Long Tail Learning, the internet and the conflict between curriculum and personal interests

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Abstract

This paper is about the term Long Tail in education. Initially, the term Long Tail was used to describe how the internet affected the sales and the availability of products at online stores. Over the last few years, the term Long Tail is approached as more of a global concept, affecting many areas of our life and it could probably lead to the reconstruction of a lot of procedures in education and learning.
The aim of this paper is to connect the term Long Tail with 'e-learning' and with the educational system, in order to trigger the research and study of the Long Tail phenomenon from a different point of view or, in other words, to explain some new aspects and tendencies in the area of learning, information and communication technologies.

Key words: Long tail learning, e-learning, web2.0

Introduction

The term Long Tail, was first used with the current meaning and dynamic by Chris Anderson, the editor of the Wired magazine, in an article that he wrote in October of 2004. It is possible that Anderson was influenced by the essay 'Power Laws, Weblogs and Inequality' (Shirky, 2003), but the term was introduced many years earlier in the field of business, e.g. concerning liability insurance (Quinion, 2005) and one of the first references to similar mathematical distributions was made in 1946 (Brown & Tukey, 1946). In that specific article in Wired magazine, Anderson noticed that nowadays, because of the new technologies, a significant percentage of sales in e-commerce is about products that don't belong to any common categories and brand names, but they satisfy more personal needs instead. So, there is a shift of consumer demand from the usual small number of well known products to a big number of more specialized, specific products. Anderson used as example the companies Amazon (the biggest online store), Netflix (streaming movies and TV episodes over the Internet and sending DVDs by mail) and Rhapsody (music and video download provider). These companies are selling a large number of special products in small quantities.
In Figure 1, we see a representation of a typical curve of the Long Tail phenomenon. We can see that the short head (or just head) of the curve depicts the products with the biggest sales and the long tail is about a huge number of products with few sales. The main difference from the past is that the storage of products in digital form, such as e-books, songs and videos, has almost zero cost and they need almost zero storage space. Furthermore, the searching tools, the categorization and review abilities, common to almost all the new electronic stores, give an added value to these stores. The information anyone can find on a lot of these ecommerce sites is very helpful in choosing and comparing products and services and can combine the personal opinions of hundreds of different users from anywhere in the world. All these factors are amplifying the long tail effect.

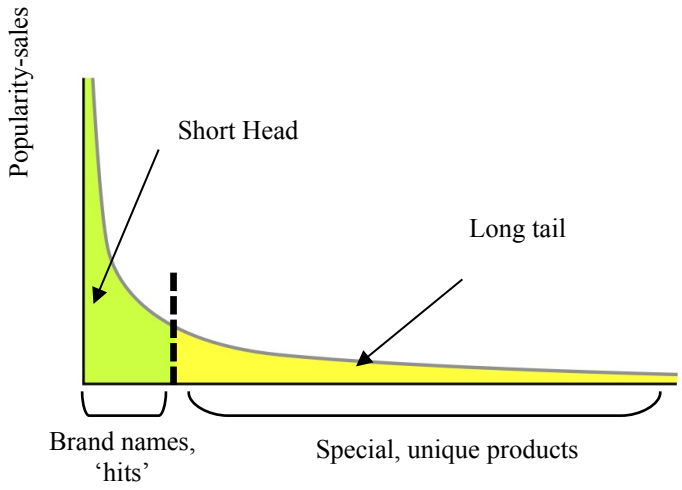

Figure 1: The typical form of a Long Tail curve.

The borderline that defines if a sales distribution curve has a long tail is the value of storage and distribution. If these two values are low enough, then it is possible to sell products that are not extremely popular.

Apart from the recognition of this new situation, the remarkable thing is that the Long Tail curve appears into a lot of real life and social procedures like culture, information, politics, the service sector and of course in formal and informal education. Anderson has expanded his theory on the Long Tail in his book The Long Tail: Why the future of business is selling less of more (Anderson, 2006; 2008).

The Long tail, the ICT and web2.0

The Long Tail curve belongs to a bigger category of the power low distributions that commonly appear when examining natural phenomena. The economist Pareto had realized, from the start of the previous century, that 20% of the population owns 80% of wealth (Skirky, 2003). Similarly, 80% of residential districts belong to 20% of the number of owners and in general the 80% of the results in nature is caused of the 20% of the total number of the discrete causes.

Respectively, in almost every ordinary store with bricks and walls, where the products are stored at shelves and shop windows, the Pareto principle or the 80/20 law dominates sales. This means that 80% of the income of ordinary stores comes from the sales of 20% of the products or the 80% of the incomes are from a few popular brand name products. The same analogies were noticed by linguist George Zipf concerning the frequency of word usage. Zipf concluded that there exists a relatively small number of frequently used words, an average number of common words and a very big number of words that are used only rarely.

In the last century, most companies tried to trade in the small number of products and services that would bring in a maximum number of sales to the public (Brynjolfsson et al, 2006). The result was that most of the stores of the same size and category had almost the same products. But nowadays, with e-commerce present worldwide, the Long Tail phenomenon is there, and the Pareto principle stops being the rule (Bryonjolfsson et al., 2007). This happens because the sales curve weight is moving to the right and in many cases the 20% of the brand name products are corresponding to only 50% of total sales.

For example, an ordinary brick and mortar bookstore, usually stocks from 40.000 to 100.000 book titles, but an electronic bookstore like Amazon.com, can stock more than 3.000.000 book titles. Someone could say that the majority of the readers aren't interested in the 2.900.000 non-best-seller books. But after analyzing the sales data of Amazon.com, the result is that 30-40% of sales is from books than can't be bought from ordinary bookstores. So, a classical bookstore sells only the best sellers (Short Head) but an electronic bookstore, such as Amazon.com, stocks and eventually sells

books that belongs to the Long Tail of the sales curve and has obvious financial benefits (Anderson, 2004).

In such cases, the hallmark is due to the benefits brought by the new technologies, like print on demand, advertising and selling a growing number of various products and services without geographical limits, and simultaneously lowering the cost of storing digital products almost to zero. In the case that the products have physical dimensions, for example printed books, clothes etc, the storing cost is much cheaper if there is no need of shopping shelves and windows (Brynjolfsson et al., 2006).

Similarly, new artists can bypass the intermediate music and radio producers, the music companies, the distribution network and the advertisers by publishing their projects over the internet and communicating with their fans using social networks like myspace and facebook. This potential can be seen as the end of the tyranny of the commercial success, with culture becoming more complicated and varied in form (Anderson, 2004).

The rapid development of the internet and the new capacities for cheap, real time or asynchronous communication with the new and powerful searching tools led to the increased output of special products, services and knowledge because these items can be made available, can be found and can be sold. The use of active tools (like search engines or the ability to read the first pages of a book or to listen to the first seconds of a song), the use of passive tools (like related, similar or featured products) in combination with the capabilities of web2.0 in the form of new tools to evaluate or review products, online communities, blogs and social networks, all these are giving the users unprecedented capabilities to create, produce, distribute and own products, information and knowledge that in their turn have a feedback effect to the choices and the culture of themselves. The period where the best sellers ruled the world is ending, the more elaborate and specialized will dominate and the industry of entertainment, from music to movies, will never be the same (Anderson, 2006).

The Long Tail phenomenon can be found everywhere in the new digital world (Anderson, 2007):

- Terrestrial television (Short head) - YouTube.com (Long Tail)
- Paper encyclopaedia (Short head) – Wikipedia.com (Long Tail)
- Newspapers (Short head) – Blogs (Long Tail)
- Radio (Short head) – Podcasts (Long Tail)

Long Tail and Learning

Even if the term Long Tail was first used in business, soon it was connected with a lot of activities in real life that were using the capabilities of web2.0. Thus, some first attempts were made to explain the influence of Long Tail in the educational procedure and to study if there are possibilities to exploit this phenomenon to collaborative learning.

From now on we will use the term Long Tail Learning to describe the phenomenon of Long Tail in formal and informal learning.

Long Tail Learning has two viewpoints. The first one is for learning about exotic topics that don't belong to a curriculum. The second viewpoint is about the opportunity that anyone has to communicate on a regular basis with other people, with whom they share common interests and these could be anywhere in the world (Collins et al, 2009). The Internet offers any minor or adult the opportunities to learn about topics one is interested in or passionate about, like astronomy, linux, r'n'b music, miniatures, anime comics, local music bands, the Sims game, etc. These topics aren't part of the curriculum and it is difficult to find other peers to discuss these topics or to find answer to any questions. This is the explanation to why a lot of students turn to the internet in order to find the knowledge in cyberspace, which is growing day by day, and is full of learning opportunities (the reliability and the validity of this knowledge is something to be discussed later). As a result, a new group of internet users appeared. These users are specialists in topics that belong to the tail of Long Tail Learning and they are named professional amateurs or Pro-Ams. These Pro-Ams are

innovators, committed and networked amateurs that are involved in their favorite occupation like professionals (Leadbeater, 2008).
Most research shows that most of the people get more than 80% of the professional knowledge that they need after their formal education and training is completed, using face to face communication, emails or other types of electronic communication (like irc, teleconference or videoconference, forums discussions etc), the proverbial chat over the water cooler and direct communication via mobile or cable phones, with fellows workers, friends or specialists.

This is happening because they can't find the required knowledge at the Short Head of formal education and so they are trying to find it at the Long Tail, which is part of the extended personal information network that each has created. We could say that our students are living in the Long Tail Learning but we, the teachers, aren't (Willkins, 2009).

In Table 1 we present the equivalences of Long Tail terms in business (ordinary stores and electronic stores) and in education (formal and informal).

Table 1

Ordinary stores (short head)	**Formal education (short head)**
Limited storage	Limited teaching time and limited lessons
Best sellers	School books, specific topics, curriculum
Servicing the commonest needs of customers	Learning knowledge only in the well-defined frame of curriculum
Lack of special, personalized products	Lack of personalized education and training
Reduced sales	Less effective and boring education
Shop windows	School and classes
Electronic stores (long tail)	**Learning and discovering (long tail)**
Unlimited storage	Unlimited knowledge
Special markets and special products	Enthusiasm and passion for special personalized interests
Plethora of books, music, movies and products in general, that could never be found at a shelf of an ordinary store	Plethora of topics and ideas that are never going to be taught in schools and Universities
New tools for searching, categorizing and reviewing.	Social networks and communities of practice
Buying, selling, working and finding without geographical limitations.	Distance and lifelong learning

Maybe the most important characteristics of Long Tail Learning are its dependence on internet and network tools and the way it integrates with social learning. The rise of web2.0 resulted in fuzzying the limits between internet users and content creators and moved the interest from finding information to communicating with others (Brown & Adler, 2008). This is the main reason for the broad acceptance of social networks (facebook, ning, myspace, twitter) by internet users of every age. If we combine this characteristic of web2.0 with the presence of Pro-Ams then we are in front of another significant fact. If someone wants to be a user that knows a specific subject well (a subject that belongs either to the head or the long tail of the Long Tail Learning) then it is a necessity not only to 'learn about' but in fact to be 'learning to be' a full partner in this field.

For example, we can mention the biggest encyclopaedia, Wikipedia, where anyone can find basic subjects (short head) that can also be found in any common encyclopaedia on paper. But in Wikipedia one can find additional special subjects (long tail) that were first added by enthusiastic volunteer amateurs. An important added value to this open, collaborative environment is that in

parallel with the information, anyone can see the procedure by which this information was created, edited and reformed.

The favorite tool of the previous version of internet was the 'portal' which, in most cases, was implemented in a similar manner to traditional stores, and constructed with as many information categories as possible. In web2.0, the keyword is 'platform', such as joomla, drupal, wordpress, facebook, ning, moodle etc, which give to users the framework and the tools to create and publish content and interact with other users with ease and with low or average knowledge of computer science (Grinnell, 2009).

This time, for every subject that a student could be passionate about, it is possible to find an already existing online community with at least a few people willing to share their enthusiasm. Finding and participating in such a community can be the trigger that will lead a student to gain knowledge ('learning about') and also to participate in a procedure, through peer-to-peer learning ('learning to be') and creative content production.

These learning communities are the precursor of a new form of learning that is based on new technologies and is named 'learning 2.0'. This new form of learning overpasses the free access to learning materials and learning tools and creates a participative architect that supports students' communities (Brown & Adler, 2008).

According to Skinner, social learning is based on the fact that our knowledge is constructed via discussions on specific topics, substantiated interactions about a specific problem or a case study. The participants to these learning activities are showing positive emotions during the collaborative procedure, such as enthusiasm, optimism, curiosity and interest.

Taking some further steps ahead, we see new learning theories, like connectivism, which posit that older theories such as behaviorism, cognitivism and constructivism were developed when recent technologies and internet hadn't yet had a serious impact on learning procedures. Connectivism is based on the theory that learning is a procedure that happens based upon a variety of elements that are continuously shifting and transforming. The starting point of learning is a person that outputs information or knowledge to a network that returns information back to the person/s and vise versa, as if everything were part of a transforming cycle (Siemens, 2005).

Conclusions

Just as in the case of the Long Tail phenomenon in business, Long Tail Learning is a theory about an affluence of knowledge, where students have more opportunities to learn and the teachers have more opportunities to teach.

However, the education systems are unfortunately not aware of Long Tail Learning. In our schools, only the "knowledge hits" (short head) are taught. Moreover, the teachers are trained to teach effectively mostly the knowledge on the curriculum, using the corresponding teaching methods (Anderson, 2007).

Does this means that formal education, formal certification and the approved curricula must be canceled? It does not, but it is necessary to find ways to efficiently combine the content of the short head (curricula, essential knowledge and lessons) with the Long Tail content (special subjects that engage students and suit their personal interests) (Willkins, 2009).

Nevertheless, teaching the 'hits' on the curriculum includes a secure, well known area of knowledge and subjects, tried and trusted. On the contrary, Long Tail Learning is an area of 'risks' where, anyone, anytime, can create a site at will, be it a blog, a wiki or just a fake account to one of the many social networking platforms, and then publish anything one wants. The internet is full of false, silly, bad, even dangerous information, sites that proselytize or propose UFO theories and of course, adult content. The learning is happening in a black market of exchanging information where teachers don't have any influence or control, don't know who the participants are, what it is all about and last but not least, if all this knowledge is valid (Willkins, 2009). So, we need to design

and create shared and distributed learning practices where experiences are collected, checked, categorized, reviewed and tested in a new context. One could describe this 'learning to learn' procedure as a spiral procedure where students and teachers are learning among and between themselves (Brown & Adler, 2008).

As our world is changing, our view must also change, at least at the same speed, in order to be ready to interpret these changes and to be modern. It is important to manage and change our education-teaching-learning structure so that we could support the new positive things and reduce any negative impact.

Here are some topics for study and consideration about the Long tail in the field of learning and education:

- How can we effectively combine the head with the tail of Long Tail Learning (Collins, 2008)?
- Can we verify the theory of Long Tail Learning in educational systems or programs between schools, teachers and students where the requisite freedom to choose subjects out of the strict curriculum exists, but stay within the education field? An example of such a program is the European eTwinning program, for which there is a large number of schools, teachers and students involved.
- What extra information can we gain after studying the Long Tail Learning phenomenon in communities of practice, where the roles of the teacher and the student are clearly distinguished?
- Should, the teachers, continue to require their students to learn only what it is in the curriculum or they should they give their students the freedom to follow their interests and to which degree?
- Do we have to support our students as they follow their personal interests, which could be unique for every student in a classroom, and how?
- How is the access to, and use of, internet tools affecting Long Tail Learning?
- If and how the knowledge exchange in Long Tail Learning can be formalized and standardized in a more official context.

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