

(1) Hello,
I am Dr. Valentin Voroshilov,

<http://www.phystec.org/conferences/2016/>

Physics
Teacher
Education

Coalition

Improving the Education of Future Physics Teachers

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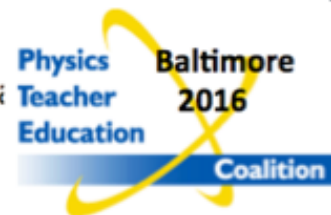
Conference

2016 Physics Teacher Education Coalition Conference

*March 11, 2016 - March 13, 2016 in Baltimore, Maryland at the
Royal Sonesta Harbor Court - Baltimore*

The Physics Teacher Education Coalition Conference is the nation's largest meeting dedicated to physics teacher education. It features workshops, panel discussions, and presentations by national leaders, as well as excellent networking opportunities. The conference will precede the [APS March Meeting](#).

The Conference begins at 7:00 pm Friday, March 11 and ends at 2:00 pm Sunday, March 13.



Links: video: <https://youtu.be/9ZEWcp41ASo>

html: www.teachology.xyz/PrD.htm

(2) I've been in the field of education for many years playing many different roles.

I was born and grew up in Russia. I had a pretty good career in Russia, but when I got a chance to move my family to the US, I took that chance.

Dr. Valentin Voroshilov

www.TeachOlogy.xyz

Professional experience and areas of expertise:

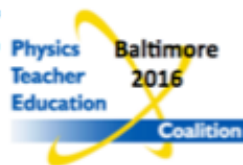
Teaching:

**Algebra based physics
Calculus based physics
Physics for science teachers
Physics for students with
learning disabilities**

**Algebra
Geometry
Trigonometry
Methods for teaching physics**

Consulting:

**Individual teachers
School administrators
District administrators
School and district teams of
educators
on strategies and tactics for
advancing teaching practices
and improving learning
outcomes.**



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(3) After starting again from the bottom I have regained most of my previous career achievements. I am pretty proud of this, considering I had no formal education in English and no professional network to support my efforts.

Dr. Valentin Voroshilov

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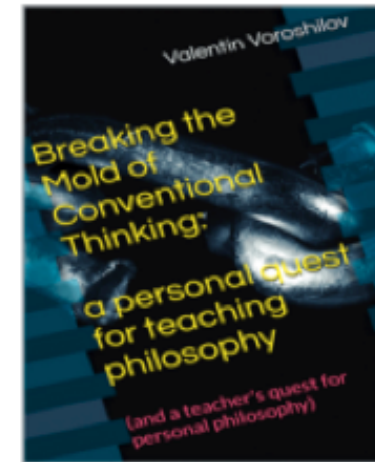
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Some of our publications



[click here for more](#)

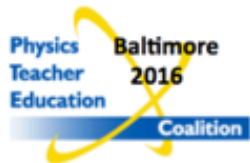
[Thinking about becoming a STEM teacher? Think!](#)

[Professional Designing As One Of The Key Comp](#)

[Education reform needs a new paradigm.](#)

[A confirmation of good teaching.](#)

[How I flipped my class without even knowing it.](#)



Dr. Valentin Voroshilov



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(4) The title of my presentation is "Project-oriented form of teacher professional development for pre-service and in-service physics teachers"

I would like to start my presentation from two statements:



**"Project-oriented form of
teacher professional
development for pre-service
and in-service physics
teachers"**

(a.c.a *"Professional Designing"*)

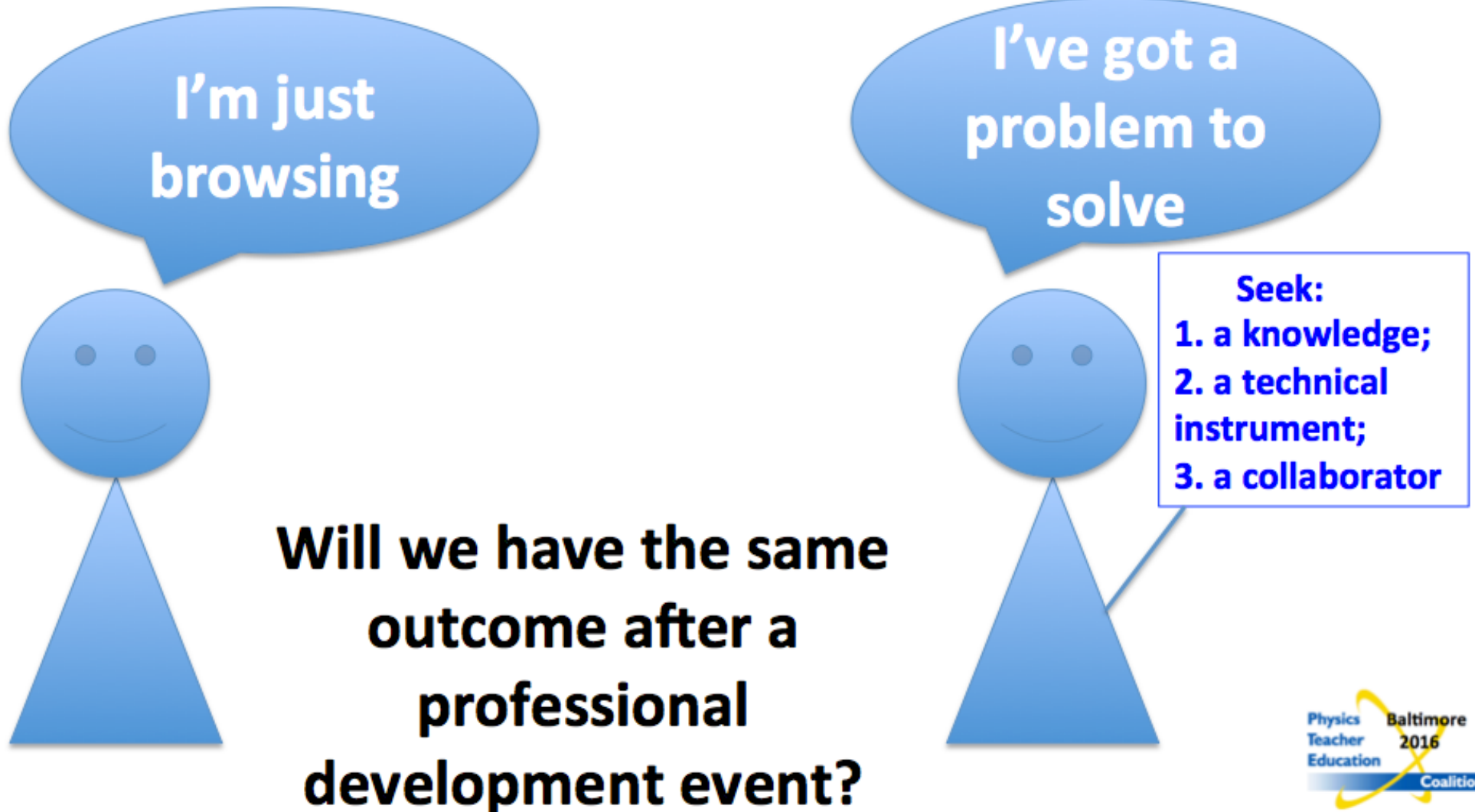
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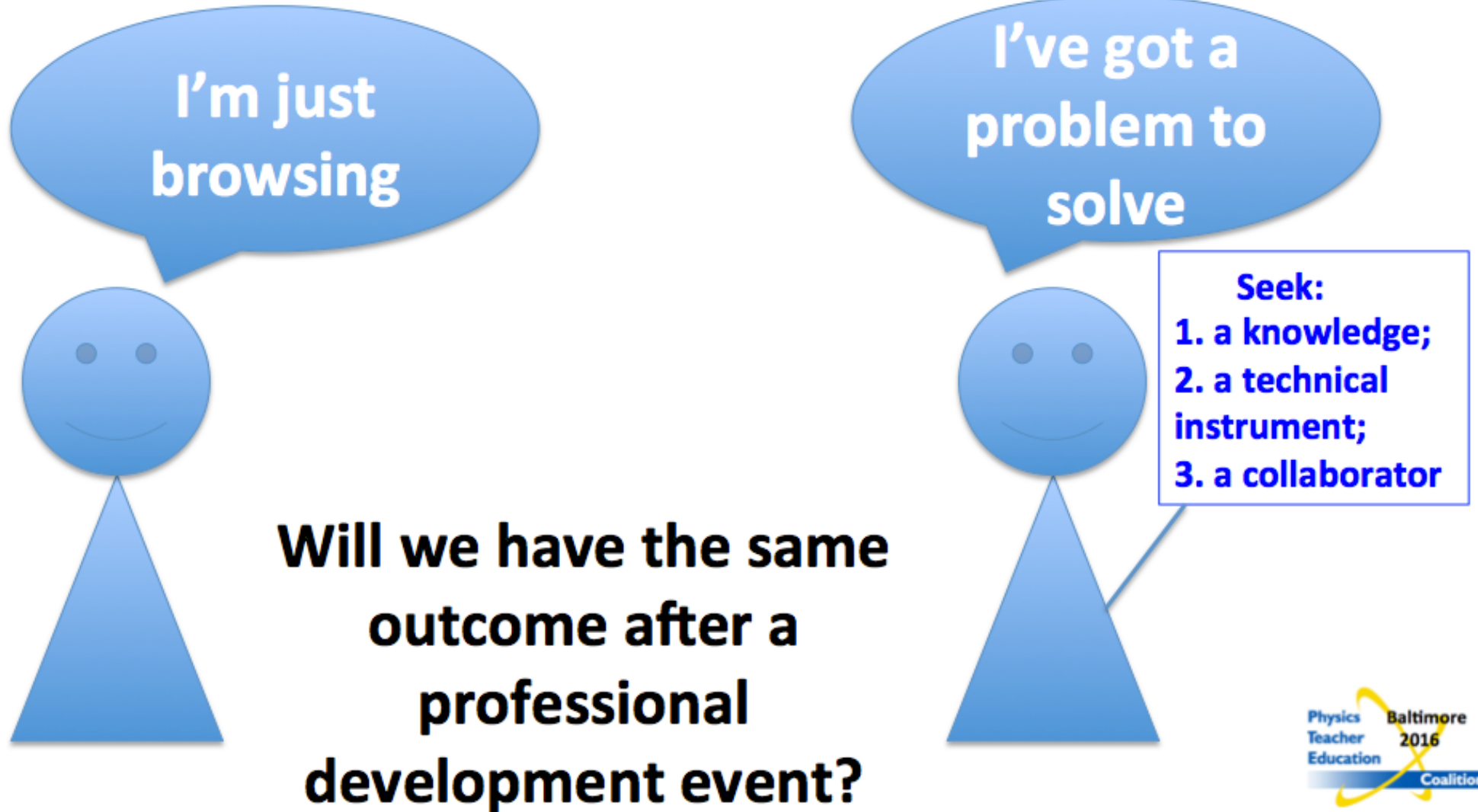
(5) This conference is a big professional development event. When attending such an event, the result depends heavily on the attitudes of the attendees.

Having a passive attitude means, that during an event an attendee does not search for a specific means for advancing his or her own practice; the activity is limited by seeing or hearing something new.

Having an active attitude means, that during an event an attendee searches for a specific means for advancing his or her own practice. Such a means can include a specific knowledge, or a technical instrument, or a potential collaborator, or else.



(6) When a teacher attends a professional development event, he or she always has a choice to make. The teacher can take a passive position (“I am just looking for something new and interesting”). Or, the teacher can take an active position (“I have a problem and I need to find a means to solve it”).



(7) The latter position significantly increases chances that after the event the teacher will be making some constructive changes in his or her teaching practice. And that is what we all want from a professional development event.

The outcome and effectiveness of a teacher professional development event is viewed via changes in the teaching practice made by the participant (attendee) after the event, and focusing on making advancement in the teaching practice by solving specific problems and overcoming specific obstacles.



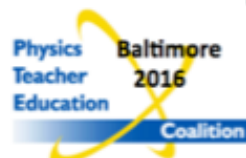
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(8) “When I started my career, I did not have a say in the menu of courses that my district taught. We logged into a training system and chose, based on what was being provided. The problem was that *none of the provided sessions applied to what I needed*, and when district requirements were that a certain number of hours be earned through in-district training, it meant that *a large majority of teachers were taking courses just to earn the hours*. That was more than 10 years ago, and sadly, in many school districts, this is still the case.”
This is a quote from a book by Rafranz Davis, “The Missing Voices in EdTech”, 2015 (CORWIN)

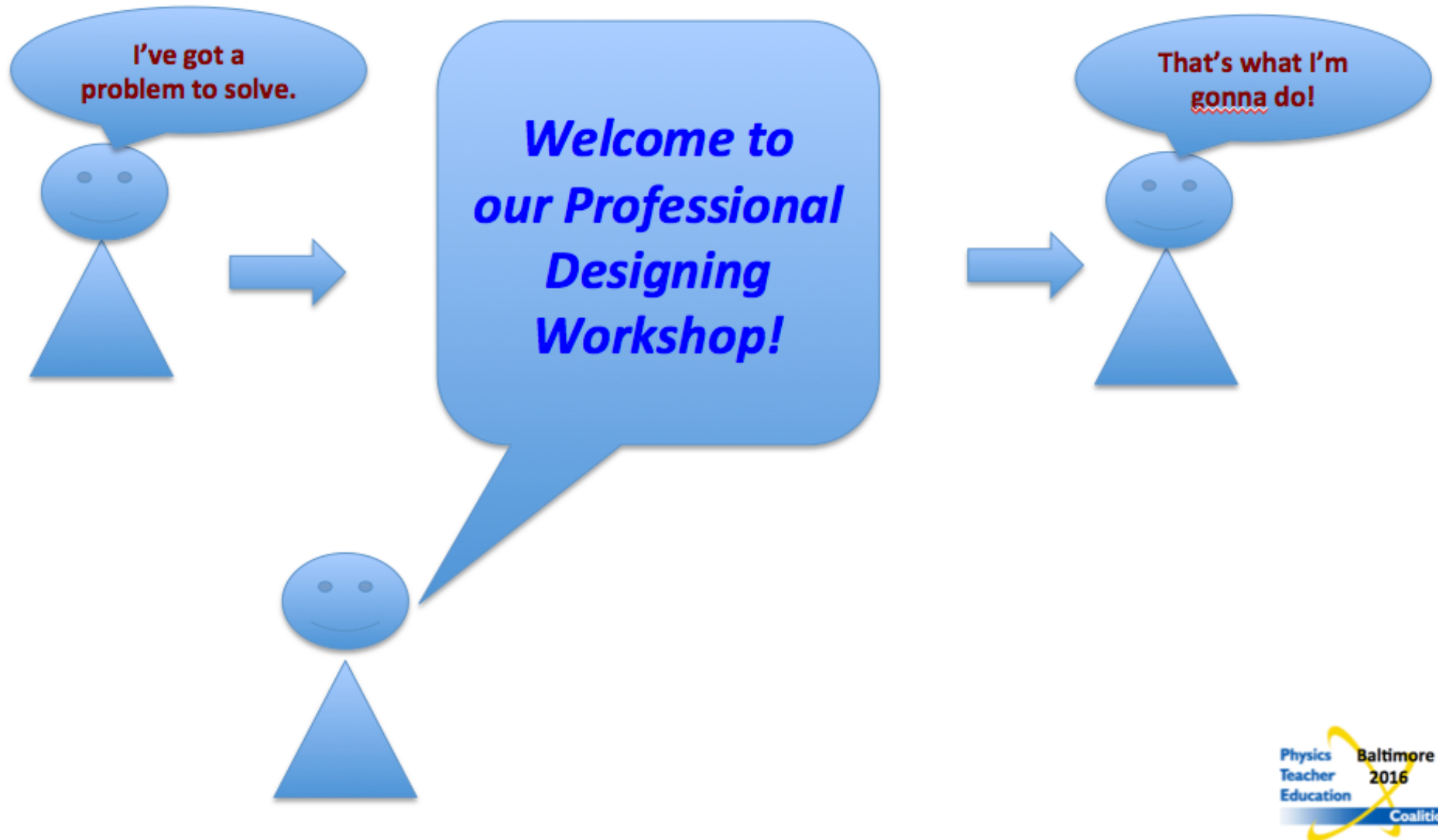
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(9) Various researchers have been looking for methods to ensure that after attending a professional development workshop a teacher will bring into his or her practice new knowledge presented at the workshop. One of the practices which proved to be efficient is based on the activity theory, and called “Professional Designing”.



(10) Professional Designing helps to ignite and maintain a process of transformative development of an individual or an institutional educational practice.
The theoretical foundation of this branch of the research can be found in publications of G.P. Shchedrovitsky (1964, 1966, 1971, 1977, 1981), and his colleagues, such as N.G. Alekseev (1992) and followers such as A.P. Zinchenko (2014).

Center for Activity Theory and Developmental Work Research

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The Moscow Methodological Circle

Moscow Methodological Circle (MMC) is the philosophical and methodological intellectual and practical school established by [Georgy Petrovich Shchedrovitsky](#) (or, GP, as many of his pupils nicknamed him)

The Circle emerged in the early 1950s and took its final shape in 1954 in the course of the discussion on the issues of logic that was held at the Philosophy Department of the Moscow State University. It was first known as the Moscow Logical Circle (MLC). The founding fathers of the MLC were [A. A. Zinoviev](#), [G. P. Shchedrovitsky](#), [B. A. Gushin](#) and [M. K. Mamardashvili](#).

In the year of 1958, after the split-up with A. A. Zinoviev, G. P. Shchedrovitsky became the ideological and organisational leader of the Circle, and the Circle took the name of the Moscow Methodological Circle. Today GP's pupils established [independent organisations](#) proceeding with the intellectual traditions of the Circle, and the MMC took the form of a broader [Methodological Movement](#).



methodological discourse.

Shchedrovitskiy Georgiy Petrovich (1929-1994) - Russian philosopher and psychologist. Studied the problems of interrelations between Pedagogy, Logic, Sociology and Psychology. Researched intellectual activity, methods of solving mathematical problems by children, the place of play activity in children's communities. Proposed the idea of conceptual-genetic logic. In 1980s developed, in collaboration with his students and followers, participatory planning games combining the characteristics of training and business games with intellectual

Activity theory

Lev Vygotsky

From Wikipedia, the free encyclopedia

Lev Semyonovich Vygotsky (Russian: Лев Семёнович Выготский or Выгóтский, born Лев Симихович Выгодский [Lev Simikhovich Vygodskiy], November 17 [O.S. November 5] 1896 – June 11, 1934) was a Soviet psychologist, the founder of a theory of human cultural and bio-social development commonly referred to as [cultural-historical psychology](#), and leader of the [Vygotsky Circle](#).

Vygotsky's main work was in developmental psychology, and he proposed a theory of the development of higher cognitive functions in children that saw reasoning as emerging through practical activity in a social environment. During the earlier period of his career he argued that the development of reasoning was mediated

Lev Vygotsky



Professional Designing helps to ignite and maintain a process of transformative development of an individual or an institutional educational practice.



Links: video: <https://youtu.be/9ZEWcp41ASo> html: www.teachology.xyz/PrD.htm

(11) By a definition: Professional Designing is an intellectual activity resulting in: (a) constructing an image of the ideal/perfect professional situation (whatever it might mean for a given person), and (b) planning activities aimed at the transformation of the actual professional situation making it closer to the ideal one; the material result of a professional designing is a project.

The link on the screen leads to a broader description of Professional Designing and its application to teacher professional development: <http://www.teachology.xyz/pd.htm>.

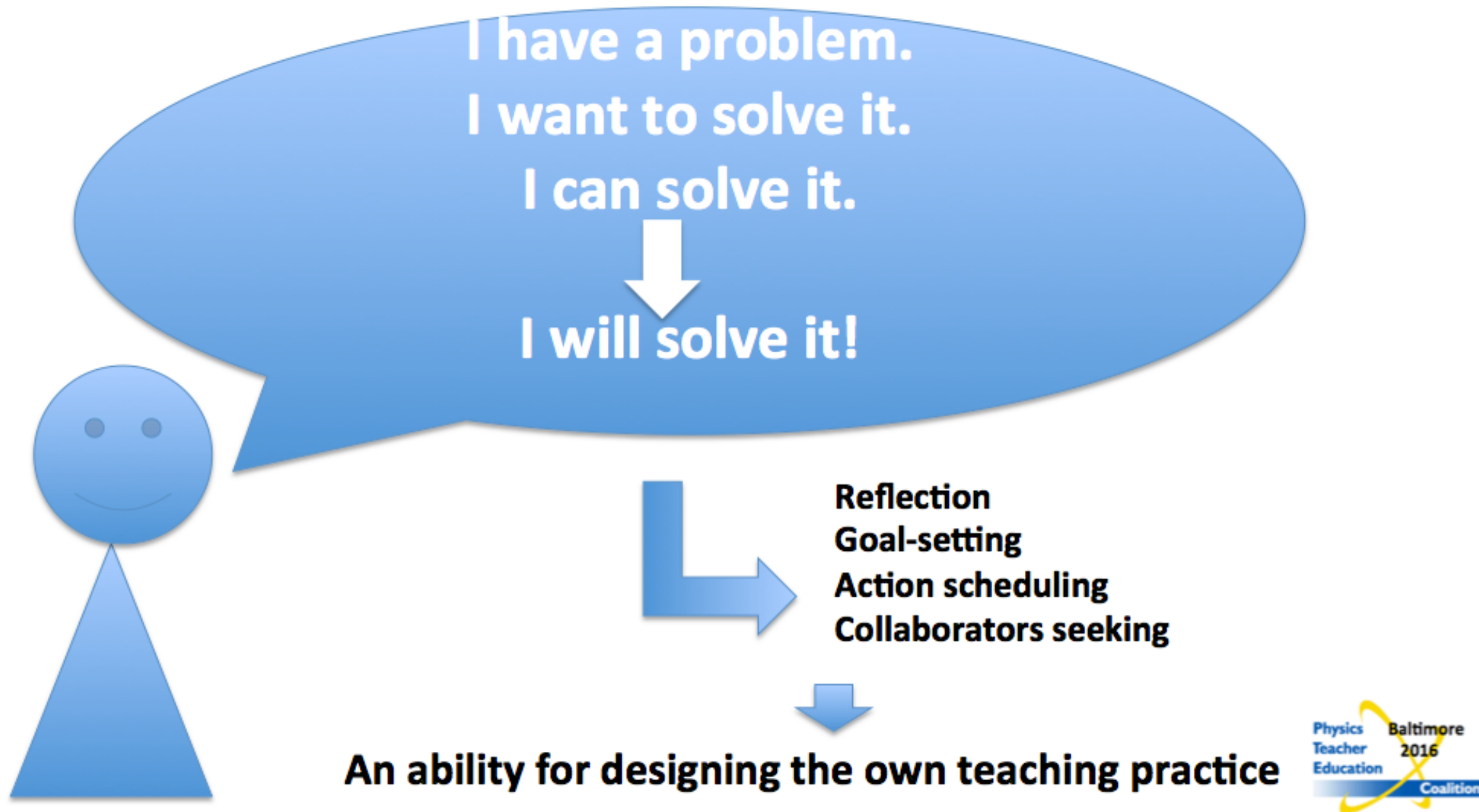
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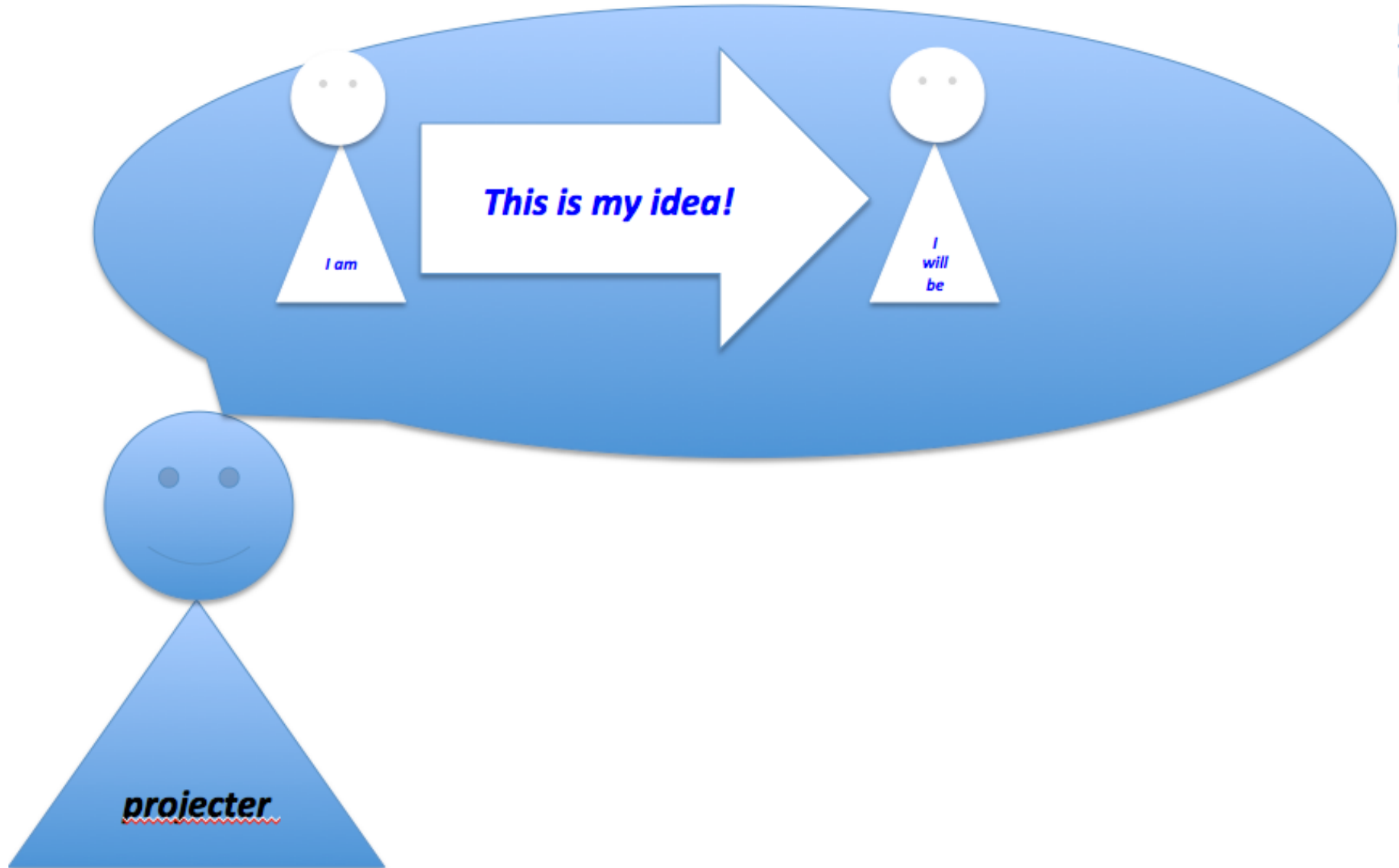
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(12) In order to transform his or her professional situation, teachers (a) must be willing to change their own practices, and (b) must be able to make the change. This means that professional skills, abilities, competencies of a teacher should include not only specific subject-related skills or teaching-related personal qualities, but also “meta-skills”, allowing to manage processes of idealization (i.e. drawing mental images), reflection, goal-setting, action scheduling, and so on, which are required for transforming a human practice. A combination of such skills forms the ability for designing the own teaching practice.



(13) A professional designing is an activity that takes place primarily in the area of personal values and motives, goals and objectives, actions and procedures, problems and possible solutions. When conducting a professional designing, or shortly – when designing, one does not deal with real objects or subjects, but manipulate with the abstract concepts relevant to the one's professional practice (here and below a person conducting a professional designing is called a designer, or a projector).

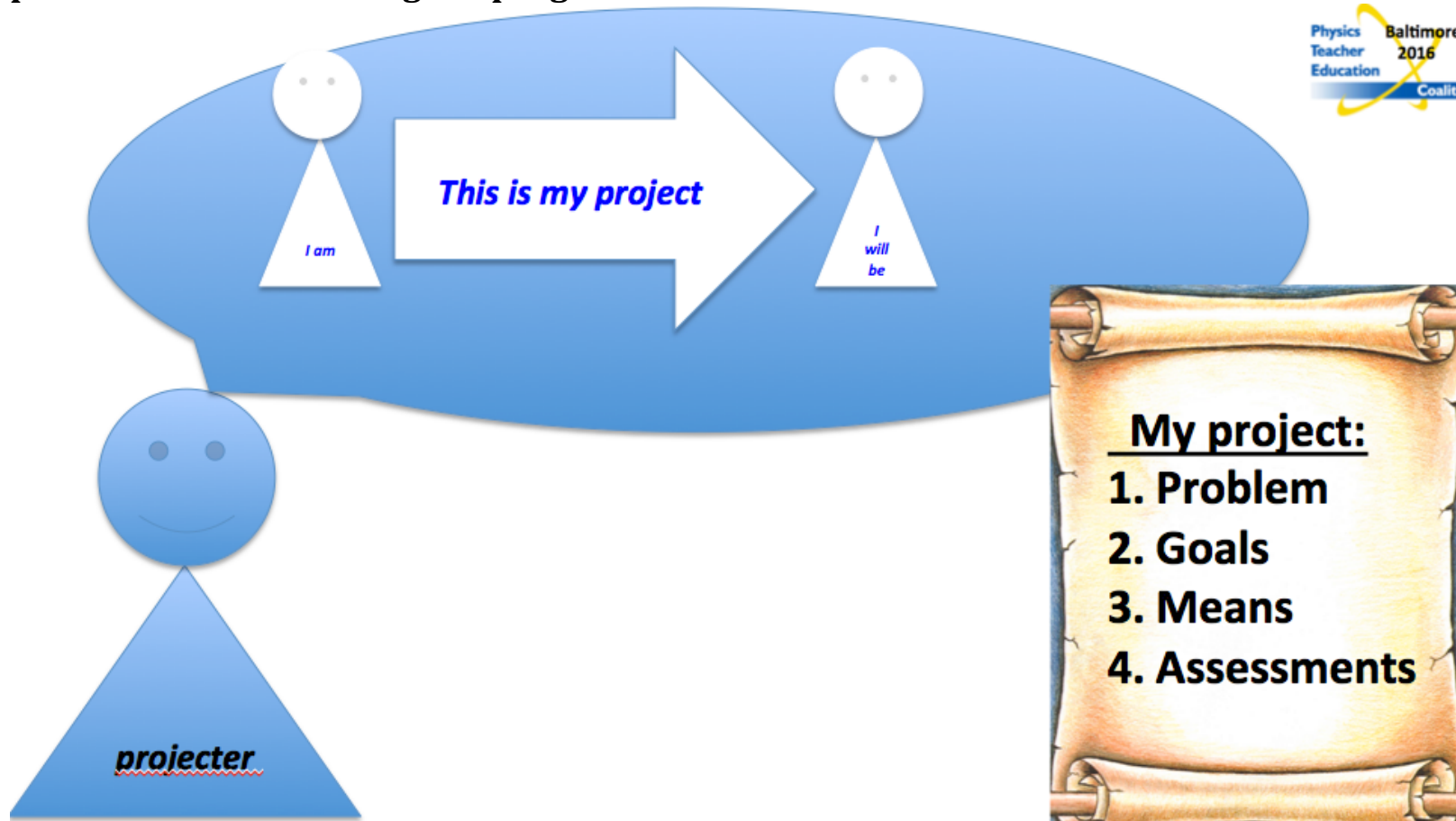
The first product of a professional designing is the formation of a project idea.



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(14) In simple terms, a project idea of a designer describes in his or her words “what is wrong with what I do”, and “how will I fix it”. The presence of a project idea does not automatically ensure its future realization, but it indicates the direction of the future actions of the designer; the project idea becomes the basis for the development of a detailed professional project, which is a textual representation of a current professional situation, certain professional problems, and proposed steps for solving those problems, including criteria and procedures for assessing the progress.



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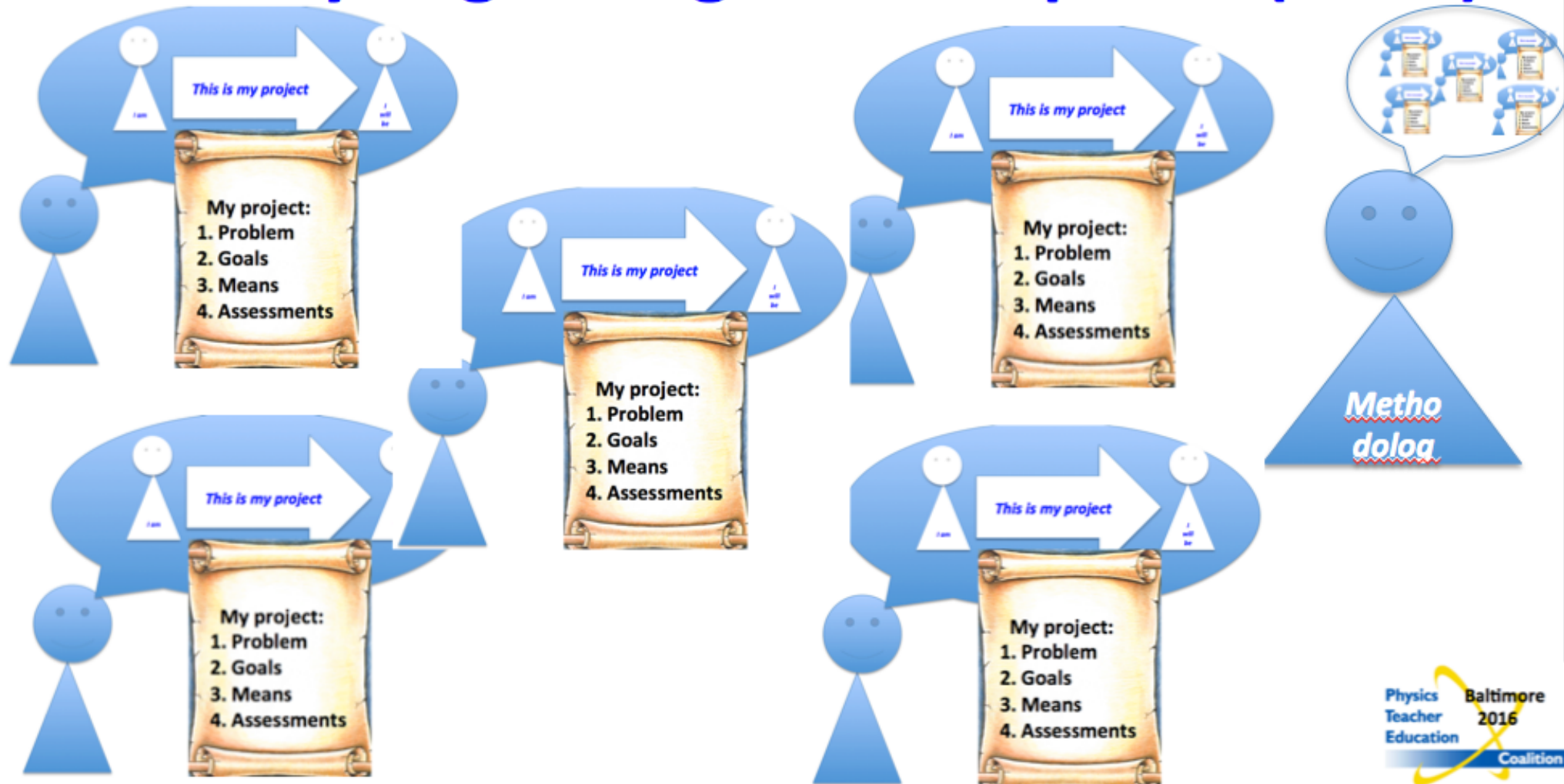
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(15) The most important product of a professional designing is a personal professional project, the existence of which significantly increases chance for a teacher implementing in the future practice knowledge presented during a workshop.



(16) A professional designing – as a human activity – is essentially situational; its ultimate goal is to find mechanisms for self-transforming a concrete current professional situation of a projector. A projector never works alone; there is always a set of active or potential collaborators (or competitors). An effective form for coordinating professional goals and actions, based on the implementation of project-aimed activities, is the so-called “activity-organizing workshop”. AOW participants usually represent coworkers from an institution or an institutional entity, or represent the same district. (sometimes at a retreat)

Activity-Organizing Workshop (AOW)



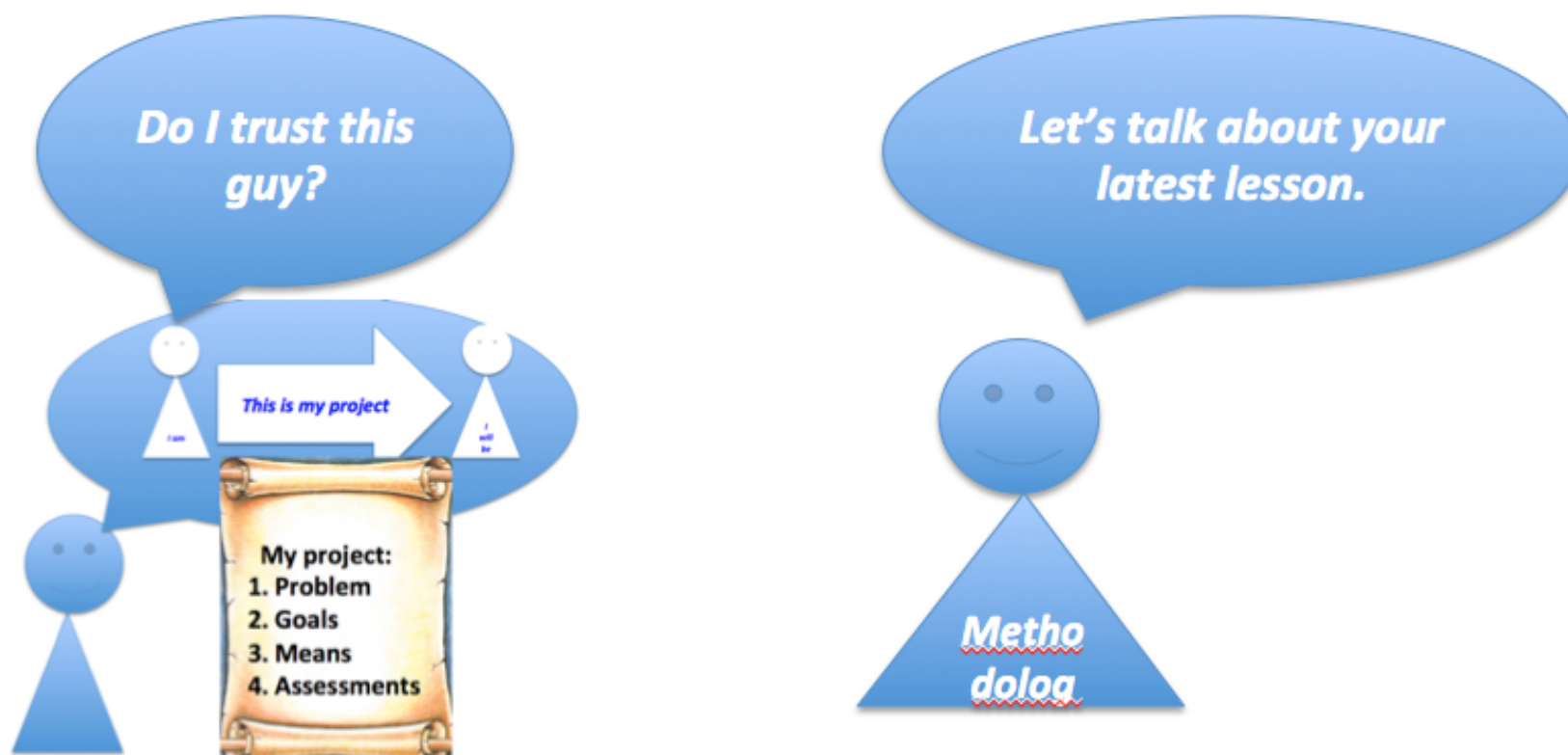
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(17) Communicating processes ignited during AOW and aimed at unveiling images, views, and opinions of participants about professional activities of themselves and others are complicated and sometimes emotional. That demands the involvement of an experienced moderator (a.c.a. a “methodolog”, a.c.a. a “methodologist”; the former term is more broadly used in the context of AOW).

Guided by a methodolog, AOW participants become actively engaged into an individual professional designing. As the result of this work, the participants inevitably advance their ability to conduct a professional designing. The effectiveness of AOW strongly correlates with the experience of a methodolog moderating the event.

Activity-Organizing Workshop (AOW)



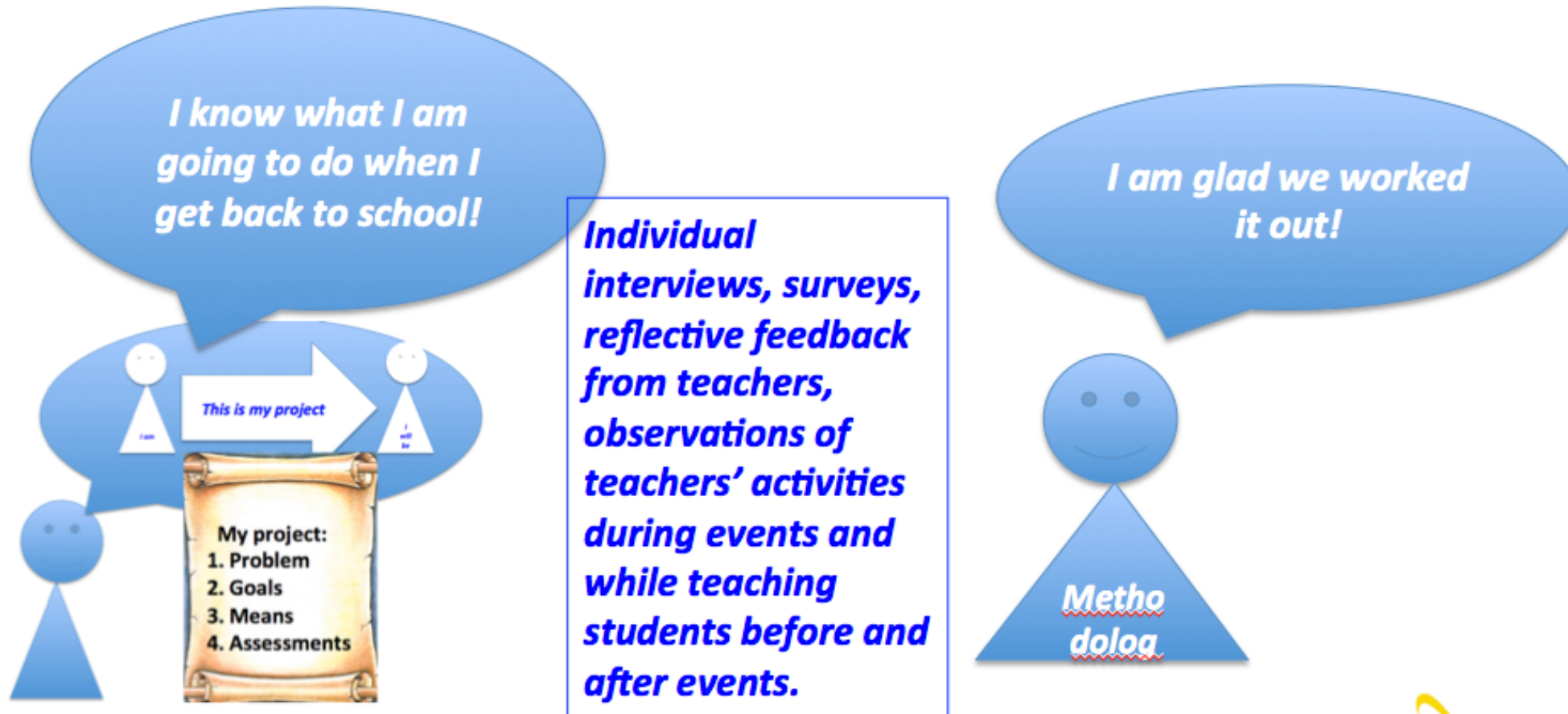
(18) It is very important for the success of the whole event that participants would be willing to openly discuss their teaching experience (including such personal and usually internal matters as their values, moral limits, beliefs, life expectations, professional aptitudes, goals and actions). This conversation usually leads to an eventual realization of the existence of some gap/disconnect/incoherence between the results and the structure of actual teaching practice and the declared teaching goals and methods. When the existence of this gap is clearly presented to a participant, the so-called “problematic situation” has been reached.

Activity-Organizing Workshop (AOW)



(19) All precedents of AOW demonstrate that when teachers are immersed into a professional designing it positively affects their teaching practice in general and an ability to self-improve their teaching practice in particular. The conclusions on the effectiveness of the project-oriented methods of organizing teacher professional growth were made on the basis of individual interviews, surveys, and reflective feedback from teachers, and observations of teachers' activities during events and while teaching students before and after events.

Activity-Organizing Workshop (AOW)



Thank you!

Dr. Valentin Voroshilov www.TeachOlogy.xyz

The link to a video: <https://youtu.be/9ZEWcp41ASo>

The link to the slides with narrations:

pdf www.teachology.xyz/PrD.pdf

html www.teachology.xyz/PrD.htm

The link to the full article: <http://www.teachology.xyz/pd.htm>