

# **The Optimization of Assessment in E-Learning by Adaptive Testing, Item Response Theory and Zones of Students Development**

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## **Abstract**

The basic purpose of our issues was revealed with new approaches to scoring of students achievements in assessment by adaptive testing which is playing the key role in optimization of assessment in e-learning. If we want to optimize the process of communication between tutor and students in e-learning we must minimize not only the time. Most effective formative assessment is connected with the point of view of those purposes for which we must provide the performance of different conditions: maximum reliability of scores, maximum validity of scores, minimum time of training and maximum of development effect in training.

To realize all these conditions in e-learning the combination of three components is necessary: Adaptive Testing, Item Response Theory and Zones of Students Development (the concept of Russian scientist L.S.Vigotskiy). This concept he expressed in the form of three zones of students development: zone of students actual development, zone of the nearest development and zone of students perspective development. We can realize this concept in adaptive testing and connect the length of zones with test item difficulty from item calibrated bank by algorithms of Item Response Theory.

**Keywords:** Assessment, E-Learning, Adaptive Testing, Item Response Theory, Zones of Students Development

## **Biographies**



**Victor Zvonnikov** received his Candidate of Sciences (PhD) in 1985 from the Moscow Institute of Management and the degree of Doctor of Sciences (Pedagogies) in 2005 in the area of educational measurement and educational quality management. He is experienced in tactful, diplomatic and effective contacts with students, university teachers, university leaders and employees of the Ministry of Education and Science. He has longstanding expertise in domestic and international higher educational arena and membership in American Association of Evaluation (from 2005). He is a specialist in management, educational measurement and evaluation with strong skills in creating new courses for students and programs for international visitors to State University of Management. He has published more than 200 works on the problems of quality and educational measurement during the period from 2003 till 2013 (books, articles and thesis to conferences).

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**Marina Chelyshkova** received her degree in mathematics from Rostov State University in 1970, the degree of Candidate of Sciences (PhD) in 1990, and the degree of Doctor of Sciences (Pedagogies) in 2001 in the area of educational measurement and adaptive testing. She is experienced in tactful, diplomatic and effective contacts with students, university teachers, university leaders and employees of the Ministry of Education and Science. She has longstanding expertise in domestic and international higher educational arena and membership in the American Association of Evaluation from 2004. She is a specialist in mathematical, educational measurement and evaluation and has strong skills in creating new courses for students and teachers in area of educational measurement. She has published more than 150 works on the problems of quality and educational measurement during the period from 1986 till 2013 (books, articles and thesis to conferences).