LIQUID STRELKA

ADAPTIVE. LIQUID STRELKA

by Liya Safina

"The new education must teach the individual how to classify and reclassify information, how to evaluate its veracity, how to change categories when necessary, how to move from the concrete to the abstract and back, how to look at problems from a new direction – how to teach himself. Tomorrow's illiterate will not be the man who can't read; he will be the man who has not learned how to learn."[1]

— Herbert Gerjuoy, psychologist of the Human Resources Research Organization, cited by Alvin Toffler.

In today's economy, in which there are constantly new activities and professions emerging, fewer and fewer students end up finding long-term employment in their fields of formal study.[2] They require constant updates to their qualifications, lifelong learning and adapting to new challenges — abilities that can serve over the course of one's lifetime.

As the skills needed from today's graduates are shifting, many postgraduate programs are still focused on providing students with formalized professional knowledge. Having developed standardized approaches, such programs lack the tools for developing competence in "learning to learn" — an ability to self-manage the learning processes, to gain awareness of specific needs, to identify available opportunities and to overcome obstacles in order to learn successfully.

Where learning is directed towards particular work or career goals, an individual should have knowledge of the competences, skills and qualifications required. As revealed in a study of the Russian education system conducted by the World Bank and the Russian Higher School of Economics (HSE), the gap between demand and available skills increases at every level of the education system. It becomes even more important after the graduate enters the labor market.[3] The Agency for Strategic Initiatives estimates the adequacy of Russian student qualifications for employer demands as 5-7%.[4] This suggests that the postgraduate programs need to be in better contact with employers in order to understand their needs and better prepare students.

In response to these developments, the Moscow-based Strelka Institute for Media, Architecture and Design is working to become an incubator for developing critical thinking and independent learning skills among postgraduate students from Russia and abroad. Initial results have been promising, as 84% of Strelka alumnae end up pursuing jobs in the institute's areas of focus.[5] Strelka is an experimental research-based education project that also hosts public events, consults on urban development and publishes leading books on urbanism, design, media and architecture. The institute is dedicated to achieving tangible change in Russian cities and communicating the results to interested audiences in Russia and around the world.[6]

Strelka focuses on enabling participatory learning — and there are numerous ways to get there. The education program is evaluated and modified each year, which has resulted in the development of a Studio Generale course to bring each research studio together and provide students with important skills and stimulating talks on urbanism, architecture and other topics related to the school's areas of focus.[7] So far, the third-year Studio Generale includes a series of training sessions in relevant professional and social skills, as well as theoretical lectures, with a stronger emphasis on theory over practice.

As an experimental institute, Strelka is constantly trying new ways of improving its approach to education. In keeping with this goal, the current project is dedicated to learning from students and staff what aspects of the program need improvement. I started with a questionnaire survey, completed by 33 of the 36 students in Strelka's class of 2013. I then interviewed tutors, directors, trustees and administrators. The following Q&A session is compiled from the interview and survey results.[8,9]

Q&A WITH STRELKA

Q: The main points of controversy at Strelka as an educational institution are whether it's a school, a think tank or a research lab. Correspondingly, whether the students are actually students, young experts or research interns?

A: According to the student survey results, the prevailing factor attracting students to Strelka is a desire to attain progressive knowledge and, for almost half of respondents, an ability to interact with international students. For some prospective students, applying to Strelka was not only a way to discover what kind of knowledge the institute produces, but also a place to develop their professional trajectory.

One of the respondents in the student survey states: "we were advertised to all be "experts" from our respective fields that would then engage our knowledge and skills in collaborative research. Instead, we were considered students from the day we arrived, never as professionals with useful knowledge and abilities." In answer to such comments, a representative of Strelka administration, argues that students are the ones to choose a passive or active position. One of the tutors explains: "Students have inflated demands — this is due to the fact that they are expecting orders. This is the position of an executor, not an initiator that a Strelka student is supposed to be."

Q: This indicates that the issue of clarity itself is a matter for discussion: if everyone's position is completely defined, will this lead to best results or does it leave no space for initiative, innovation and pushing the limits?

A: One of the studio directors asserts that "students should develop faith in their instincts — the more you handhold the student, the more requests for handholding you get. Everyone should be treated as an adult until proven otherwise." The survey indicates that students have given the possibility of independent learning some thought: a third of them would like to work on their own topic instead of pre-prepared studio themes. One respondent states: "I think we should propose our own and inspire others to follow, that way getting more enthusiasm into the projects."

According to the survey, 25% of students find that they need more guidance and critique, while 7% would prefer less; lack of clarity and transparency are the top 10 negative aspects listed by students.

Q: What is the best way for such international and diverse group to operate? Should they be following a set of instructions or is the interaction meant to proceed organically?

A: More than 70% of students feel their most comfortable workflow involves combining independent work with curation by a tutor, coach or instructor via teamwork, while 15% state that they definitely need outside curation. Only 3% prefer working independently. One of the directors claims that it is almost impossible to have a general program that suits everyone, but notes that it is important to develop self-management and independent working skills in students. Although, remarks, "a lot of people who want to be self-directed — shouldn't."

As for activities that enhance students' learning and teamwork abilities, Strelka introduced a sneak-peek during a welcome workshop in year three. The student survey shows that two thirds find these kinds of activities useful for their work at Strelka, but almost 20% claim that it should be executed in a way that's more relevant to further studies.

Q: Is there a way for students themselves to contribute to the education program and each other's learning?

A: Half the student body claims that colleagues influence their work, though only 17% feel that they have a profound influence: "I'm inspired to see so many active young people in one place," admits one of the respondents. Others feel that the professional background of their fellow students didn't play as big a role as expected. A quarter of the students learned very little from their peers, which some consider a disappointment: "I've benefited very little from other students' expertise, and that is a big issue. We should learn more from each other." One of the studio directors thinks the root of the problem lies in divergent studio work: "Only doing one research project over the entire period is ridiculous, old school thinking. Think about what this group could have done when complementing each other's strong points, reinforcing the many great ideas that are in the group. Instead so much struggle, even frustration."

According to the survey two thirds of students find peer review and interaction "difficult but very useful." Some claim that the issue derives from two components: "connection" (not having the same goal and research interests) and "productivity" (group size and dynamics, cannot be called a team), others claim that the institute does not provide the students with a "special methodology for exchange," disrupting the concept of interdisciplinarity. In reference to group dynamics: "I have many times held back because there isn't a culture of constructive feedback or interest in students opinion," though more than half of students claim to freely express their opinion in the group.

> While students' role and its definition, interdisciplinary peer knowledge exchange and group dynamics have been important themes in Strelka's education program this year, the institute is willing and able to adapt. So far, Strelka has changed significantly each year, maintaining a commitment to experimentation and adjustment.
>
> With a shifting world economy and emerging technologies placing ever greater demands on graduate students, the ability to be independent and curate one's own education, successfully working both alone and in groups, challenging oneself to react to new conditions, is in great need.
>
> How can a postgraduate program provide conditions that stimulate and promote such qualities? Taking the interviews and survey results into account, as well as my personal experience as a student, I developed an adaptive program for Strelka that could eventually be applied in the Russian education system. It focuses on building strong competence in "learning to learn."

ADAPTIVE LEARNING

ADAPTIVE — readily capable of adapting or of being adapted — fit for specific needs or situations

Deriving from the studies of John Dewey on learner reflection and experience, the roots of adaptive learning lay in learner-centered teaching theory by Carl Rogers 10, which has in turn been a forerunner of current concern with the teacher's central mission to facilitate the learning process rather than simply transmit knowledge (which now can be independently received from books, online videos and lectures).

Donald Schön, Chris Argyris[11] and Peter Senge,[12] respectively, have defined adaptive learning via the notions of organizational, generative and single/double-loop learning. As follows, adaptive learning can be explained through a double-loop learning process that involves questioning the role of the framing and learning systems that underlie actual policies: goals, strategies and values. It differs from single-loop learning whereby, when facing a failure or error, taking the existing policies for granted, and carrying on the error-and-correction process without questioning goals, strategies and values. Double-loop learning occurs when error is detected and corrected in ways that involve the modification of underlying norms and objectives.

In that respect, the principles of adaptive learning could be defined as rules that enable constant "going through the loops" and inner policy questioning. Adaptive learning itself can be viewed as an algorithm and seen in many learning methodologies. In order to identify those, a sample analysis was conducted for this research. Over 300 approaches to education (long list) were collected and connected to instructional design theory (short list, 30 approaches) further singled out. In this case, instructional design served as a filter for the most effective and efficient methods, techniques and education systems that can be used in the field of professional pedagogical practice. I then identified principles related to the "loop factor" (75 total) mentioned above and later forming groups according to numerous factors like degree of tutor involvement and student activities, use of resources (17 groups).

The identified principles included those concerned with the individual's ability to relate, being grounded in direct experience, equipping students with skills ensuring competence, performance and productivity, expanding the setting to include a broader range of people to learn from and places in which to learn and lifelong learning.

One of the most interesting findings was that the identified principles paralleled with the main principles of self-directed learning — almost directly recapping them. A conclusion could be made that an adaptive approach to education is closely linked to self-directed learning — a process in which the subject of education takes the initiative to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes.[13] It is also a process that contextualizes direct experiences and focuses on developing strategies for maximizing learning through the extraction of implicit rules.[14]

According to Roger Hiemstra self-directed learning is focused on learner empowerment with many possible tools and takes on the task of self-curation as a lifelong process, keeping in mind the group and enabling students to be a resource for each other, including shifting the role of tutor from direct teaching to mentoring and coaching.[15] This kind of approach could serve as an appropriate base for developing new tactics and strategies for improvement at Strelka. Having mapped student self-management, peer interaction, reciprocal teaching and group dynamics as the main areas of need, the next step is to detect the means of incorporating them into the program, which starts with equipping students with a set of techniques and tactics in the framework of learning to learn.

PROJECT PROPOSAL:
LIQUID STRELKA

Based on my research and experience as a student, I decided to develop a framework proposal for next year's Strelka educational program (Liquid Strelka — Pilot I), as well as an experimental two-month course during Strelka's summer program (Liquid Strelka — Pilot II) with an ultimate goal of testing the suggested methodology.

During the studio's field-trip to the United States, I had a chance to consult with leading experts in educational methodology.[16] According to Nancy Gropper, Associate Dean for Academic Affairs at Bank Street College of Education, a clear structure and tools should be provided first and foremost for students to be self-directed. At the same time, Janet Rankin, Senior Associate Director for Teaching Initiatives at the MIT Teaching and Learning Laboratory, suggests that such an approach might start with providing a framework to increase self-awareness through a "working backwards approach," in which students set their learning goals by imagining their perfect future selves.
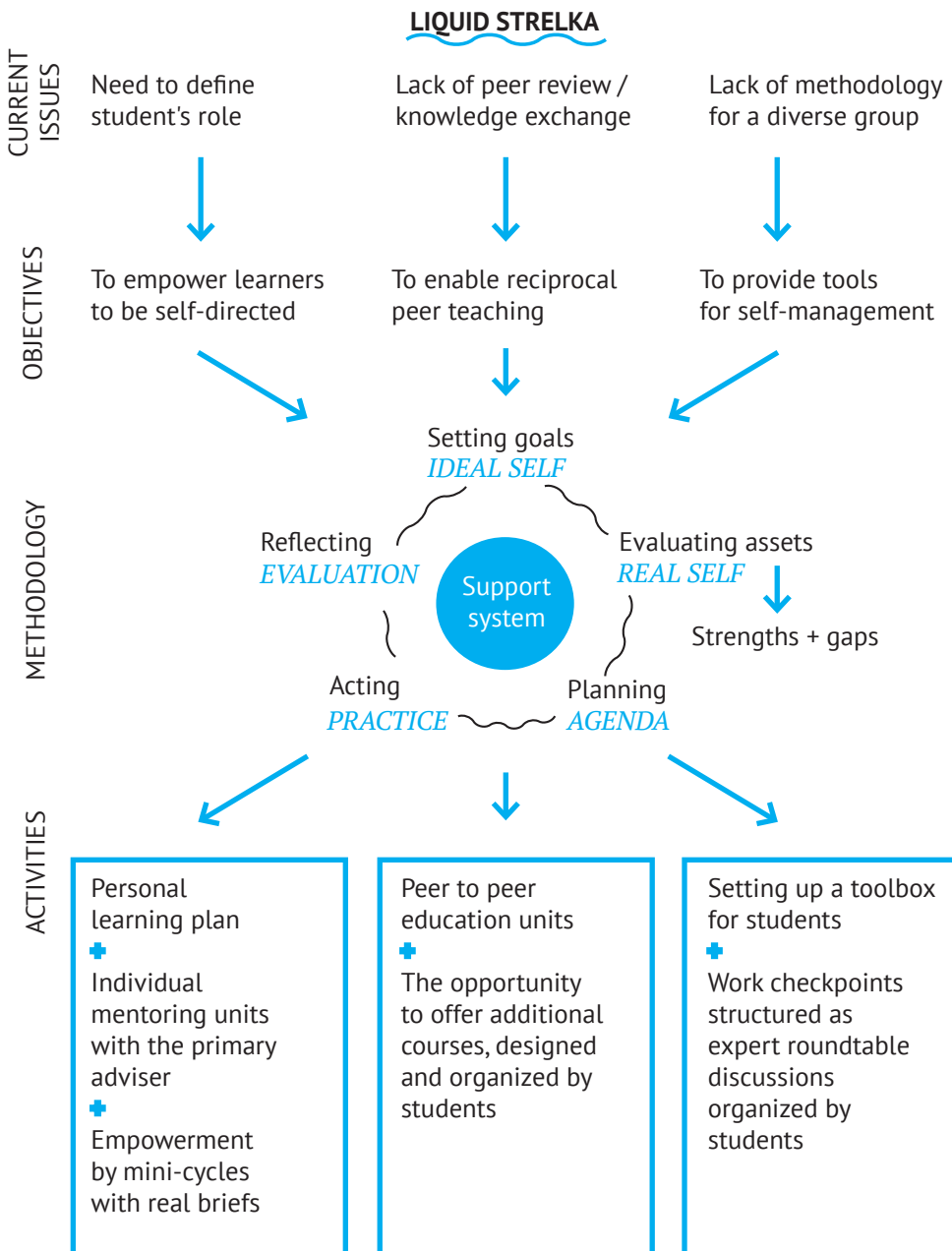

LIQUID STRELKA

CURRENT ISSUES
- Need to define student's role
- Lack of peer review / knowledge exchange
- Lack of methodology for a diverse group

OBJECTIVES
- To empower learners to be self-directed
- To enable reciprocal peer teaching
- To provide tools for self-management

METHODOLOGY
- Setting goals — *IDEAL SELF*
- Reflecting — *EVALUATION*
- Evaluating assets — *REAL SELF*
- Strengths + gaps
- Support system
- Acting — *PRACTICE*
- Planning — *AGENDA*

ACTIVITIES
- Personal learning plan + Individual mentoring units with the primary adviser + Empowerment by mini-cycles with real briefs
- Peer to peer education units + The opportunity to offer additional courses, designed and organized by students
- Setting up a toolbox for students + Work checkpoints structured as expert roundtable discussions organized by students

Figure 1.
The model includes a synthesis of Malcolm Knowles's five-step model of self-direction,[17] self-knowledge continuum by Boyatzis[18] and Kolb's learning cycles.[19]

She adds that working with the model of Blooms taxonomy would help students improve their critical thinking skills and add-up to a conscious approach to building their learning trajectory.

During a visit to the Gallatin School at N.Y.U., a learning program in which students independently determine their area of study and create a learning plan, it was highlighted numerous times that the role of mentor in such an approach is extremely important. David Moore, Gallatin's Associate Professor, emphasizes the value of reflection, which is "actually your experience and the connection to things you learn at school," noting that it is a necessary element in pedagogics enabling students to conduct self-help.

To ensure quality execution of the concept, as well as efficient and sustainable learning, a coherent framework was also designed, representing a package of aims and objectives, methodology and activities, tools of reference, monitoring and evaluation.

PILOT I

The Liquid Strelka strategy is focused on the adapting to the needs of the students and the school. It involves splitting Studio Generale into two layers: a professional knowledge unit and a "learning to learn" unit, with equal amount of time and attention given to both. The objective of the first unit is to establish a common intellectual base. The second is dedicated to self-directed and peer learning, suggesting principles for an educational program that ensures learner-empowerment.

The first month of Strelka is fully dedicated to the "learning to learn" segment, in which students detect their learning needs, evaluate their skill and knowledge assets (not only those they already possess, but also the resources of the group) and create a learning plan to achieve the goals they've set. It would start from a series of workshops that students give to each other in order to increase interaction and knowledge exchange among students and better understand the skills and experience present in the group. Further suggested practices address priority areas in each of the different levels of learning:

ACTIVITIES
Regarding students as experts.

a) **Personal learning plan** creation with verification and correction after each educational stage (as seen at the Gallatin School)

b) **Peer to peer education units** — student teaching something to another student and learning something in return, collaborative projects in which one remixes another's work (at the MIT MediaLab, USA)

c) **The opportunity to offer additional courses** in the program of Studio Generale, designed and organized by students (as seen in the General Education course at Harvard University), as well as an opportunity to take part in production (instead of simply participate) in the course according to your field of expertise, using tools suggested by the institute and generated by students

d) **"Mini-cycles" group activities with briefs from clients** (e.g. Strelka Consulting), being not a research simulator but mini-researches on their own — Studio Generale knowledge units thematically clustered around them

e) **Individual mentoring units** with the primary adviser acting as facilitator, enabling the student to make useful decisions in his or her personal learning plan, as well as to understand essential theories and practices in the chosen field — leaving decision to the student (as seen at H-B Woodlawn, USA)

f) **Numerous work checkpoints structured as expert roundtable discussions** organized by students around the topic of their work and their project

A guideline system that incorporates the concept of double-loop learning:

Step 1 — setting goals — ideal self
The kind of thinking that helps provide a "need to know" in students by setting the personal goals of their education — could be depicted as a model of "ideal self" — what would they like to end up with in 9 months. It is also aimed at collecting expectations of what could be gained at Strelka and what is the reasoning behind the decision to join it's educational program.

Step 2 — building a self-inventory — real self
Increasing self-awareness via conducting an inventory of already possessed knowledge and skills gained through pre-Strelka experience and professional practice. This also allows us to catalogue overall spectrum of knowledge possessed by the group for future mutual exchange and to also collect expectations of what could be gained at Strelka and what is the reasoning behind the decision to join it's education program.

Step 3 — defining the objectives — (ideal self - real self = X)
Detecting gaps in skills and knowledge (what is missing and what could be improved). This stage also suggests Strelka referring back to what the institution expects from the students and their projects in order to synchronize the overall goals.

Step 4 — self-management — how to get to X?
Building a learning agenda according to personal and institutional goals, as well as identifying what is already present in the group and whom to learn from. As this is the moment right before the groupwork begins, it is the right time to set the group culture and rules for teamwork.

Step 5 — experimentation + being a resource
Implementing appropriate learning strategies. Effective learning occurs when a person progresses through a cycle of four stages: concrete experience followed by observation of and reflection on that experience.[20] This could also be implemented as alternating fast-pace prototyping briefs (to introduce students to the methodology and get them adjusted) and slow-paced discovery cycles.

Step 6 — self-assessment and loop continuation
Referring back to overall goals, "ideal self" model and group culture — questioning whether they need to be changed and adjusted. Continuing to a next loop.

← **METHODS**
Aims at an autonomous student, who does not need a tutor.

Support system 1: sources of information to shape the learning process. The reference tools include a toolbox (a) and a concept note (b).

a) Toolbox — a collection of tools (simulation exercises, creative workshop instruments, outdoor activities etc.) for students to put educational objectives into practice.

The toolbox approach is successfully implemented in the European Commission's "Youth in Action" (YiA) program serving as an online catalogue of non-formal education methods for youth trainees to browse through and to contribute to. The Strelka toolbox could serve as a storage of methods already in use throughout all three years of the institute activity, to ensure transferability of previous educational findings and a strategy for creating synergies.

b) Concept note — an institute statement, general agreement of Strelka staff and direction on unified principles that would state the values of learning (such as equal attitude to students, freedom of choice, mutual educational interaction among students + staff, reflective approach and why it is valuable etc.) and agree to create such conditions.

← **REFERENCE TOOLS**
Aims at the institute having the power to share tools and express position.

Support system 2: allows for monitoring and adapting, if necessary, the conditions of implementation, as well as supporting reflection on further modification of the program.

a) Learning portfolio is an organized collection of past and current learning experiences, goals and accomplishments, and can serve as a dynamic tool for planning and capability assessment. It could include completed assignments, reflections on process and valuable observations. According to the experience of implementing this tool at the University of Pittsburgh, University of Cincinnati and University of Washington it could fulfill such functions as reflecting on groupwork and interaction experience; identifying links between curricular and co-curricular involvement; integrating learning across experiences; maintaining a comprehensive resource for developing and achieving short-term and long-term goals; providing access to an organized record and the ability to demonstrate growth over time.

b) Reflection and feedback sessions — as a vehicle for the process of examining, analysing and interpreting experience so as to learn from it. According to the research conducted at Vanderbilt University in Nashville[21] an effective reflective practice may also adhere to the following principles: continuous — before, during, and after the experience; connected — are linked to the intellectual, academic, and civic learning goals; challenging — encourage critical thinking and analysis that produces new understanding; contextualized — consider the course, developmental stage of students, place in the curriculum etc.; coaching — provide ongoing, rather than intermittent, feedback.

PILOT II: SUMMER PROGRAM

This intensive two-month experimental program for young professionals (10-12 people) provides a supportive yet demanding structure for development into self-directed learners. The overall goal of the summer course is to test the idea that, given enough tools, resources and support, as well as fully using the human resources of the group, students can successfully organize and curate their own learning processes.

COURSE OVERVIEW
The course is designed to last for two adaptive cycles, providing students with an opportunity to relive the same experience, correcting mistakes, improving their approach and questioning the underlying goals and policies. Each of the two cycles consists of skill-intensive and independent group-work unit, focusing on an urbanism-related brief that derives from Strelka's previous student projects or consulting practice (e.g. park revenue model).

The skill-intensive unit, includes a series of 90-minute intensives on critical competences, group dynamics and project management — all of those conducted by Strelka alumni 2013 with participants involved (according to their area of professional competence), enabling peer interaction and review. Second is an independent working unit put together by the participants themselves, with mentoring sessions provided for support. The group would be divided into three subgroups to work on three project briefs. Learning portfolio and feedback sections would serve as a "monitoring in progress" tool, allowing the course to be modified on-the-go.

PROGRAM SCHEDULE
July 3 – August 20, 2013

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