

Editors' preface.

Learning in transformation

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Teaching art to children is very important, but it is crucial to teach them a holistic understanding of the world and conscience within this world.

(Lotman 1992)

In 1964, the First Summer School of Secondary Modelling Systems convened at Kääriku, Estonia, marking the birth of the Tartu–Moscow School of Semiotics (TMS). As Juri Lotman later observed, the intellectual atmosphere of those early gatherings was defined by “fruitful contradictions”, implying the way in which partially incompatible ideas, interests, and mentalities acted as catalysts for creativity (Lotman 1993: 41). The core Lotmanian postulate referring to the way in which new knowledge arises at the boundaries of untranslatability remains a vital framework for understanding how semiotic systems learn, adapt and evolve. It appears that culture as a semiotic system is in essence a process of teaching and learning, from acquiring language in the nursery to cultivating self-understanding as a scientific school of thought.

Today, as we are grappling with a variety of global crises in parallel with the disruptive ascent of AI, our understanding of what it means to ‘learn’ and ‘teach’ and what is the role of a ‘school’ is undergoing a paradigmatic shift. These topics were the focus of the joint event of the Tartu Semiotics Summer School 2024 and the 14th Annual Lotman Days. It is in this nexus that the papers of the present special issue, that we titled as *Learning in Transformation*, first emerged.

To navigate this transformation, it is instructive to return to a deceptively simple question Lotman posed during a lecture he gave to secondary school students in

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1990: “So, what do people learn?” His own answer was: “People learn Knowledge, people learn Memory, people learn Conscience” (Lotman 2022[1994]: 202). He also conceptualized art as a book that contains all three of these subjects – and the task of teachers and learners is, therefore, mediation and acquisition of a literacy that facilitates reading it. A deep interest in arts is, indeed, one of the threads that binds together the TMS as an “invisible college” (Torop 2014: 109) with the institution of the Department of Semiotics at the University of Tartu.

The department itself, as well as its curricula in semiotics offered on all three levels of higher education, grew out of the dialogic learning community of the TMS. One of the starting points of the School was educating teachers on how to understand texts (Lotman 1964), as well as Lotman’s broader idea of applying precise, science-oriented methodology in the humanities in order to understand the past – particularly to interpret historical artistic texts that could no longer be fully understood. Semiotics is necessary to understand different and contradicting systems, and this ability can be trained by teaching semiotics through cultural history. It was precisely this approach that shaped the teaching of semiotics, initially in the context of Russian philology and later at the Department of Semiotics.

The teaching of semiotics in Tartu transformed in the 1990s, when the department and its curricula became institutionalized by Lotman’s students after the collapse of the Soviet Union in 1991. The introduction of Estonian-language curricula of semiotics (see Randviir 1996) shaped the discipline and opened up Tartu semiotics to the global semiotic community. Over time, the emphasis in the content of the curricula shifted from cultural history and cultural semiotics toward broader interdisciplinary connections with social and life sciences. Developments in sociosemiotics and biosemiotics were reflected in teaching, and many object- and topic-based subdisciplines emerged in course themes, for example literary semiotics, urban semiotics, and political semiotics.

After the growing pains experienced in the 1990s, the teaching of semiotics in Tartu in the 21st century has undergone institutional stabilization, systematization, and internationalization. The internationalization has been strongly supported by the opening of an English-language master’s programme (Kull, Väli 2011) and by the input from numerous international doctoral students who have joined the department. Initially, the development of the curricula was shaped by the need for the formal establishing of semiotics as a discipline in the university. The following stage was influenced by tensions between its internal disciplinary unity and the identities of its emerging strands of specialization. A further factor triggering major changes in the curricula consisted in large-scale external reforms in higher education, most notably adopting the Bologna system. Today’s curriculum development is characterized by co-design drawing on learning

experience, a focus on learners' interests and development, and an effort to cope with the still uncertain impact of AI on learning and on the professional practice of semioticians.

Facing these challenges requires a strong grounding in the discipline's history, and it was partly this need for reflection that motivated the summer school and ultimately led to the present special issue. Beyond the papers included here, the summer school offered a stage for reflecting on earlier developments and revisiting memoirs of the TMS's "invisible college" in interviews with Boris Gasparov, Sergey Neklyudov, Olga Revzina, Suren Zolyan, Juri Tsivian, Dmitri Segal, Maria Pliuhanova, Mihail Meilah, and Georgij Levinton. Excerpts from these interviews have been published in Estonian in *Acta Semiotica Estica* XXI and the conversation with Gasparov appears in this issue.

In this special issue we hope to develop two trajectories integrally: on the one hand, we are looking back at some of the TMS's fruitful contradictions; on the other hand, we propose some novel conceptual insights into the mechanism of learning as semiosis that keeps reshaping our realities. Both trajectories are grounded in the role that cultural memory somewhat paradoxically always plays in the process of creating new knowledge.

The issue opens with Ewelina Pilarczyk's and Tatjana Kuzovkina's paper that takes a dialogic look at the written correspondence between two of the TMS's core figures, Lotman and Boris Egorov. The study vividly exemplifies the creative process of simultaneous development and acquisition of a special code of communication, a "language for oneself", highlighting the contradiction inherent in an undecipherable code being essential for intimate communication.

Seyedeh Maede Mirsonbol provides an overview of the development of the 'edusemiotics' framework. Rooted in Peircean semiotics and constructivist theories and conceptualizing learning as semiosis, the framework features a robust theoretical foundation; however, Mirsonbol identifies a research gap in practical (classroom) applications that would facilitate reflexive semiotic activities. This resonates with the work on 'inquiry graphics' presented at the summer school by Nataša Lacković (Lacković 2020; Lacković, Olteanu 2024) who has demonstrated the applicability of Peirce's models in fostering deep analytical thinking through multimodal and visual media. While clearly pioneering in crafting practical tools for post-digital classrooms, the conceptual 'why' for Lacković's methodologies was in principle answered by Charles Suhor as early as in 1984. His article "Towards a semiotics-based curriculum" (Suhor 1984) advocated for an educational shift that would de-centre purely linguistic paradigms in favour of a broader range of sign systems, and proposed semiotics as a viable metalanguage for curriculum building.

The necessity of expanding our pedagogical focus beyond natural language finds a compelling application in Marta Kucza's paper, which argues for an inclusive epistemology centred on 'the common'. This is an alternative to dominant contemporary knowledge production which relies too heavily on individual, neurotypical, and natural-language-based reasoning and has thus led to alienation from broader societal and ecological realities. Kucza combines Peirce's theory of an unlimited, fallible 'community of enquiry' with Fernand Deligny's practice of creating non-symbolic, spatial networks to support autistic individuals. Within this simultaneously theoretical and practical framework, shared territory and physical co-presence replace the need for forced verbal communication, focusing instead on the indexical and the iconic. The paper ultimately advocates for a participatory research model that respects untranslatable modes of existence and allows for collaborative learning alongside nonspeaking participants on their own terms.

Peirce's approach to meaning-making also lays the groundwork to J. Augustus Bacigalupi's paper that focuses on the fundamental irreducibility of semiosis. The simultaneous operating and productive contradiction of translatability and untranslatability between interdependent elements is contrasted to the sequential processing of modern digital computers. To explain the logic of irreducibility, Bacigalupi introduces Bergson's and Simondon's concept of the 'image' as a continuous, shared medium of dynamic potential and proposes a novel machine architecture designed to emulate biological meaning-making. This view proposes a continuous or "relatively low-resolution" whole (in place of discrete sequential pieces), noise, contradictions and constant self-rewiring as necessary preconditions for learning.

Kapitolina Fedorova and Natalia Tšuikina bring us to a more traditional cultural semiotic material and introduce four typological models of foreign-language learning as depicted in Russian literature. The corpus spanning almost three centuries and reflecting significant shifts is shown to evidence the ways in which literary representations construct and perpetuate cultural attitudes and ideologies about multilingualism.

There is an often overlooked strand of research that used to appear in the earlier years of the semiotics of culture and is currently gaining increasing relevance in the face of today's developments in information technology. This pertains to the logico-mathematical methodologies that Lotman and his colleagues regarded as one of the grounds for advancing the scientific dimension of literary study (see Lotman 2022[1967]). Concurrently, there was a rise of interest in semiotics among mathematicians at the time. For this issue, Silvi Salupere has translated one of the manifestations of that interest: Ivar Kull's article "Semiotics and teaching",

the original Russian version of which opened the second volume of *Sign Systems Studies*. The text explores how to optimize learning and teaching processes by balancing metalanguage and object language and ensuring that formal syntactic construction is reinforced through algorithmic constructive logic and semantic interpretation. The commentary by Kalevi Kull and Silvi Salupere places Ivar Kull's work in the context of Tartu semiotics of the 1960s.

The topics that form the core of the issue continue in reviews and notes section with exploring some explicit and implicit pedagogical dimensions of the Tartu(–Moscow) school of semiotics. Ekaterina Velmezova's and Kalevi Kull's review reveals that, when judging by the titles of the articles published in *Sign Systems Studies*, the TMS's explicit academic focus on learning and pedagogy has historically been but modest, and the themes only gained significant momentum in the 2010s. However, interviews with several key figures of the school as well as with people related to the TMS demonstrate that educational concepts and issues have been consistently interwoven with the school's broader research foci.

A translation of Silvi Salupere's interview with Boris Gasparov critically examines the pedagogical barriers posed by academic metalanguage, while Gasparov emphasizes that language acquisition (concerning either natural, musical, or theoretical metalanguage), as well as learning in a more general sense, fundamentally relies on context and memory. Importantly in today's context, he also warns against the illusion of quick mastery offered by rigid theoretical frameworks, noting that true understanding unavoidably requires time and lived experience.

As regards revisiting classics of semiotics from a fresh perspective, Ekaterina Velmezova offers a review of *The Bloomsbury Handbook of Saussure*, a collection edited by John E. Joseph (2025).

The necessity of time and lived experience of dialogues is reflected in relation to summer schools and similar symposia in the last text of the issue. Maarja Ojamaa and Tiit Remm point to patterns in form and in content that connect the historical TMS summer schools with summer schools and symposia held at Duke University, where academic sharing in an effortlessly free atmosphere has created a space and time cut out for mutual learning. The emphasis of the gatherings has similarly shifted from a central concern with teaching of Slavic languages and literatures to them serving as semiotic symposia on teaching and learning.

The necessity of timely, lived experience of contradictory dialogues highlights a central field of tensions within contemporary education and pedagogy. This can be conceptualized by Lotman's distinction between two models of acquiring culture: one operating via a large number of texts and the other through grammars, i.e. formalized rules, metatexts (Lotman 1971). These correspond to the models of 'culture of texts' and 'culture of grammars', respectively. For a while

now, formal education has been prioritizing the latter type, seeking to standardize teaching and testing, trying to constrain even the most creative tasks within rigid evaluation compartments. This pertains not only to academic curricula – coping with the challenges of school bullying and endorsing value education oftentimes is equally governed by rules established by school authorities. The introduction of generative AI has acted as an external shock, shattering the illusionary promises of optimization and measurability leading to true learning. The threat of excessive and unthoughtful use of AI has necessitated a move toward more exploratory and process-ontological practices. This could correspond to the model of acquiring culture via familiarizing oneself with a large number of texts, immersing oneself in cultural experience, and allowing students to derive the rules analytically, on their own. Yet the practical feasibility of this shift is severely complicated by modern information overload, which has reached a state of “semiotic pollution” (Posner 2000). Furthermore, there is a profound irony in the fact that AI itself is trained according to the logic of ‘culture of texts’ and facilitates the generation of formally suitable texts without ever requiring that students master the internal grammars.

As Lotman (1971: 175) has suggested, a sustainable system requires a pendulum-like alternation between the two models. When an excess of individual texts creates redundancy and chaos, grammars should be introduced to restore the semiotic accessibility of information. Conversely, when strict rules lead to systemic rigidity, which stifles the effectiveness of acquiring and storing information and causes a decline in the capability for innovation, the rules need to be relaxed. It remains to be seen whether the current crisis will be able to generate a fruitful contradiction and serve as a catalyst, pushing us to cultivate new practices that will genuinely foster analytical thinking and conscience.

One potential path forward was highlighted by the 2024 Summer School’s keynote speaker Barend van Heusden. He has approached the systemic educational challenges more specifically within arts and culture education, basing his framework on an understanding of culture as (semiotic) cognition (Van Heusden 2009) and advocating for the value of collective participatory art experiences (Schino *et al.* 2025). The latter reveal a complex interplay of affect, cognition and culture – deeply human qualities of learning that remain fundamentally untranslatable for machine intelligence. This untranslatability is an argument in support of the necessity of balancing scientific and artistic types of modelling within the learning process. When the ubiquity of AI threatens to prioritize purely discrete, algorithmic systems of sense-making, the response should evidently lie in cultivating continuous and aesthetic systems alongside them. The key seems to be the flexibility and stereoscopicity of thinking, the capability of holding multiple irreducible languages in tension through which to perceive the surrounding world

and ourselves within it. The semiotic tradition seems to teach us that learning should not be about achieving absolute certainty, but about cultivating the ability to act ethically and creatively in a perpetual state of a lack of knowledge.

We hope that this special issue of *Sign Systems Studies* will serve as another space for fruitful contradictions. Bridging historical self-reflections with the frontiers of post-digital edusemiotics, it invites the reader to explore the semiotic mechanisms facilitating new knowledge and understanding.

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