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THE USE OF SOCIAL MEDIA SUPPORTING STUDYING

ABSTRACT. This paper aims to identify the degree to which social media influence or support the learning process among students. The research was complex, involving three international panels, comprising students from Poland, China and Romania. Although intercultural differences between the three countries are evident, the attitudes and perceptions of the usefulness of social media in learning activities tend to be homogeneous, revealing not just the extensive use of this worldwide phenomenon amongst young people, but also its significance. Social media have impacted greatly on the way people relate, both positively and negatively. This research focuses on the analysis of the use of social networking in the process of training and self-training in youth education.

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Introduction

Social media have changed the nature of communication – whether peer-to-peer, business to consumer or business-to-business. Social networking sites such as Facebook and micro-blogging sites, for example, Twitter, have become some of the primary sources of communication for people to communicate with others in their network and about brands with which they identify (Bright *et al.*, 2015). This is a worldwide phenomenon and there are many definitions of social media, many of which have come from bloggers and pundits – self-described experts in the field. Managers have struggled with not just how to benefit from social media strategies, but even how to classify social media in a way that is meaningful to their goals to their goals. Kaplan and Haenlein (2010) define these as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content”. Dabbagh and Reo consider social media to be a variety of networked tools or technologies that emphasise the social

aspects of the Internet as a channel for communication, collaboration and creative expression (Štefko *et al.*, 2014; Dabbagh & Reo, 2011a). In order to understand the aim and nature of social media it is necessary to focus on specific examples. Social media include experience- and resource-sharing tools such as Delicious, WordPress and Twitter that enable online/social bookmarking, blogging, and microblogging; there is wiki software such as PBworks that enables the creation of collaborative workspaces; media sharing tools such as Flickr and YouTube that enable social tagging; social networking sites (SNS) such as Facebook and LinkedIn that enable social networking as well as web-based (cloud-computing) office tools such as Google Apps that enable document and calendar sharing and editing, amongst other features (Dabbagh & Reo, 2011b; Kitsantas & Dabbagh, 2010). While social media are now changing the way people obtain and share information, the concept of this means of communication has not been clearly defined, but is related to its decentralised nature. People can use it to create and share information, as well as to obtain feedback (Chiabai *et al.*, 2014; Moran *et al.*, 2011). However, there are also certain concerns. The use of new media and technology has been portrayed in a negative manner, with adults and media identifying social media as a reason for the declining morality of today's youth (Thurlow, 2006).

1. Literature review

Social media usage rates continue to rise; the amount of time spent on social media and the amount of content encountered on them. The increase in the rates of social media usage can perhaps be gauged in that the amount of time spent on social media and the amount of content encountered on social media seem to be triggers for social media fatigue.. For example, social networking accounts for 22% of all of the time spent online in the U.S. and global consumers spend an average of more than 6 h per week on social networking sites (Nielsen, 2011). The ubiquity of social media is a phenomenon that does not seem to be diminishing, but is in fact still on the rise, with usage of up to 800% more than in 2005 (Olenski, 2013). Seventy-two percent (72%) of adults use social media sites with about 1.1 billion people using the Facebook social media site alone: that is about one out of every seven people on the planet, and these statistics are for just one social media site (Olenski, 2013). Social media is a trending topic at the moment, having received much mass media and consumer attention for its widespread adoption during the last decade. Social media have influenced practice in many communication-oriented fields, such as marketing, customer service and journalism. In education, the publicity surrounding social media has created a great deal of speculation about how it might be used in a higher education environment.

Regardless of any apprehensions or characterisations, social media has become an important factor in our world (for social, business, economic situations, and the like) and it is also becoming a factor in all educational settings (Vollum, 2014; Kot & Ślusarczyk, 2014; Korzynski, 2011) Social media adoption in higher education has also become a more common topic for researchers and publications (Dima *et al.*, 2014; Ślusarczyk & Herbuś, 2014; Nordin, 2013; Hrastinski & Dennen, 2012; Strielkowski and Čábelková, 2015) due to the fact that such media provide an effective approach to collaborative learning in education. Through social media, students can communicate synchronically or asynchronously with other students or teachers, which enhances their learning. The influence of these media on higher education settings has already been felt in a number of ways, including outside of the classroom, where institutions have harnessed the power of social media to disseminate information, to network and offer support services. Social media have changed how offices in higher education, such as admissions, alumni relations as well as athletics, libraries, marketing/communications and student services, operate. In addition, students use social media outside of the classroom to socialise, network and organise. In the classroom, professors have begun to adopt social

media for a range of purposes, some using the technology to support more traditional course aims (e.g., blogs as a form of learning portfolio or journal) and others seeking to use it in a more transformative sense (e.g., students building networks and engaging in collaborations related to the course topic but outside of the university community). As evidence of this, we cite the ECAR study. It indicated that 33.1% of the participant undergraduate student sample (N=36,950) reported using wikis; 29.4% made use of SNS; 24.3% used video-sharing websites; 17.4% utilised web-based calendars; 11.6% employed blogs; 4.3% utilised micro-blogs; and 2.8% used social bookmarking tools. Additionally, the percentages of those using social media for coursework related collaboration were particularly noteworthy (30.7% of wiki use, 49.4% of SNS use, 33.4% of video-sharing use, 37.6% of blog use, 40.2% of micro-blog use, and 30.5% of social bookmarking use). These data reveal that college students are integrating social media into their academic experience, both formally and informally. Furthermore, college faculties are increasingly using social media to support teaching and learning activities (EDUCAUSE Learning Initiative, 2007). Social media-based learning allows knowledge to be communicated among participants, not just from the teacher to the students, but also from and amongst students. This approach is more student-centred, which is one of the primary features of problem-based learning (Mehta, 2012).

2. Data Analysis and Discussion

The research sample comes from the Sichuan Branch of the Open University of China, Poland's Czestochowa University of Technology, and the Romanian "1 Decembrie 1918" University of Alba Iulia. In total 410 questionnaires were recovered, including 170 from Chinese students majoring in engineering and technology. One hundred and nineteen (119) questionnaires were collected from Polish students majoring in logistics and 121 questionnaires were collected from Romanian students majoring in Business Administration. Descriptive statistics of the samples are presented in *Table 1*. There are more female participants (67.6%) than male ones and most participants (73.2%) are between 21 and 30 years of age. The statistics indicate that the institution in Poland has the highest number of students who have used social media in learning while that in China has the lowest number. Amongst the social media applications, the most frequently used is wiki (62.4%), and the least used are blogs (34.9%).

Table 1. Descriptive Statistical Results

Classification	China		Poland		Romania		Total		
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
Gender	Male	58	34.1%	28	23.5%	47	38.8%	133	32.4%
	Female	112	65.9%	91	76.5%	74	61.2%	277	67.6%
age	20 years old or under	27	15.9%	1	0.8%	4	3.3%	32	7.8%
	21 to 30 years old	100	58.8%	117	98.3%	83	68.6%	300	73.2%
	31 to 40 years old	40	23.5%	1	0.8%	20	16.5%	61	14.9%
	41 years old or above	3	1.8%	0	0%	14	11.6%	17	4.1%
	Social media used in learning	Blogs	17	10%	47	39.5%	79	65.3%	143
	Wiki	62	36.5%	100	84%	94	77.7%	256	62.4%
	Video Sharing	39	22.9%	72	60.5%	87	71.9%	198	48.3%
	Social Networking	52	24.7%	87	73.1%	92	76%	221	53.9%

Reliability tests examine the consistency and stability of a scale. The higher its reliability, the lower the standard error (SE) is. In a reliability analysis, Cronbach's α is often used to test the reliability of a scale. Its value is between 0 and 1. The closer it is to 1, the higher the reliability. DeVellis (1991) points out that if α is lower than 0.65 it is not acceptable. However, it is acceptable when α is between 0.65 and 0.70 and is ranked as fairly good when α is between 0.70 and 0.80 while it is considered very good between 0.80 and 0.90.

The results of the reliability test of the 410 questionnaires are provided in *Table 2*.

Table 2. The Reliability Test of the Total 410 Questionnaires

Variable	Item number	Mean	Variance	Cronbach's α
Perceived Knowledge Accessibility	4	4.017	0.626	0.778
Perceived Usefulness	5	3.798	0.671	0.841
Perceived Ease of Use	4	3.907	0.626	0.844
Subjective Norm	2	3.399	0.993	0.543
Perceived Enjoyment	3	3.642	0.715	0.812
Intention to Use	2	3.940	0.650	0.766
Overall	20	3.814	0.690	0.933

The reliability test results of the 119 questionnaires from Poland are recorded in *Table 3*.

Table 3. The Reliability Test Results of the 119 Questionnaires from Poland

Variable	Item number	Mean	Variance	Cronbach's α
Perceived Knowledge Accessibility	4	3.975	0.803	0.734
Perceived Usefulness	5	3.770	0.865	0.781
Perceived Ease of Use	4	3.903	0.705	0.773
Subjective Norm	2	3.319	1.018	0.468
Perceived Enjoyment	3	3.619	0.734	0.695
Intention to Use	2	3.996	0.775	0.660
Overall	20	3.792	0.807	0.912

The reliability test results of the 121 questionnaires from Romania are listed in *Table 4*.

Table 4. The Reliability Test Results of the 119 Questionnaires from Romania

Variable	Item number	Mean	Variance	Cronbach's α
Perceived Knowledge Accessibility	4	4.112	0.729	0.837
Perceived Usefulness	5	3.782	0.912	0.892
Perceived Ease of Use	4	4.023	0.804	0.884
Subjective Norm	2	3.202	1.128	0.670
Perceived Enjoyment	3	3.694	0.955	0.884
Intention to Use	2	3.921	0.789	0.860
Overall	20	3.830	0.869	0.955

In the three samples provided, classifications (total samples, Polish samples and Romanian samples) of most variables' α values are higher than 0.70, which is evidence that the reliability of the scale is acceptable. Nevertheless, the α value of the subjective norm is less than 0.65 in two sample classifications: total samples and Polish samples. To achieve better internal consistency, just the first item in the scale of subjective norms is reserved in the analysis below.

The validity of the questionnaires is tested through Kaiser-Meyer-Olkin (KMO) and Bartlett's spherical check. The questionnaires are classified as total samples, Polish samples and Romanian samples. All three sample classifications are tested using both KMO and Bartlett's spherical check. The results are described below.

For the total questionnaires, the overall KMO scale is $0.934 > 0.8$, which means a relatively strong correlation between variables (Spicer, 2004). Therefore, it is suitable to use factor analysis here. Furthermore, χ^2 by Bartlett's spherical check is 3276.871, with a degree of freedom of 120 and a Sig. of 0.000 ($P < 0.05$). This means that the net correlation matrix is not a cell matrix and the questionnaire data are suitable for factor analysis.

For the Polish questionnaires, the overall KMO scale is $0.895 > 0.8$, which signifies a relatively strong correlation between variables. Therefore, it is appropriate to use factor analysis here. In addition, χ^2 by Bartlett's spherical check is 689.654, with a degree of freedom of 120 and a Sig. of 0.000 ($P < 0.05$). Hence the net correlation matrix is not a cell matrix and the questionnaire data are suitable for factor analysis.

For the Romanian questionnaires, the overall KMO scale is $0.933 > 0.8$, which denotes a relatively strong correlation between variables. Therefore, it is suitable to employ factor analysis here. In addition, χ^2 by Bartlett's spherical check is 1440.870, with a degree of freedom of 120 and a Sig. of 0.000 ($P < 0.05$). Consequently the net correlation matrix is not a cell matrix and the questionnaire data are suitable for factor analysis.

In order to study the influence of factors on students' use of social media in learning, 8 hypotheses were put forward. These are listed below.

H1: Perceived usefulness has an influence on students' intention to use social media in learning.

H2: Perceived ease of use has an influence on students' intention to use social media in learning.

H3: Perceived ease of use has an influence on students' perceived usefulness of social media in learning.

H4: Subjective norm has an influence on students' perceived usefulness of social media in learning.

H5: Subjective norm has an influence on students' intention to use social media in learning.

H6: Perceived enjoyment has an influence on students' intention to use social media in learning.

H7: Perceived knowledge accessibility has an influence on students' perceived usefulness about social media in learning.

H8: Perceived knowledge accessibility has an influence on students' perceived ease of use about social media in learning.

Multiple linear-regression analysis is used to test the 8 hypotheses raised (illustrated in *Figure 1*). Three such analyses are conducted on the total samples, the Polish samples and the Romanian samples, with the dependent variables being PU, PEOU and IU respectively.

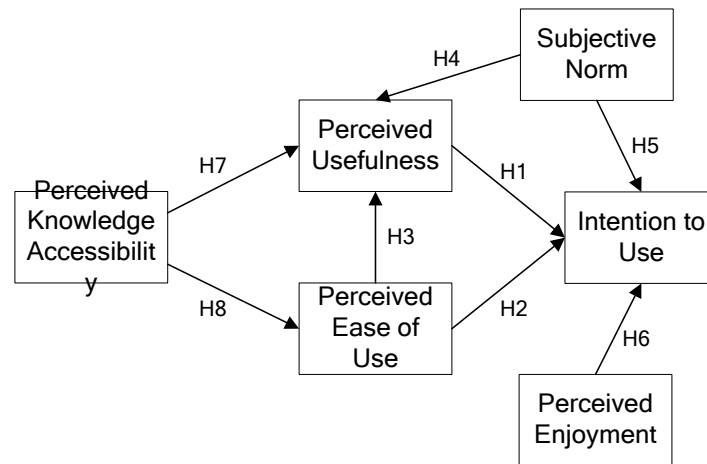


Figure 1. Conceptual Model of the Research

● Total sample

Taking PU as the dependent variable, the analysis results of the independent variables PKA, PEOU and SN are recorded in *Table 5*. It is notable that the correlation coefficients of the three independent variables and PU are all significant ($P < 0.001$). H3, H4 and H7 are all verified. The R^2 of the regression model is 0.55, which indicates that the degree of PU being interpreted by the three independent variables amounts to 55%.

Table 5 Multiple Linear Regression Analysis Result with PU as Independent Variable

Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.267	5.860	0.000	Yes
PEOU	0.433	9.476	0.000	Yes
SN	0.240	6.987	0.000	Yes

Taking PEOU as the dependent variable and PKA as the independent variable, the regression analysis result is shown in *Table 6*. The correlation coefficient of the route involved in H8 is significant on the level of $P < 0.001$; consequently, the hypothesis is verified. R^2 is 0.461, suggesting that the degree of interpretation of PKA for PEOU is 46.1%.

Table 6. Regression Analysis Result with PEOU as Dependent Variable

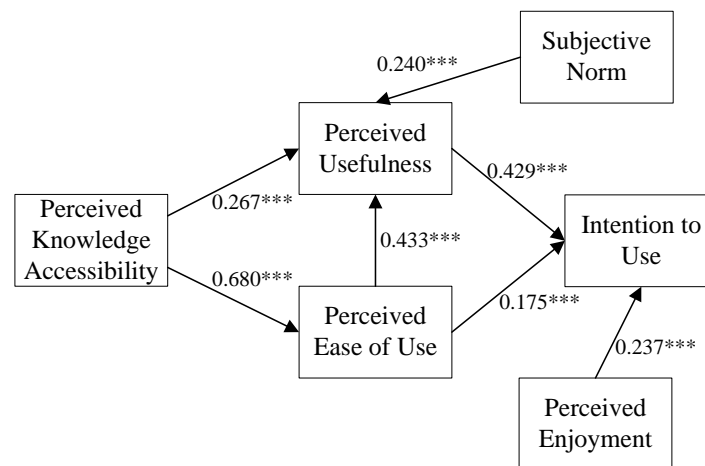
Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.267	5.860	0.000	Yes

Taking IU as the dependent variable and PU, PEOU, SN and PE as independent variables, the multiple regression analysis result is depicted in *Table 7*. In the paths corresponding to the four hypotheses with IU as the dependent variable, except for H5 which has not obtained substantial data support ($P = 0.887$), the coefficient of the other three routes is significant on the level of $P < 0.001$. Thus H1, H2 and H6 are confirmed. Taking PU, PEOU and PE as the independent variables and IU as the dependent variable, the R^2 of the regression model is 0.553. In other words, the degree of interpretation of the above three independent variables for UI amounts to 55.3%.

Table 7. Multiple Regression Analysis with IU as Dependent Variable

Independent Variable	Standard Coefficient	t	Sig.	Significant or not
SN	0.005	0.142	0.887	No
PU	0.429	8.584	0.000	Yes
PEOU	0.175	3.795	0.000	Yes
PE	0.237	5.187	0.000	Yes

The path model is indicated in *Figure 2*.



Note: *** means it is significant on the level of $P < 0.001$

Figure 2. Path Model Based on Total Samples

● Polish Samples

Taking PU as the dependent variable, the analysis results of the independent variables PKA, PEOU and SN are recorded in *Table 8*. It is notable that the correlation coefficients of the three independent variables and PU are all significant ($P < 0.001$). H3, H4 and H7 are all confirmed. The R^2 of the regression model is 0.526, which denotes that the degree of PU being interpreted by the three independent variables amounts to 52.6%.

Table 8. Multiple Linear Regression Analysis Result with PU as Independent Variable

Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.325	3.730	0.000	Yes
PEOU	0.429	4.929	0.000	Yes
SN	0.197	3.062	0.000	Yes

Taking PEOU as the dependent variable and PKA as the independent variable, the regression analysis result is recorded in *Table 9*. The correlation coefficient of the route involved in H8 is significant on the level of $P < 0.001$; hence the hypothesis is verified. R^2 is 0.455, suggesting that the degree of interpretation of PKA for PEOU is 45.5%.

Table 9. Regression Analysis Result with PEOU as Dependent Variable

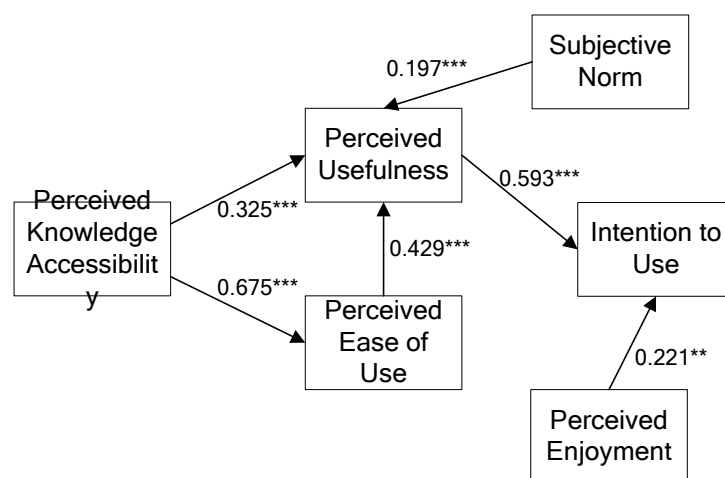
Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.675	9.889	0.000	Yes

Taking IU as the dependent variable and PU, PEOU, SN and PE as independent variables, the regression analysis result is depicted in *Table 10*. In the corresponding paths, the four hypotheses with IU as the dependent variable, H2 (P=0.426) and H5 (P=0.826) are not firmly supported by data. The other two routes (H1 and H6) are verified. Taking PU and PE as the independent variables and IU as the dependent variable, the R² of the regression model is 0.552. In other words, the degree of interpretation of the above three independent variables for UI amounts to 55.2%.

Table 10. Multiple Regression Analysis with IU as Dependent Variable

Independent Variable	Standard Coefficient	t	Sig	Significant or not
SN	0.015	0.221	0.826	No
PU	0.593	7.786	0.000	Yes
PEOU	0.071	0.798	0.426	No
PE	0.221	2.905	0.004	Yes

The route model is depicted in *Figure 3*.



Note: *** means it is significant on the level of P<0.001; ** means it is significant on the level of P<0.01.

Figure 3. Path Model Based on Polish Samples

● Romanian Samples

Taking PU as the dependent variable, the analysis results of the independent variables being PKA, PEOU and SN are recorded in *Table 11*. It is notable that the correlation coefficients of the three independent variables and PU are all significant. H3, H4 and H7 are all confirmed. The R² of the regression model is 0.575, meaning that the degree of PU being interpreted by the three independent variables amounts to 57.5%.

Table 11. Multiple Linear Regression Analysis Result with PU as Independent Variable

Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.232	2.766	0.007	Yes
PEOU	0.458	5.192	0.000	Yes
SN	0.216	3.237	0.007	Yes

Taking PEOU as the dependent variable and PKA as the independent variable, the regression analysis result is depicted in *Table 12*. The correlation coefficient of the route involved in H8 is significant on the level of $P < 0.001$, thus the hypothesis is verified. R^2 is 0.485, suggesting that the degree of interpretation of PKA for PEOU is 48.5%.

Table 12. Regression Analysis Result with PEOU as Dependent Variable

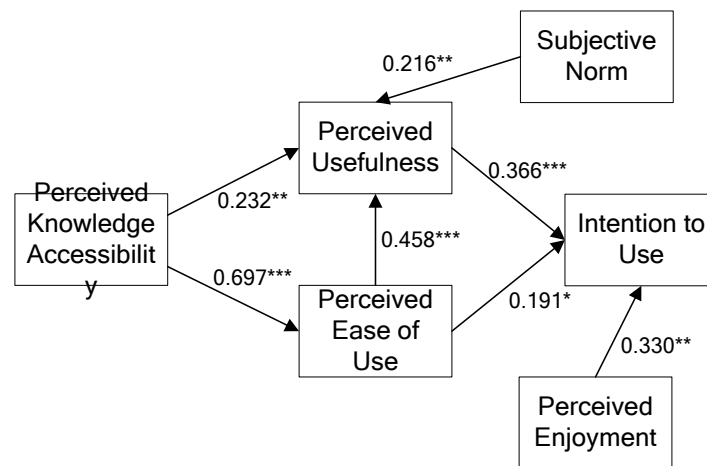
Independent Variable	Standard Coefficient	t	Sig.	Significant or not
PKA	0.697	10.595	0.000	Yes

Taking IU as the dependent variable and PU, PEOU, SN and PE as independent variables, the regression analysis result is shown in *Table 13*. In the corresponding paths, the four hypotheses with IU as the dependent variable, H2 ($P=0.939$) is not firmly supported by data. The other three routes are verified. Taking PU, PEU and PE as the independent variables and IU as the dependent variable, the R^2 of the regression model is 0.656 which signifies that the degree of interpretation of the above three independent variables for UI reaches 65.6%.

Table 13. Multiple Regression Analysis with IU as Dependent Variable

Independent Variable	Standard Coefficient	t	Sig	Significant or not
SN	-0.005	-0.077	0.939	No
PU	0.366	3.819	0.000	Yes
PEU	0.191	2.366	0.020	Yes
PE	0.330	3.575	0.001	Yes

The path model is illustrated in *Figure 4*.



Note: *** means it is significant on the level of $P < 0.001$; ** means it is significant on the level of $P < 0.01$; * means it is significant on the level of $P < 0.05$.

Figure 4. Path Model Based on Romanian Samples

The results suggest that most of the hypotheses, except for H5 (the influence from SN to IU), are supported by the data. The students' intention to use social media in their study depends on whether they think it is useful, easy and enjoyable for them. And, if students feel they can obtain knowledge without difficulty through social media, they will be more likely to consider it as useful and undemanding to use for their study. The term, 'subjective norm' denotes the influence of important people on an individual's recognition and behavior. Students were not obliged to use social media in their learning in the context of this study, so the subjective norm's influence on their intention to use social media was not significant. On the other hand, a teacher's suggestion of using social media in learning would make students feel it is useful for their study. Therefore, if students consider that using social media in learning is easy for them, they are more likely to feel it is a useful strategy to enhance their studies.

Summary

The survival of traditional enterprises within the global economy relies on their ability to embrace new ideas and different organisational forms and to imagine innovative ways of delivering value to customers and new approaches to collaborating in dynamic networked environments (Kadar & Muntean, 2013).

Social media comprise a phenomenon that has extended globally and which cannot be ignored; even the most distrustful of it have begun to realise the power of social networks. While no one could initially have anticipated or predicted the extent to which such networks would develop, we can now even discourse about the progress that social networks are generating in more and more areas.

Analysing academic activities in three university centres produced both scientific and systematic findings of the degree to which social networking is integral to students' learning/documentation activities as well as to professors' preparation and elaboration of materials.

This informational resource must be updated continuously, but fortunately, access to information has never been easier than it currently is and the internationalisation phenomenon creates links, which until a few years ago could not have been anticipated.

However, people involved in this process do not have an easy task; they need to filter and select the important and relevant information in any action. Social networks support

learning in any part of the globe, on a smaller or greater scale, but it is very important for teachers to know how to moderate the consumption of internet resources and direct their use with maximum efficiency.

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