phases. Looking at service and device usage there are few significant differences between adjacent phases. However, comparing survey phases with larger two or three year gaps shows significant differences. In particular, comparing the services used between Phase I and Phase IV as shown in Table 2a:

- Facebook shows a significant decline from first to last phase, with the rate of decline more significant in the first three phases and slowing down between phases II and IV
- Google+ shows significant decline from first phase to last, with an against trend rise in Phase III
- The use of other services shows a significant increase, with an against trend dip in phases II

Social Networks Accessed	Average frequency of use	
Phase	I	IV
Facebook	**4.2**	**3.8**
Twitter	2.5	2.4
Google+	**2.1**	**1.6**
Yahoo Answers	1.5	1.6
Other Service	**1.6**	**1.9**

(a) SMN services

Device used for Social Network Access	Average frequency of use	
Phase	I	IV
Desktop	**3.1**	**2.3**
Laptop	**3.9**	**3.6**
Tablet	**1.7**	**2.5**
Smartphone	**3.9**	**4.4**
Other Device	1.1	1.0

(b) Devices used

Table 2 Service and devices compared across survey phases

The statistical differences between the different phases was undertaken using a two-sided t-test at 5% significance on the average frequency of use where 5 represents very frequent use (more than once a day), 4 means frequent use (i.e. once a day) and 1 shows no use. The significant results are indicated by the shading and bold text in Table 2a above. As for the overall usage of SMN, this is discussed in section 3 below. Device use trends for SMN access appear more consistent and significant as shown in Table 2b. Newer form factors, i.e. smart phones and tablets, show a consistent significant increase in use between phases I and IV with a corresponding decrease for more traditional devices (laptops and desktops). Despite these changes, relative usage remains similar with smart phones and laptops being the preferred.

2.2 Effect of Subject on Social Media Use

Phase II allows comparison between groups of students at an equivalent level of study but who are studying different subjects. These second year undergraduate students included 113 studying in the School of Education and 143 computing students, split between IT (72) and Computer Science (81).

Social Networks Accessed	**Service users**		**% participants using service**		**Average frequency of use**	
School	Ed	CS/IT	Ed	CS/IT	Ed	CS/IT
Facebook	108	143	95%	93%	**4.3**	**4.1**
Twitter	62	94	54%	61%	2.6	2.8
Google+	39	57	34%	37%	2.1	1.8
Yahoo Answers	38	65	33%	42%	**1.5**	**1.7**
Other Service	2	23	2%	15%	**1.2**	**1.5**

Table 3 SMNs used and compared across student cohorts

Table 3 shows statistically significant differences between the two different groups of students, using a 5% two-sided t-test indicated by the shading and bold text. This shows computing students' higher Yahoo Answers and other social networks use compared to Education students. In contrast, Education students used Facebook more although this difference was just outside the 5% significance test.

Devices use for Social Network Access	**Device users**		**% participants using device**		**Average frequency of use**	
Programme	CS	IT	CS	IT	CS	IT
Desktop	53	36	65%	50%	2.9	2.3
Laptop	69	65	85%	90%	3.9	4.0
Tablet	26	36	32%	50%	1.8	2.6
Smartphone	69	65	85%	90%	3.9	4.2
Other Device	5	0	6%	0%	1.1	1.0

Table 4 Devices used and compared across student cohorts

Further analysis show significant differences between IT and CS students themselves. While Education students' average use (at 2.6) is marginally above CS students (at 2.5) but significantly lower than the IT students (at 3.1). Significant difference can also be seen between CS and IT students in their use of devices, as shown below in Table 5 with Education students closer to IT in desktop use (1.9) and IT with tablets (1.7). The importance of these results is in the variance that can be found both between Faculties, or even different programmes within the same discipline, not the details of third or fourth choice of device.

2.3 Effect of Level – Time Spent in Higher Education

Broadly speaking, students enter higher education as undergraduates at level 4 and complete their studies at level 6. The level is therefore a proxy for the amount of time spent in HE. This information

was analysed for computing students, looking for differences in SMN use by level to see if patterns of use changed. This analysis showed that subject differences within the computing field were more important than level differences. For example,

- In Phase II, level 5 computer science students were more like level 4 computing students in their lower use of Twitter and other service, and a preference for desktops over tablets, compared to IT students at level 5;
- In Phase IV, level 6 strategic information systems students were more like level 4 computing students, and less like level 6 web application development students who were more frequent users of Facebook.

3. Effect of SMN Engagement on Students' Desire for Academic Use of SMN

Our simple survey highlights the environmental complexity in which students are living and using SMN. Despite this, three clear exemplars, personas or stereotypes are frequently encountered:

- frequent users of SMN who are keen to use it as part of their studies
- frequent users who wish to keep academic interaction separate from other uses of SMN
- students who refuse to use SMN at all, for studies or other purposes

We previously labelled these types *integrationists*, *separatists* and *refuseniks* with *agnostics* being undecided about academic use of SMN [Saward, 2011]. Given these exemplars, how general use of SMN affects students' desire to use it in their studies is a key question. In particular, we are interested in how attitudes on getting VLE updates via SMN, thereby bringing personal and academic online activities closer together.

3.1 Dependency Analysis

The relationship between SMN use and desire for VLE/SMN integration is seen in the maximum SMN frequency plotted against integration desire which defined the original integrationist / separatist / refusenik typology as shown in Figure 2.

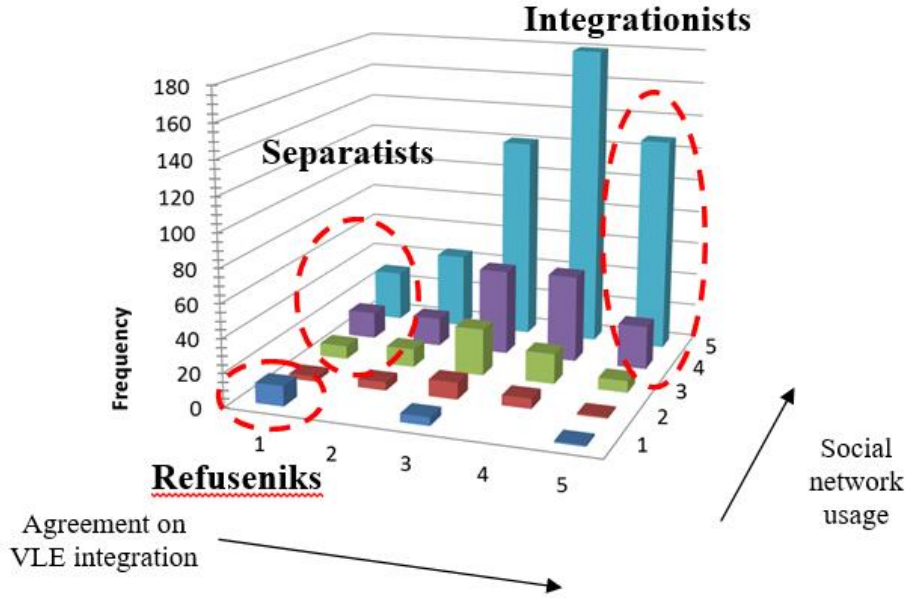


Figure 1: Social media network usage against integration desire for all students for Phases I-IV

Residual analysis of all the student respondents shows significant differences in the chi-squared components (shown in table 5b) between observed data (as shown in table 5a) and the expected distribution if these two factors were independent. The total chi-squared value of 114 is significant at a less than 0.01% chance. The key variation is in refuseniks (SMN usage=1 and integration=1) and the most positive integrationists (usage=5, integration=5). Separatists (usage=5, integration=1) are fewer than expected if usage were independent of integration attitude. This difference for separatists,

with a calculated adjusted residual of 3.83, can be interpreted as statistically significant in a 5x5 table with 16 degrees of freedom.

SM / VLE updates	Max SM Usage 1	2	3	4	5	total Σ
1	12	3	8	16	30	69
2		5	11	17	45	78
3	5	10	28	51	121	215
4		6	18	52	180	256
5	1	1	7	26	128	163
total Σ	18	25	72	162	504	781

(a) Observed distribution

SM / VLE updates	Max SM Usage 1	2	3	4	5	total Σ
1	68.14	0.28	0.42	0.20	4.74	73.8
2	1.80	2.51	2.02	0.04	0.57	6.9
3	0.00	1.41	3.38	0.92	2.27	8.0
4	5.90	0.59	1.33	0.02	1.33	9.2
5	2.02	3.41	4.29	1.80	4.95	16.5
total Σ	77.9	8.2	11.4	3.0	13.8	**114.3**

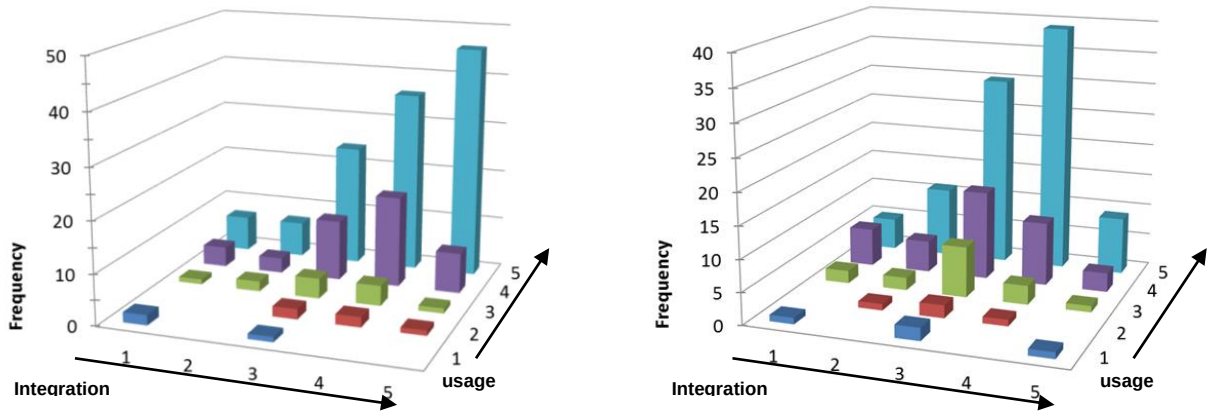
(b) Chi-squared values

Tables 5 Analysis of social media network usage against integration desire

Calculating adjusted residuals in the same way for the integrationists and refuseniks produce statistically significant results of 4.20 and 8.75 respectively. This analysis suggests that the desire for social media integration with the VLE is dependent on the usage of social media.

3.2 Differences Between Survey Phases

The SMN environment has been changing between different phases of our work as discussed in section 2.1. For example, Phase IV computing students make less use of Facebook, with this decline partially offset by increasing use of other services. Similarly, changes can be seen over time in the total usage of SMN. The total reported hours of use has gone down slightly from 18.6 in Phase I to 18.1 hours a week in Phase IV, although the number of accesses has remained almost constant. While neither difference is statistically significant, change in student maximum frequency of use of any service is significant. This declines from 4.6 for Phase I students to 4.4 for Phase IV students. The lower level of use by Phase IV is seen alongside a lower desire to receive VLE updates via SMN. The Phase I average was 3.8, while Phase IV students averaged 3.2 - on a scale of 1 (strongly disagree to having VLE updates via SMN) to 5 (strongly agree). This shift is seen in changes in the back, right hand corner between figures 2a and 2b.



(a) Phase I **(b)** Phase IV

Figure 2 Social media network usage against SMN/VLE integration desire over time

Changes in SMN usage are reflected in chi-squared scores. Phase I shows clear dependencies with a statistically significant overall result of 30.3. However, this dependency between usage and integration desire is not seen in the latest phase where residual analysis does not highlight significant dependencies. This suggests that while current students are generally more positive than negative about integration of social media with the VLE, this view is not driven by their use of social media.

SM / VLE updates	Max SM Usage 1	2	3	4	5	total Σ
1	13.75	0.38	0.01	0.13	0.50	14.8
2	0.20	0.33	1.89	0.01	0.09	2.5
3	0.13	0.59	0.51	0.29	0.58	2.1
4	0.98	0.08	0.00	0.93	0.25	2.2
5	0.90	0.16	1.87	2.88	2.86	8.7
total Σ	16.0	1.5	4.3	4.2	4.3	**30.3**

(a) Phase I

SM / VLE updates	Max SM Usage 1	2	3	4	5	total Σ
1	1.14	0.36	0.22	1.97	1.40	5.1
2	0.49	0.54	0.00	0.03	0.02	1.1
3	0.22	0.22	0.89	0.01	0.42	1.8
4	1.36	0.09	1.09	0.66	1.56	4.8
5	1.14	0.36	0.13	0.05	0.04	1.7
total Σ	4.4	1.6	2.3	2.7	3.4	**14.4**

(b) Phase IV

Tables 6: Chi-squared analysis of SMN usage against integration desire over time

4. Machine Learning

The chi-squared analysis provides some support for the idea that personal use of SMN would pre-dispose individuals to be receptive about their academic use. However, the growing number of people in Phase IV who are not positive about this development, combined with the increasing complexity of the SMN environment raises the challenge of trying to predict which groups of students would engage with academic use of SMN. As a first step in trying to mine the survey data we undertook two basic experiments using:

- classification to identify rules that might be used to assign a type to each respondent
- simple clustering to group respondents to identify common, defining characteristics of SMN use

The primary aim of these experiments was to investigate the explanatory nature of models built on the raw survey data, and to see if they could generate insight into what might distinguish an integrationist from a separatist. At this point in time, refusenik students who made no use of social media were removed, as they could easily be identified by their lack of engagement with SMN. In terms of the data used, survey data was entered into an Excel spreadsheet, then exported as a CSV for import into Weka, a well-established tool for machine learning [Witten et al, 2011].

4.1 Classification Rules

The first machine learning experiment uses the classification algorithm J48 [Witten et al, 2011] to identify explicit rules to define individuals as integrationists, separatists or agnostics. A simple pair of generated rules can be seen in Figure 3.

```
smNetwork = 2+
|   Facebook <= 2: un (6.25/2.24)
|   Facebook > 2: +ve (49.56/12.37)
```

Figure 3: Simple decision tree rules learnt from survey data

The two rules in Figure 3 apply if a student gives two or more (shown by the **2+**) preferred SNMs to receive VLE updates. If their relative frequency of use of Facebook was once a month or less (**<= 2**) then they would be classified as an agnostic or **un**decided. However, if their Facbook use was higher than this (**>2**), they would be classified as positive (**+ve**) about SMN/VLE integration.

There are two key factors in judging the success of the decision tree. The first is the information that can be derived from the rules produced. In the case of Figure 3, the insight is relatively easy – users of multiple SMN which include Facebook are likely to be integrationists. However, the pruned decision tree output contains 62 rules with 118 decision points.

```
smNetwork = t
|   Smartphone > 2: +ve (97.42/35.73)
|   Smartphone <= 2
|   |   snContact > 2.5: un (7.81/2.87)
|   |   snContact <= 2.5
|   |   |   Laptop <= 2: -ve (4.14/0.82)
|   |   |   Laptop > 2: +ve (4.83/2.26)
```

Figure 4: Decision tree rules for VLE updates via Twitter

Making sense of this can be more difficult as rules become more complex although rules for whether students preferring updates via Twitter (**smNetwork = t**) are pro, anti or undecided about integration are still manageable as shown in Figure 4. In other cases, the rules become even more complex and less actionable as they attempt to differentiate integrationists from separatists. For example, rules for students without a preferred SMN for updates are more numerous (up from 4 in the case of those preferring Twitter to 13), complex (up from 7 decision points to 25) and use more types of data (up from 4 to 12).

4.2 Separating Positive and Negative attitudes to SMN Integration

The second key issue in judging decision tree success, after complexity, is the accuracy of the rules. This is shown by the numbers in brackets following the rules given in Figures 3 and 4. The first number given at the end of each rule shows the number of instances to which this rule applies. The second shows the number who are incorrectly classified by this rule with decimal/fractional figures being generated by individuals with incomplete data. For example, the rules in Figure 3 apply to approximately 47 surveyed individuals of which 37 are successfully classified as integrationists (**+ve:** 49.56 - 12.37) and 4 are agnostic (**un:** 6.25 - 2.24).

Overall, the decision tree generated from the data correctly classifies 56% of the surveyed individuals, based on ten-fold cross validation as shown by the overall recall in Table 7a. The cross validation is used to randomly select a test set used in generating the decision tree. The resulting set of rules is then tested on the remainder of the data.

Class		Recall	Precision
+ve	integrationist	0.814	0.659
un	agnostic	0.291	0.371
-ve	separatist	0.241	0.385
total weighted average		**0.564**	**0.529**

(a) Detailed accuracy by class

Reported Class	J48 classification			
	+ve	**un**	**-ve**	**total**
+ve	351	63	17	**431**
un	119	65	39	**223**
-ve	63	47	35	**145**
Total	**533**	**175**	**91**	**799**

(b) Confusion matrix

Tables 7: Decision tree performance

The effectiveness of the rules in the decision tree for separating integrationists from separatists can be seen in Table 7a. Looking at the recall, the rules are good at identifying integrationists, with 81.4% (351 of 431) of those having given a response that identifies them as integrationists (**smUpdate >3**) being correctly labelled by the J48 algorithm as such. The precision is less good with the integrationist label (**+ve**) being applied to incorrectly to 34% (182 of 533) of the survey population who actually identified as separatists (**-ve**) or agnostics (**un**). This misclassification can be seen in the confusion matrix in Table 7b. The rules for identifying those undecided or against SMN integration with the VLE are much less successful. The recall is much lower meaning that only 29% of agnostics and 25% of separatists are correctly labelled as such by the decision tree.

The results of the rules produced in the decision tree shows that it is possible to identify characteristics that make people integrationists, but there are very similar individuals who have a different attitude to getting VLE updates via SMN. To test this conclusion, simple k-means was used to get a better understanding of the similarities between respondants, dividing them into two separate clusters. This approach gives a simple insight into the similarities between respondents as shown in Table 8.

	total	cluster 1	cluster 2	difference	type
Smartphone	4.0	4.8	3.5	1.4	device
Facebook	4.1	4.4	3.9	0.5	service
Laptop	3.9	4.3	3.6	0.7	device
Twitter	2.5	4.0	1.4	2.6	service

Table 8: K-means cluster comparison

These results show cluster 1 more engaged with social media generally, but in particular much more frequent users of smartphones and Twitter, as well as having higher usage of laptops and Facebook. However, these two naturally defined clusters do not easily map into the integrationist / separatist split. Integrationists split almost equally between the two clusters, while non-integrationists are split one third / two thirds between clusters 1 and 2. The resulting overall accuracy is only 45%, again showing the difficulty of using the survey data of student behaviour to identify their attitudes to using SMN for academic purposes.

5. Focus Group Analysis

The focus groups provided more in-depth way of exploring issues around academic use of SMN. Brief analysis here is separated out according to the students' answers to the questions asked and reported from students across the focus groups.

5.1 Focus group Questions

The focus groups used a series of questions, grouped around three themes to provide structure to the sessions which were typically 30 minutes long. The themes included:

- general questions on how and why SMN is used, and balancing study and other parts of life
- social media and how it might be used for studying
- communication outside of social media

Q1: How does social media fit in with your life?

Most of the undergraduate students were enthusiastic users of a limited set of SMNs, which they swapped around constantly during their study time. They said their predominant use was of FB and lower levels of Twitter use were reported echoing the survey results. The following comments show the range of responses indicative of both integrationists and refuseniks.

'... [FB] fits in with everything, it is everywhere- I am constantly using it, such as setting Events pages for birthdays'

'I don't use FB at all as I am not a fan of social media'

Q2: What about receiving information from academic staff through Facebook?

This question generated a definite assertion that students want to be able to control the amount that lecturers can see of their use of Facebook and set clearly defined limits about access to what they deemed to be their private space for study and sharing with friends and contacts outside the university. This shows students seeking a clear separation between their private space and their shared study spaces and taking on a "separatist" persona.

'I prefer StudyNet [the university's VLE] and email for studying. I prefer [to make] a distinction between study and social life'

'I use FB more than StudyNet for group work. I don't want my tutors seeing or influencing my work'

Q3: Would you like alerts sent to you via FB?

Here the students in the focus groups were specific about what they did and did not want from linking SMN to the VLE. They did not want to share personal details, preferring to be able to control who saw what and the setting up of alerts:

'Perhaps linking deadlines to my FB calendar would be acceptable'

'I don't want direct messaging from lecturers on FB. I only use email to contact staff'

5.2 A hierarchy of SMN use

Participants also completed the standard survey to compare views expressed during the focus group with data derived from the analysis shown above. This validated the quotes above which appear indicative of separatist attitudes to SMN and study, keeping academic use away from personal interaction. This attitude is reflected in participants' survey responses which show would classify

50% as separatists, compared to the overall survey response of 17% (from Table 5). However, the views below show a more nuanced approach that fits with the inhabitant/visitor distinction. Technology is being used in different ways at different times to support different goals.

'I use FB a lot for work. I use Twitter too. FB is linked to my phone, Twitter is more open so I would not put private stuff there. FB is my 1st choice for social media.'

'FB helps me to plan my week with Group project meetings as it's quicker than texting the whole group. We usually set up separate groups for each assignment. It's much faster than using StudyNet [the VLE]'

'I tend to have FB open on a tab on my laptop when I am in the library and dip in when I get an alert'

A recent survey reports changing teenage (Pew,2012) with 64% of teachers asserting that: '…*today's digital technologies "do more to distract students than to help them academically."'* Our own research supports this as our students freely admit to trying to multi-task on their studies by always having their social networks available.

6. Conclusions

Tess's asks (2013) why there were so few studies on the use of social media in HE, asking:

'*Is social media an efficient and effective software solution for the higher education classroom? … Certainly social media has been prevalent on the college campus, but not until recently has its viability as a learning medium been considered by a growing number of educators.'*

Our study shows many of our 'digitally savvy' students will happily multi-task using their SMNs alongside their studies choosing when, where, what and how to access media according to personal preferences. The clear message from these cohorts is that while they are happy to see academic use of SMN they want to maintain control over access and choose what information to draw to themselves.

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