Are students satisfied with media:
a Canadian case study

Gerd Gidion, Luiz Fernando Capretz, Ken Meadows, and Michael Grosch

Abstract—**The article presents partial results of a survey about media usage habits for studying and learning conducted in 2013 at Western University, a large Canadian university. The article focuses on students' frequency of use and satisfaction with media for studying and learning. The results of this study support the assumption that student's media usage includes a mixture of traditional and new media. The main traditional media continue to play an important role in the students' academic life, and some new media have emerged as seemingly on equal footing or even more important than the traditional forms of media. The use of some media can be stated as almost compulsory, especially the use of Google search; that is on the highest rank of frequency of use as well as one of the highest satisfaction values with the usage. The use of Facebook and YouTube shows very high values of usage frequency, so this might also be stated as a habit.**

Index Terms—**e-Learning, Media Usage Survey, Technology-Enhance Learning,**

I. INTRODUCTION

THE intensive use of new media services is a phenomenon caused by new habits that encourage people to work with media on a daily basis. Nowadays, students are equipped with mobile and continuously network connected computers, and they are proficient in using them continuously learning.

The ubiquitous use of IT media and web/online services in higher education has led to substantial changes in the ways in which students utilize them to study and learn [1], [2]. Two of the most comprehensive media surveys was conducted by the EDUCAUSE Center for Applied Research (ECAR) in the Study of Undergraduate Students and Information Technology [3], and the Horizon Report [4] on the current and future use of technology in post-secondary education.

Partial results of our survey involving instructors and students only in the Faculty of Engineering were presented at the Canadian Engineering Education Association Conference

[5]. Other more focused survey on mobile learning maturity and specific for m-learning have been carried out [6], [7], [8].

II. RESEARCH METHODOLOGY

The survey tool was first developed and used at Karlsruhe Institute of Technology (KIT) in Germany [9]. During the application of the 15 follow-up surveys that were administered internationally, the original survey underwent optimization, translation into several languages, and validation.

At Western University, an initial invitation to participate in the research and two reminders were sent by email. The survey was voluntary and anonymous, as indicated in the cover letter. For the student survey, three emails were sent by the Office of the Registrar staff to a stratified random sample of undergraduate and graduate students enrolled on the main campus in the Winter/2013 academic term. The data for this survey was collected online using an established survey provider, Unipark.

In the period between January 16th and February 15th 2013, 19,978 students were invited to respond to the survey. Subsequently, exactly 1,584 visits occurred at the survey website. Among the invited students, 1,266 started to answer the questions, 985 completed the survey, and 803 recorded a completion rate of more than 90%.

The survey uses a fully standardized anonymous questionnaire containing a total of 150 items. Specifically, the tool measures usage frequency and user satisfaction with 53 media services, including: information services such as Google search, Google Books, library catalogues, printed books, e-books, printed journals, e-journals, Wikipedia, open educational resources, and bibliographic software; communication services such as internal and external e-mail, Twitter, and Facebook; e-learning services such as learning platforms and wikis; and media hardware such as Wi-Fi, notebooks, tablet computers, desktop computers, and smartphones.

These variables, as well as the aforementioned methodology, were used to create an acceptance value. Additional variables also underwent evaluation, such as learning behavior, media usage in leisure time, educational biography, and socio-demographic factors.

III. FINDINGS

Usage frequency has been connected in the survey with satisfaction related to the specific use of media. The students, who stated they use a media in any frequency, were asked how satisfied they are with this usage. The question was rated on a

five-point Likert scale with the choices: "never" (0), "rarely" (1), "sometimes" (2), "often" (3), and "very often" (4) resp. "very unsatisfied" (0) to "very satisfied" (4).

A. Frequency of and Satisfaction with the Usage of Several IT-Devices

The comparison between the means of frequency and the means of satisfaction with the IT-devices shows high values for the usage of one's own notebook / laptop both on and off the campus, a low (and group-specific sometimes high) usage of computer labs on campus with high satisfaction, where they have been in use, a rare use of Gesture Computing devices, but in case of use with high satisfaction. The satisfaction value of mobile phones, that are relatively often utilized, is on a lower middle level, the means of satisfaction for the usage of tablet computers and e-book readers tend to dissatisfaction.
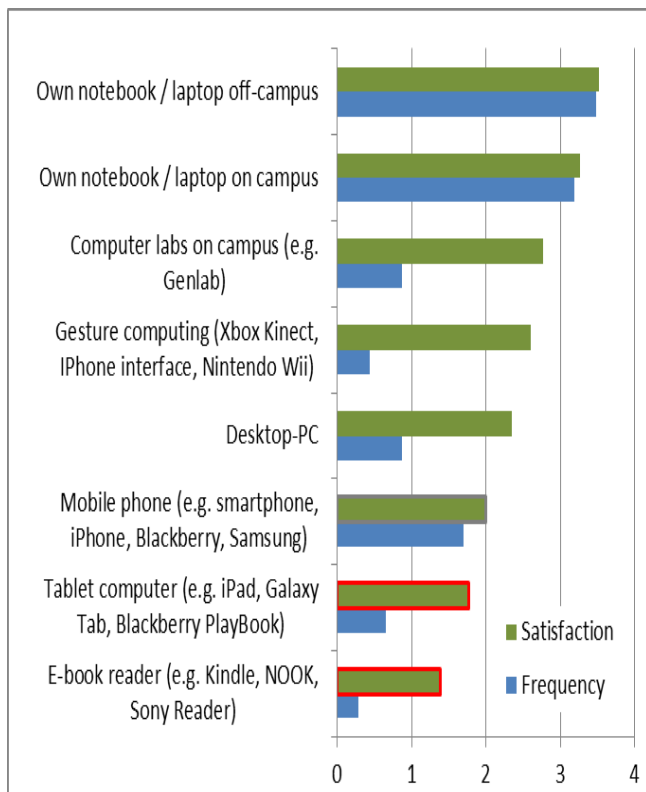

Fig. 1: Means of students' responses to the questions: How often do you use the following for learning/studying? And if you use it: How satisfied are you with the use / functionality of the following for learning/studying? (red outline: in direction to dissatisfaction).

C. Frequency of and Satisfaction with the Usage of Various Softwares

In the case of the 5 software items the satisfaction value is throughout more positive than the frequency value. The dictionary software installed on the students' computer shows good satisfaction for the smaller group that uses this application – those, who answered not to use the media, were (obviously) not asked about their level satisfaction.
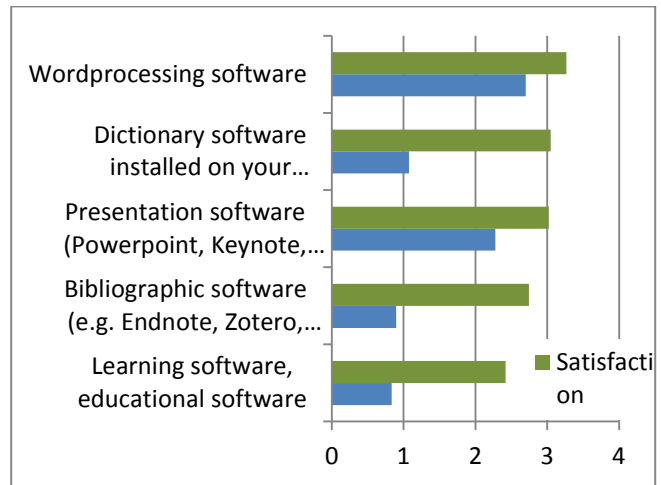

Fig. 3: Means of students' responses to the questions: How often do you use the following for learning/studying? And if you use it: How satisfied are you with the use / functionality of the following for learning/studying?
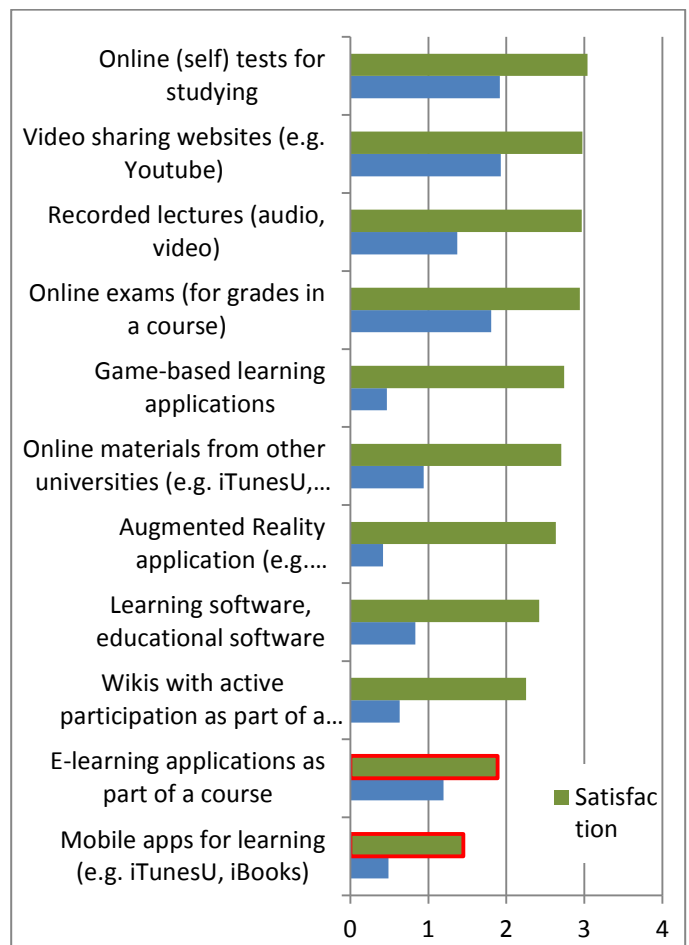

Fig. 4: Means of students' responses to the questions: How often do you use the following for learning/studying? And if you use it: How satisfied are you with the use / functionality of the following for learning/studying? (red outline: in direction to dissatisfaction).

D. Frequency of and Satisfaction with the Usage of e-Learning Applications

The results show high values of satisfaction in the even very frequently used items of online (self) tests for studying, online exams (for grades in a course), video sharing websites and

recorded lectures. In the middle field of this group of items are rarely utilized game-based learning applications and augmented reality applications as well as the slightly more frequently used online materials from other universities and learning software.

Wikipedia (an item in another group of questions in the survey) is quite often used, but the work with wikis as a method with active participation as a part of a course seems not only to be rarely utilized, but also not very satisfying at the moment from the perspective of the students. A mean with a tendency to dissatisfaction (in a state of not so low value of usage frequency) was the result concerning e-Learning applications as part of a course and mobile apps for learning – they might as well not be really developed and established at the moment.

E. Frequency of and Satisfaction with the Usage of Social Network Related Applications

The dominance of Google search can not only be stated looking at the values for the usage frequency, but also in the satisfaction results – it is a little bit lower than the frequency, but even higher than all other social media variations. Twitter, social bookmarking and other social networks have high satisfaction values despite low usage frequency, Facebook seems to be more frequently used, but not as satisfying as other social network related applications at the moment of the survey.

Video sharing websites, such as YouTube, are only moderately used for learning purposes. Recorded lectures, audio and video, and online self-tests for studying are both

used rarely to moderately. Course-based e-learning applications and course-based wikis are rarely utilized, and mobile apps for learning, such as iTunesU and iBooks, and game-based learning applications rarely to never used for learning at the moment.

F. Frequency of and Satisfactions with Usage of Printed vs Electronic Media

Several items in the survey belong to either the printed or the electronic version of a similar product. The comparison between those seemed to be interesting to get an impression about the relation and the changes of relevance. In the ranking the online slides and materials directly from instructors are on the first places, but followed by their printed handouts and, a little behind, printed books, that seem to be in good use and have good satisfaction results, too.

The e-books and Google books are less often used, albeit with likewise quite good satisfaction. Wikipedia – that has been expected as an obligatory media – is used frequently by more than 50% and has a similar satisfaction value. The relatively new Google+ applications show the lowest frequency and satisfaction values, but (an application like that) might come up in the next months.
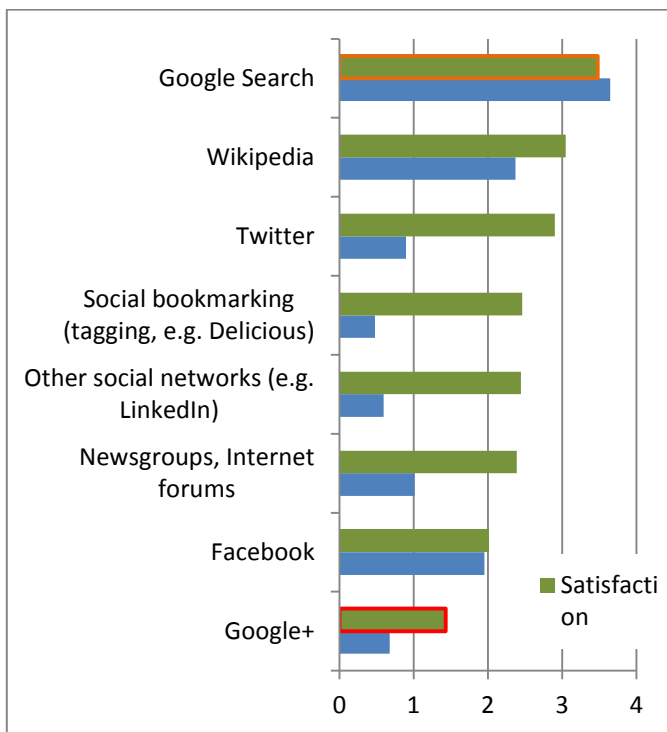

Fig. 5: Means of students' responses to the questions: How often do you use the following for learning/studying? And if you use it: How satisfied are you with the use / functionality of the following for learning/studying? (red outline: in direction to dissatisfaction).
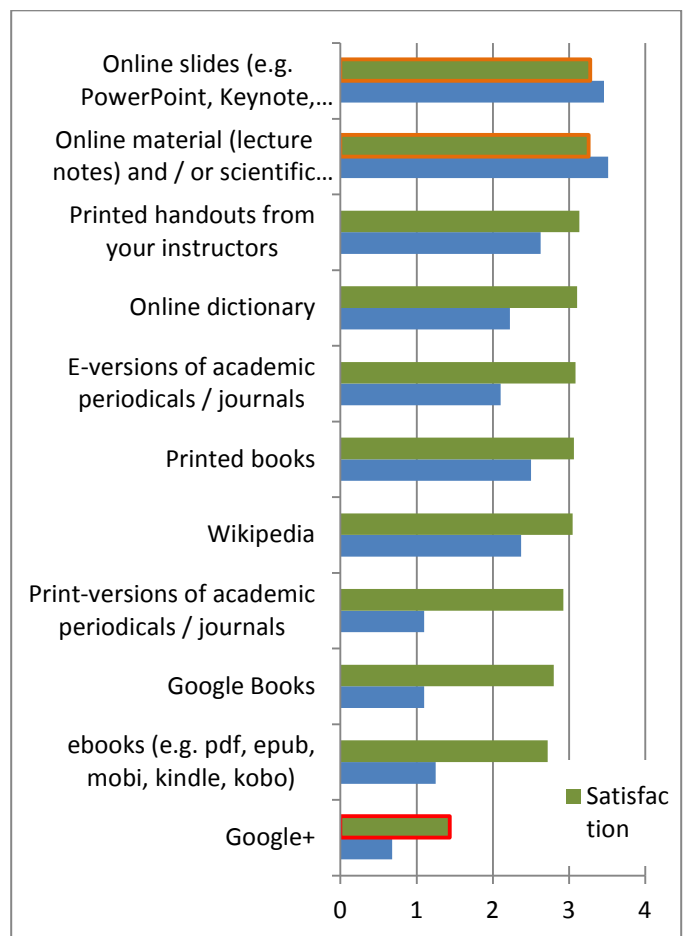

Fig. 6: Means of students' responses to the questions: How often do you use the following for learning/studying? And if you use it: How satisfied are you with the use / functionality of the following for learning/studying? (red outline: in direction to dissatisfaction).

IV. IMPACT ON TEACHING AND LEARNING

Certain innovative usage variations of new media for teaching and learning/studying are distinct – such as wikis as a part of a course, recorded lectures, or online tests – but more often for certain courses. They have been developed, launched, and proved; however, just a few arrangements seem to apply to these options. It can be assumed, that in those cases where a serious effort has been made, these new variations of working with new media have a distinct relevance, such as recorded lectures in science.

Media usage expands the interdependence with the market of academic education. So the competition with other universities and service providers has intensified. Although the frequency of use of online materials from other universities (e.g., iTunesU, Coursera, MIT open-courseware) or mobile apps for learning has not reached a similar level as Western's own materials, the use of media with a non-direct competitive influence seems to be especially remarkable, such as video sharing websites, Wikipedia or Google books. It can be assumed that the competition will be much more intense in the future, because the main players on the market collect (and utilize) much more specific data about students and instructors than every single university can (or would be allowed to) do.

Overall, the media usage by students and instructors is in some aspects different, but explainable, too, as in the case of Desktop PCs, Facebook, and YouTube. Instructors – as a heterogeneous group – generally have a more traditionally oriented usage of media, but some show ingenuousness in using new options. So the frequency of using Google+ is higher for the instructors as compared to the students. Many new media are extensively used by both instructors and students and can be considered as "new habits" (in a world of academia, where some habits seem to be unchangeable, although that has been intended over the years).

The survey at Western University followed the same concept as surveys in Europe and Asia. An international comparison is problematic; the development could just be interpreted if repeated surveys have been conducted. So it is speculative to answer questions about international similarities and differences. Nevertheless, it seems that the usage of IT-devices might differ (like more smartphone usage in Thailand/Asia and even Germany/Europe compared to Canada) and the use of social media in academic education seems to be more common in Thailand/Asia compared to Canada and Germany. The competitiveness of the Internet-based market of academic education might be more intensive in Canada because of the proximity of the U.S. market.

V. CONCLUSIONS

This survey purports to measure the students' satisfaction with current media that are used for studying and learning. Google search is the most commonly used web service by all students for learning and study purposes, with Wikipedia as a moderately close second. Facebook is only in moderate use for learning and Twitter and Google+ are quite infrequently used for this studying and learning.

REFERENCES

[1] D. Buckingham, Media Education Goes Digital: An Introduction, *Learning, Media and Technology*, vol. 32, no 2, pp. 111-119, Routledge, DOI: 10.1080/17439880701343006, June 2007.

[2] L. Johnson, A.S. Becker, M. Cummins, V. Estrada, A. Freeman and H. Ludgate, *The 2013 Horizon Report: Higher Education Edition*, The New Media Consortium, 2013.

[3] E. Dahlstrom. *ECAR Study of Undergraduate Students and Information Technology*, EDUCAUSE Center for Applied Research: Louisville, CO, http://net.educause.edu/ir/library/pdf/ERS1208/ERS1208.pdf, 2012.

[4] L. Johnson, A.S. Becker, M. Cummins, V. Estrada, A. Freeman, H. Ludgate, *The 2013 Horizon Report: Higher Education Edition*, The New Media Consortium, 2013.

[5] G. Gidion, L.F. Capretz, G. Grosch and K. Meadows, *Media Usage Survey: How Engineering Instructors and Students Use Media*, Proceedings of Canadian Engineering Education Association (CEEA13) Conference, Montreal, Canada, pp. 1-5, 2013.

[6] M. Alrasheedi and L.F. Capretz, *An M-Learning Maturity Model for the Educational Sector*, 6th Conference of MIT Learning International Networks Consortium (MIT LINC), Cambridge, USA, 10 pages, 2013.

[7] M. Alrasheedi and L.F. Capretz, *A Meta-Analysis of Critical Success Factors Affecting Mobile Learning*, Proceedings of *IEEE International Conference on Teaching, Assessment and Learning for Engineering*, Bali, Indonesia, pp. 262-267, IEEE Press, August 2013.

[8] A. Murphy, H. Farley, M. Lane and B. Carter, *Mobile Learning Anytime, Anywhere: What are our Students Doing?* 24th Australasian Conference on Information Systems, Melbourne, 11 pages, 2013.

[9] M. Grosch and G, Gidion, *Mediennutzungsgewohnheiten im Wandel (German). Ergebnisse einer Befragung zur studiumsbezogenen Mediennutzung*, KIT Scientific Publishing, http://digbib.ubka.uni-karlsruhe.de/volltexte/1000022524, 2011.