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Content Curation supports Learning and Teaching through Reading

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Abstract

Learning and teaching is changing a lot through usage of web 2.0 tools with new opportunities and innovative methods such as blended learning.

Knowledge management for learning and training is becoming more and more crucial in the context of “infobesity” from published scholarly journals and/or available on the Web. Information literacy of students and trainees in colleges and universities remains poor requiring education and practice to make them independent and life-long learners according to OCDE/UNESCO. In their professional life, they will be required to perform CPD to stay abreast of knowledge and competencies.

Content Curation tools allow finding, selecting, elevating and sharing specific and relevant information, adding human specialist value compared to algorithmic standardized engines.

We report on usage of curation tools, mainly Scoop.it, for teaching and learning immunology and geography in two different higher education settings. Using those tools, it is possible to create, individually or as a group, editorialized Web Magazines and to build searchable Content Hubs, both in an attractive format.

Implementation of Content Curation provides benefits for teachers and trainees, in the context of blended-learning projects as well as challenges.

Keywords: Content Curation, Immunology, Geography, Blended learning, Translitteracy

Background and purpose

The concept of information literacy was defined by UNESCO, including now media and information literacy (MIL), and by OCDE as allowing individuals using information and media to interpret them, to evaluate their value, as well as being able to create and produce information and media messages competently. This can be subdivided in recognizing his own information needs, localizing information, selectioning and organizing information to conceptualize and present it efficiently.

The European program Society 2020 is devoted to create multi-competencies learners, able to think critically, to raise and solve problems and become independent life-long learners. Those competencies should be obtained as early as possible during training programs, but mainly during undergraduate training to make postgraduate and PhD students involved in active learning to become researchers, university teachers or actors in a global industry and commerce world. They are particularly crucial in a world where information becomes overwhelming, the world infobesity being coined as early as 1993 (Sauvagol-Riallan, 2014).

Knowledge management (KM) is however an old concern. Previously defined as “staying up to date”, or abreast of information, it stimulated development in big companies of watching specialized units. It interested before structured information in primary documents: books, journals, patents covered by databases as well as grey (Alberani & al, 1990) literature (thesis, press releases, public and private reports). The amount of technical and scientific information is increasing steadily due to the globalization of research, with new hyperactive actors such as China, and the appearance of so-called Open Access journals. But nowadays, information is also circulating through blogs and particularly social networks, including reactions from the societal world as well as fake news, requiring critical thinking.. Paradoxically, end-users even if belonging to millennials generation still rely on a very small number of algorithmic research tools, whose liability, pertinence and reproducibility has been discussed.

Content curation is still a new concept appearing in the US in 2009 and in France in 2011. Coming from the english word curator in charge of museum collections and art exhibitions, it has expanded thanks to the development of software tools helping humans to manage information or data. Content curation covers collection of relevant information, selection and aggregation, editorialization, tagging and sharing (Kortelainen, 2017). It involves human specialists bringing their competences to build ”content hubs”, term coined during summer 2015. This activity was compared to gold searching, DJ playing, hunting-gathering or scouting (Dale, 2014; Valenza, 2012). The number of web tools available exploded during the past few years reaching more than 50, among them Pinterest, Pearltrees, Tumblr, Shareezy, Flipboard. Paper.li... with applications focusing mainly on content marketing even if teaching and learning should appear as a major application.

Blended learning is a new way of learning combining traditional classroom lessons with lessons using computer technology and internet resources, among them curation software and resources to break down some barriers to education. (Mihailidis & Cohen, 2013; Antonio & Tuffey, 2015)

Methods and Procedures

Object:

Implement and evaluate usage of content curation tools by teachers and students in a training and learning undergraduate and graduate curricula in two different settings and two different disciplines geography and immunology

Geography

The literary class called in France "Lettres Supérieures" prepares students for highly selective higher education exams (ENS Ecole Normale Supérieure, Business and Management schools, Political Sciences schools, Journalism and communication programs as well as translation or library training). The first year ("hypokhâgne") is multidisciplinary and aims to broaden the general knowledge of high school students and to reach a university level in the social sciences (equivalences in ECTS L1). The second year ("khâgne") prepares for competitions with numerous essays and more specialized oral tests. The use of digital technology is recommended by official curricula, but few teachers are fully committed to it for lack of time, competence or motivation, preferring to favor traditional methods of reading or writing evaluated in competitive selections.

At Lycée Claude Fauriel in St-Etienne, the choice has been made for several years now to use content curation through digital internet watching and combined use of several social networks. Learning to use those tools takes place in 1st year with an individual project on a freely chosen topic, related to geography. Students should publish content regularly and share it through social networks (Twitter or Facebook). The main software used was Scoop-it in free plan, complemented by Pearltrees to keep links or bookmarks and possibly Pinterest, to give priority to images.

Immunology

Teachers and Researchers from ASSIM involving european colleagues have been involved for the past few years in building various content hubs covering immunology topics; either basic, biotechnologic, clinical immunologic or therapeutic, and more research-focused immunology. These selected resources are freely opened to students, teachers and researchers worldwide

During their training, University Lorraine master students were asked to open topics to discover the concept of curation, to practice knowledge management, and develop their information literacy and curiosity. It is offered to undergraduate, master and PhD French and Chinese students from the medical French-Chinese training program in Wuhan, Kunming and Nancy to follow curated topics to learn French and Immunology. They are stimulated to open themselves topics either directly relevant to their training or related to their personal medical interest. Bonus points are usually given at exams for opening and maintaining regularly such a topic.

Results

Content curation for geography training and learning

The teacher in charge himself opened various topics covering general geographic subjects (<https://www.scoop.it/t/geographie> 31k views and 1000 scoops) as well as more focused themes according to every year competition national programs such as China, Brazil... viewed from 4K to 22K times. Students became followers of their teacher's topics and More than 90 topics were opened and maintained, year by students over the past 5 years on various subjects, some reaching the gold level of Scoop.it. A few of them pursue the activity after their first year of training, for instance, "june" curating topic on climatic changes and ice melting (<https://www.scoop.it/t/cartographie-9>) gathering more than 350 scoops, and almost 12Kviews.

Comments by students are very positive on this original way of accessing and approaching information on the web. "My geography teacher in Hypokhâgne introduced me to the research, collection and sharing of geographic information. It is an approach that makes it possible to become aware of the multiplicity of spatial events, which are worth of interest with various approaches and treatments... This experience of sharing and processing geographical information in a new way, has allowed me to develop a network of examples and contents on the transversal theme of my year of higher education... My topic concerned "Are eco-neighbourhoods and sustainable cities utopias?" (<http://www.scoop.it/t/ecoquartiers-et-ville-durable-une-utopie>)

Content curation in immunology

Over the past few years, topics focusing on immunology aggregated now more than 25K selected scoops, representing a small percentage pf published material available through PubMed and Google during the same time period. Scoops cover references and summaries from published articles, open access resources, grey literature from blogs, internet sites, social networks and press releases. Audience increased a lot reaching more than 170 000 views by more than 70 000 visitors.

Themes are covered through topics interesting basic immunology: Immunology (<http://www.scoop.it/t/immunology>) which has the largest audience, and Mucosal Immunity (<http://www.scoop.it/t/mucosal-immunity>); biotechnologies and biotherapies: From flow Cytometry to Cytomics (<http://www.scoop.it/t/from-flow-cytometry-to-cytomics>) ; Immunology and Biotherapies (<http://www.scoop.it/t/immunology-and-biotherapies>). Clinical immunology is also approached in topics such as: Autoimmunity (<http://www.scoop.it/t/autoimmunity>); Allergy (<http://www.scoop.it/t/allergy-and-clinical-immunology>).

Teachers, researchers and PhD students opened and maintained personal topics focusing on their own research interests and medical specialties such as: Immune-monitoring (<http://www.scoop.it/t/immune-monitoring-1>); Type I Diabetes (<http://www.scoop.it/t/type-1-diabetes-by-remi-creusot>); Complement and PNH (<http://www.scoop.it/u/john-lambris>), Interesting ORL articles (<https://www.scoop.it/t/interesting-orkl-articles>)

Some undergraduate students who were offered to open topics of their choice did it but unfortunately, only few of them posted topics during a significant period of time. Their comments are usually very positive: “helping develop critical thinking, organize and synthesize information and ideas, analyze contents..”

Discussion

Geographic education is one of the most popular source of digital resources because available online resources on the web (geomatics, GIS, cartography) increase tremendously, and required constant updating of knowledge (spatial dynamics of territories). For instance, Seth Dixon (<http://www.scoop.it/u/aphumangeog>) focusing on geography resources reached over 1 million views, which illustrates the impact of content hubs in education and laypeople interest. Other teachers from similar classes in France also opened and maintained topics according to the themes covered by French geography programs and to their specialties, details on
<https://www.scoop.it/search?q=g%C3%A9ographie&type=topic&page=1&limit=24> gathering more than 300 users, and 47K scoops.

Curation activity allows teachers to maintain their competences in rapidly evolving subjects, offering original commented selected resources to their students and helping them to focus on relevant subjects. They can build their thought leadership in specific fields. This curation process allows students to develop a searching culture allowing them to increase their information literacy. It certainly helps them in becoming digital literate and building special profiles which might be helpful for their future learning and professional life as teachers, researchers and journalists.

Immunology is a transversal discipline involved in almost all medical specialties with major recent evolution of knowledge in basic science, diagnostic procedures and new therapies. Curation activity allows university people involved in research and teaching to keep abreast of scientific information, to select and follow research topics, and become thought leaders in their specialty. It would certainly help students becoming information literate in a field where infobesity is indeed blossoming.

Among the large number, more than 50, of available softwares, most teachers and students end-users prefer using Scoop.it for curating serious information (Antonio & Tuffey, 2015; Flinthoff & al, 2014; Gadot & Levin, 2012). Opening of a topic is easy, the crawling engine can be personalized using keywords and selected resources, posting with pictures is attractive, commenting and tagging convenient and reposting through other social networks also very

easy. An applet allows to post while browsing and reposting from the community of scoopiters enhances the research capacities. Importantly for further research, an inside search engine allows to retrieve information stocked in the cloud through free language and tags.

Other tools such as Storify (Mihailidis & Cohen, 2013), Pinterest (Hansen & al, 2012) have been experimented, the latter for curating images and pictures more than text, ie (maps and landscapes in geography). Pearltrees is more used by college teachers in France than by researchers, although its structure and format seduces to collect and organize resources.

Benefits for Teachers and Learners

Teachers can build content hubs focusing on a specific topic to be shared with students, or others teachers belonging to the same community of interest or network gathering , summarizing, evaluating traditional papers from publishers or classical databases, open access journals, grey literature, press releases, PPT presentation through Slideshare, Youtube films, event tweets (Deschaine & Sharma, 2015). They can publish virtual webmazines, selecting, commenting, elevating information on their competences topics.

Teachers and researchers end-users can stay abreast of information, in their personal continuous e-learning and education. They can build, share with colleagues and offer students focused and dedicated topic contents hubs. Used to social networks or not, they will join a network of specialists and communities of interest at a global level. It will help them find serendipitously research ideas at the frontier between specialty fields. They might indeed build thought leadership in their field of competence.

This activity allows approaching digital resources in critical terms (research, selection, validation, synthesis and content sharing).It opens the learning activity out of the traditional class and has been defined as a core competency (Ungerer 2016)) The cross-fertilization between the teacher and the students allows to decompartmentalize knowledge and thus a direct and shared access to knowledge. Students and trainees can build a digital identity or personal identity online (PIO) (Gadot &Levin, 2012) that will be useful later on for interviews during competitions, internship or master's applications and job interviews.

Attribution of marks for this long range activity should stimulate students discover other ways of learning. Some authors already proposed detailed templates to evaluate contents and quality of a curation activity (Gadot & Levin, 2012).

Challenges

Challenges exist for a wide usage of such tools in research and education. Investment of users in a tool relies on its permanence. Curation softwares apparently appear to last, but their large and increasing number might limit their usage, although more and more published papers document the usage of Scoop.it for teaching and learning activities (Gadot & Levin, 2012; Antonio & Tuffey, 2015; Flinthoff & al, 2014;).

Curation ie selection, and even more editorialisation in context is a journalist-like time-consuming work. Search information is a « day to day » duty for teachers like « walking the dog » but time is lacking for many teachers and students to maintain a regular activity.

Return on investment for the curator remains low nowadays in the context of absence of recognition of blended learning in teaching duties in most university settings. Short term return on investment for the students seems a major flaw because of the teaching and notation system in medical universities or literary studies, knowledge being segmented into numerous themes with short range examinations. The use of bonus points seems not enough to attract enough students into a different learning activity.

In this context, it should be recalled that human dependency of curation is a major asset compared to algorithmic tools, but individualism and paradoxically reluctance to share of some teachers limits yet the curation approach to a few individuals

Curation is reading and also writing

Content curation activities indeed stimulate reading outside their mandatory courses in STEM training (Land, 2013; Tseng & al, 2013) supporting the introduction of the R letter for reading and also wRiting into the STREAM acronym (Root-Bernstein & Root-Bernstein, 2011). They also enlarge their capacities for future teaching, research professional life by allowing access to other fields and adding writing (O’Byrne, 2014) to their competencies, even more difficult to achieve nowadays to their literacy practices. For French-speaking students reading in English is a plus, allowing them to develop their fluency in foreign languages (Canet, 2017).

Content curation can be and should be used not only for marketing purposes but also for teaching and learning by teachers, researchers and professionals, during initial training and in their life-long learning. Applications are wide in information literacy, knowledge management and strategic digital watch. (Mackey & Jacobson, 2011).

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