Will the future of Higher Education be evidence-based?

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I will start coming back to the title of the event because I just want to clear the table of any doubt: I am not going to answer this question. I do not have a strong position on this. I very much appreciate this occasion to discuss with all you colleagues because it is a good occasion for me to focus on this particular aspect which, I have touched several times in my work but never had the occasion to give my final answer to it.

I will bring probably a slightly different perspective because I am a researcher in the educational technology field. So let's start from the concept of evidence-based education. Of course, as we know there are several definitions of this concept. I am not going to bore you with a picture of all the existing definitions. And to be a bit provocative, I have chosen one particular definition, which is quite radical. There are more radical definitions and softer definitions. The one I have reported here is from Slavin, and Slavin sees evidence-based education as the use, basically, of randomised experimenting in controlled conditions. Basically, to allow to reduce the complexity, to clean the table of many variables in such a way that we can isolate just some variables and study those ones. This in a way should allow us to replicate and generalise our results.

So in order to discuss this, I would like to start from one experience, a direct experience I have had in one project we carried out. It was a research project. Our institute was asked to design and deliver a blended course for student teachers on the topic of educational technology. So we decided on that particular occasion to adopt and propose collaborative learning activities. So we proposed some collaborative techniques, and of course one of our objectives as researchers was to see whether and to what extent these collaborative activities we were proposing worked or not. Therefore, we defined a model to elaborate these activities and the model is represented in the diagram that you can see.

We decided that we focused our attention on four main dimensions. The participative dimension, the social, the cognitive, and the teaching dimension. Of course, it is inspired by the work that you have mentioned before by Anderson and Archer. So the idea here was to observe students during their activities, observe the way they interacted, and not only in terms of their participation, which is a more quantitative dimension in terms of number of messages sent, number of words, number of replies and so on and so forth, but also we wanted to try to understand what kind of

contribution were they giving. Therefore, in a message by a student, could I detect some kind of contribution to the group knowledge building process or not. In another message, could I detect some sign of emotions, of affection? Or did that message contribute to the group cohesion or to the organization of the process. So this was done, I mean the analysis of the three dimensions was done in a more qualitative way, meaning that we analysed the messages with a manual coding in such a way to detect signs or expressions that we could label as cognitive, social or teaching dimensions.

I am not going to enter into the detail of that particular experience. What I want to do now just to provoke a little bit is just juxtapose this experience, which is described in the left side, the left column of the screen, with another experience, which has been carried out by some German colleagues. The context of the two experiences, of the two studies, are very similar because they are both rooted in the collaborative learning research field. In both cases, we had as a final objective the evaluation of, in our case it was the evaluation of the approach, of the collaborative techniques we were proposing. In the German case, it was the evaluation of the tool because they had developed a tool that was aimed to support discussion and debate, they wanted to understand whether, and to what extent this tool actually worked. So very similar situation. But we use two very different approaches. That is to say, in our case, we conducted our research in a real context: meaning that we had this class of students, we are talking of about 150 students and we, let's say, observed them for the whole duration of the course. That is three months' duration. Given that it was a real context, of course there was no way to have control and trial groups. The sample, it was not representative at all. So we had some constraints given by the real context that we could not disregard.

In the other study, the German study, they did it a completely different way. Because what they did is that they created sort of an artificial setting by selecting a number of students, 80 students if I am not wrong, and they monitored them for one session. An 80-minute session. So they observed their online interactions occurring in 80 minutes. The number of students was more or less the same, 120, but they had the control group and the trial groups. What they did, and to me it sounded a little bit weird, I have to say, is that they put all the students in one room all together, they divided them in groups, and asked them to interact online – so as I had to interact with Paul, seated one close to the other, but writing text. To me this was amazing.

I just want to put this on the table. In another study as I keep saying, we used a mixed approach, meaning that we tracked some data through the system, so we used quantitative data in terms of number of messages and so on and so forth, but we also used a more qualitative approach in terms of content analysis of messages, and we also take a look at the student learning outcomes in terms of grades.

While the German colleagues went for a completely quantitative approach, so they just used data tracked by the system in terms of number of words etc. And they did a pre and post test to see if there was any change in the knowledge of the students.

So just to make some reflection about these two contexts: In one case, you have a natural context, let's say; in another, you have an artificial one. In one case, you have a very complex reality with several variables, and in the other one you have a more simplified reality with less variables. It is true that probably it is easier if you reduce complexity to manage the variables and to study their effects. But what result are you getting? I mean, if you clean the table from all the real variables that a student will have, in his or her real life, what value can we give to our results? It is true that the German study is probably much more replicable. No question. But what are you going to replicate? Do we really want to replicate it? And the generalization of results, again: should we really generalize the results? The significance of the study: I mean, if you do

not take into account the contextual constraints, the contextual characteristics we have, does this make any sense? The environment, the cultural background, the organization... We know the organization has always a great influence, a great impact on what we can do as teachers.

About the actors, the German colleagues only focused and observed the students' interactions. While we, for example, focused also on the teachers and tutors' interactions. And this is also an important aspect. We should keep an eye to all the actors involved because we want to get a real understanding of the phenomenon.

I want to synthesize my position. I think when we observe the phenomenon the first thing we have to reflect on is why we are observing. We can have very different purposing. You also said diagnosing, evaluating, making prediction, monitoring, ranking and so on, and so starting from the why, you are observing a phenomenon you might go to the what. So should I focus more on the process or the product or the impact? What level of granularity should I look at? So of course I have many tools at my disposal, so the how, you can use qualitative approaches, quantitative approaches, mixed, learning analytics, meta-analysis, systematic reviews. It is easy to say, "Okay, we can mix. We take a little bit of this, a little bit of that, and it will be fine." But you said how? The problem is how. I think the How should definitely derive from the Why. If you have defined clearly, why you are observing, this should lead you to take reasonable decision on the How. And another important aspect that you also mentioned, Paul, is Who. Meaning whom should I observe and for whom should I be providing the data? This is also very important.

This is to tell you that I am not against evidence-based or quantitative approaches, not at all. I see all the advantages also that Richard pointed out, and I see that they can be very helpful, especially because they can help in filling the gap between the research and practice, which is what Olaf said at the beginning. That research should through data inform the practice. And also, the importance of the cumulative character, as you said. So not focus only on the single study but try to accumulate and build on the top of that has already been done by the others through tools such as systematic reviews, meta analyses and so on and so forth. So I am not against it. What I would recommend if I could dare, I mean, is to try to keep under the lens the context, the whole context, the whole ecosystem in all its components, in all its dimensions. So that means keeping an eye to all of the dimensions: educational, organizational, technological, all the stakeholders, as I was saying before, and all that I have taken into account all the diversities: cultural, individual, social, so on, and so forth.