

University of Tartu
Faculty of Social Sciences
Institute of Education Curriculum:
Educational Technology

Vasiukova Viktoriia Andreevna

PERSONAL LEARNING ENVIRONMENT IN A HIGH-VARIETY ONLINE SETTING: A
SELF-STUDY OF A MASTER'S DEGREE STUDENT

MA thesis

Supervisor:
Senior Research Fellow
Emanuele Bardone

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Abstract

Personal learning environment in a high-variety online setting: a self-study of a master's degree student

The aim of this thesis was to investigate a personal experience of a master's student — the author — during their studies in an online programme. Autoethnography was used as a research method applicable for capturing a path to personal learning environment development. The resulting PLE was developed following the Beer's Viable System Model framework, adopted from management cybernetics and composed of self-functioning, self-coordinating, self-controlling, self-monitoring, self-developing, and self-projecting systems. The author used a blog and a diary to document the process and collect related reflections. The questionnaires were used to get more data and determine the struggles other learners were facing. The findings indicated the common themes that were addressed with PLE.

Keywords: personal learning environment, autoethnography, masters studies, educational technologies

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Introduction

With the rising popularity of distance education related to social isolation during the Covid-19 pandemic, both universities and students are faced with challenges concerning the mere organisation of the studies. Virtual spaces are taking the place of offline environments and support systems built by educators. As Portanova puts it, “this new modality requires that the students adapt themselves, and their different studying and learning tempos (or rhythms), to the constraints of a technological apparatus which combines videoconferencing and chatting tools, together with various posting and uploading instruments” (2021, p. 229).

But can a student manage on their own? The answer lies in a term called Personal Learning Environment (PLE). It can be defined as a set of tools adopted and controlled by a student to support their studies: manage the flow of information that relates to the learning process, the creation of knowledge, and the development of skills (Torres Kompen et al., 2019). In this paper, I will focus on an online environment built with the use of technologies, as PLE was introduced partially due to the emergence of Web 2.0. However, it is important to mention that PLE can exist in a more analogue setting, too.

The purpose of this study is to explore and document the process of building a PLE in a high-variety online setting — an online master’s programme. Although it seems obvious that studying with a system at hand is wiser than without one, it introduces another level of complexity that can, on the contrary, be excessive. A set of questions needs to be answered:

- What can PLE consist of?
- What is the role of technology in PLE?
- Can PLE, as a framework for master’s studies, make the learning experience more meaningful and efficient?

At the core of this work lies an autoethnographic study of my experience as a master’s degree student. This study thus contributes to the field by exploring the challenges faced by a student in the context of a mostly self-organised educational environment. Despite being focused on a particular master’s programme, it is relevant now, more than ever, as a result of Covid-19 driven changes in education, to sense the needs of students who are studying from the comfort of their home and trying to deal with the growing variety. This study can also be a critical review of what, in my opinion, can be changed in the programme itself that can make it more suitable for working individuals. Hence, there are several objects of interest: personal experience and PLE, and the educational programme itself (with its other students).

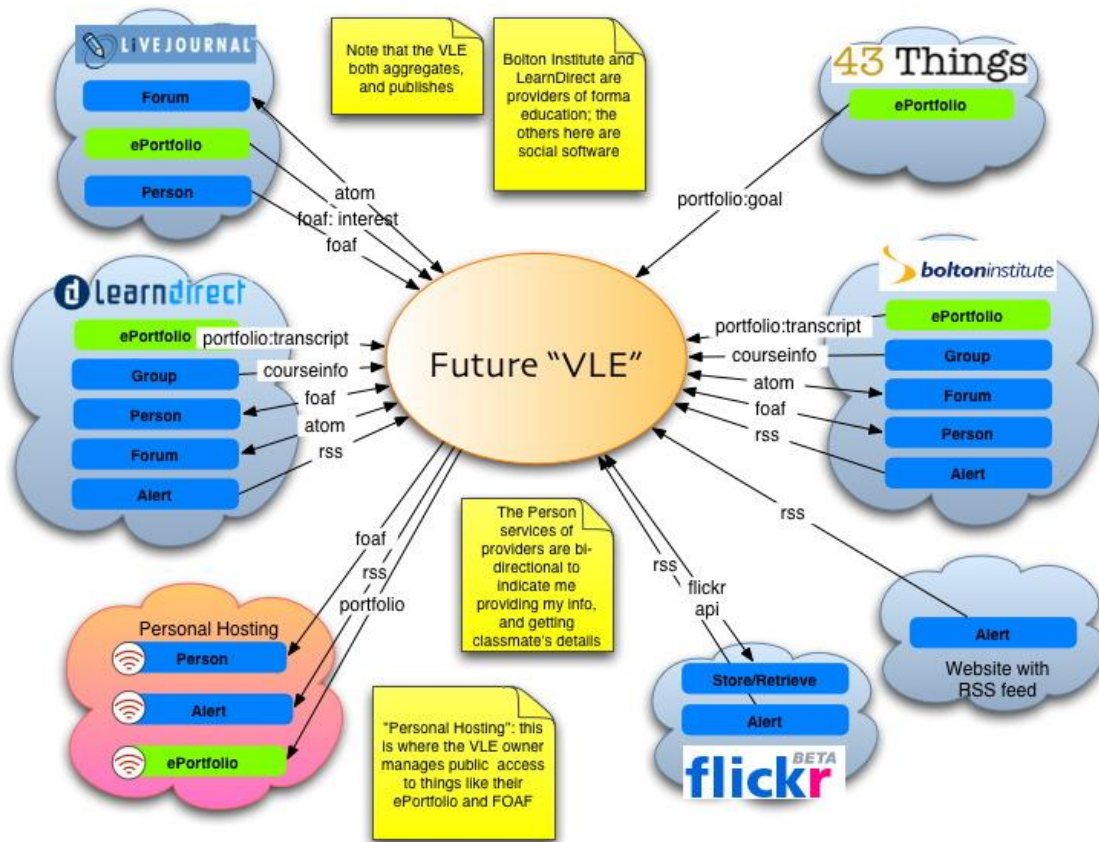
Literature review

As stated in the introduction, the term Personal Learning Environment (PLE) can be generally described as a set of various tools a student can use to support their studies. But it is hard to find a precise definition of PLE even given the amount of literature on the topic (Torres Kompen et al., 2019).

The PLE concept has emerged as a term associated with the rise of Web 2.0 technologies. Most researchers (Fiedler & Våljataga, 2011; Torres Kompen et al., 2019) mark 2005 as the year the discussion around its formalisation has begun. In a comprehensive review of papers on the topic from the previous decade by Fiedler and Våljataga, it is stated that “it appears that the visual representation of Wilson’s Future Virtual Learning Environment (VLE) (Wilson, 2005) served as a sort of anchor for the discourse on Personal Learning Environments for quite some time” (2011, p. 2). The Future VLE (Figure 1) was built as a synergy of Learning Management System (LMS) and personal tools and was roughly a technological solution aimed at solving a problem of high variety. Ordinary VLEs can be described as “fundamentally a conservative technology; they are a solution to a set of organisational problems: managing students, providing tools and delivering content” (Milligan et al., 2006, p. 507). On the other hand, in PLE, the learner is allowed to: learn with other people, control their learning resources (structure, share, and annotate them), manage the activities they participate in (e.g. study groups), and integrate their learning (making links between previous and current, formal and informal education) (Milligan et al., 2006). In general terms, in the case of LMS, the narrative is determined by the teacher or institution, while PLE enables students to take matters into their own hands.

Figure 1

Future VLE visualisation by Scott Wilson (2005)



Going back to a formal definition of PLE, let us take a look at the first paper (Torres Kompen et al., 2019) once again. The main objectives of the research presented in this work were to develop general guidelines for the implementation and use of PLEs by learners on a higher education level: to analyse their experience, both as students and, after graduation, as young professionals, and the impact PLEs had in their learning process and their first steps in the professional world.

The precise definition of PLE is still surrounded by discrepancies. What authors later propose as a final and wider definition is the following: “... an information system that supports the learning process of the user, and whose processes and activities are devoted to processing information, i.e., capturing, transmitting, storing, retrieving, manipulating, and displaying information” (2019, p. 196). The authors claim that literature about PLEs shows two schools of thought: a pedagogical one (where PLEs are seen as a methodology or concept) and a technological one (where PLEs are seen as an object, a platform or infrastructure), with some researchers proposing a middle-ground approach. The

technological approach suggests that PLE should be a platform just like university controlled LMS, bringing together services and applications through API (application program interfaces). Its manifestations are applications like PLEW and PLEX, MUPPLE, etc. The obvious drawback of such an approach is its lack of student control and the “personal” part of a personal environment since it is developed and maintained not by the learners themselves but by some external actors (although it is possible for some to devote time and effort and build such tailored platforms “by hand”). In another school of thought PLE is not a specific solution but “an approach to organizing a variety of Web 2.0 technologies”, and the “environment” is the Internet itself (2019, p. 196). In other words, it is unique for each individual learner. And this approach is the one I am going to follow in the next sections.

Going further into the authors’ work we are faced with a “hub-approach” (2019, p. 197) suggested as an extension to the “PLE as a concept” view. Hubs are the instances of the Internet that can be used to maintain the connections between different tools a learner can choose to support their learning activities. It is important to mention that this study was a longitudinal one, taking place from 2008 to 2016, and some of the used applications are no longer available or popular. Moreover, mobile applications are not mentioned at all, since they were not as ubiquitous as they are nowadays. The hubs used by the research participants were Google services (wiki-based PLE), Facebook (social network-based PLE), Netwibes (aggregator-based PLE), and Flock (browser-based PLE). Here are some of the interesting findings the researchers discovered:

- PLEs are not limited to academic resources and digital components. Moreover, they can become PEEs (Personal Entertainment Environments) and PSEs (Personal Socialisation Environments), as one of the participants called them.
- PLEs can trigger the use of a broader spectrum of content and data sources, opening new possibilities for learning.
- Although students were familiar with Web 2.0 applications, most of them did not use them in their studies. PLE helped them in transforming information from course textbooks into knowledge.
- Students realised that, as the digital landscape is always changing, their PLEs are not something static: they can improve and modify their digital learning environments in the process.

As the goal of the study was to formulate guidelines for a successful PLE construction, the final part of the paper is dedicated to them. However, they are given in a form of advice

for the target audience of teachers who want to familiarise their students with Web 2.0 solutions. The ones I found most applicable in my case, as a student, were the following:

1. Focus on the What and Why, not the How. The needs and interests go first, not the technologies available.
2. Put an emphasis on sharing. Sharing information and creating a community result in better PLEs.
3. Expose learners to families of services and tools, not just a single one. Learners should make informed decisions based on the variety of options they have.
4. Propose alternative solutions and uses for tools that they are currently using. The tools can have more than one function. Learners may not know about all the opportunities one product can give.
5. Accept that change is something inherent to the nature of PLEs. “Import” and “export” functions are important because it is inevitable for some tools to change beyond recognition or disappear completely.

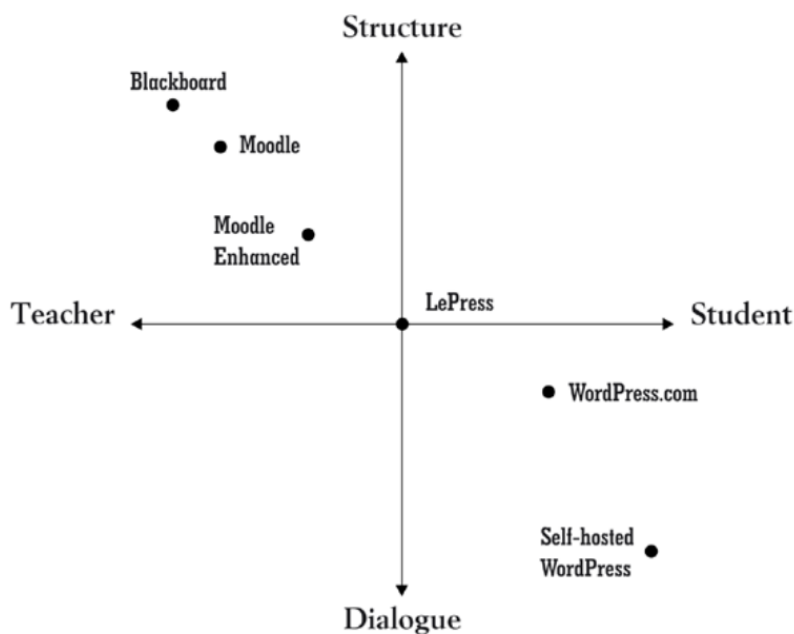
Returning to the classification of PLEs, in another article (Haworth, 2016) the author provides us with some examples of PLE categories. They were chosen according to the most applicable criteria from the guidelines outlined by Tomberg and colleagues (2013): easy to use, ‘open’, dynamic, and give options for collaboration. They are listed as follows: Google Account, blog, microblogging, image sharing, wiki, personal website, hard drive or cloud storage, social bookmarking, and SymbalooEDU. Each of them has its advantages and drawbacks but, in my opinion, it is not a proper classification or a consistent list, which fully describes the variety of options a student has in terms of building their PLE. After all, the author himself acknowledges that it should just illustrate some strengths and weaknesses of different types of tools. The examples indeed can give inspiration as to what to try out as an instrument.

What is more noteworthy is the quoted research by Tomberg and colleagues (2013). Centred around the issue of a teacher’s locus of control in web-based environments, the paper provides a look at the design and testing phases of a working hybrid of LMS and PLE, balanced from both teacher’s and student’s perspectives. In agreement with another paper (Millgan et al., 2006), Tomberg and his colleagues also claim that, despite providing a wide range of options like sharing learning resources, communicating within a study group, course enrolment, assignments, tests, and activity monitoring, LMS is no panacea. Both teachers and students use web-based tools which are not provided by or recommended by the university. Institutionalised solutions can be good for management but they limit the ability of students to

communicate in a comfortable setting and express themselves more creatively, incidentally forcing them to switch between tools they use outside and inside the university. The authors developed a software plug-in called LePress (Learning with WordPress), aimed at balancing out the learner's autonomy and teacher's control (Figure 2). It is suggested that its closest alternative (that does not require development) is a simple blog. Students can use blogs to publish their reflections, submit assignments, and discuss their results with fellow learners. This approach is a widespread phenomenon adopted by MOOCs (Massive Open Online Courses).

Figure 2

Learning environments and teacher-student control (Tomberg et al., 2013)



But are there more formal frameworks? The model proposed in the recent studies (Fiedler & Våljataga, 2020; Johnson & Liber, 2008) is Beer's Viable System Model (Beer & Beer, 1979; Beer, 1981, 1985). In this case, a Viable System of a learner. Beer's model is unique in its ability to characterise systems in different domains. Introduced in the area of management systems (later Beer coined a new multidisciplinary term "management cybernetics"), it is applicable in education. The authentic description and application of VSM are beyond the scope of this research, however, we must keep in mind its fundamental principles: viability or capability of independent existence, and recursiveness. This model is composed of five sub-systems, which I will examine in the educational context.

The main issue addressed by Johnson and Liber is a disconnection between units of learning in universities. VSM is seen as a solution to this problem of “categorised knowledge” (Beer’s rhetorical question “Does God know the difference between physics and chemistry?”) and learners’ inability to connect skills from different courses and modules (2008, p. 7). Module centric design of LMS or VLE is, from that perspective, inadequate and needs an alternative.

Fiedler and Väljataga (2020) are focusing on the issue of a juxtaposition of formal educational settings and other activities an adult learner is usually engaged in (family, sports, work, and so forth). In the same vein, Torres Kompen and colleagues (2019) mention that students do not make a distinction between their learning environment and “life” environment and suggested alternative expressions for PLE like Personal Entertainment Environment. This discourse matches the current paper’s theme as my position as a master’s programme student entails combining life, work, and studies (so-called “work-study-life balance”), which triggers the need for a systematic approach to learning.

Describing VSM as a suitable way of formalising PLE’s structure, Fiedler and Väljataga describe what VSM is in the context of education, being followers of the work by Johnson and Liber (2008). A shorter version of their text combined with components of VSM in the educational setting suggested by Johnson and Liber is outlined in the table below (Table 1) along with a schema (Figure 3).

Figure 3

VSM schema by Fiedler and Väljataga (2020)

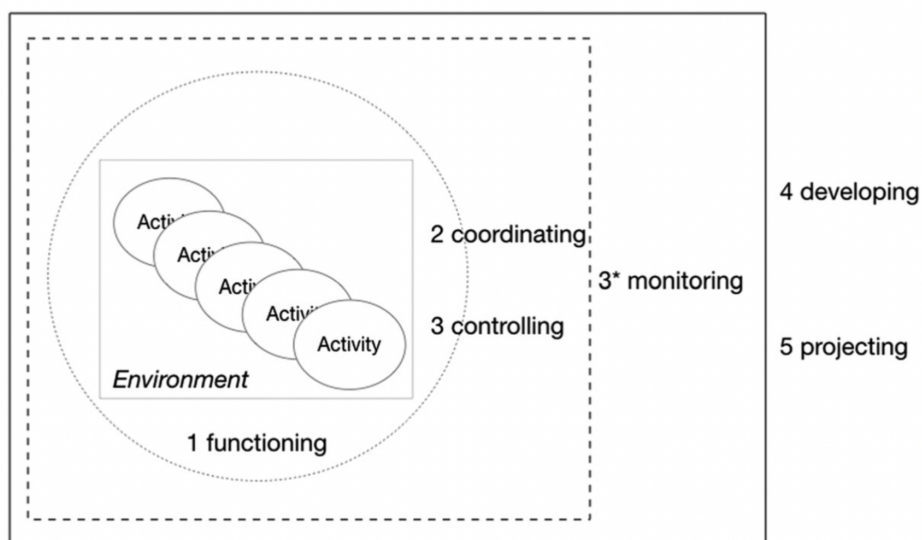


Table 1

VSM components interpreted by different authors with complementary tools they might include

VSM components (sub-systems)	“The personal adult learner” (Fiedler & Våljataga, 2020)	“The personal learner” (Johnson & Liber, 2008)	Examples of tools (Johnson & Liber, 2008), <i>my suggestions</i>
System 1	Self-functioning. The basic sub-system of the personal adult learner composed of what the learner’s life consists of	Collection of learning activities	<i>Moodle, curriculum</i>
System 2	Self-coordinating. An individual needs to coordinate various activities	The coordinating system. Learning activities do not create conflicts	Timetabling, curriculum or module map, calendars
System 3	Self-controlling. An individual needs to set priorities and allocate resources to adapt to changing conditions	Time and other costs. How much resource one is ready to devote to activities at the given moment?	<i>ECTS, % or academic hours of reading, individual work</i>
System 3*	Self-monitoring. An individual has to address aspects of the overall system and its direction, while it is constantly changing	Monitoring. Regular checks on progress: “Am I learning what I think I should be?”	Self-assessment tools
System 4	Self-developing. The system holds a model of self and its developmental history	Future learning possibilities. Current activities are congruent with the previous history and desires	Identity and profile management, course search and discovery (<i>study information systems, faculty web pages</i>)
System 5	Self-projecting. It takes a long-term perspective and compares the current self and possible future selves	Self-steering level. The future plans (who the learner wants to become) are in balance with the present activities	
Supporting channels			Messaging, browsing, knowledge capture and structuring tools

Here, some objections may be expressed by a regular student: is the shift towards PLE justified with all its collateral complexity? Isn't management and connection between subjects exactly what the university (and teacher) should provide when designing a curriculum? As Fiedler and Väljataga point out, traditional formats of learning rarely encompass systems 2 – 5 of the VSM model. This is exemplified by a common tendency to interpret learners' drop-out rates and absenteeism as signs of poor course or curriculum design, while the awareness of all the mentioned sub-systems can provide other explanations. It is a significant remark that shows how institutions are mostly functioning just in the realm of sub-system 1. The other side of this coin is learners' inability to shape sub-system 1. The authors' experiment shows that it would really help the learners if the institutions "emancipated" them in the formulation of personal learning projects and their specific environments.

Having discussed how to construct PLE via the VSM model, we can go back to the first definition of Personal Learning Environment and make some changes. PLE is a system, created and constantly modified by the learner along with other actors of the learning process, that supports their studies in the overall environment of their life. Its components are devoted to capturing, transmitting, storing, retrieving, manipulating, and displaying information, as well as managing their resources, channels of information and communication, and monitoring their goals as a learner.

I found a few gaps in research that I hope to address. I could not find ready-to-use guidelines for students to make their own PLE quicker. This can be a practical application of my research. Another opportunity, in my opinion, lies at the intersection of educational and management practices because VSM is not the only instrument that can be transformed and used in education. For instance, there are several papers on the application of project management frameworks in collaborative learning (Pope-Ruark, 2012) and research (Rew et al., 2020).

Methodology

Autoethnography

In order to study PLE, I have chosen to investigate my own experience as a student mainly through journaling. This method can be defined as an autoethnographic one. As Poulos defines it, autoethnography is "... an observational, participatory, and reflexive research method that uses writing about the self in contact with others to illuminate the many layers of

human social, emotional, theoretical, political, and cultural praxis (i.e., action, performance, accomplishment)” (2021, pp. 4–5). It can be used in combination with other forms of qualitative social research. Autoethnographers often bring together self-observation and co-participants' experiences, collect data from various sources to create a compelling narrative (e.g. conduct interviews), use journaling and narrative analysis, etc.

This hybrid approach seemed natural to proceed with in my study. It was challenging for me since I have never used qualitative methods before but this premise made my research new and exciting. But why was it natural? Adams and colleagues write about the purpose of autoethnographic studies and conclude that autoethnographic work is essentially aimed at describing experiences that cannot be captured through traditional research methods (2017). Another purpose of such work is to articulate insider knowledge of experience to make this experience familiar to unfamiliar audiences. I found these reasons similar to mine in a sense that writing from a learner’s perspective is as important as writing from an institutional or educator’s one. What I see as a goal of this study is to show what my experience as a learner was, and it is only natural to write about it in a form of self-study. Any qualitative or quantitative study “from the other side” can be prone to drawbacks like asking the wrong questions, thus, being both the subject of the research and the researcher may result in a more comprehensive picture. So, being an autoethnographic research, this work does not claim to reveal any universal truth. However, I believe that the limitations this study has are, on the contrary, rewarding.

My work was partially inspired by the autoethnographic paper by Daniel Clark (2020) on identity in relation to technology. He coded 8 years' worth of blog entries, making them a data source for his self-study, and identified recurring references to skills, practices, and identity. This way he was able to track his transformation from a “technology novice” to a “go-to person on these matters”. I decided to follow a similar path and created a Telegram channel to store observations. Telegram is a cloud-based mobile and desktop messaging app with a focus on security and speed. It has (both private and public) group chats and blogs, or channels, with reactions, comments, media attachments, etc. Being the equivalent of a diary, a blog seemed like a good start for PLE development. It was used as a multi-tool — a channel was not only a place to collect diary entries with reflections but also a notes’ storage and a to-do list. Digital entries are easier to organise (e.g. they are auto-dated) and process compared to paper ones. Since my channel was a public one, I decided to use my personal diary in the app called Stoic to write down sensitive and emotion-focused thoughts when necessary.

The concept of blogging was not new to me. I discovered the power of Telegram channels many years ago. It is a popular way of communicating ideas in different professional communities in Russia. Many experienced professionals tend to keep a blog to share their findings with the audience, comment on important events, hold talks, and so on. I have already tried to write about my hobby and even shared my notes when reading thematic books. I was surprised to notice that it helps to both store information online and remember it afterwards. Unlike paper notes, my notes in Telegram were neat and easy to go back to because of my careful attitude towards writing for “the audience”. Moreover, a typical post would not be a simple bullet list or a link to a Youtube video I want to watch later — it would be a structured thought-through text that is amusing to read. According to research (Osman and Koh, 2013; Williamson et al., 2020), higher critical thinking develops as an outcome of using blogging (even as a space to share homework), using blogs for reflection is especially useful in practitioner-oriented courses.

That being said, my learning diary for autoethnographic reflections took a digital form.

Additional data

To collect additional data, a questionnaire was designed to be distributed among other master’s programme students. In the process of my PLE development, I was curious to not only investigate what other researchers or just enthusiasts have to say on the topic but to also look into my peer students’ experiences since we had to be dealing with the same problems in the same learning environment.

In my survey students were asked to anonymously list the tools they use as a part of their PLE, and express their satisfaction with their learning outcomes and the organisation of the studies. Questions included in the survey are listed in Appendix 1. The survey was conducted in November 2021 via Google Forms and, going forward, did not have a high response rate ($n = 8$). To compensate for the low number of answers, I decided to not only analyse the output of the self-constructed instrument to get other students’ opinions but to also look closer at group chats, comments and forums to get more insights. Prior to that, the so-called experiment initiated by the programme’s director had taken place. It was a diary-like anonymous (students mostly used nicknames) questionnaire designed to monitor how we are doing during the first month of our studies — August session. Its results were another rich source of data on students’ struggles. The number of participants was 23 with each of them leaving from 1 to 4 responses (1 week — 1 response). The questions I took a particular interest in were 4–9 (the full version of the questionnaire can be accessed in Appendix 2).

They were directed at the students' challenges, feelings of uncertainty and accomplishment, connection to the class, thought and ideas. While reading the so-called "August diaries" I collected a number of points using inductive coding as I did not have a predefined list of problems a student might encounter. Although the initial inventory of codes could be composed of the words used in the survey questions (accomplishment, connection to the class, challenges, uncertainty, ideas, other thoughts and comments), it did not work because I was focused on finding the challenges. Thus I have collected a list of things I found troubling during the first months of studies and tried to find them in the diaries, eventually expanding it with other comments from the students. It can be viewed as a list of challenges me and my peers were facing at that time. Survey results along with other comments received, observed, and saved from others, are presented in the next chapters.

Results

Variety

Every course was challenging in its own way but the overall complexity was not limited by the course materials only. When studying, according to the VSM model, we should not forget about less obvious aspects, too, like the overall organisation of the process. As part of the course Critical Issues of Technology Use in Education we have discussed an issue called "variety". This term has caught my attention as it was one of the recurring themes in the diaries. Another suitable label for these problems would be "organisational" and, unfortunately, most of them cannot be addressed on a personal level.

The term "variety" is used in this thesis to refer to things that an organisation needs to handle to remain viable (Bardone & Eradze, 2022). The source of variety, according to Bardone and Eradze, is nested at the micro level of educational institutions: teachers' and students' individual interests, needs, plans, preferences, priorities, skills, and so on. The variety may be the result of an instrumentalist view on technology use in education: tools are there to fix problems rather than be in symbiosis with different actors' needs. The need for re-organisation (better regulatory measures) arises when micro variety meets macro (institutional) arrangements, creating the meso level. The problems I am about to list are signalling the need for such variety-handling steps. I carefully read every response from the so-called "August diaries" to provide quotes (including my own) corresponding to the established "themes". This chapter and the next one are dedicated to them.

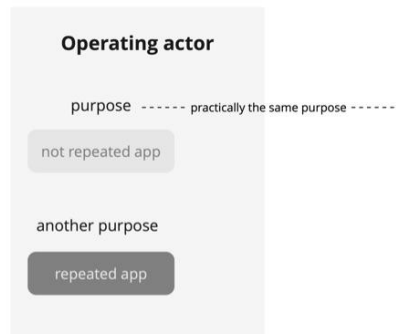
First of all, different tools repeat other tools' functionality creating a level of redundancy that could have been avoided. As one respondent under the nickname "Fionna&Cake" wrote, "Too many platforms and sources of information to monitor on top of what I already have".

Let me demonstrate this by drawing a schema of tools that I was using during the studies (Figure 4). The problem is that every tool can have many functions, and some teachers prefer one over the other. A student might be using the same tool in their personal or professional life which may be inconvenient or disorienting. Moreover, somewhere between the university and teachers lie administrative applications, and teachers have their personal life, too. For example, in a paper aimed at creating a model of PLE of a university mathematics teacher by Vlasenko and colleagues (2020) teachers' activities are broken down into the following categories: arranging the learning process, searching for information, doing research, analysis and statistical processing of the information, doing the calculation, publishing research papers, publishing popular science materials, designing presentations, collaborating and communicating, saving data. Another group of researchers (García-Martínez et al., 2020) use a very concise categorisation in their quantitative study on PLE tools used by students: accessing information, content creation, sharing information. I decided to use a similar way of arranging applications into groups. I did not include too general tools like search engines, too specific ones, or the ones which are mainly applied in research and simply do not have common alternatives to choose from (Mendeley, journal databases).

Figure 4

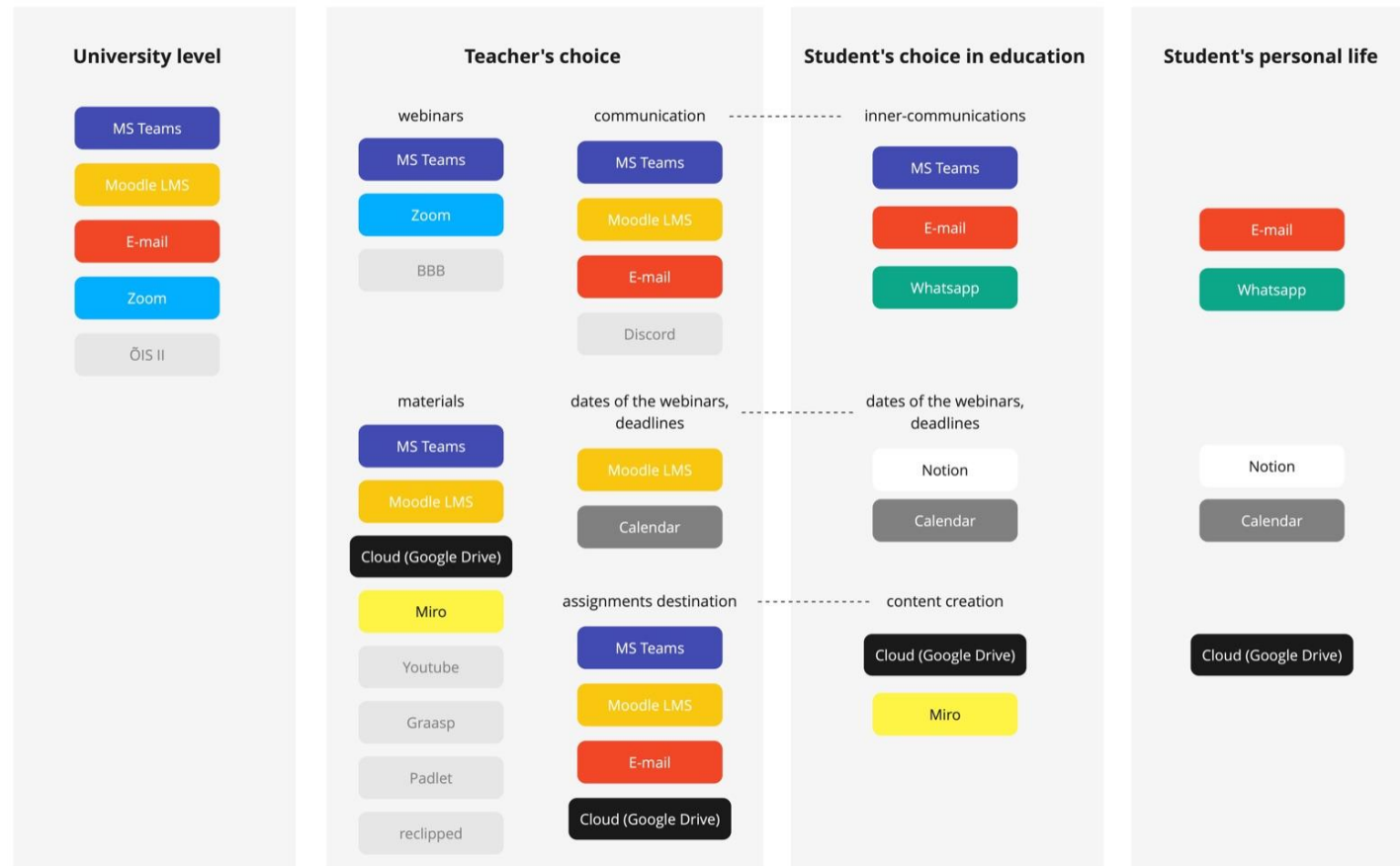
Variety on the applications (and websites) level. Recurring applications are colour-coded

How to read



out of scope

Teacher's personal life
Teacher-university interaction



So what problems does this state of affairs lead to? Webinar links are published in different places and may change. One of the frequently asked questions in the Whatsapp group chat is “Can you send a zoom link?”. Reading materials are distributed among different resources or folders, too. Organisation takes up a lot of time reaching “a number of hours each week”, as one student (Dannielle) wrote. She explained it by stating that these hours stand for “not necessarily doing the homework, but more so digesting WHERE everything is and COMPREHENDING what I'm reading and viewing”.

On top of that, there is no universal calendar for deadlines and webinars. One student (“Angus”) wrote that they managed “to draw up a detailed calendar for the term, with webinars, assignments and assessment criteria” as it was “good to have an overall view of it all for better time management”. A student under the nickname “Bananamama” chose to use Google Calendar:

As I work in school and deal with electronic diary on a daily basis, which I find very comfortable to have everything in one place, I struggle with putting together all the pieces of important information, deadlines, tasks. I check several places every day in order not to miss anything. To have everything in one place I decided to just transfer all the tasks and their deadlines to my google calendar, so that I don't need to return back to the same information.

As for communication and insight-sharing, some discussions take place on the Moodle forum, some — in Zoom, and some — in Teams. The same goes for personal and group chats: in Teams, WhatsApp, and, of course, mailbox. The number of notifications can get overwhelming and it appears impossible to navigate through all the expressed thoughts. In Zoom case it is even more so as Zoom discussions are synchronous and may never be revisited. My emotional comment regarding this one was: “Too much information!!! Suffering from FOMO and getting all these little notifications from different channels is a bad combo”. WhatsApp was used too often. “Angus” suggested having a separate chat for “matters that matter” as they “had to mute notifications to avoid 500+ pings a day”. The same happened to Teams. Danielle wrote “I must put aside more time to ensure I am not missing information on Teams”.

But the issue I found particularly frustrating was the absence of a universal place for homework submission. For example, a course can have an assignment description published in Moodle but it still has to be submitted via e-mail. This may result in students' inability to track progress in the Grades tab (Figure 5).

Figure 5

Grades tab in Moodle

Courses I am taking	
Course name	Grade
Introduction to Digital Humanities (HVHV.00.002)	5.00
Digital Literacy (SVHI.06.035), S0	-
Educational Design for Complex Learning Tasks (SVHI.06.034), S0	-
Critical Issues of Technology Use in Education (SVHI.06.015), S0	-
Introduction to New Learning Paradigm (SVHI.01.031), S0	-
Research in Educational Technology (SVHI.06.009), S0	-
Technology Use in Education (SVHI.06.010), S0	-
Problem-solving (SVHI.06.012), S0	-
Critical Issues of Technology Use in Education (SVHI.06.015), S0	-
Collaborative Learning (SVHI.06.024), S0	0.00
Psychology of Learning (SVHI.08.002), S0	-

My personal concern regarding the various destinations of homework is this: how can I track my progress and better understand what I have learned during this programme if everything I do is scattered across different places?

Other issues

The onboarding is missing things like course registration rules, tuition payment rules, scientific papers' search guidelines, and proper introduction into UT accounts (login-password information was confusing because the email can be typed in 2 different ways). Some organisational information is distributed solely by e-mail on Mondays a few days before the deadline.

As some students did not write academic papers before or simply forgot how to do it, there were a few comments in the diaries related to that issue. Ian wrote: "...as I have never written a paper or thesis before, I also find the idea of organising the necessary reading/compiling a bibliography a little intimidating". Here is an excerpt from another similar response:

I'm struggling to use the UT library portal. Can we not search multiple journals at the same time? Also, would it be possible to have a list of journals specific to Education/Ed Tech? There's a mountain to search through! (Danielle)

Compulsory courses still need registration in ÖIS II which is counter-intuitive. The same goes for the courses that consist of two parts — each part needs its own registration. For example, I did not know that I had to register for the second part of the course Research in

Educational Technology and received a letter questioning my attendance, although I had completed the first part and the course itself was compulsory. Moreover, the courses' completion criteria are placed on separate pages. The course "flow" is not always described in the syllabus making it hard to predict what each week will look like (Will I have to do assignments on a weekly basis? Will webinars take the form of a lecture or discussion?). The simultaneous start of the courses makes it hard to keep in mind what is when and about what. In the "August diaries" I wrote that "I am still figuring out what the course is actually about and how to incorporate it in my daily schedule in terms of workload". Another student commented:

A course outline or syllabus would have been useful, efficient and effective so we know what to expect, what is optional, what is mandatory and what is coming in terms of weekly multimedia viewing, time, tasks, readings...etc. All in one place accessible online, viewable or a printable format or both. As we go forward, this can also be adjusted accordingly to new circumstances that they might rise from both instructors and students. (Dawit)

Time zones are an issue, too. Studying with peers from all over the world is hard because of negotiating a time when someone can join the discussion. As I put it in the questionnaire, "The process of deciding who is discussing something with whom in which time zone was freaking me out the whole week". Studying in another country, even online, also has a drawback because of the time difference, as Estonia uses Eastern European Time (UTC+02:00) during winter and Eastern European Summer Time (UTC+03:00) during summer.

Another issue is related to the students' feelings regarding their success in studies and a sense of connection. Students with unusual professional backgrounds may feel uncomfortable or even ignorant compared to the ones who are teachers with a big tenure. In these moments of weakness, it is not easy to remember what we are here for. I expressed my feelings with the words "small" and "incompetent" adding that "maybe I shouldn't be such a critic (for the rest of the semester at least) in terms of discussions 'cause it contributes to this feeling". When referring to the thesis as part of the studies, one respondent wrote the following:

Added stress due to thesis marked this week. Am I ready to tackle it? What will it be about? What framework am I going to base it on? Will I have time? Qualitative? Quantitative? Too many questions, too few answers. (Angus)

When developing my PLE, I have tried to cover the issues mentioned above, although some of them were beyond my influence (e.g. I could not force the teachers to switch to another platform for my convenience).

What did my peers do?

To further investigate the issues mentioned above, I have conducted a survey. As mentioned in the method section, I was curious to see how other students in my programme are dealing with challenges. The overall response to the survey was poor ($n = 8$). However, even this amount of answers provided me with some insight into the other students' PLEs. Here are my findings.

Everyone was keeping a calendar somewhere (everyone responded Yes to the question Do you keep a calendar of the classes and deadlines you have?). However, 4 out of 8 respondents confessed that they were in a situation when they had forgotten they had a class in the evening/the next day, or a deadline. 2 out of these 4 individuals have been in this situation more than 3 times.

Only 1 respondent stated that he or she does not use analogue tools. Others listed analogue tools like sticky notes, notebooks, bullet journal, wall and paper calendar, and folders. As one respondent wrote, "I use a mix of analog and digital tools. I do prefer to have readings organized in paper folders whenever that's feasible". Nearly everyone mentioned that they use Google Drive or OneDrive. One student mentioned they "have a number of docs in Google Docs that are titled 'UT Notes: [name of the class]'". Other tools I found in the responses were: reClipped, Google Calendar, [Apple] Notes, Doodle Poll, hypothes.is, Microsoft Word, WhatsApp, Miro, MOOCs like Coursera or FutureLearn, Zoom, and MS Teams.

The approach I found particularly unconventional was this one: "another student and I have formed an accountability buddy system, when periodically (trying to be regular) we check in on each other regarding what we have done/planning to do this week".

Despite the size and nature of my convenience sample, these responses were useful for me as they reminded me of the importance of paper tools. I was also relieved to discover that occasional slips happen to others as well, and at least 4 students miss the classes or deadlines from time to time. This finding may suggest that even in 3 months not everyone can adjust to the programme's pace. But the overall results indicate that every respondent has some sort of PLE at their disposal.

My PLE and tools

At first, my PLE development was led solely by intuition. After I had familiarised myself with the existing models, I chose to follow VSM ("the personal adult learner" framework), keeping in mind the following advice drawn from literature:

1. PLE can be broadened and include socialisation and entertainment components. For instance, my blog was filled not only with my notes from the webinars but also with other interesting resources I found online.
2. PLE can be composed of non-conventional (having nothing to do with education) tools.
3. PLE should not be static and stay the way it was originally designed — it can be infinitely improved.
4. The technological approach is good but the effort I would put into programming a tool that will connect to all the different tools we use would not be worth it. In fact, PLE is much more than a set of technological products — there is room for paper, too.
5. Focus on the What and Why: there are plenty of fantastic tools out there but there is no point in trying them all just for the sake of it. The most important thing is to find solutions to the existing problems. And not necessarily through technology.
6. "Import" and "export" functions are vital to maintaining PLE. This statement was at one point proven when the sanctions led to banning the usage of certain resources from Russia.

I revisited the table on VSM I had composed of different papers and complemented it with the problems the model could resolve and concrete tools (Table 2). What stands out in the table is the absence of a definite system–problem–tool connection. Moreover, while solving the problem of variety, I fell into the trap of multifunctional apps myself. To avoid describing all of them at once, I will focus on some non-obvious applications of a non-educational nature, analogue tools and my own little "inventions".

Table 2

VSM components with corresponding problems observed and tools

VSM components (sub-systems)	My elaboration on the component's purpose	Addressed problems	Digital and analogue tools I used
System 1	Self-functioning. Collection of learning activities described in the curriculum as well as work, family and friends, health, and hobbies (since I am following the model that is concerned with the synergy of different parts of the learner's life).	<ul style="list-style-type: none"> • The simultaneous start of the courses makes it hard to keep in mind what is when and about what. 	<ul style="list-style-type: none"> • ÖIS II, Moodle, MS Teams • Paper planner
System 2	Self-coordinating. Calendars (studies timetable + work meetings with the usual job hours + other appointments), overall curriculum schedule for coordination of different activities.	<ul style="list-style-type: none"> • No universal calendar for deadlines and webinars. • Webinar links are published in different places and may change. • Time zones. 	<ul style="list-style-type: none"> • Moodle, MS Teams • Notion • Paper planner for activities related to webinar preparations and non-educational tasks • Outlook for work calendar • Phone reminders • Phone world clock and occasional Google searches
System 3	Self-controlling. ECTS assigned to each course, hours of work on reading and other activities I, as a learner, am ready to devote time to, given my work responsibilities along with other time-consuming activities and rest — this means constant trade-offs which should be somehow tracked.	<ul style="list-style-type: none"> • The courses' completion criteria are placed on separate pages. The course "flow" is not always described in the syllabus making it hard to predict what each week will look like. 	<ul style="list-style-type: none"> • Paper planner for activities related to webinar preparations and non-educational tasks • Phone reminders

System 3*	Self-monitoring and reflection: “Am I learning what I think I should be?”.	<ul style="list-style-type: none"> • Students with unusual professional backgrounds may feel uncomfortable or even ignorant compared to the ones who are teachers with a big tenure. In these moments of weakness, it is not easy to remember what we are here for. • No universal place for homework submission resulting in an inability to track progress. 	<ul style="list-style-type: none"> • Telegram blog • Stoic app for more personal diary notes
System 4	Self-developing. Future learning possibilities and current activities are congruent with previous history and desires.	<ul style="list-style-type: none"> • No universal place for homework submission resulting in an inability to track progress. 	<ul style="list-style-type: none"> • Faculty pages • CV • Professional interests and goals
System 5	Self-projecting: long-term goals are congruent with the current activities.		
Supporting channels	Messaging, searching, browsing, knowledge capture and structuring tools – note-taking, information collection, content creation.	<ul style="list-style-type: none"> • Some discussions take place on the Moodle forum, some — in Zoom, and some — in Teams. The same goes for personal and group communications (several chats in Teams, WhatsApp, e-mails). • Reading materials are distributed among different resources or folders. • No universal place for homework submission resulting in an inability to track progress. 	<ul style="list-style-type: none"> • Whatsapp • Safari browser • Laptop with an SSD drive for materials storage • Miro and Telegram for note-taking • Google Drive with Docs, Sheets and Slides for content creation

Work experience transfer. Systems 1–3

As an IT professional with a management background and experience in an IT company, I was unknowingly applying my background to the learning process. I found it remarkable how similar the process of executing a study project is to what I have encountered during my work.

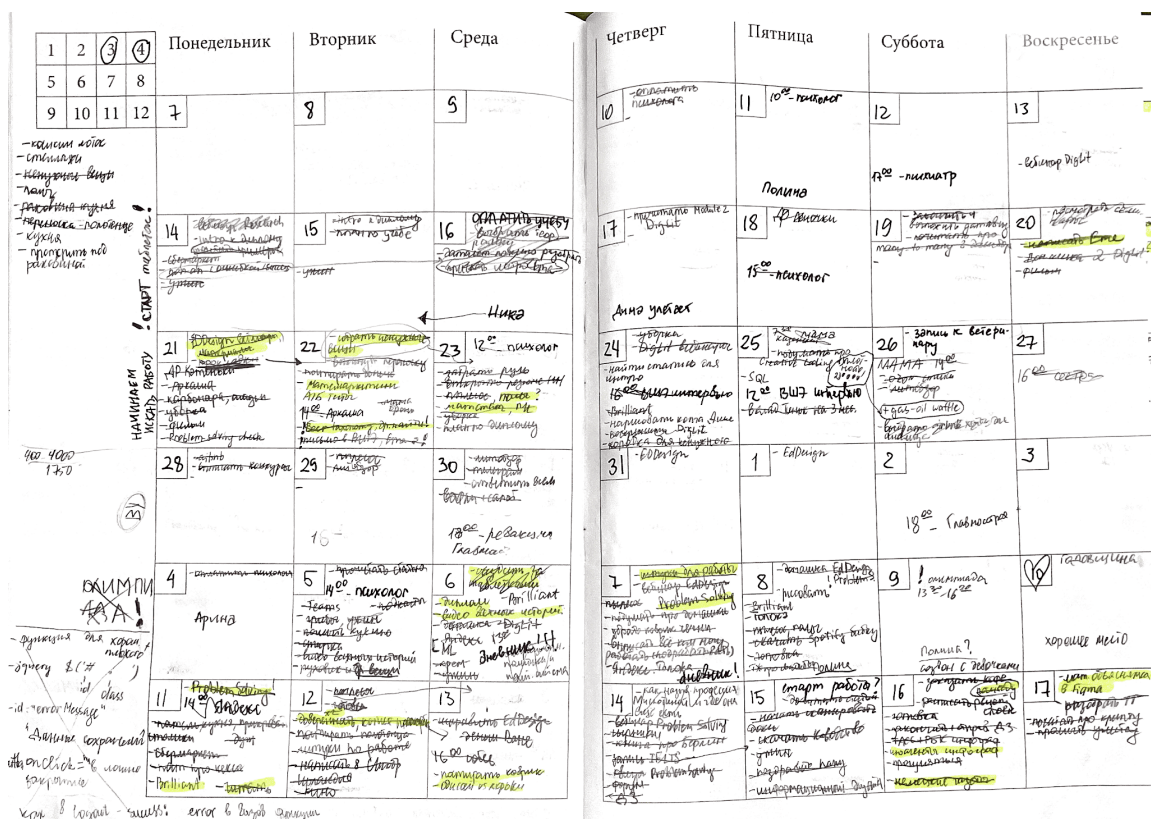
Agile, or agile development methodology, is a term for a range of liberal small-group work practices and management approaches. The development of any product using Agile is reduced to a series of short cycles (iterations), each of which looks like a project in miniature and includes planning, requirements analysis, design, testing and documentation. In the standard development process, the customer sees the final product in the last stages and the team receives feedback late. In the Agile approach, change is accepted as something unavoidable and, unlike the waterfall approach, there is no goal of doing it perfectly the first time, especially with no contact with the customer right until the end. Agile methodology is used in instructional design (Torrance, 2019; Allen, 2012). Models like SAM and LLAMA make it possible to develop effective training programmes or learning experiences quicker. But learners can use Agile principles on their own, too. Documentation and planning are inherent parts of any learning experience. And even if iteration is not implied by the course organisation, the point about feedback from the customer or manager — in an educational environment this role can be assigned to the teacher — is still valid. By dividing the study project into smaller stages and submitting it gradually, with constant feedback from the teacher, better results can be achieved. Or, instead of trying to do something perfectly on time, one can start by doing the basic requirements (or MVP — minimum viable product — in business terms), and only then think about all the little improvements he or she can make to make it perfect. It helps to focus on the tasks so that they will get done in an efficient and punctual manner. These ideas are not embedded in any particular tool but most of the tools I used for planning or content creation are ubiquitous in the business setting as they usually allow teams to collaborate. These tools do not have education practitioners as a target audience but businesses do have something to share in terms of management practices. Here are some examples that I have come to in the process of organising my PLE.

I used Miro (more on that later), Notion, and a paper planner to organise learning activities and see progress. A Kanban method helped me in writing to-do lists. A Kanban board is a physical or virtual board divided into several sections - stages of tasks (e.g. “to do”, “in progress”, “done”). Kanban makes it possible to visualise the workflow so that managers can see at a glance what employees are currently working on, what has already been completed, and what remains to be done. This is important because completed tasks often go

unnoticed or are forgotten. My personal motivation is boosted when I see what I have already managed to do. Therefore, when applying the Kanban principles, I never lose sight of the tasks I have completed. In a business setting the task cards are moved through the sections as they are processed. But it was enough for me to keep completed tasks visible by not deleting them in a digital form or not throwing away the filed planner pages (Figure 6). I came up with this analogy for this process — school diaries. When I started studying at university, I missed a school diary a lot. I remember how satisfying it was to look through the finished ones and feel like I had completed something. I do not feel that way looking back at my undergraduate studies because I cannot remember my path exactly or see the steps I took and the assignments and projects I have completed. I did not want to make the same mistake again, I wanted to preserve what I have accomplished and have a list of the things I have learned at my fingertips.

Figure 6

Paper tools: a personal planner scan



I used Notion for an overview of what tasks I have to do and what webinars to go to. Notion provides the ability to visualise the calendar in a Gantt chart format (Figures 7–8). Gantt charts are used by project managers to plan projects in which different stages are bound

to overlap. This way, you can see how and where resources should be allocated, and how much time should be reserved for the completion of a particular homework. Notion was also helpful as a place to store project plans, notes, course requirements and outlines (or week structure). To make sure I am not missing anything I used alarms and notifications to regularly check Whatsapp, Teams, and Moodle to quickly understand what kind of “flow” each course has (preparation for a webinar includes reading or watching a video, a webinar is a lecture or discussion, and etc.). These course specifics were stored directly under the curriculum timeline for quick access (Figure 9).

Figure 7

Curriculum calendar and timeline in Notion



EdTech 2021-2 timeline

The link to this timetable can be opened as any other link on the Internet. You can open it via mobile/tablet app as well.

Classes&HW timetable can be viewed in two ways: Calendar and Timeline regulated by this thingy → |

The screenshot shows a Notion calendar view for a page titled "Classes&HW timetable". The calendar is for May 2022, with the current date set to "Today". The calendar grid shows tasks and deadlines across the month:

- May 1:** DigLit assignment 6
- May 2:** DigLit Final test
- May 3:** Evaluation of peer students' work
- May 4:** Problem-solving Exam (4:00 PM)
- May 5:** Problem-solving Exam
- May 6:** 1st deadline EdDesign
- May 7:** DigLit Final test
- May 8:** DigLit Final test
- May 9:** DigLit Final test
- May 10:** Problem-solving Exam
- May 11:** DigLit Final test
- May 12:** DigLit Final test
- May 13:** DigLit Final test
- May 14:** Final deadline EdDesi...
- May 15:** DigLit Final test
- May 16:** DigLit Final test
- May 17:** Results and Discussion (drafts)
- May 18:** Research s... (4:15 PM)

Figure 8

Curriculum calendar and timeline in Notion

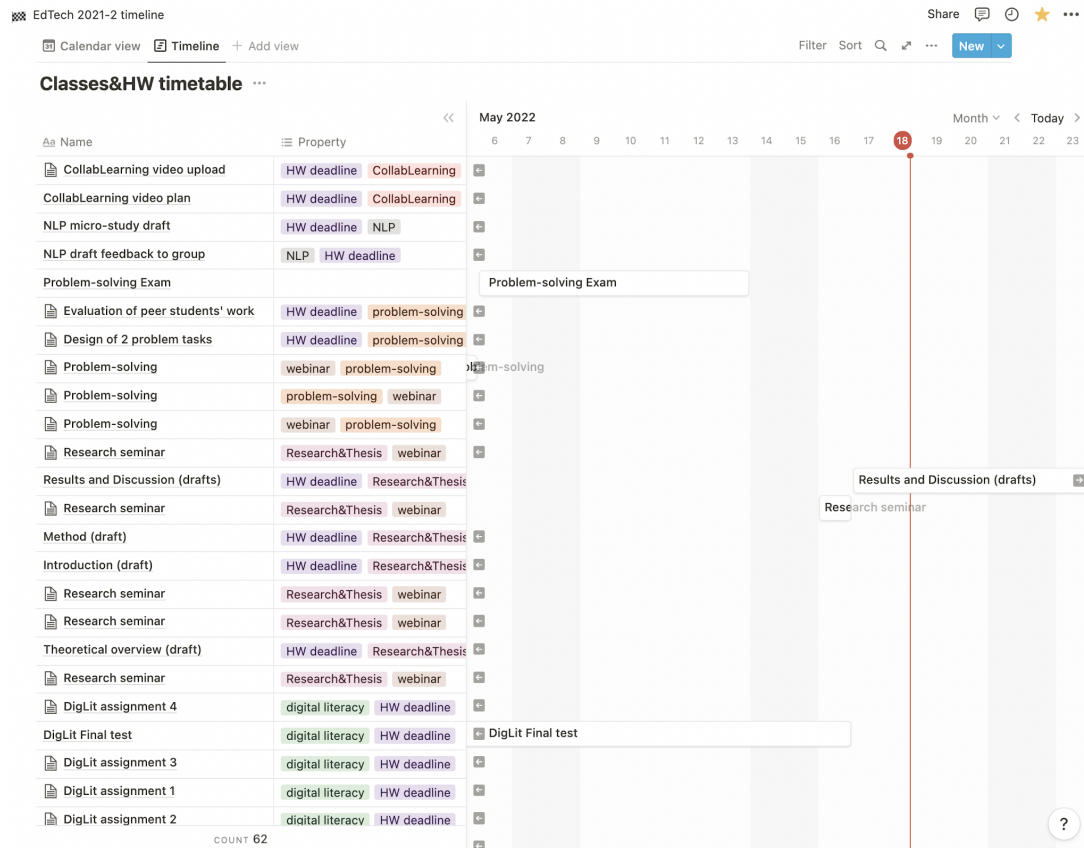
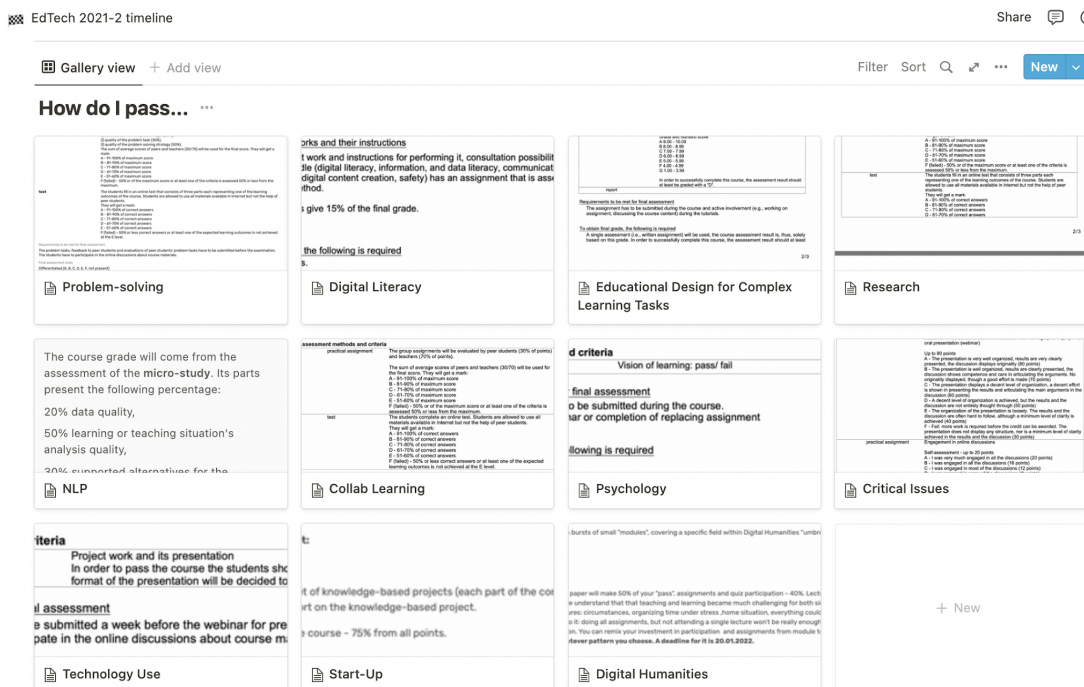


Figure 9

Course requirements with a typical week "flow" inside in Notion

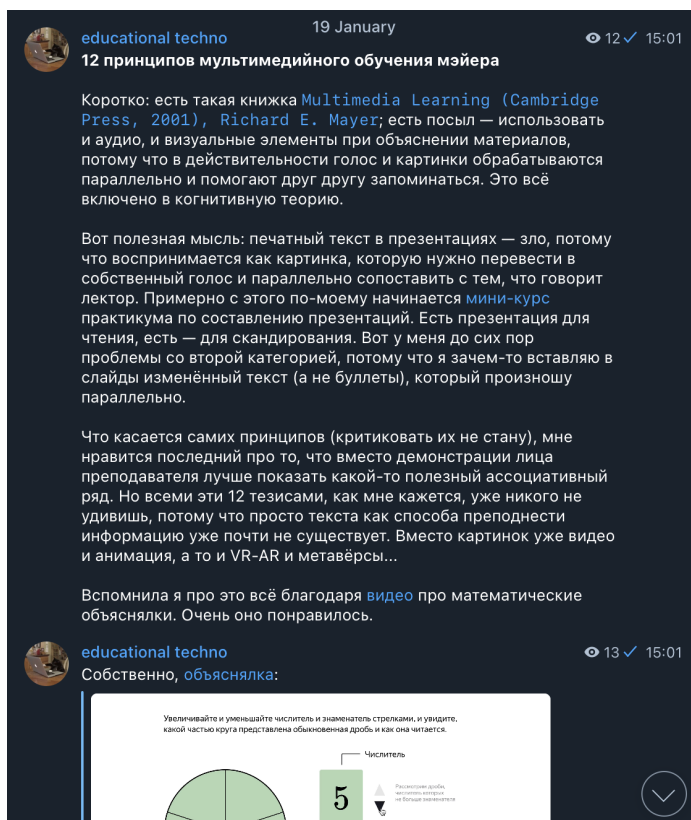


Blogging. Systems 3, 4, 5*

My blog entries’ style was heavily inspired by one of the practices implemented in the course called Technology Use in Education — reflection driven comments regarding webinars and learning materials. I realised that it is very productive to write down both said and unsaid during the webinar thoughts. So, I decided to continue writing to be able to reflect on the course materials throughout the whole year. These reflections contained not only my interpretation of the materials but also concerns I have expressed in the process along with ideas for future research on the topic (Figure 10). I wrote 28 posts and made 6 reposts. Half of the posts concerned topics discussed during the courses but the other half was mostly centred around the use of technologies and the learner’s perspective on the EdTech development.

Figure 10

Example of a Telegram post



As a result, being more content-based, most of the posts served as a stage for my reflections on the materials and the gaps I would like to fill in later — in that sense Telegram became a tool for self-developing and self-projecting systems of VSM. I will come back to that thought in the discussion.

Visualisation

Swamped by information, I was searching for a better way to see it all and understand it. Why not visually?

(McCandless, 2012)

As I mentioned earlier, I have been actively using Miro to plan and document my activities. Miro is an infinitely zoomable canvas (whiteboard) that enabled me to visually represent my experience: structure knowledge, see the bigger picture and connections between different courses, track progress and revisit learned concepts. I combined all these functions with a curriculum map (Figures 11–12) that is similar to the popular concept or mind mapping technique. Concept mapping is a study strategy students can use to build connections between concepts visualising them as links. According to Jonassen and colleagues (1998), this visualisation method contributes to the analysis of “structural relationships among the content they are studying”. As authors further claim in belief that “a semantic network is a meaningful representation of memory”, these maps can also be used as “evaluation tools for assessing changes in thinking by learners”. My curriculum mind map contained a brief description with a legend. The courses were displayed as circles, their size was determined by the number of ECTS, and their colour meant whether they are compulsory or elective. As for the content itself, the circles were surrounded by concepts explored during the studies and the projects I have finished as a result. Semesters were represented with big white circles I and II.

Figure 11

Curriculum map in Miro

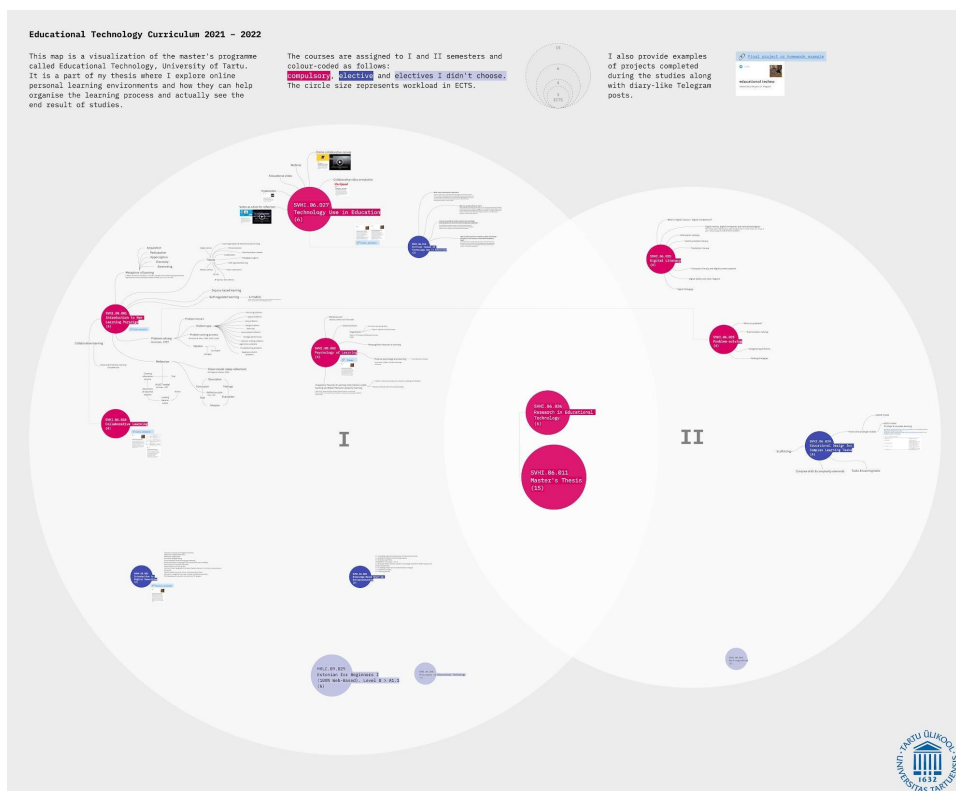
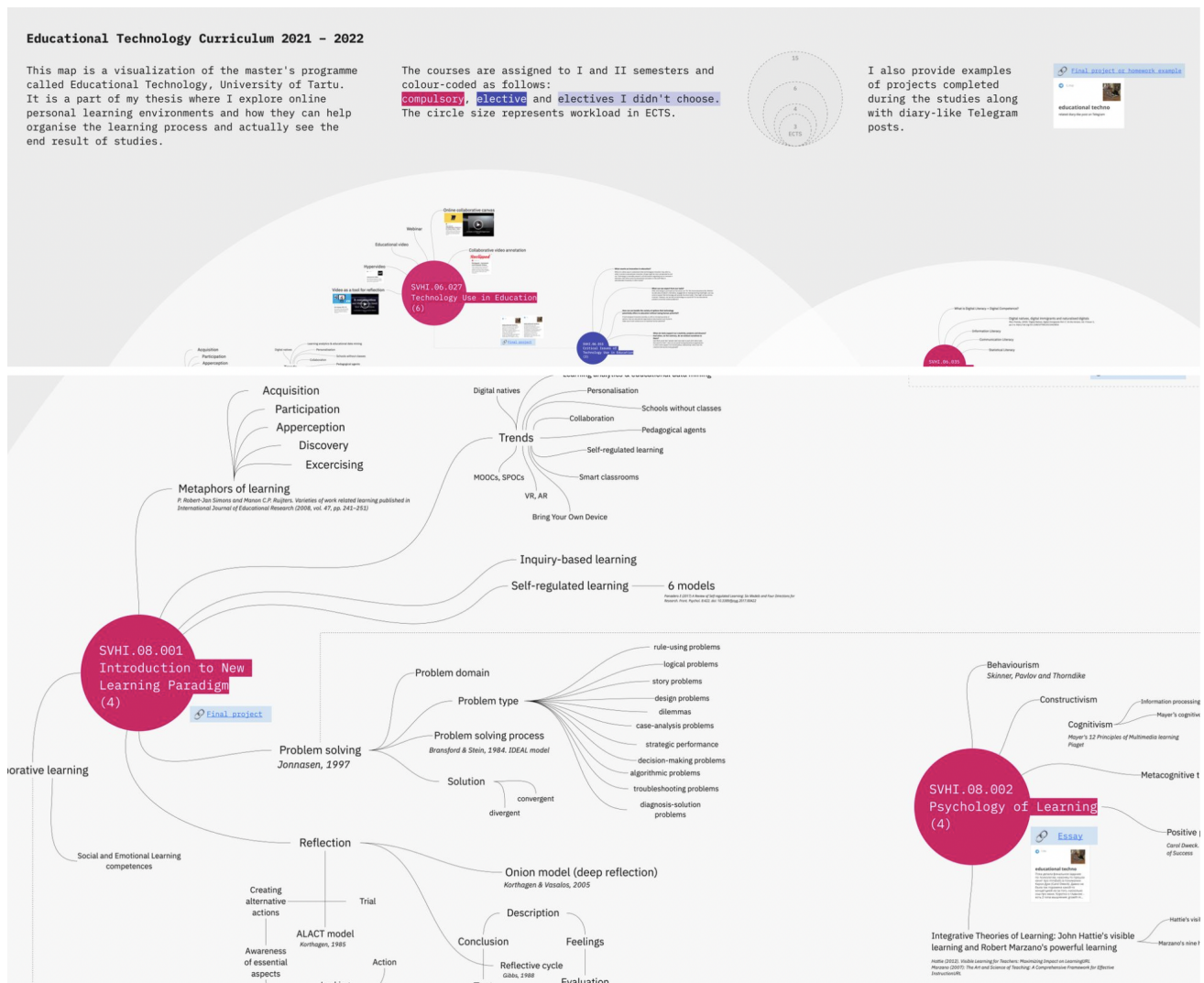


Figure 12

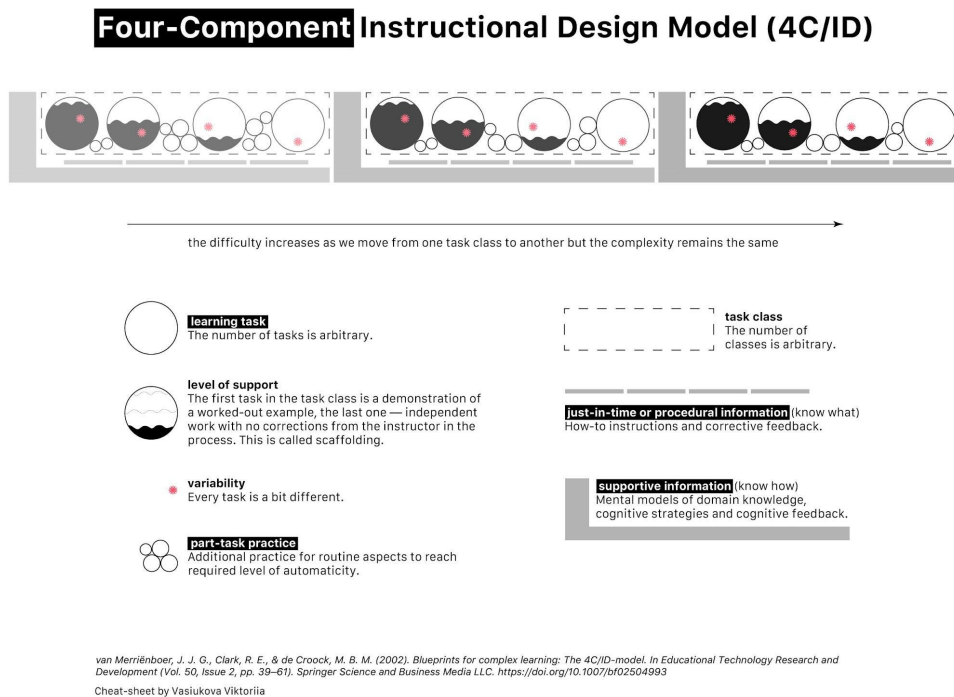
Curriculum map in Miro (close-up)



Visualisation helps not only to remember and see connections but also to simply understand the material when it consists of a large number of details that can be conveniently presented visually. This is why teaching materials often consist of infographics. For example, I did not understand the diagram in the article on four-component instructional design (4C/ID) for a long time, but once I redrew it into a traditional infographic with a legend according to the explanations in the text (Figure 13), it got better.

Figure 13

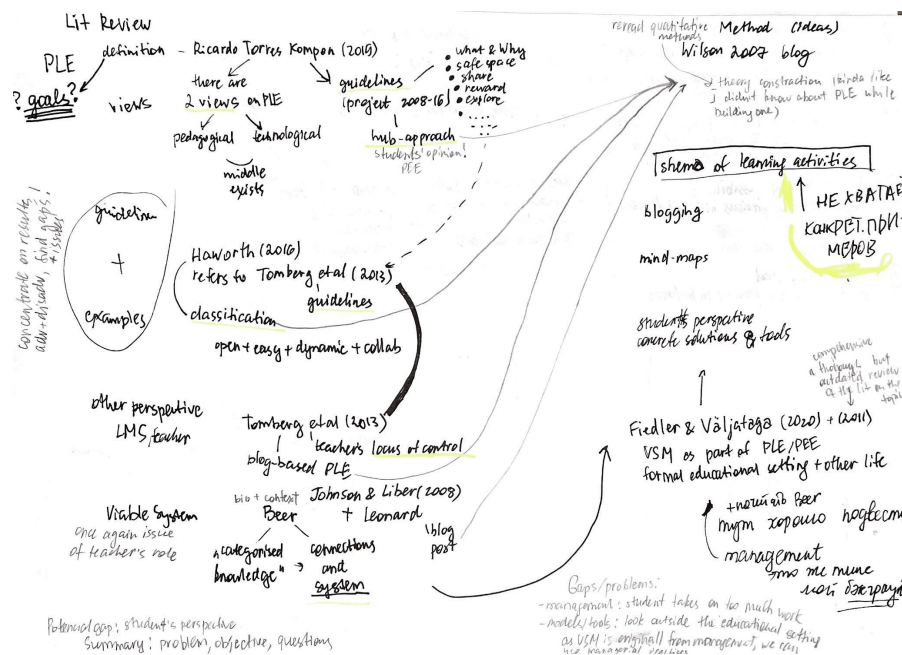
4C/ID infographic (or cheat sheet)



But let us not forget paper, which remains one of the undying tools for learning. As with the 4C/ID cheat sheet, I tried to visualise a large project like a thesis. For example, this is how I was able to build links between the articles in the literature review (Figure 14).

Figure 14

Paper notes for thesis: literature review visualisation



This chapter has described the parts of my PLE based on VSM. In the next section, I will present the principal findings of the current investigation.

Discussion

The initial objective of the thesis was to explore and document the process of building a PLE in a high-variety online setting — an online master's programme. This research was undertaken to evaluate the role of technology in PLE and its meaning for a master's student.

The first question in this study sought to determine what PLE can consist of. Using the Viable System Model I tried to structure my PLE in a way that will ensure its viability and efficiency. But there were other options presented in the literature as well. One of the issues I addressed was variety, and in that sense, the idea of a “hub-approach” proposed by Torres Kompen and colleagues (2019) seems more appropriate for the given setting. But I did not manage to make a system with such a hub. Furthermore, I discovered that variety-related problems arise in the process of creating the PLE itself — different tools can have the same functionality and one tool can have many functions. Eventually, it was crucial to stick to the principle of What & Why before How to reduce the resulting amount of instruments. The most obvious finding to emerge from the analysis is that VSM is a great template but its content is much more important for its effective use, as one tool can be a part of several systems embedded in it. It is more of a guideline for what is important to think about. Going down to the level of specific problems or tools, there is no clear division into systems and the same problems can be dealt with in different systems. All in all, VSM is a good model but it will never be enough because of the unique restrictions and preferences of a given student or even an educational institution. Moreover, no model can cover all possible combinations of preconditions and aspirations. In future investigations, it might be possible to create a new model for PLE development tailored to suit completely online learning environments in higher education but as it is, in essence, personal, it will always be something different when implemented. A better idea for future research would be to make an overview of different ways PLE can be efficiently built in different settings — school and higher education, adult professional learning and life-long learning with no institutional oversight, etc.

My PLE consisted of both digital and analogue tools. But can it be completely digital? Yes. But, in my opinion, paper should not be forgotten. Coming back to the research questions, I can now answer what role technology plays in PLE. In my case, technology was, on the one hand, the heart of the programme and, on the other hand, an assistant who could do

quickly what would be too energy-consuming on paper. Quickly structuring information and avoiding losses remain the key factors in using digital solutions for me. But an important discovery was that I was giving them too much attention. Once I rediscovered paper, there was no going back, even with the features Miro could provide. At some point, I realised that I would rather draw some outline of homework on a piece of paper rather than type it in a Google Doc. It boosts creativity and does not create obstacles like any digital tool. And the only reason I used Notion as a calendar was due to the fact that Zoom links cannot be pasted into a paper planner.

One unanticipated finding was that I did not really touch the tools that would relate to what is commonly used in training. To put it bluntly, the products of EdTech companies. But I am convinced that products designed for very different target audiences have enormous potential in an educational environment. The same applies to time and project management techniques that are overvalued by businesses but are not used in education enough. A natural progression of this work is to analyse what other tools from the business sphere can be transferred to the classroom. Further research can be done on design thinking techniques in education — curriculum and course design with the help of product development instruments (e.g. empathy mapping, experience prototyping).

I have not tried a lot of other techniques students all over the world are using. For example, Personal Knowledge Management Systems (classical one called Zettelkasten) that are not necessarily used for learning (PKMS may include addresses, contacts, facts about personal life, bookmarks) in apps like Obsidian or Roam; online accountability practices — YouTube streams and challenges (e.g. famous among data scientists “Study with Tina” YouTube channel¹). But these are the things that generally take a lot of time to set up.

So, can PLE, as a framework for master’s studies, make the learning experience more meaningful and efficient? As my PLE was built in a way that addressed the problems encountered by me and other students, it is obvious that PLE can indeed make the experience better. PLE efficiency heavily depends on the circumstances but it is obvious that a framework helps in bringing different parts of the learning experience together in a more organised manner. As for meaningfulness, VSM has 3 components that, in my opinion, relate to meaningful education: self-monitoring, self-developing, and self-projecting. Blogging is proven to be an effective reflection tool, and my findings are consistent with earlier studies. The observed advantages of my blogging experience were: possibility to search for a subject title (could have used hashtags but found it to be excessive), natural chronological order of

¹ <https://www.youtube.com/channel/UCI8JpGrDmtggrryhml8kFGw>

posts, ability to access them online and download when necessary, ability to paste links and pictures. But the outcomes I found more meaningful were these:

- quick revision of what I have learned — structured thought-through texts instead of untidy handwritten bullet points which I never go back to
- ability to share posts with friends and family to explain what I am actually doing and, once again, see the actual gain from the learning process
- opportunity to quickly find ideas for future homework because of the reflection on ideas covered during the courses
- means to write more constructive feedback at the end of the semester

Telegram is a big platform used by the professional community, including educators. The channel allowed me to keep notes, which helped me to connect my educational path with potential career opportunities (as my broader view on PLE includes life- and work-related activities). On one platform I was able to relate current experiences to the relevant issues in the industry. Initially created for a self-monitoring function, my channel became an important self-developing and self-projecting component of VSM, a digital artefact that combines my experiences, goals and interests altogether.

I decided to use my blog as a project for Technology Use in Education and Critical Issues of Technology Use in Education courses. When I published the outline of my process and the results, I received inspiring comments from my peer students. One supported my view on note-taking by writing “I appreciated you bringing point about note-taking/handwritten notes and how you connected that with not triggering metacognition”. Another one even expressed interest in using my blog idea in the classroom: “Who knew telegram can be used as a blogging/reflective tool! Well, I might steal your tinkering idea to design a written learning strategy using Wechat’s newly added Channels”. The last comment I found close to what I was trying to convey was the following one:

I think I also have a problem of wanting to feel that something is “done” (especially when it is a course you had to work hard to pass) and once it is “done”, there is reluctance to go back to it again...

I have also shared the idea of using Telegram functionality to create a metacognition bot which would help me regularly check my progress and ask more questions when processing information. One student supported this idea by writing “I am quite interested in meta-cognition bot, which obviously has some drawbacks, but having a conversation with an

agent while maintaining privacy is something that we'll probably come across more often in the future.”

Conclusion

Taking stock of my experience, one major conclusion is that students are facing challenges not only related to the course contents but also to the overall organisation of the studies. They are sometimes taking on a “manager” role in the learning process, having to deal with multiple “projects” simultaneously: studies, house duties, full-time job, and etc. Even the programme made by educators for educators can have its own problems. Some of those problems can be solved by a proper introduction into the concept of a personal learning environment. Raising awareness about PLE among students is particularly important with the rising abundance of technologies used both in everyday life and studies.

This study examined the ways in which PLE can be built and address the issue of variety. It is hoped that this research can contribute to a deeper understanding of a learner’s perspective in online higher education. Learners can draw ideas from this study to broaden their understanding of what can be a part of the learning process and how multifaceted it can be. In general, a broader understanding of what can constitute for a learning tool can emerge. Teachers can build more empathy towards the online learners and help them by providing the right tools for successful organisation of the work-study-life balance.

The findings of this study have a number of practical implications but their generalisability is subject to certain limitations. This work was focusing mainly on the *organisational difficulties*, practically leaving out challenges associated with content processing, learning outcomes, exam preparation, etc., which is mainly due to the scope of the *selected PLE model*. Moreover, it was an *autoethnographic* research of a *master's* student in an *online* environment. A further study can assess a broader range of data sources to include perspectives of different students with various backgrounds. However, possible use cases of my work may include:

- Onboarding for new or prospective students stimulated by awareness of the existing problems and corresponding changes in the organisation of studies. A curriculum map can be used by prospective students to get a sense of what they are about to learn during their studies in this master’s programme. At the same time, it feels like an alternative to a conventional syllabus and curriculum outline. It is hard to anticipate the workload even with ECTS but the number of topics covered during the course

correlates with the needed efforts and can say something about the time to be spent on the course materials. In addition, a curriculum map can be transformed into a Student Journey Map (a term used by EdTech start-ups by analogy with the Customer Journey Map aimed at visualising the customer experience).


- The next generation of students could potentially benefit from the overview of tools used by teachers to get acquainted with them in advance.
- Cheat sheet design can turn into a practice of making distributable materials for students explained by other students. Even a to-do list can become a cheat sheet on how to make a certain project (like thesis) or complete a course.
- Blogging can be encouraged by teachers and used as a content creation platform for homework submissions. In practice, it can also be endorsed by some sort of metacognition bot that can help build up reflection habits (e.g. automatically sent messages with questions from the Metacognition Awareness Inventory).

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Author's declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been reflected. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.


_____ (signature)

02.06.2022

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Appendices

Appendix 1. The November questionnaire

1. Which digital tools do you use to support yourself in the learning process? (hereinafter we are talking about the master's programme)
2. Do you keep a calendar of the classes and deadlines you have?
Yes / No / Other
3. If yes, where?
4. Maybe you also use something to organise your preparations for the classes?
No / Yes, same place / Other
5. Which analogue tools do you use for learning purposes?
6. Are you willing to share these inventions of yours with other students? E.g. a Miro board or photos of your planner.
7. How organised do you feel in the context of this master's programme?
On the scale of 1 to 10
8. How confident do you feel about your studies?
On the scale of 1 to 10
9. Are you happy with your current educational results?
10. Were you in a situation when you forgot you have a class in the evening/the next day?
Or a deadline even?
Yes / No / Other
11. How many times did that happen during this semester?
0 / 1-3 / more than 3

Appendix 2. The “August diaries” questionnaire

1. Nickname
2. During the period under consideration, did you have the chance to go to Salme?
3. When did you go to Salme and what was the purpose of your visits? (e.g. meeting colleagues, lecturers, attending webinars, etc.)
4. How would you rate your accomplishment this week?
5. How would you describe your connection to your class this week? Is there anything you'd do differently next week to change your experience?
6. What were the challenges that you encountered? How did you deal with those?
7. Did you feel unsure of something in relation to your studies?
8. Did you have any illuminating thoughts or ideas you'd like to take note of for the future?
9. Anything else to share?
10. Would you like to share your answers with lecturers and students?

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