

# Leerpaden en open educational resources

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# Learning Paths and OER: Trends and Opportunities

by José Janssen, Adriana Berlanga and Rob Koper

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## Introduction

Open educational resources (OER) are seen as a potential means of providing more tailor-made education that is both efficient and economical (Evertse, 2011; Jacobi & Van der Woert, 2012). At the same time, however, a number of authors have identified two significant obstacles. The number of OER available and their fragmented nature make it difficult to find suitable material, and there are also concerns about the reliability and quality of that material (Evertse, 2011; Jelgerhuis, 2012; Kuipers, 2012). The first of these problems can be considered one of navigation: how do I find my way around the large range of resources

available? In the case of the second problem, “content duration” is seen as a possible solution (Kuipers, 2012). If we can believe Nathan Harden (2013), this problem will however be reduced, given that the successful introduction of Massive Open Online Courses (MOOCs) offers the prospect of a future in which leading higher education institutions will be able to develop high-quality educational resources and make them available worldwide on a large scale. Other institutions (“lesser gods”) will need to make more and more use of these resources “becoming, in effect, partial downstream aggregators” (Harden, 2013).

Be that as it may, how to create the best possible learning path remains a challenge, for instructors and learners. And this does not just concern OER, or how OER should be incorporated into an existing curriculum: it is a matter that extends much further, because the problem of “a tailor-made learning path” is not a new one and is certainly not unique to OER, as we will explain below.

This article explains a set of tools developed in order to describe learning activities and learning paths transparently, so that it becomes easier to determine whether they are aligned with the desired learning objectives and are interchangeable (or have interchangeable components). A learning path is defined as a set of one or more learning activities aimed at achieving certain learning objectives. Our argument will make clear that the challenge we face extends beyond the integration of OER within existing curricula, and that we need to view OER as a single source for learning and personal development, alongside many other non-formal and informal sources for learning (CEC, 2000).

### **OER problem?**

The navigation problem is not anything new. It already occurred within the context of higher education, which is in fact reasonably well structured but increasingly modular. And that is not to mention the broader context of lifelong learning, in which the quest for personal development opportunities transcends the boundaries of formal, non-formal and informal learning (Janssen, Berlanga, & Koper, 2011). The navigation problem in fact operates at two levels. In the first place, there is the question “How do I choose a learning path? (in the context of higher education: “Which programme do I choose?”). When the learning path is complex, the next question is “How can I follow this learning path as efficiently as possible?” (in the context of higher education, this involves questions such as “Which course should I take first?” or “Can I replace this course by a course offered by a different institution?”) Questions such as these arise, for example, when one looks at MIT OpenCourseware (MIT, 2012), an example of OER comprising a number of complete curricula. Based on the written explanations of the curriculum, the learner him/herself must decide on the order in which to take the courses. And we have not yet considered the question of whether these courses are interchangeable with courses offered by other institutions.

The idea of the instructor as a content “curator” as outlined by Kuipers (Kuipers, 2012) can provide a remedy that also offers guarantees for the quality of the resources offered: the curator selects high-quality material, which may or may not be in the form of a set from which students can then make a selection on the basis of their personal preferences. But there are at least four reasons for viewing “content curation” as a means of finding a solution rather than an actual solution. In the first place, the navigation problem is not solved but is passed on to a small number of people and consequently restricted to them. But even that is questionable because, secondly, it is not inconceivable that the range of resources offered will remain considerable even after selection and after receiving the content curator’s “seal of approval”. Thirdly, this solution is not restricted to the use of open learning resources in a formal learning context, at least if the role of content curator is linked to formal educational institutions. Finally, the content curator will need to have tools available with which to provide learners with a clear description of the learning resources and learning packages that he/she puts together.

Conole (2010) describes tools to support open learning design, but these focus on the design of a course and they assume a knowledge and understanding of educational design at the level of the instructor. A recently developed learning path specification provides pointers for describing learning paths in a way that offers opportunities for both instructors and learners (Janssen, 2010a). As we have already seen, a learning path is defined as a set of one or more learning activities aimed at achieving certain learning objectives. Learning activities can be very different in their extent and content, ranging from reading a text or watching a video, via participating in a forum or workshop to taking a whole course. This means that a learning path can vary from a small-scale activity to a course or even the description of a full-scale curriculum.

## Tools

The learning path specification makes it possible to describe both the content and the structure of all possible learning paths; it does not matter whether one is dealing with formal learning, non-formal learning, informal learning, or a combination of these. The aim of the specification is to draw up transparent descriptions of learning paths so that:

1. it becomes easier to compare learning paths and select them;
2. it becomes easier to adapt learning paths, taking account of competencies acquired previously;
3. it becomes possible to provide automatic support for learners who are following a learning path.

The figure below shows the processes that can be supported by means of the learning path specification.

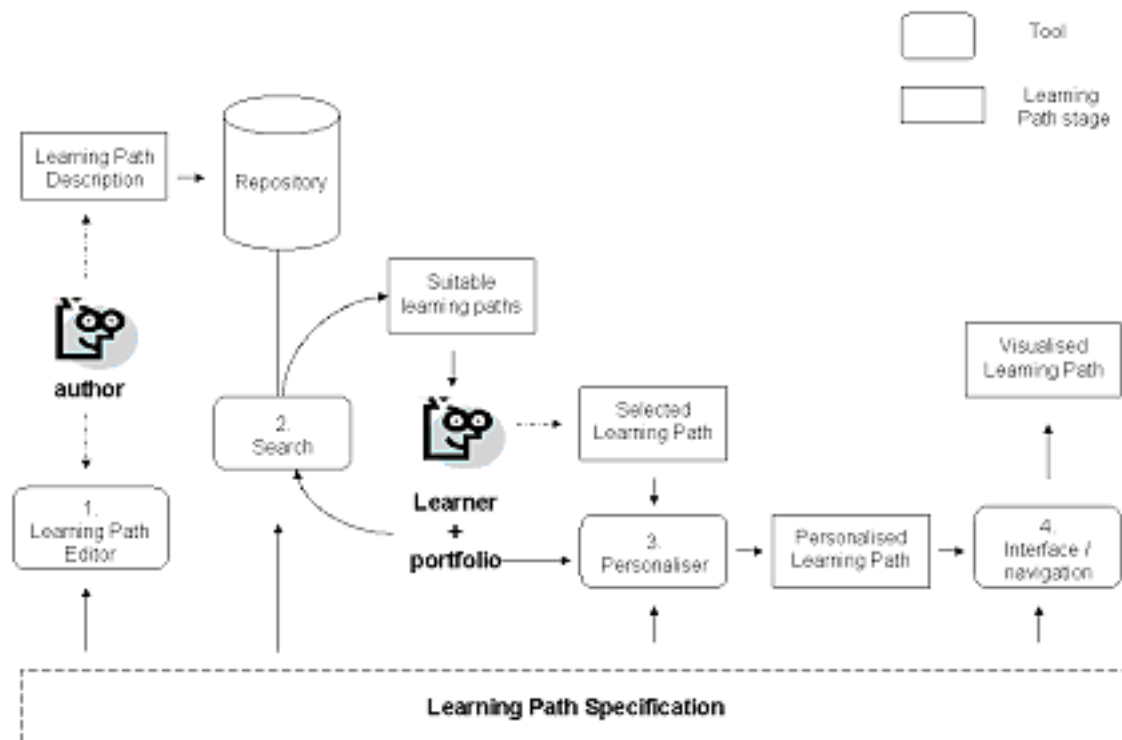


Figure 1: Tools and processes supported by learning path specification (Janssen et al. 2010)

Both the learning path and the learning activities that it comprises are described using metadata that provides information on the content, learning process, and schedule (for

example: title, language, provider, supervision, testing, contact hours). This metadata plays a role in selecting a learning path. The structure of the learning path guides the learner along it: “It’s better to do activity X before activity O”; “You can only tackle this activity once you’ve completed activity Y”; or “Do the following activities in the order you prefer”. It is also possible, however, to define a set of alternatives – for example alternative OER – for achieving a certain learning objective or only to outline a number of preconditions for selecting an activity, thus allowing the learner scope for constructing a portion of his/her own learning path.

A tool has been developed with which to describe learning paths in this way: the learning path editor (Melero Gallardo et al., 2010). A video demonstration of the tool is available at <http://dspace.ou.nl/handle/1820/2403> (Janssen, 2010b). Initial evaluation indicates that education advisers at the Dutch Open University are able to work with this tool, and most of them see this approach as having benefits for their own teaching as regards saving time, efficiency, and greater professionalism. Describing learning paths in this way requires an investment, but ultimately everyone will benefit. It will become easier, for example, for institutions and learners to describe competencies acquired elsewhere and to determine which existing learning paths they can be incorporated into. Strictly speaking, the learning path specification offers no guarantee for the quality of the learning activities included, but metadata does provide indications when it gives information about the provider, any formal recognition, options for supervision, etc.

## Conclusion

Given the extent and fragmentation of the OER options, it is not easy for instructors and learners to find their way and make the best choices. The problem is not specific to OER, however, but even applies within the relatively structured range offered by institutions within the sector of formal education, not to mention the broader context of lifelong learning. This does not mean, however, that OER cannot be an important incentive for revising the existing infrastructure: “The open-source model will offer much more flexibility, though still maintain the structure of a major en route to obtaining a credential. Students who aren’t interested in pursuing a traditional four-year degree, or in having any major at all, will be able to earn meaningful credentials one class at a time” (Harden, 2013). Harden draws a parallel with the music industry: it used to be that you had to buy the whole album, but now you only need to buy the tracks that you really want to listen to. In that connection, Harden notes that in the United States 40% of all college students are adult, non-traditional students. The parallel with the music industry may be illuminating, but it only goes so far because in order to know whether you want to buy a track you only need to listen to it, and buying it requires only a small investment; that is definitely not the case when someone is investing in education and their personal development. A uniform, transparent and interoperable model for describing learning paths can contribute to more effective choices in this area.

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