



Applying Research Metrics in Evaluating Online Learning

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Dear Editor,

Training creative talents in the digital age is no longer restricted by geographical boundaries and this has been made possible through electronic and virtual learning (1, 2). Academic systems are now mandated with incorporating this new style of learning in their curriculums (3, 4). In this respect, higher education systems around the world have already started utilizing cybermetrics, webometrics, and scientometrics to pave the way for e-learning programs. The underlying question here is whether, in the light of recent developments in online education, it is possible to use research metrics as a modern means of evaluating electronic learning.

To answer this question, one should first note that educational evaluation may serve a wide range of different purposes. Some common purposes include a better understanding of learning objectives and expected outcomes by the end of learning programs, effectual support for these programs and activities, responsiveness at all stages of the learning process, better communication and outreach in education, etc.

Applying modern evaluation strategies will result in a more effective fulfillment of these objectives. On the one hand, it enriches teaching-learning interactions and enhances the learning experience in terms of efficiency and depth. On the other hand, it highlights the goals and expectations in educational environments. New evaluation methods also involve feedback analysis, which helps with managing the learning interactions, making the learning process a meaningful experience.

In studies that integrate teaching and learning indicators, scientometrics is applied to assess the level of communication and efficiency in teaching-learning activities of individual learners. In this respect, two studies were conducted with the aim of evaluating academic groups

and the quality of education received by graduates in the United States (5). They were among the first major studies in which a combination of publication indices and teaching-learning indicators was applied. In addition to the bibliometric indicators, the authors used the indicators of the effectiveness of educational programs and educational quality.

Online learning can be evaluated through the qualitative assessment of technological competence using the indicators of technology diffusion and human skills. This assessment can be carried out by means of scientometrics and cybermetrics indicators.

Knowledge assessment methods and indicators can also be utilized to evaluate learning (6). These indicators are considered among the key factors in scientometric studies. Machine learning is heavily dependent on the results of the scientometric analysis. In this regard, using visualization techniques in the areas of knowledge and learning and scientific mapping based on the philosophy of drawing the structure of texts, which have for a long time been popular in scientometrics, are on high demand for learning assessment.

Therefore, online learning, as an innovative phenomenon, has turned into one of the most significant requirements of the modern age (7). At the same time, it should be noted that the nature and prospects of innovation are changing over time; hence, we need new assessment methods and indicators. Online learning is also a modern and innovative discipline closely intertwined with evaluation (8) and it is possible to evaluate it by means of research metrics. Applying these new methods will undoubtedly improve the quality of online learning. Using these principles and methods, we can achieve more qualitative results through measuring and evaluating the learning experience. The outcomes of these evaluations can

then be applied to achieve various objectives of online learning, especially concerning its development and impact.

Footnotes

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