**PODCAST: Learning analytics: Why, What, How – Valuable tool for teachers and learners**

Episode 1: Why is learning analytics important to us?

This is a “Why, What, How” podcast series in which we delve into the world of data and learning analytics from the perspective of teachers and learners.

In the first episode of our podcast, we focus on the basics of learning analytics and why it is so central for the development of teaching. We discuss the role of learning analytics in supporting decision-making done by teachers and how it can help students succeed.

The expert guests are **Riikka Muurimäki**, Planning Officer, Education Technologies and **Matti Mäkelä**, Planning Officer, Education Technologies, Seinäjoki University of Applied Sciences. **Satu Aksovaara**, Senior Lecturer, Jamk Professional Teacher Education Unit

SATU AKSOVAARA

Welcome to Digivision 2030 project’s digital pedagogy training.

This series is titled Why, What, How of Learning Analytics. In this episode, my expert guests join me in seeking an answer to the question of why learning analytics is so important.

I am Satu Aksovaara, an expert in digital pedagogy at Jamk School of Professional Teacher Education, and sharing the microphone with me here today are two leading expert members of the higher education institutions’ digital pedagogy network: Riikka Muurimäki and Matti Mäkelä from Seinäjoki University of Applied Sciences.

The next chapter of Learning analytics begins here.

Riikka and Matti, it is great having you here to share your thoughts and especially practical experiences of learning analytics use. You are quite a twosome, and I have come across you quite a few times in the context of learner-oriented use of learning analytics. Riikka, what does learning analytics mean to you?

RIIKKA MUURIMÄKI

Learning analytics is important to me, and in my work as a digital pedagogue, I would always like to make sure that a learner-oriented approach has been taken into account in courses. This is why I believe it is important that learning analytics is introduced, used and monitored in as many different ways as possible.

SATU AKSOVAARA

Matti, do you agree with Riikka?

MATTI MÄKELÄ

Yes, I do. A large number of different tools is available for learning analytics. Digivision has created a framework for successful use of learning analytics. Rather than a digital vision, a hands-on approach is needed in this. You just go ahead with it systematically and from the learner’s perspective, and you will be fine.

SATU AKSOVAARA

People often think that learning analytics means something extra. Learning analytics has become such an important factor these day. Why do you think that is? Or at least it is talked about a lot.

RIIKKA MUURIMÄKI

The pandemic certainly was one reason, and the fact that a larger share of teaching is now available online, whenever and wherever the learners are. We don't meet and encounter students in real time as much as we used to. Electronic learning platforms are now in use everywhere and produce data for us.

MATTI MÄKELÄ

Learning analytics helps us support individual learning and monitor a learner's personal learning path. This means that while it can be used for monitoring by the teacher or instructor in general, most importantly the learner can track their personal progress and get feedback on how they are doing on their courses. It means that if learning is monitored by someone else besides the learners themselves, this enables early intervention and a proactive approach for the benefit of the student. These are some of the important things learning analytics makes possible.

SATU AKSOVAARA

Saying that learning analytics is not just for the teacher is an interesting idea. Rather than the teacher somehow monitoring or watching them, it is about supporting the students themselves. And especially when you think that group sizes are growing, targeting the guidance may be quite difficult without such data. The idea of continuous learners will certainly also challenge us to realise this.

Why do you find using learning analytics so important? I know you have stressed it at your university of applied sciences.

RIIKKA MUURIMÄKI

We think it is important that we can support the student's personal learning and make it visible to them. As a lot of learning now takes place on electronic platforms, how does the student know where they are, how they are progressing, what they are learning and what they are not learning? Another aim is that they could also develop an ability to assess their own progress.

SATU AKSOVAARA

Matti, what is your view of student well-being? Riikka emphasised self-assessment just now, but student well-being sparked a lot of questions at the time of the pandemic. What’s your opinion, do you see any connection between learning analytics and student well-being?

MATTI MÄKELÄ

Yes. In a way, learning analytics is a tool we can use when we no longer have a continuous presence on the campus. In the OHKE project, we again considered student well-being from the perspective of what it looks like from the learner’s viewpoint. We started off by mapping out the tools that we already have. We simply issued instructions on how these tools can be used and what we may still be missing, enabling us to use these electronic tools to tackle the core issue of promoting student well-being with Moodle tools. The results were good. We started thinking about roles that specify who can view the learning analytics data. We always kept in mind the fact that it is important for the learner to see their progress on the courses and more comprehensively in their studies visually.

SATU AKSOVAARA

This brings up an interesting perspective: we can actually associate such things as well-being, motivation, self-assessment and study ability with learning analytics. It doesn't have to be just click data. How widely would you say learning analytics is currently used in your HEI and which applications do teachers use?

RIIKKA MUURIMÄKI

Well, if we talk about higher education institutions, such study administration systems as PEPPI and Sisu are definitely used everywhere. They are systems that store data quite reactively. They contain study attainments and grades once all studies have been completed. In practice, the system does not provide particular support for analytics for learning or during the studies. For example, we at SEAMK recommend using the analytics plugin for courses to monitor the assignments students hand in, and the progress bar plugin. We strongly recommend that teachers set up the progress bar plugin for their courses with a learner-oriented approach. It enables students to keep track of what they should do and when, and what they should hand in.

And we also stress that it would also be a good idea for the teacher to test the functionality of the course, making sure that the dates are right and that the instructions are correct and comprehensible, after which everything will go swimmingly.

MATTI MÄKELÄ

Yes, from the perspective of a teacher's work, there is a lot to remember, and it is easier to do if there are instructions to follow. This is why we also have a template in Moodle which already contains some of these building blocks. You just have to put them into practice correctly. And I would add course attainment data to Riikka's list. When you get that up and running, it may add a little bit more value to the instructors’ reports. And actually also to the learner's report, as it includes such information as the date on which the student registered for a course and started studying it, and finally the date on which it was completed. These are small things, but when you get them right at the specification stage, the most important stakeholder, or the learner, will then receive full and correct information. This means that the progress bars actually track the learner’s progress, and when they have completed everything and see the bar at 100%, they get this happy feeling of yes, that’s another one in the can.

SATU AKSOVAARA

Matti, I love your comment about that happy feeling. I have heard feedback from students who talk about the negative feeling they get when the analytics does not show your progress correctly. The student thought they had done everything, and then the analytics shows a course completion rate of only 20%. This is something that has stuck with me, that it can also have negative effects.

RIIKKA MUURIMÄKI

Well, yes, and this can cause a student to have doubts about their work: have I really completed everything, because I thought I had followed the instructions and done it all. And then the progress bar seems to show that you have missed something. In turn, this means that the teacher needs to spend time answering additional questions about why my bar shows that I have missed something when this should not be the case and I have done all the assignments.

MATTI MÄKELÄ

This is a sort of positive chain reaction. When the teacher has first set the analytics up and got it working right, the learner is the first one to get the benefits. After that, the teacher's working hours or time use can be allocated to the right things, or guidance work and everything that it includes. And finally it will also be a positive for the higher education institution as the students are actually making progress in their studies.

SATU AKSOVAARA

Do you have any experience of copying study units or courses to another implementation? What happens to the analytics then? Do you need to do something about it, or can it be copied along with the course?

MATTI MÄKELÄ

You must check the analytics. You need to make sure that the settings are right, and update the dates and suchlike.

SATU AKSOVAARA

It just occurred to me that when you describe the use of learning analytics with the learning platform tools, does Moodle provide enough tools for teachers and students? What is your opinion, or your experience?

RIIKKA MUURIMÄKI

I’d say that Moodle offers quite enough tools for us at the moment, anyway. In our OHKE project, we have recently introduced more of those different Moodle reports. For example, it has the m-reports that we can use, and we created new roles and views there. I think it gives a good visualisation at the moment and is quite sufficient for the teacher, especially if you make use of its analytics graphs. This means monitoring how students hand in assignments or sit exams. Or you can communicate with the students across the board, either give positive feedback to students who have already handed in assignments, or remind those who have not. We do know HEIs that have used the plugins, some of them where involved in the eAMK project. For example, we have also tested the IntelliBoard plugin for Moodle. And because Moodle produces a lot of useful data that you can export to Excel, you can make use of PowerBI. But we reckon that PowerBI may never become a tool for the ordinary teacher. It might offer analytics data to the organisation on a larger scale or in some other way. But the ordinary teacher can manage pretty well with Moodle’s analytics tool.

SATU AKSOVAARA

Yes, and many teachers will probably notice that Moodle really produces a lot of data for Excel. And Excel offers many options for filtering the data. However, you may need to be a little bit careful because this does create a data file in the teacher's computer. These probably are issues on which clear policies do not yet exist at the moment. But Riikka, you mentioned an interesting perspective: you referred to positive feedback. Learning analytics is often associated with monitoring and reminders. When you said positive feedback, can you give us an example of what you mean? How could the analytics serve as a source of positive feedback?

RIIKKA MUURIMÄKI

For example by using those analytics graphs. I mean the analytics graphs plugin for Moodle. As a teacher, I can use it to see that a certain group of students has handed in their assignments in good time and in great style. I can easily pick out those specific students and send them positive feedback on it. Say it's great that you've handed it in, and why not give them motivating and also other feedback on the assignment. You don't always have to think that you only pick out those who are dropping out or haven't completed their attainments, and just keep reminding and hassling them. Instead, I can give feedback and, in a way, create an illusion for the student that the teacher is present and keeps an eye on them. Even when I send out a group message, it is sent to each student personally. The student then feels that they have received personal feedback.

SATU AKSOVAARA

It made me think about how the data support the teacher in developing their courses. I remember a course where learning analytics helped us identify that the students rather systematically missed a certain assignment, or at least handed it in late. Which is a challenge to the process. After looking at it through the analytics, we decided to reschedule the assignment to a slightly later date. Surprisingly, this meant that the students completed it on schedule. I thought this was interesting, because without the analytics or the opportunity to examine what the students did we would not have identified this problem, and it would not have occurred to us to make the change. And merely rescheduling the assignment made a difference in the students’ behaviour or actions.

I found it interesting how the analytics can support learning design or the development of the learning process. Do you have experiences of this from the perspective of development?

RIIKKA MUURIMÄKI

When you have planned it well in advance and you feel you have thought it through, this is the way it goes. But from the learner's point of view, the path may not be quite so clear. In this case, learning analytics can provide data indicating that this is simply not the right place for this assignment and it does not work at this point of the learning process. You can really use the data to see how a student learns. And we can also keep a bit of an eye on how students spend time on the course platform and what materials they access.

MATTI MÄKELÄ

Learning analytics is also related to the gamification of courses. It helps you already at the testing stage. If you want to test your own study unit, learning analytics can help you find a mistake there, for example, or something else that you need to improve on. You will notice if the instructions for some section are not quite sufficient, or two learning paths open up when there should actually only be one.

SATU AKSOVAARA

I was thinking about a comment I have come across when talking to teachers about gamification. The progress bar or other visualisation can easily be associated with the student earning points, or these bars, for themselves. And the comment of many teachers was that this means the students will navigate the course using the progress bars, without using the learning materials or watching the videos, just jumping from one assignment to another. Have you come across similar comments?

MATTI MÄKELÄ

Yes, we have. There are, of course, ways of preventing this by means of learning design.

SATU AKSOVAARA

I would like to continue by asking how you would describe the key benefits of learning analytics for students.

RIIKKA MUURIMÄKI

Of course, the progress bar plugin tells the students if they have now completed all the assignments that they must do to get the attainment. This is what it primarily shows. However, students can also to some extent look at their learning paths and find out what their weaker areas are or what is more difficult for them. For example, reflections could be used to get the students to express, either verbally or using emoticons or some other method, how they experienced a certain assignment or area of learning and how it was meaningful for them. And it may also have some effect on the student learning about their personal modes and styles of learning and understanding which ones are suitable for them and which they like, what kind of assignments they enjoy doing and how they learn.

SATU AKSOVAARA

That point about reflection data sounds like a really interesting idea, as does the idea that students do not necessarily need to write long essays. The reflection can also express to some extent the feeling, emotion, or motivation that enables learning. So perhaps we as teachers could identify who is in the most urgent need of support if we knew how the students feel about things. Interesting.

MATTI MÄKELÄ

Thinking about benefits for the learner, it occurred to me that planning their time use is one of them. You might see that you still need to do two assignments and you only have two hours right then, and one of these tasks may be larger and the other a bit smaller. You then know that within the time available, you can complete one of them, and you go ahead and do it. And when you have more time, you will also do the larger assignment. This gives you a visualisation of what you should do next. It can help the learner quite directly to choose the direction where they should go next.

SATU AKSOVAARA

Learning analytics is often associated with online learning. People think that learning analytics is used for every MOOC course, but the higher education institutions have quite a number of different implementations. And as online learning is only one form of teaching, what is your opinion? Can learning analytics be used to support other implementation forms besides online learning?

MATTI MÄKELÄ

Yes, it supports all types of learning. And as you could say that the digital transformation is already here, learners now think that if one day I can't get there, as a default I can find information on what I should have done and what the next assignment is on a learning platform or Moodle, or wherever. The learning analytics goes with you and is the teacher's extension in a way.

SATU AKSOVAARA

I think you mentioned that you also used learning analytics in connection with placements. Whenever the students move from one environment to another, we have used Workseed for placements, which has its own monitoring options and graphs. The key thing for the learner is that the system must be so easy to use and ready-made that you don't have to spend time figuring out how it works. The system should always be designed to work well as a whole, so that the learner’s only task is learning while the tool only helps with the monitoring, like we said.

RIIKKA MUURIMÄKI

Workseed is a good tool for formative assessment, self-assessment and similar because assessment takes place continuously during the learning process. Rather than the student handing in a lengthy assignment or a ten-page Word document about what they may have learned at the end, or perhaps a learning journal, they can use their mobile phones to record their personal goals and whether they have achieved them, and what they have done and how they have progressed, directly in Workseed. The teacher or instructor can then comment on them. This is important in its own way, as students have interaction and feedback throughout the learning process.

SATU AKSOVAARA

I love the way you brought up the development of competence. Instead of just talking about if the student has studied and completed assignments on schedule, learning analytics also covers the perspective of how competence develops and how continuous guidance can be provided, and assessment can take place during the study process.

We have now talked quite a lot about all the great and positive aspects that learning analytics brings to teachers and students for their everyday learning. But its introduction can certainly not be quite as painless as all that. What kind of challenges do you see in the use of learning analytics?

MATTI MÄKELÄ

In general, certainly the fact that we are faced with something new. The technology does not always work, or it does not support the pedagogical idea that we aim for. And, for instance, those bars may have additional items that the student in question is not even meant to take. Or some quite essential assignment is missing. These are the shortcomings of the specification phase that you may come across as the studies progress. To mention an individual important way of tackling these shortcomings and challenges, testing is vital. You must test the system to identify items that may not work. And you must correct them before it opens up for learners.

RIIKKA MUURIMÄKI

The progress bar also lets us know if a student has opened a file, but it does not tell us what they have learned. Or what they did with the accessed file, if they even looked at its content at all. This is what it does not tell us, and we must pay more attention to this aspect in the future. Or there may be data protection issues associated with either the teacher, the student or the systems, which must be addressed in this context. This is why you should always check which aspects you can monitor. We talked about Excel and similar and said that they actually generate files, and that you should be careful in this respect. And we also mentioned the fact that with large groups of students, it is sometimes difficult to export the data from the learning platforms in suitable batches and formats. Smaller files and reports are easy to run, but handling such large volumes of data is not so handy.

MATTI MÄKELÄ

Anonymisation may be one possibility of examining the data concerning such groups. In general, the big question is getting the system itself to display the necessary data, without having to use additional software, such as Excel.

SATU AKSOVAARA

These were very good points that made me realise that you really have to plan the use of analytics and kind of interlace it with the learning process. This may sound like hard work. What do you think, should extra time be reserved for using learning analytics?

RIIKKA MUURIMÄKI

As I already mentioned, in my opinion you should integrate it into the planning of the entire study unit and the study process, in other words learning design. Where will I use and tap learning analytics, and how will I do this? How much time have I thought to spend on guidance during the course, and could learning analytics help support it? It could then help me identify the problems I might need to address during the course.

MATTI MÄKELÄ

Yes, it is fully comparable to the time used on guidance. If guidance is essential in the implementation in question, I would also say that learning analytics is quite essential in it.

SATU AKSOVAARA

It is an interesting idea that I as a teacher would benefit from the analytics and that it would even reduce the time spent on guidance. I could target the guidance at those who need it at any one time. This is referred to as timely guidance.

RIIKKA MUURIMÄKI

Yes.

SATU AKSOVAARA

I send a guidance message to a hundred students, and when the content of the message only concerns five of them, this encourages you to think in new ways.

What is your opinion about using learning analytics for this type of development? We already touched on development, but how could it support the teacher in identifying bottlenecks, for example in the learning process? Can you give any practical examples?

MATTI MÄKELÄ

The progress bar plugin, even just the regular report, gives the teacher a view in which the students are shown in the rows, and all activities and resources to be tracked in the columns. If there is a point where something is shown in blue as it has not been done, or in red indicating that the student has not achieved a sufficient level, this reveals a bottleneck quite clearly. And when we start to look at the data in further detail, we can find the reasons and can then of course fix the problems.

RIIKKA MUURIMÄKI

Yes and, for example, if you notice that you have set up a Moodle exam and given the students two hours to do it. This is quite a common problem which I, at least, come across often: I have not given the students enough time to do the exam. And if I suddenly notice that the students have done the exam in five minutes while I have given them two hours, perhaps I should do something about it and shorten the time or make the questions harder. And I think the brand new Moodle 4 itself offers analytics concerning the question bank and indicating if Moodle analytics finds a question too easy. In other words, the students always get it right. These possibilities are worth using in your planning.

SATU AKSOVAARA

This is where the whole idea of analytics perhaps culminates. It only provides us with data and some analysis, but the conclusions must be made by the teacher and the student themselves.

Finally I would like to ask you, Matti, what kind of expectations you have next concerning learning analytics?

MATTI MÄKELÄ

Well, I am interested to see how artificial intelligence will help, for example when you copy a course and need to remember to fix the dates and such. But in general, I would say that it is very important to try being a student. And start taking (studies) in different higher education institutions, for example. Is it clear cut right from the start, do you spend time thinking about the wrong things, is the navigation obvious, and does the learning analytics work? In other words, do you get clear graphs every time you have handed in assignments and so on. These are my thoughts.

SATU AKSOVAARA

Riikka, how are you planning to challenge teachers to use learning analytics next?

RIIKKA MUURIMÄKI

Yes. Of course, we will primarily introduce the tools that are offered, for example in Moodle. The full set of analytics should be taken into consideration when designing the learning process. This would mean considering what is useful, and what kind of information you could obtain. For example, is it possible to obtain even more information about the student's motivation and enthusiasm and about how they appreciate the learning and certain things in the learning process through reflections or some other tool?

SATU AKSOVAARA

Thank you for these immensely valuable practical tips and insights into how learning analytics can relate to the daily lives of teachers and students at the course level.

RIIKKA MUURIMÄKI

Thank you.

MATTI MÄKELÄ

Thank you.

SATU AKSOVAARA

Thank you for joining this interesting discussion on the role of learning analytics. We hope this podcast gave you the impetus to understand why learning analytics is seen as something that supports learning, and opened up perspectives on the role of learning analytics and its significance in higher education institutions for you.

Hopefully we were also able to shed light on the challenges and possibilities associated with it.

This episode was produced and edited by Satu Aksovaara, and special thanks go to Hanna Frilander and Jari Järvinen for their assistance with the editing. In the next section, we will take a closer look at the use of learning analytics from different perspectives. Do join us in the discussion on learning analytics in the next episode, too!