Comunicar
Media Education Research Journal
E-ISSN: 1988-3293 | ISSN: 1134-3478
PREPRINT

Received: 2016-10-03
Reviewed: 2016-11-16
Accepted: 2016-12-05

RECYT Code: 52775
Preprint: 2017-02-15
Final Publication: 2017-04-01

DOI: https://doi.org/10.3916/C51-2017-03

Social Labs in Universities: Innovation and impact in Medialab UGR

Laboratorios sociales en Universidades: Innovación e impacto en Medialab UGR

Dr. Esteban Romero-Frías
Assistant Professor in the Department of Finance and Accounting of the University of Granada
(erf@ugr.es) (http://orcid.org/0000-0003-2205-3560)

Dr. Nicolás Robinson-García
Researcher in INGENIO (CSIC-UPV) at the Universidad Politécnica de Valencia
(elrobin@ingenio.upv.es) (http://orcid.org/0000-0002-0585-7359)

Abstract
Social laboratories, defined as experimental spaces for co-creation, have recently become the main centers of innovation. Medialabs are experimental laboratories of technologies and communication media which have co-evolved along with the digital society into mediation laboratories of citizen experimentation, observing a confluence of both models. In recent years, these centers have expanded within the higher education context, generating new forms of innovation and posing the question of how to measure the impact of such open spaces. This paper analyzes the origin and development of social laboratories in Spain. It first reviews their historical development from their antecedents in the 19th Century to the most recent initiatives. It focuses specifically on initiatives launched within the university context, highlighting their role as motors of innovation. Then, it presents the case of Medialab UGR, a co-creation and digital culture center of social collaboration framed in the digital context. Finally, it offers a first approach towards the assessment of its social impact by using Twitter and analyzes its capacity to mobilize and reach non-academic audiences. The findings show the plurality of actors involved in this type of networks as well as the difficulty and complexity of the task for the development of indicators that can comprise both, academic and social interests.

Resumen
Los laboratorios sociales, como espacios de experimentación y cocreación, se han convertido en una de las principales instituciones de innovación en nuestros días. En este marco, los medialabs surgen como un tipo de laboratorios centrados en la experimentación con tecnologías y medios de comunicación y evolucionan, con el desarrollo de la sociedad digital, hacia laboratorios de mediación ciudadana e innovación social. En los últimos tiempos se ha producido una expansión de estos modelos en el contexto universitario, generando casos de gran interés para el desarrollo de nuevas métricas del impacto académico en la sociedad. El presente trabajo aborda, en primer lugar, el concepto, origen y desarrollo de los laboratorios sociales en España y globalmente, centrándose específicamente en el espacio universitario y en los medialabs. En segundo lugar, expone la problemática de las métricas alternativas del impacto social, aportando una propuesta de análisis basada en Twitter como herramienta para identificar los distintos tipos de públicos que muestran interés y el nivel de participación que despierta su actividad. Por último, se aplica este análisis al caso de Medialab UGR en la Universidad de Granada, un laboratorio de cultura digital enfocado en la cocreación

Comunicar
Media Education Research Journal
PREPRINT

y colaboración social. Los resultados muestran la pluralidad de actores vinculados a este tipo de redes, así como la dificultad y complejidad de establecer indicadores que concilien tanto intereses académicos como sociales.

Keywords / Palabras clave

Medialab, altmetrics, digital culture, digital society, social impact, Twitter, social media, innovation.
Medialab, altmetrics, cultura digital, sociedad digital, impacto social, Twitter, redes sociales, innovación.

1. Introduction

Social laboratories are platforms created to address social challenges. They are characterized by: 1) a social perspective, gathering together people with different backgrounds and approaches to working together; 2) an experimental perspective, dealing with cyclical creation processes; and, 3) a systemic perspective, working on the generation of prototypes that can solve great challenges. This is how Hassan (2014) explains it in his book "The Social Labs Revolution: A New Approach to Solving our Most Complex Challenges". Here, he analyses the rise of this kind of platforms, which have developed particularly during the last two decades. Despite the great interest they currently generate, social experimentation and citizen participation are not recent approaches, but are deeply rooted intthe beginning of the 20th century, as we will detail in section 1.1.

This paper addresses the historical development of social laboratories, paying special attention to the role of medialabs, which are born in the university environment based on the concept of the social laboratory. The recent expansion of these digital innovation and social spaces in Spain, and their heterogeneity, brings new challenges, both in their structure and in the evaluation of their activity. With a triple orientation, university medialabs intend to, on the one hand, serve as a nexus between society and academia, resulting int a space for social co-creation and collaboration. Hence their teaching and informational profile, which serves as a bidirectional channel where citizens and researchers can influence each other and share knowledge. Furthermore, their research profile stands out as the engine of educational, social, and digital innovation. This research perspective makes them the ideal place for the experimentation and testing of new technologies, and educational and social involvement formulas. Due to this triple challenge, this paper aims to:

- Contextualize the phenomenon of social laboratories and, especially, medialabs in Spain, and in the university environment through a revision of the main historical milestones that define their development and evolution.
- Analyze the challenges these centers face in relation to the evaluation and development of indicators, and suggest the use of social networks as a strategy to monitor the acceptance of their proposals in different social sectors.
- Present the case of Medialab UGR as an example of a university initiative in the creation of social and innovative spaces for the co-creation of knowledge.

1.1. The origin of social laboratories and medialabs: definition and typologies

In the field of education, John Dewey founded the Laboratory School in 1896, a school partnered to the University of Chicago where they addressed educational innovation from an experimental approach. Dewey criticized the passivity of attitudes and the homogeneity of teaching methods (Dewey, 2009: 73). In contrast, he developed a method to produce innovation through an approach of learning by doing, while he designed a space where he could test the formulated theoretical proposals. The combination of methodological design, test in real environments, and impact evaluation is common to the current approaches of intervention in small social communities. These proposals can be escalated based on their viability and effectiveness.

Wilbur C. Phillips, within the field of Public Health, developed a social organization model named social unit plan. Created between 1917 and 1920, it consisted of a system that allowed a shared management of community issues by the citizens and the experts themselves. Phillips (1974) wrote about his experience in the work "Adventuring for democracy" published in 1940. In this case, citizen participation in the development of solutions to common problems together with the contribution of experts serves as an example of the application of the co-creation approaches which are currently being developed. There is equal recognition of the value of socially distributed knowledge as well as the opposing notion of specialized and accredited knowledge.

With the democratization of access to technology, social laboratories began to experiment with technology. This has led to a merging of these laboratories and medialabs in their approach to society. The medialab, as such, was created at the Massachussets Institute of Techonology (MIT) in 1985, leading to similar initiatives in other places. Ruiz & Alcalá (2016) refer to other former initiatives in the 1970s as "pioneer labs": EAT - Experiments in Art and Technology (New York, 1963), CAVS – Center for Advanced Visual Studies (Massachusetts, 1967), and Generative Systems (Chicago, 1968). Within "modern labs", apart from the MIT Medialab, we can find initiatives such as ZKM (Karlsruhe, Germany, 1989), ARS Electronica Center (Linz, Austria, 1996), or NTT – Intercommunication Center (Tokyo, Japan, 1997). However, we cannot firmly confirm that current medialabs descend directly from them. This is the case of the "P" Space (goo.gl/cqsBqb), a pioneer project created in Madrid in the 1980s by a private initiative without any existing connection to an institution.

Nowadays, the reach of the medialab model, in its different forms, has suffered a significant shift due to the social expansion of digital technologies. The contemporary vision of a medialab is that of a laboratory where the influence of technology in social transformation towards an active society is explored. This evolution has meant that the "Media" part of these laboratories no longer focuses on the concept of mass media but of mediation (Ruiz & Alcalá, 2016). These mediation laboratories are framed within the digital culture framework. The rapid democratization of technology has transformed medialabs, which no longer present a technological profile but a social perspective (Tanaka, 2011: 1).

In "Estudio/Propuesta para la creación de un Centro de Excelencia en Arte y Nuevas Tecnologías" (Alcalá & Maisons, 2004: 8; cited by Martín, 2016) the medialab is defined as the new basilica for the organization of speeches; the meeting point for the traveler, and the stage for all the common experiences which require individual submission to the formulation of its new game rules. More recently, we can find new types of laboratories such as hacklabs, makespaces, fablabs, citylabs, etc.

There are many approaches to classifying new types of medialabs. Tanaka (2011) distinguishes the following:

- Industry labs. Medialabs based on the model of research and development sustained by the industry. For instance: Bell Labs or IBM TJ Watson.
- Media art labs. Laboratories which use technology for artistic experimentation. European projects such as Ars Electronica Futurelab (Linz) and ZKM Center for Art and Media (Karlsruhe) are references here. There are also more recent initiatives focused on media innovation (Salaverría, 2015).
- University Labs. They are created in the university environment focused on innovation and entrepreneurship. A good example of this is the Experimental Media and Performing Arts Center (EMPAC) at the Rensselaer Polytechnic Institute.
- Citizen labs. They are socially involved and based on citizen participation with a Do-It-Yourself philosophy. One of the main examples of citizen labs is the Medialab Prado in Madrid, a reference in Spain.

1.2. Social laboratories in Spain and their development in the universities

In recent years, many initiatives have been launched by social laboratories, both public and private. It is difficult to establish a common pattern among them. In places described as labs, we find a wide range of diversified proposals. The unquestionable referent in Spain is Medialab Prado (https://goo.gl/SSKVE), a project from the local council in Madrid founded in 2000. It is defined as "a critical center dedicated to cultural production through experimentation with digital technologies". They focus "their research on the intersection between art, science, technology, and society, where the interdisciplinarity brings together hackers, artists, academia, cultural producers, humanists, social scientists, and programmers who meet to experiment in the development of prototypes" (Estalella, Rocha, & Lafuente, 2013: 30).

Tanaka (2011) points out that the changes tested by European universities based on the Bologna process have fostered the emergence of this type of more experimental centers, with an outstanding focus on the development of competences. Some examples are Media Lab Helsinki (Aalto University) or Paragraphe (Université Paris 8). Another center is Nebrija MediaLab (https://goo.gl/4dp1x4), an initiative of the University of Nebrija that pursues the development of competences in the degrees taught at the Faculty of Communication Sciences (Grijalba & Toledano, 2014). This is a more educational approach with a special interest in media, rather than a wider approach focused on digital culture.

In Ibero-America, there are many different and interesting initiatives within the program of citizen innovation laboratories (https://goo.gl/xtO0Zh), and the program organized by the General Ibero-American Secretary and Medialab-Prado. This is the case of Open Labs (https://goo.gl/P0V3pw) at the Tecnológico de Monterrey. It is defined on its website as "a platform to deal with the complexity of the social from the principles of openness, experimentation, inclusion, diversity, participation, and cooperation". Ecuador is another country where different university medialabs have been created (i.e. Medialab UTPL).

2. Technological and social experimentation in the university through social laboratories

2.1. The laboratories in the frame of social innovation and the digital culture

Medialabs are built on the concept of social innovation. This concept is defined as the development and implementation of new technologies (products, services, and models) that satisfy community needs, and create new relationships and social collaborations (European Commission, 2013: 6). Social innovation transcends social entrepreneurship, it focuses on strategies, methods, and theories for change, promoting citizen participation in the development of shared solutions (Phills, Deiglmeier, & Miller, 2008). The concept of social innovation is wide enough to become the meeting point of public and private interests and projects, through the vision of the citizen as a prosumer (Scolari, 2008). The European Union has located it within the strategy of Europe for 2020 as a key player to stimulate innovation, entrepreneurship, and the knowledge society (European Commission, 2013).

Following this line of thought, Casebourne & Armstrong (2014) identify six key communities in the innovative European ecosystem:

- Communities of open software and hardware.
- Communities of developers, linked to start-ups.
- Laboratories of innovation, including Living Labs, Fablabs, Makespaces, etc.
- Communities of open data and open knowledge.
- Smart citizens.
- Communities of open democracy.

The role of the universities focused on innovation (European Union/The Young Foundation, 2010: 82) can be essential for social development. They offer safe spaces crucial for fostering and promoting innovation. According to Ruiz and Alcalá (2016: 15) "the transformation of traditional centers that implemented traditional cultures into dialogue spaces, creative ecosystems, dedicated to reflection and debate, research and production, training and socialization" is a key issue. This

transformation is taking place in the university environment, the natural place for this type of experiences but, at the same time, resistant to innovations that involve institutional changes.
To understand the role of medialabs in promoting social innovation we must consider digital culture as the central concept of their program. Romero (2013: 30) outlines an agenda with elements which are common to the work plans of these laboratories:

- The analysis and participation in multiple digital cultures: culture of screens, of oral, of remix, of visual, of transmedia, of prototype, and design.
- Open culture derived from open software.
- The hacker ethics.
- The interdisciplinarity / transdisciplinarity / multidisciplinarity.
- The combination of transversatility and specialization.
- The co-creation and the replacement of coauthorship and the academic recognition.
- The entrepreneurship and the innovation testing new ways of knowledge transference and connections with the society.

2.2. Laboratories as an engine for innovation at the University

Social laboratories share the following operational principles (Kieboom, 2014):

- "Show it, don't tell". There is a clear orientation to action and prototypes.
- Consideration of the user as an expert. The participants act as the engine for the laboratory through their needs and capacities.
- Centered in ambitious social challenges. They pay attention to systematic problems in opposition to more contingent situations.
- Ask about the system where it is inmersed. It sets out alternative operation models.
- Development of new methodologies for change. The process is, at least, as important as the final output.
- Multidisciplinarity and transversality, forming teams with people from different backgrounds.
- Scalation of proposals. The aim of these proposals is that, once tested, they can be applied in other contexts.

Medialabs promote the value and potential of the digital culture, allowing a better fit in the informational environment developed in the digital society. From a university perspective, it is not easy to find the right place for these laboratories. Their origin is usually in disciplinary spaces like Departments or Faculties, looking for an institutional recognition. The same happens in the frame of public institutions, such as Medialab Prado and the difficulty to fit it within the local council, as its director, Marcos García, states (2015).
The development of medialabs in the university environment creates new opportunities for innovation, incorporating the hacker spirit (Himanen, 2003) within institutions which are sometimes hundreds of years old. Digital transformation, openness, and social implication acquire a new dimension which is uncommon in higher education institutions. Medialabs co-exist with other managerial approaches where quality processes are prioritized, involving in many cases, a bureaucratic load which prevents innovation and experimentation. Medialabs can "hack" university structures in order to present alternative models in issues that require a more agile and flexible development such as, the relation with society or new technologies and epistemic models.
Medialabs allow the development of a social epistemology (Kusch, 2011), shared and collective (Surowiecki, 2005), where academia is an actor inside the community, within an environment in which knowledge is distributed. Here we highlight the role of the commons. These are "resources and collective goods managed in common through particular governance methods and whose property regimen is neither public nor private" (Estalella, Rocha, & Lafuente, 2013: 25).
These centers are characterized by an open and social conception. There are two ways to understand this relationship: 1) through a transference approach based on the quadruple helix (Arnkil & al., 2010) where society becomes the fourth pillar, and 2) citizen science (Socientize Consortium,

2013: 6). Medialabs serve as innovators in universities in the sense that they apply principles and methods learnt from the digital environment. They trigger innovation processes which are open and shared. They are configured like generative platforms focused on production, in opposition to the idea of a closed website that shows contents to consumer users. They are also a means to explore the continuity of the physical and digital dimensions, far from fake dichotomies between "the real" and "the virtual". An example of this is the Campo de Cebada in Madrid. It is a citizen initiative celebrated in the category of "digital communities" in the annual awards of the Ars Electronica (Magro & García, 2012).

2.3. Social impact

A serious problem problem in academia is the assessment of impact. It is traditionally based on the research activity of universities, teaching quality or knowledge transference. There is a fourth transversal dimension: social impact. An example of that is the last Research Evaluation Framework that took place in the UK. The aim of this evaluation was to evaluate the benefits that universities brought to society (Wilsdon & al., 2015).
In the case of medialabs, the evaluation must combine both quantitative and qualitative indicators. This is even more complicated if we consider the nature of the digital devices created or the assessment of methodological learning, independent of its final success. This new approach is rooted in social claims and the development of the digital culture. Therefore, fields like bibliometrics are expanding their range of interests towards social media, developing new alternative indicators (Priem, 2013; Torres-Salinas, Cabezas-Clavijo, & Jiménez-Contreras, 2013).

3. A proposal for the assessment of social impact

In this section, we suggest the use of social networks as a tool to monitor and measure the social impact of this type of academic initiatives open to society. Social networks offer an opportunity and a challenge to identify different impacts from those which are found in the sciences. This is something particularly needed in university medialabs. The birth of Web 2.0 and its ongoing adoption in the research community (Cabezas-Clavijo, Torres-Salinas, & Delgado-López-Cózar, 2009) brought an opportunity to trace new evidences in the use of scientific publications beyond citation. This gave rise to "Scientometrics 2.0" as Priem & Hemminger (2010) called it. Since then, a new research trend focused on the analysis of these new metrics called "altmetrics" has emerged (Torres-Salinas, Ca-bezas-Clavijo, & Jiménez-Contreras, 2013). These new metrics have provoked great reat interest from evaluators and policy makers measuring the impact of research on non-academic audiences (Wilsdon & al., 2015). Nevertheless, no methodology has yet been developed showing the value of the altmetrics to measure the social impact of research (Sugimoto & Larivière, 2016).
The main shortcoming these studies have is their similarity to the citation model: they look for mentions of research papers. The fact that they try to establish a link with the publication when looking for impact traces limits their approach. However, in recent years we have observed more innovative methodologies, which shift the focus from the scientific paper to the researcher. This is the perspective used by Milanés-Guisado & Torres-Salinas (2014). They analyze the number of mentions of papers published by a sample of researchers in social media. They also explore the visibility these researchers have in these networks. By establishing the researcher as their unit of analysis, they can explore aspects related indirectly with research closer to social impact. As the approach is based on the subject and not on the output, we can develop an escalating methodology without establishing aggregation levels, in which the role of the analyzed subject can vary depending on their scale.
The perspective and goals of a researcher who uses social media to reach non-academic audiences differ from the perspectives and goals of an institution or research center. This approach is appropriate when analyzing digital centers which are embedded in the Internet. Social media offer

further advantages. They allow us to identify the audiences a researcher or a medialab reaches in real time, giving the manager the opportunity to analyze the potential of the center to reach its target audience.

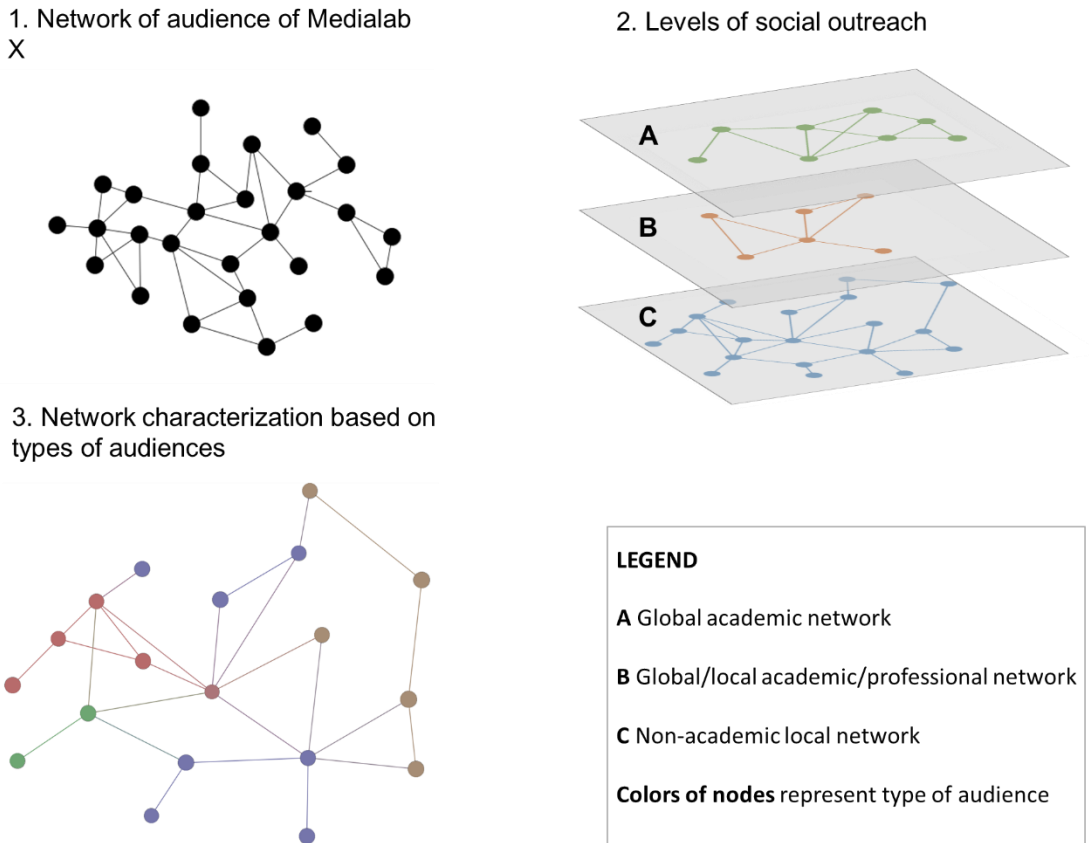

Figure 1. Identification model for audiences through Twitter.

This perspective is based on the conceptual framework presented by Nederhof (2006). He conceptualizes the limitations on the use of bibliometric indicators in Social Sciences and Humanities as a question of audiences. Robinson-Garcia, van Leeuwen & Rafols (2016) also mention this. They suggest the use of social networks as a proxy to identify interactions among social sciences and humanities researchers in a local context. Nederhof (2006) establishes three types of audiences these researchers usually address:

- Global scientific community: characterized by very standardized communication patterns.
- Local experts: formed by professionals and academia who work with the local community.
- Non-academic public: a very heterogeneous group.

We suggest a strategic evaluation model that does not determine impact in a vertical and unidimensional way, but a model able to characterize the different types of audiences. This way, it is easier to make strategic decisions when analyzing if the medialab is reaching its goals. Medialab needs indicators that offer an important level of immediacy. Figure 1 summarizes the type of analysis we suggest. We consider using Twitter as an observational tool. This platform is characterized by its capacity both to identify offline communities and create online communities. At the same time, it serves as a social and cognitive space where the professional and private interests are intertwined. The type of relations established and the type of users is very heterogeneous. An account can be an institution, a person, an anonymous collective, or even a fictional character. The

relations among users can be established through mentions, retweets, or the followers and followed.
Due to the volatility of the networks based on mentions and retweets, we define the population of interest as the population formed by users who follow and are followed by the analyzed center. We consider that the existing bidirectional relationship between the net and the medialab show a mutual interest in the activities performed by each other (Gruzd, Wellman, & Takhteyev, 2011). Once the population of interest is identified, we search for the same type of relationships between every subject, their type of audience and their geographical proximity to the unit of analysis. We can easily identify whether they reach the target audiences through a descriptive analysis of the different au-diences. In section 4, we offer an example of the aforementioned model applied to Medialab UGR.

4. The case of Medialab UGR

In 2015, Medialab UGR – Laboratory for the Research of Culture and Digital Society (https://goo.gl/f2ASE2) was created at the University of Granada. It is a laboratory that, according to its website, is defined as "a meeting place for the analysis, research, and dissemination of the possibilities that digital technologies create in the culture and the society in general". It develops its activities in different University spaces around the city, as well as in other places that do not belong to the institution. This distribution reflects in the physical distribution the networked structure that characterizes its activity in the Internet.
The management of the laboratory is flexible. For instance, it broadcasts in streams all the activities it organizes. It bases its activity on the following values: openness, active citizens, creativity, expe-rimentation, flexibility, social innovation, knowledge transfer (University –society and society–University), entrepreneur attitude, and activism in favor of open knowledge and open Internet.
It is focused on three main themes: Digital Society, Digital Humanities, and Digital Science. Below are some of the innovations this university proposal has introduced in the University of Granada:

- Launch of a project about digital identities (https://goo.gl/mNOCmv). Its aim is to detect and recognize the value of the communication that different individuals and groups in the University engage in on the Internet. This initiative is connected to a Communication and Innovation Award in Digital Media. The purpose of this is to promote Digital Scholarship (Weller, 2011) within the University and in the new types of knowledge that appear in the digital society.
- Creation of the Platform Livemetrics (https://goo.gl/tWQwR6) for the visualization of bibliometric information in real time.
- Organization of several conferences and meetings open to the presentation of projects by the university community and the public with issues such as Open Education, Makers, eDemoc-racy, or Open Innovation.

The project was created at institutional level in 2015, but its origin is based on a non-institutional initiative named GrinUGR – Colaboration about digital cultures in Social Sciences and Humanities (https://goo.gl/sy9pnd). The institutionalization of these practices is just one of the values of the case we present.

4.1. A quantified approach to the impact of a university medialab: an analysis of the audience through Twitter.

Medialab UGR develops its activity both digitally and physically, leaving a significant footprint of its action. Good evidence of this is its birth: it was announced on Twitter before its official opening (https://goo.gl/wxXMMN). From that moment on, Twitter has been a key tool within its dissemination strategy.
In May 2016, we performed an initial analysis to identify the type of audiences Medialab has reached, and learn to what extent it had become a link between the university and society. In that moment, Medialab UGR had already organized a total of 13 activities (four workshops, six ses-

sions, a conference, and two round tables). The aim was to establish different types of audience and their geographic proximity. In May 2016, we downloaded the data from Twitter using Simply Measured. At that moment, Medialab UGR had 930 followers and was following 614 accounts. While the number of followers reflects the population interested in Medialab UGR, it is highly presumptuous to consider that this population participated actively in its activities. On the other hand, followed accounts can exercise influence on the activities of the Medialab, but they may well be accounts the lab is in-terested in following for strategic reasons or institutional recognition.

Therefore, we consider that, when a bidirectional relationship is established between two accounts, we can confirm that there is a common interest. The idea is based on the notion of conceiving the unit of analysis as a node inside a larger network, where people/institutions are grouped into communities. We identified a total of 351 accounts that showed the mentioned bidirectional relationship. This group is defined as population of interest´. In Table 1, we show the segmentation of this population according to its geographical proximity and the type of identified accounts.

In terms of geographic outreach, Medialab UGR has not only involved researchers (38.2%) and students (9.4%), but also 37% of the audience who belong to non-academic sectors. 61.5% of the profiles are local, highlighting their integration within their social context. This percentage goes down to 48.5% if we only focus on the non-academic audience. Profiles do not belong only to individuals, but also to institutions, associations, and collectives (30%). The higher presence of institutional accounts is formed by faculties, departments, and other university organisations (30), although we can find some public organisations too. Paradoxically, none of these accounts belong to any organisations related to the local council.

Table 1. Description of the population of interest of Medialab UGR according to their type of account and their geographical proximity to Granada

Profiles		Geographic proximity	# users	Average of followers	Typical deviation followers
Non-academic population		Total	130	3898.6	9086.9
	Events	Total	1	2497.0	0.0
		Local	1	2497.0	0.0
	Persons	Total	84	3572.0	8550.8
		Global	36	2239.7	3197.9
		Local	46	4661.7	11142.5
		Unknown	2	2491.5	1720.4
	Institutions	Total	44	3426.9	6992.8
		Global	28	4504.1	8515.3
		Local	16	1541.8	1924.5
	Unknown	Total	1	53493.0	0.0
		Global	1	53493.0	0.0
Researchers	Total	Total	191	2260.3	8311.9
	Events	Total	1	313.0	0.0
		Local	1	313.0	0.0
	Persons	Total	131	1711.3	4179.8
		Global	34	3582.4	6883.3
		Local	97	1055.5	2386.8
	Institutions	Total	59	3512.4	13594.9
		Global	10	1756.4	1988.6
		Local	49	3870.8	14893.3
Unknown	Total	Total	30	2012.8	7534.0
	Persons	Total	18	3069.1	9672.6
		Global	3	14521.0	23411.0

		Local	4	2037.0	2029.5
		Unknown	11	321.1	349.6
	Institutions	Total	2	1560.5	1393.7
		Global	1	575.0	0.0
		Local	1	2546.0	0.0
	Unknown	Total	10	202.1	200.5
		Local	1	226.0	0.0
		Unknown	9	199.4	212.5
		Total	351	2846.0	8561.5

Figure 2 shows the type of audience according to their interests, based on the information provided by Twitter and a manual search of their background. We observe that the main non-academic and local audience is formed by teachers (28), students (29) and the cultural sector (11). Global audiences are represented by the cultural sector (18), teachers (16), journalists (12) and new technologies (17).

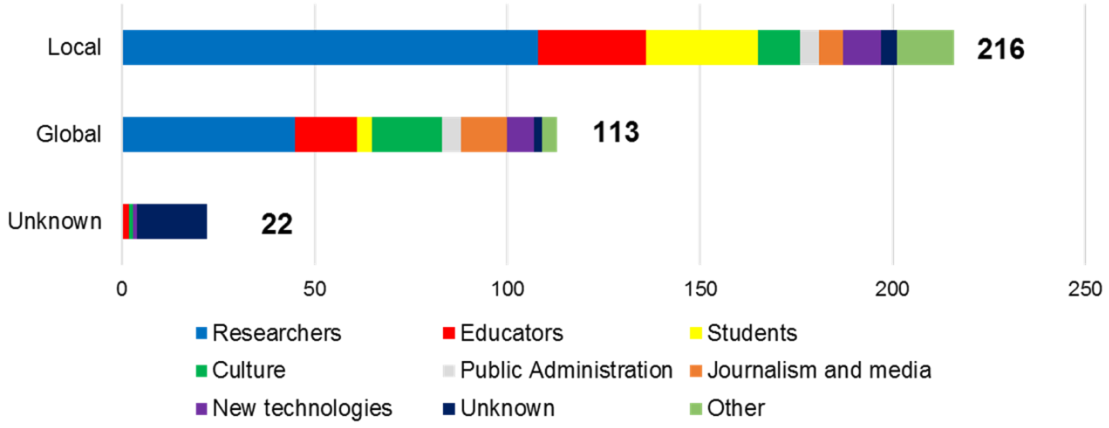

Figure 2. Description of the population of interest in Medialab UGR according to the type of account and their geographical proximity to Granada.

The graphic presented is purely descriptive since it intends to serve as an information tool for decision making and not to establish comparisons between different units. We observe how, despite doing the analysis at an early stage in the consolidation of the medialab, there are positive trends in its efforts to connect with diverse non-academic audiences both at local and global levels. This type of analysis offers a different perspective to previous studies focused on altmetrics since we move from an evaluative perspective to a strategic perspective that facilitates decision making.

5. Discussion and conclusions

In relation to the first aim, this paper introduces medialabs as a means of innovation in the university context. They are born in the heart of the digital culture and they come to life in formats and epistemologies that shift away from that perspective. We have established a connection between the concepts of social laboratories and medialabs.

According to the second goal, we have established how the open, social, and digital nature of these laboratories requires the creation of new metrics of social involvement that goes beyond the traditional assessment models. Since the problem extends to the university in general, this type of labo-ratories offer opportunities to design and test new methods that can be extended to more holistic and multidimensional evaluations on the impact of the universities.

In this context, the the need to have the right tools to monitor the reception of its activities is essential. In this paper, we suggest the analysis of the different audiences targeted through social networks as a methodological approach for the future development of impact indicators. A first implementation based on Medialab UGR shows promise in its potential use for decision making. However, there are still some limitations, both technical and conceptual, which must be analyzed subsequently. In this sense, the meaning of "following" someone on Twitter is difficult to discern, as is its capacity to predict how its results translate into citizen participation. We suggest further research using this methodology in different medialabs in order to analyze its consistency and potential for the development of benchmarking indicators.

Acknowledgements

Nicolas Robinson-Garcia is currently supported by a "Juan de la Cierva-Formación" research grant, financed by the Spanish Ministry of Economy and Competitiveness. The authors would like to thank Patricia Molina-Molina for translating and revising the English version of this manuscript.

References

Alcalá, J.R., & Maisons, S. (2004). Estudio/Propuesta para la creación de un Centro de Excelencia en Arte y Nuevas Tecnologías. Madrid: Fundación Telefónica.
Arnkil, R., Järvensivu, A., Koski, P., & Piirainen, T. (2010). Exploring Quadruple Helix. Report of Quadruple Helix Research for the CLIQ Project. Tampere: Work Research Centre, University of Tampere.
Cabezas-Clavijo, Á., Torres-Salinas, D., & Delgado López-Cózar, E. (2009). Ciencia 2.0: Catálogo de herramientas e implicaciones para la actividad investigadora. El Profesional de la Información, 18(1), 72-79. https://doi.org/10.3145/epi.2009.ene.10
Casebourne, J., & Armstrong, K. (eds.) (2014). Digital Social Innovation. Second Interim Study Report. (https://goo.gl/FK0S8Q) (23-12-2016).
Dewey, J. (2009). Democracia y Escuela. Madrid: Popular.
Estalella, A., Rocha, J., & Lafuente, A. (2013). Laboratorios de procomún: experimentación, recursividad y activismo. Teknokultura, 10(1), 21-48.
European Commission (2013). Guide to Social Innovation. (https://goo.gl/W9moUD) (2016-12-23).
European Union / The Young Foundation (2010). Study on Social Innovation. (https://goo.gl/dfY1gA) (2016-12-23).
García, M. (2015). Medialab-Prado: retos del presente. LabMeeting 2015 en Medialab Prado (Madrid). https://goo.gl/CjexQB (23-12-2016).
Grijalba, N., & Toledano, F. (2014). Nebrija MediaLab: un valor añadido a la docencia y al desarrollo de competencias. Historia y Comunicación Social, 19, 733-744. https:/doi.org/10.5209/rev_HICS.2014.v19.45061
Gruzd, A., Wellman, B., & Takhteyev, Y. (2011). Imagining Twitter as an Imagined Community. American Behavioral Scientist, 55(10), 1294-1318. https://doi.org/10.1177/0002764211409378
Hassan, Z. (2014). The social labs revolution: A New Approach to Solving our Most Complex Challenges. San Francisco: Berrett-Koehler Publishers.
Himanen, P. (2003). La ética del hacker y el espíritu de la era de la información. Barcelona: Destino.
Kieboom, M. (2014). Lab Matters: Challenging the Practice of Social Innovation Laboratories. Amsterdam: Kennisland.
Kusch, M. (2011). Social Epistemology. In S. Bernecker, & D. Pritchard (Eds.), The Routledge Companion to Epistemology (pp.874-884). London / New York: Routledge.
Magro, C., & García, M. (2012). Lugares de la transdisciplinariedad. Lugares para la transdisciplinariedad. Errata. Revista de Artes Visuales, 8. (https://goo.gl/2CzDEQ) (2016-12-26).
Milanés-Guisado, Y., & Torres-Salinas, D. (2014). Presencia en redes sociales y altmétricas de los principales autores de la revista «El Profesional de la Información». El Profesional de la Información, 23(4), 367-372. https://doi.org/10.3145/epi.2014.jul.04
Nederhof, T. (2006). Bibliometric Monitoring of Research Performance in the Social Sciences and Humanities: A Review. Scientometrics, 66(1), 81-100. https://doi.org/10.1007/s11192-006-0007-2
Phillips, W.C. (1940). Adventuring for Democracy. New York: Social Unit Press.

Phills, J.A., Deiglmeier, K., & Miller, D.T. (2008). Rediscovering Social Innovation. Social Innovation Review. (https://goo.gl/i1sbvO) (2016-12-23).
Priem, J. (2013). Scholarship: Beyond the Paper. Nature, 495, 437-440. https://doi.org/10.1038/495437a
Priem, J., & Hemminger, B. H. (2010). Scientometrics 2.0: New Metrics of Scholarly Impact on the Social Web. First Monday, 15(7). (https://goo.gl/ODM1tz) (2016-12-23).
Robinson-Garcia, N., Van-Leeuwen, T.N., & Rafols, I. (2016). SSH & the City. A Network Approach for Tracing the Societal Contribution of the Social Sciences and Humanities for Local Development. Science and Technology Conference 2016. Peripheries, Frontiers and Beyond, 14-16 September. (https://goo.gl/bgI3jU) (2016-12-23).
Romero-Frías, E. (2013). Ciencias Sociales y Humanidades Digitales: una visión introductoria. In E. Romero-Frías, & M. Sánchez-González (Eds.) (2014). Ciencias Sociales y Humanidades Digitales. Técnicas, herramientas y experiencias de e-Research e investigación en colaboración. Cuadernos Artesanos de Comunicación, 61. (https://goo.gl/CDzAL9) (2016-12-23).
Ruiz-Martín, J.M., & Alcalá-Mellado, J.R. (2016). Los cuatro ejes de la cultura participativa actual. De las plataformas virtuales al medialab. Icono 14(14), 95-122. https://doi.org/10.7195/ri14.v14i1.904
Salaverría, R. (2015). Los labs como fórmula de innovación en los medios. El Profesional de la Información, 24(4), 397-404. https://doi.org/10.3145/epi.2015.jul.06
Scolari, C.A. (2008). Hipermediaciones. Elementos para una teoría de la comunicación digital interactiva. Barcelona: Gedisa.
Socientize Consortium (2013). The Green Paper on Citizen Science. European Commission. (https://goo.gl/7P3FYf) (2016-12-23).
Sugimoto, C.R., & Larivière, V. (2016). Social Media Metrics as Indicators of Broader Impact. OECD Blue Sky III Forum on Science and Innovation Indicators. Gent (Belgium), September, 19-21.
Surowiecki, J. (2005). The Wisdom of Crowds. New York: Anchor.
Tanaka, A. (2011). Situating within Society: Blueprints and Strategies for Media Labs. In A. Tanaka & al. (2011), A Blueprint for a Lab of the Future (pp. 12-20). Eindhoven: Baltan Laboratories.
Torres-Salinas, D., Cabezas-Clavijo, A., & Jiménez-Contreras, E. (2013). Altmetrics: New Indicators for Scientific Communication in Web 2.0. Comunicar, 41(XXI), 53-60. [Altmetrics: nuevos indicadores para la comunicación científica en la Web 2.0]. https://doi.org/10.3916/C41-2013-05
Weller, M. (2011). The Digital Scholar. How Technology is Transforming Scholarly Practice. London: Bloomsbury.
Wilsdon, J., & al. (2015). The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management. https://doi.org/10.13140/RG.2.1.4929.1363