

## Learning Analytics for Chefs

What makes a good cook? What standard specifies taste? There is something like the “Culinary Institute of America” (<http://www.ciachef.edu/>); I visited this awesome place when attending LAK’15 this spring and it was way cool, no question. But what does it mean to be “a good cook” in the words of Learning Analytics? The number of dishes one can prepare in an hour? The number of flavours one can name correctly? Perhaps the number of wines one can identify and describe in wide words? Or just the arbitrary judgement of a (more or less well meaning) person? Learning Analytics is the art of brining all that together and to make a little bit more fair statement of what a “good cook” is. You know, what I mean is, there is famous Jamie Oliver, for example. He is generally acknowledged as a great cook. To be honest, cooking each and every meal using tons of lemon, mint, and olive oil, is definitely not my taste. The task of Learning Analytics is to make this clear, saying “hey Jamie, you are likely a great cook in the UK, but if you are going to Italy, maybe you shouldn’t pour a half a litre of lemon juice over my Pasta Pomodoro and garnish it with mint leaves. Learning Analytics, in that sense, is not only about providing performance statistics (because this is easy – “hey Jamie, you sold 1340 meals last week!”) it is making solid and valid links to meaningful and agreeable goals of learning – or cooking. So what is it, we’d need when talking about great learning – oh sorry, cooking....?



### Number one: products

The first thing is having the right credentials and ingredients for a great meal. Preparing the perfect dinner requires buying the 100\$ lobster not the 3\$ Pollack. Surely, the can of caviar is not enough but without the appropriate learning materials and technologies, learning cannot occur as intended. The problem with this is that it feels so hard to make this kind of investment. How easy is to buy a lobster for a great meal? Not really easy (unless you are a millionaire). How easy is it to buy great educational software? I think the key message is that a certain level of education costs. We do have great solutions, most often, though, we do not have the funding. Now, the next step is looking for a supplier that provides a sufficient product cheaper. Not? NO! This is what basically happens: trading effectiveness for available resources. As a Chef, you have to decide; do you want to be a franchise partner of Subway, or a two Michelin star restaurant. In terms of education: There are a lot of franchise providers out there and it’s so easy to do it but it leads nowhere, in the end. Education



demands three Michelin stars; this is a demand of our society and our culture! In conclusion, the message is (and this message is not new at all), without great products one cannot cook a great meal (try it, using fish sticks to make a three star meal). For research and development activities , in turn, this means, develop cheaper and more intelligent and more competency and learning centred solutions for LEARNERS!

### **Number two: “tech”**

Do you know sous vide cooking? Molecular kitchen? It's difficult - and requires having the right tools at hand; perhaps a baking thermometer or the right oven, or the right chemicals. Pizza tastes always better if it's coming from the wood stove. I think the message is clear, if we want to have great education, we need to have great ingredients, elaborated/treated/cooked/presented in the best possible way and within the best possible conditions. Translating the wood stove into education, we desire to find a camp fire and a can of beans – at best. All in all, technology is easy. But we have to work on the (missing) links between technology and what human learning processes are all about. Now, what I want to say is, Learning Analytics is the wood stove and the kitchen thermometer you need to make great things happen! In other words, really get a grip on the very heart of learning processes.

### **Number three: ability**

Now, having the best possible products and all technologies you can think of... If you roast the scallops too long, they are dry and tough and ... they are just not great. Well, let's use another kitchen item, a funnel. There once was the naïve idea that only if we had the right technology all knowledge could be poured into learners' heads, just like so, just like through this "perfect" funnel. And, there is this 18<sup>th</sup> century picture of the so-called Nurnberg funnel that mirrors exactly this idea. This is not how it works. Teaching as well as learning is a highly complex and a highly individual process. And we have to understand that these processes are limited. The limits are individual and also the means of reaching the limits are extremely diverse. There is no Nurnberg funnel for teachers (so far). So, what I want to say is, when it comes to dining, some people are vegan and will never ever eat the best possible "Pfälzer Saumagen" (stuffed pig's stomach – a very famous speciality from the south of Germany) or Haggis. On the other side, it simply is not possible to train each and everybody to differentiate *1975 Château Latour Grand Vin Red Bordeaux* from a trivial *2015 Italian Bardolino*, no matter how hard you try! So, the task of Learning Analytics is to account for the abilities of both sides, teaching and learning, and to harmonize both side for the best possible results.

### **Number four: seasoning**

"The salt is it, what gives that extra something!" Yes, undoubtedly, you can ruin the best T-bone steak, the best Pasta with truffles, the best Wiener Schnitzel by simply adding just a small breeze of too much salt. On the other hand, what would be a great Pizza without a subtle seasoning with fresh Oregano? It is the tiny little details that make the best possible success. Learning Analytics is the art of using as much data as possible to find out what the right amount of salt or Oregano is to achieve the best possible results for a very specific customer. This might be 123 grains of salt for person A and 178 for person B; a human Chef cannot be able to know that ultimate 'amount' and cannot be able to realize it technically. And this is exactly where technology comes into place. The right technology can support this process by identifying needs, abilities, and preferences and by providing the right means to meet these prerequisites.

Of course, what I mean is not the typical statistical approaches to (learning) analytics or data mining. These are most often too simple ideas, basically saying, well, every 93<sup>rd</sup> guest said in a follow-up questionnaire that 150 grains of salt and 2 grams of pepper were a little bit too much for the Pasta. What can a Chef learn from that? Nothing at all. When we are talking about Learning Analytics, we very much have to look into details into relationships between aspects, into individual factors, and not least (!) social factors and peer effects. Perhaps my conclusion is that the process of learning and the human taste are son sensitive and fragile, that we should, no must, use any bit of information we can get to satisfy the "customers". And please consider, if a meal doesn't taste, alright, but if education goes wrong ... that's another dimension!

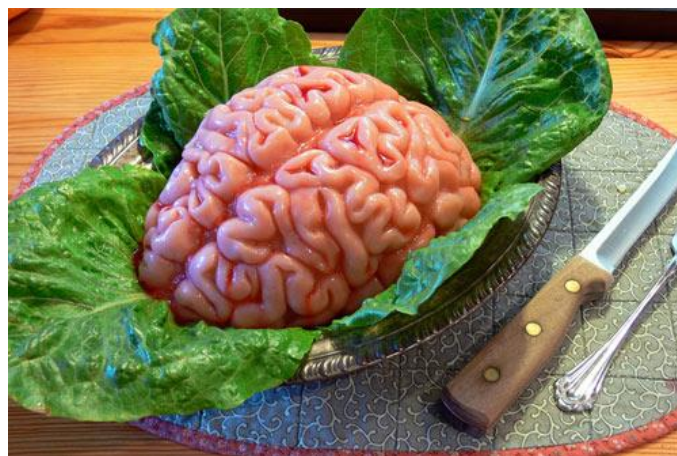
### **Number five: presentation matters**

Is there any doubt about this? I don't think so. If a dish looks attractive, delicious, and adorable, you are going to like it and find it delicious. The typical Halloween like fancy food, in turn, most likely will

distract you from trying it. Not? The same holds true for the way of presenting Learning Analytics environments, analytics, and visualizations.

What concerns the educators, it is crucial to meet the mental models, expectations, and needs of them to make them seriously use a Learning Analytics solution. In all my experience, the understanding and willing to use very sophisticated tools is overestimated by researchers by far. There are clear and simple ideas that educators want to realize and that educators find useful. In the worst case it is just automatically printing report cards for the entire class. There is no added value to tell teachers with 27 diagrams what their students did over the last 6 months in detail. There is a number of key pedagogical questions that must be answered very precisely in an incredible simple way. Almost undoable - yes. But the answer is, and this answer is not new at all, prepare for tailoring solutions to individuals, to all of them! Learning Analytics must provide some sort of modules that can be arranged by educators to allow them answering their natural questions. When aiming at meeting French cuisine's standards, there is no reason to address too much of very original Asian kitchen .... If you know what I want to say.

On the other hand, Learning Analytics must account for the needs and questions of learners. This is where open learner modelling comes into play. Learning Analytics has the heavy burden not only to inform the educator but also to open analyses and conclusions up to the learners. This is an extremely delicate task. The first thing is making learners understand the analyses (the model of our learners) and to trust them. That sounds simpler than it is. As long everything goes well, this is no problem but, and now speaking again in the terms of a Chef, once you have lost trust due to 'food poisoning', you have lost the trust forever! In addition to that, Learning Analytics solutions must consider that fact that different learners in all likelihood prefer and understand very different types of feedback and visualizations of their "achievements" – and please consider this! What one student 'achieved' is a massive and extremely important thing – for this student. A rule of thumb is, the simpler and open, the better.



### Number six: it must become you

Number six leads to a conclusion of this essay. Learning Analytics is supposed to serve educators as well as students, perhaps the entire educational system. Now, this is not as trivial as it may seem on the upfront. It reminds me to a certain degree to the famous Hollywood movie ‘Death Becomes Her’ ([https://en.wikipedia.org/wiki/Death\\_Becomes\\_Her](https://en.wikipedia.org/wiki/Death_Becomes_Her)). Now, what they have is a great and perfect potion, the panacea for all problems and effects of aging. In the words of a Chef, the ‘perfect dinner’. But it runs out in the movie that this is an illusion, an unpleasant and unfulfillable hope. The same holds true for Learning Analytics. Learning Analytics is so often talking about statistics and comparisons, and averages and risks, and what to do or what not to do. – Stop! This makes this out of you:



Yes perhaps you are alive, and perhaps you meet standards and requirements, and perhaps you pass exams, but ... there is this huge hole in you! Learning Analytics very much means having a heavy responsibility, a massive burden. Yes, there might be data; yes there might be correlations and statistics and forecasts – Hey! For whom??? And now think about it as a Chef. Can you meet anybody’s taste? Of course not. But what I want to highlight, is that Learning Analytics needs to take an extra responsibility! Statistically, a peanut butter jelly bread might be the most preferred breakfast sandwich, OK, and it might be a great, delicious meal for you as well. Good. But please remind that there are people who are allergic to peanuts (it’s quite probable)! So, whatever Learning Analytics potentially could do, it must be grounded by real needs, real goals, and real constraints, and real tastes lately. And again, you’ll never ever make a vegan person desire a bloody steak, no matter how great T-bone steak might be for you! And there is no good or serious reason to even try it! Otherwise it only burns a hole in your and your learners’ stomachs, one day!