

ZMATH 2016f.01279

Derouet, Charlotte; Parzysz, Bernard

How can histograms be useful for introducing continuous probability distributions?

ZDM, Math. Educ. 48, No. 6, 757-773 (2016).

Summary: The teaching of probability has changed a great deal since the end of the last century. The development of technologies is indeed part of this evolution. In France, continuous probability distributions began to be studied in 2002 by scientific 12th graders, but this subject was marginal and appeared only as an application of integral calculus. With the high school reform recently implemented (in 2012 for grade 12), continuous probability distributions now have an important place in the scientific section. As induced by official texts, the use of histogram as a link between descriptive statistics and continuous probability distributions through its analogy with density curves, is indeed a promising path for learning. In order to answer this demand, which is indeed of general interest, we wondered how density function could be introduced for such a purpose. We began with a study of how textbooks deal with that question, which led us to propose an alternative introductory classroom activity. The reason for this proposition is that, contrary to what is currently implemented in textbooks, a specific mathematical working space (MWS) has to be brought into play, making various mathematical domains intervene in turn and articulating them with each other.

Classification: K64 D44 C74 D20

Keywords: probability; high school; continuous distribution; density; mathematical working space
doi:10.1007/s11858-016-0769-9