DIGITAL FOOTPRINT OF A HIGHER EDUCATIONAL INSTITUTION STUDENT AS A MODERATOR OF EDUCATIONAL ONLINE PLATFORMS

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Abstract: The paper emphasizes the necessity for students to shape their profound and unmistakable digital footprints. Professions of the future are outlined to provide reference points in the professional establishment of students as subjects building their individual educational routes. The authors describe approaches to defining the phenomena "digital footprint of a person", "moderator", and "educational online platform". Projects and technologies are considered that are used for shaping a positive subject experience of students in maintaining their profound and unmistakable digital footprints. Examples of maps as digital footprints of students are given. The research methods are the analysis of approaches to the said phenomena, the methods of expert appraisal and studying the products of activity. The materials of the paper are of practical importance for students, higher education teachers, and teachers of educational institutions.

Keywords: digital footprint of a person, moderator, educational online platform, mapping, individual educational route, information competency of students.

1 Introduction

To outline the relevance of this research, let the regulatory documents, conceptual provisions on digitization of education, and information sources be analyzed.

In conditions of digital transformation, it is the needs of continuous education, building one's own educational schedules (Passport of the national project "Education", 2019), and the ability to plot and fulfill the path of self-development based on the lifelong education principles (Portal of the Federal State Educational Standards of Higher Education, 2020) that go to the forefront.

Within this context, digital footprints of students have to be shaped with reference to developing the systemic and critical thinking, as well as to the students' self-development.

Let it be noted that one of the universal meta-subject educational competencies is the information competency. Although it is not specified in standards expressly, according to the authors, it unites the listed above competencies and gets relevant in the period of digitization of education.

Within the context of developing the information competency in higher educational institution students and shaping their profound and unmistakable footprints, vectors can be outlined in studying and interpreting the digital content, and in building one's individual educational route as a moderator of educational online platforms.

A number of scientists stress that the implementation of digital technologies, creation of the digital educational environment, digital toolkit, and digital footprints bring about digitization of education (Robert, 2020; Kondakov, 2019; Polichka et al., 2020; Soltovets et al, 2019; Dmitrova et al., 2019).

So, A. M. Kondakov (2020) emphasizes that digitization of education has changed learning as a process essentially, with teachers acting as organizers of personalized educational process, and "… the notion of portfolio has been substituted by that of the digital footprint for quite some time now".

One of the education digitization levels is implementation of educational online platforms into the learning process. As moderators of the educational platforms, students create virtual educational startups using the available services and resources of the Internet. They develop a high level of the information competency, shape individual educational routes, and profound and unmistakable digital footprints.

These aspects allow focusing the attention on training of specialists in new professions. In the domain of education, such professions are: moderator, coordinator of educational online platforms, developer of educational paths, startup mentor, and others (Atlas of new professions, 2020), which is in line with the above statements.

With regard to this, studies in the focus area of shaping digital footprints of higher educational institution students as moderators of educational online platforms are relevant.

2 Literature Review

The education digitization processes give rise to new terms and interpretations of the understanding of the phenomenon "digital education" and ones related to it: the digital content (working with information at the high information competency development level), digital processes required for organizing the learning process (mapping), digital tools (educational online platforms), and digital footprints (individual educational routes).

Within this context, research works of the Russian and foreign scientists in the following focus areas are of interest: digital transformation of education (Robert, 2020; Tabachuk, 2019; Tabachuk et al., 2020a, 2020b), personalized network education (Kondakov, 2020); road mapping (Marycheva & Stepanova, 2017); the personal and professional development of higher educational institution students (Nikitenko, 2013); promising development lines of IT (Sofronova & Belchusov, 2019); universal competencies of moderator as a profession of the future (Zheltova, 2013); individual educational routes (Khuziakhmetova & Sytinab, 2016; Kazakova, 2020); educational online platforms in creating the digital educational environment; the profound and unmistakable digital footprint (Kondakov, 2019; Tabachuk, 2020a, 2020b).

In these studies, they outline the strategy of developing digital education and shaping digital footprints as results of the academic and professional activity in the digital format.

It is M. E. Vayndorf-Sysoeva and M. L. Subocheva's (2018) point of view that is the one uniting the above focus areas. The researchers believe the digital footprint consists of all actions of learners in the Internet space that are left as an imprint, including presentations, video facts, blogs, discussions in various formats in the digital educational environment, etc.

For this research, the said standpoint is close to the authors' one; it is detailed in approaches to studying the outlined phenomena within discussion.

3 Research Methodological Framework

The objective of the research consists in elaborating the understanding of the phenomenon "digital footprint of a higher educational institution student as a moderator of educational online platforms" and describing the pedagogical experience of supporting the ways for shaping it.

The research question posed in the paper is how students' profound and unmistakable digital footprints can be shaped within the educational process at higher educational institutions, with pedagogical support of individual educational routes rendered.

The research hypothesis is as follows: digital footprints of higher educational institution students will be shaped as the profound and unmistakable ones, if the students are provided with professional training for developers of individual educational routes and moderators of educational online platforms who feature the high information competency development level; if they develop in students an active stance of participation in projects for shaping their positive subject experience of maintaining their digital footprints; and if mapping as a system for supporting the individual educational routes is used in the educational process.

Tasks of the research are:

1. Outlining regulatory documents, concepts, and information sources which make the research problems relevant.
2. Providing theoretical substantiation for approaches to studying the following phenomena: moderator, individual educational route, mapping, educational online platform, information competency of students, and the digital footprint.
3. Describing projects and technologies for shaping a positive subject experience of students in maintaining their profound and unmistakable digital footprints.
4. Identifying examples of maps as digital footprints of students and exploring them.

The total of virtual educational startups of students represents the databases and analytical methods of their research. For exploring the former, the authors used the expert appraisal method and the method of studying the products of activity.

4 Results and Discussion

4.1 Approaches to Studying the Phenomena of Moderator, Individual Educational Route, Mapping, Educational Online Platform, Students' Information Competency, and Digital Footprint

Currently, digital transformation of education pushes forward the upgrade of the entire system of education (Robert, 2020) and encourages the transition to the model of personalized network education (Kondakov, 2020).

It is noted that a moderator is a person conducting any organized work with a group of students on the basis of the principles of equality and dialog (Zheltova, 2013).

A moderator is defined as a specialist possessing the categories of universal competencies: systemic thinking, interdisciplinary communication, project management, and creative team work skills (Atlas of new professions, 2020).

Scientists distinguish between the notions of an individual educational path and an individual educational route. An individual educational route is changeable; it depends on educational needs and tasks emerging over time (Marycheva & Stepanova, 2017).

Anvar N. Khuziakhmetova and Nadezhda S. Sytinab (2016) emphasize that students' individual educational routes can be classed as one of the following types within the course of their professional development: adaptive (one fulfills one's personal potential for keeping one's comfort in the updated conditions of the digital educational environment of the higher educational institution); developing (students develop their universal competencies when getting an education); and creative (this involves personal transformation for creating oneself – self-education, career, and life).

It is highlighted that an individual educational route is an individual way of progress, the "trademark" of a particular person (Kazakova, 2020). In their research, the authors associate this with the digital footprint of a student.

The tools for constructing students' individual educational routes and shaping digital footprints can be mapping and educational online platforms.

Mapping is a vision, a strategy, a plan of developing an object, and plotting the principal steps of this process over time in the "past – present – future" sequence (Marycheva & Stepanova, 2017).

The following meanings are intended in the understanding of mapping: a modern didactic means of joint work of teachers and students that captures possible focus areas of individual educational movement, the space of self-identification and objectives, educational resources of the environment (Kazakova, 2020).

Educational resources of the environment can be specified as educational online platforms, "development points" of students' digital footprints. With regard to this, students get an opportunity to look at educational online platforms as resources for personal progress in terms of profession. For students, it can become the basis for creating maps, fulfilling virtual educational startups, and shaping their digital footprints.

In this research, the authors focus their attention on shaping students' positive digital footprints.

In particular, R. Buchanan, E. Southgate, J. Scevak, and S. Smith (Buchanan et al., 2017) note that a positive digital footprint can be understood as an asset, a "personal brand" enabling others to see your interests, achievements, and skills.

The authors share the idea of R. Buchanan, E. Southgate, J. Scevak, and S. Smith (Buchanan et al., 2017) to the effect that a positive digital footprint is not merely a digital CV. It is a way of conceptualizing one's online presence which emphasizes the importance for the presence to be coherent, positive, and created with a goal in mind. These authors make a point of the personal constituent of the digital footprint.

In their previous studies, the authors highlighted that the "digital footprint" of a person incorporates the person's "digital identity", "digital image", and "digital profile". It is tailored as an author's approach to self-fulfillment in the real and virtual world (Tabachuk, 2020a, 2020b).

Within this research, the authors believe it important to make more precise the understanding of the phenomenon "digital footprint of a higher educational institution student as a moderator of educational online platforms". By this, they will mean the author's approach of students to the process of creating and placing online their own elaborated ideas, projects for the professional domain on the basis of online platforms; presenting maps of various types as a product of academic activity: subject maps, meta-subject (mental) maps, portfolio maps, and startup maps.

4.2 Projects and Technologies for Forming Positive Subject Experience of Students in their Maintaining Profound and Unmistakable Digital Footprints

Russian higher educational institutions carry out projects enabling their students to achieve new levels of career, professional, personal, and social development, to build individual educational routes and shape their digital footprints.

One of such projects is the Boiling Point coworking center. The digital environment for Boiling Points and the leader support system is the Leader-ID online platform (https://leader-id.ru/page/info/general/).

At FSBEI HE "Yaroslavl State Technical University" (YSTU) and FSBEI HE "Pacific National University" (PNU), individual educational routes of students are constructed, among other things, according to the model of the ANO "National Technology Initiative University 20.35" (the University 20.35) (https://2035.university).

In 2019, within the cooperation with the Agency for Strategic Initiatives, YSTU (https://leader-id.ru/event/point/view/1288/) and PNU (https://leader-id.ru/event/point/view/1033/) opened Boiling Point centers – a space for learning, exchanging the experience, and joint creative work for students who are interested in personal growth and developing new competencies, shaping a positive digital footprint.

So, using the NTI University 20.35 model, Boiling Point of YSTU launched the project education intensive course "Here's an Idea!", with over 100 students joining. Moreover, the university students participate in engineering and entrepreneurial projects offered by partner enterprises of YSTU; they also complete their own projects, e.g. "Development of a solution for chemical nickel-coating", "Interactive map "Polytech-online", and others.

At FSBEI HE "I. Yakovlev Chuvash State Pedagogical University" (I. Yakovlev CSPU), it is the university's United electronic information and educational environment (UEIE) that provides the points of access to the digital educational space and sources for creating the digital educational footprint. It incorporates the website of I. Yakovlev CSPU http://www.chgpu.edu.ru, videoconferencing via https://webinar.chgpu.edu.ru, the distance learning system http://moodle21.ru, and the system of portfolio management for students http://eis.chgpu.edu.ru/ – designed in Shakhty.

Annually, among its other projects, PNU holds an open university festival, Art-campus of PSU. This year it was conducted on Instagram online (http://pnu.edu.ru/ru/news/2020-05-14-PNU/). One of its highlights was the "Virtual kaleidoscope of pedagogical student startups" where they demonstrated startups in the form of individual educational routes, digital footprints, and other projects having won the right for existence and an audience of users of their own. Some of them are pointed out in the following section of the paper.

The authors single out mapping as one of the modern technologies for shaping a positive digital footprint. Mapping serves for broadcasting one's experience of meaning-making, information structuring, depicting the systemic thinking processes, and generating one's own digital content when presenting the information and creating maps.

4.3 Examples of Maps as Students' Digital Footprints

The authors develop the idea of mapping within their studies and argue that mapping can be a tool for shaping profound and unmistakable digital footprints of higher educational institution students. With regard to this, mapping is intended as a process of creating maps for reducing the unpredictability effect and solving the problem of choice, a way of visualizing the future, and a strategy of students' self-development.

So, the process of creating subject maps leads to rethinking of the digital content presented in the digital educational environment of higher educational institutions according to subjects and to elaborating one's own understanding of the objects under study. What is in question is "plunging" into the material and "experiencing" it, representing the subject maps as a semantic field with an individual context.

Meta-subject maps weave together the ideas of super-subjectness and reflexivity in education. The use of this type of maps allows solving the problems of shaping profound and unmistakable footprints of higher educational institution students. So, in the maps, the students:

- perform selection of online platforms from the diversity available, singling out criteria and presenting their results in the form of meta-subject maps;
- chart the strategy of using online platforms in their academic and, later, professional activity.

Portfolio maps serve as indicators of students' achieving meta-subject results in their academic, scientific, sports, and social activity at higher educational institutions. They are associated with enriching the students' subject experience of developing their information competency.

Startup maps for students is an opportunity to accumulate the experience of pedagogical and information support of their own ideas and projects.

In the authors' understanding, startup maps are students' projects having the right for existence and, most importantly, having won an audience of users of their own. The startups help implement innovations and comprehend individual educational routes with a view to the future.

Let the topics of some virtual educational startups developed by students of PNU, training focus area "Pedagogical education", be presented (see Table 1).

These startups are valuable for the pedagogical community. They were developed on the basis of the modern educational online platforms. The students acted as moderators of the educational online platforms, selecting some of them from the diversity available according to certain criteria and chalking out the strategy of using the platforms. The implementation of these startups into the educational process enables one to "design an education for oneself on one's own".

Using the method of studying the products of activity, namely, virtual educational startups of the students of PNU as conscious, profound, and unmistakable digital footprints, the authors have classed them as shown in Table 1, with the technology of mapping applied (they identified types of the developed maps).

Table 1 Digital footprints of the students as moderators of educational online platforms

Topics of the students' virtual educational startups	Types of the maps developed in the process of mapping	Educational online platforms	Routes of use
"Models of further education in physics for schoolchildren based on the modern web platforms and online resources: a case study of physics tricks"	startup map	Stepik OnlineTestPad LearningApps StoryJumper A5.ru	the domain of further education in physics
"The development of digital teaching and learning aids in mathematics for schoolchildren: a case study of the "Power functions" section"	subject maps	LearningApps OnlineTestPad eTreniki	the process of teaching mathematics at school
"Models of organizing extracurricular activity in mathematics at school: a case study of the "Trigonometric functions" section"	portfolio map	OnlineTestPad eTreniki Bank of tests StoryJumper Stepik LearningApps A5.ru	organizing extracurricular activity in mathematics at school
"Stepik as the educational platform for open online courses and classes to teach fundamentals of mathematical analysis to senior school students"	meta-subject maps	Stepik	teaching mathematics to schoolchildren online

Source: authors

The expert appraisal of maps prepared by the PNU students was performed within the students' participation in All-Russian pedagogical contests organized by professional pedagogical communities: "Center for distance training of teachers "Academy of pedagogy" (http://pedakademy.ru/), "Pedleader" (https://pedleader.ru/), and the Non-state educational institution of further professional education "Experts and methods center" (https://emc21.ru/). They evaluated the innovation of ideas and projects for the domain of education. The results are presented on the websites of the communities.

The maps designed by the students of the "Pedagogical education" training focus area were evaluated by experts when they were presented within the state final assessment of the students at PNU.

Within the assessment, 100% of the experts (scientific advisors of the student startups – professors, associate professors, and senior teachers of PNU), representatives of customers (Municipal budget-funded educational institution "RITM lyceum", Regional state public institution "Regional education quality assessment center", and Khabarovsk division of the Institute of Applied Mathematics of Far Eastern Branch of the Russian Academy of Sciences) – the total of 15 people) noted the relevance of mapping. In terms of individual educational routes selected, the students' upgrading their own information competency level, and shaping positive digital footprints, the experts rated the students' working as moderators of educational online platforms high, too.

5 Conclusion

Based on the analysis of approaches to studying the said phenomena, it has been found that the range of problems associated with understanding thereof is a new and little studied one.

Having studied the results of research conducted by a group of Russian and foreign scientists, the authors have found they focus their attention on the model of personalized network education. Within this model, it is important for students to build their individual educational routes and shape their profound, unmistakable, and positive digital footprints.

The authors have elaborated the understanding of the phenomenon "digital footprint of a higher educational institution student as a moderator of educational online platforms".

They described projects and technologies used for shaping a positive digital footprint, such as points of access to the digital space of the university, Boiling Point centers, Art Campus of PNU, and mapping as a technology.

Based on the methods of expert appraisal and studying the products of activity, they have analyzed examples of maps as students' digital footprints. In the maps, the modern services and resources for shaping the digital footprint of a student as a moderator of educational online platforms.

Let some promising lines of further research be noted: measuring the efficiency of the impact of one's digital activity in the student years on one's further professional performance; finding ways to improve motivation of passive students in building their own digital educational footprints. Studies in these focus areas have to be continued.

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