

Matching Moodle affordances with different knowledge types

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The field of e-learning undeniably offers a wide range of affordances - i.e. options that are made available to e-learning practitioners. When used effectively, these resources provide great value in ensuring that **learning objectives** are achieved successfully.

One approach to optimising the online learning experience is to ensure that specific **knowledge types** are aligned with the **types of online resources** that are used. In this article, we'll consider different types of knowledge, and assess which **Moodle affordances** (or activities) are best suited to developing and reinforcing each knowledge type.

The different 'types' of knowledge

There are many different theories on knowledge and knowledge types. One simple yet comprehensive theory is that of Dr: Lorin Anderson and David Krathwohl, which identifies **four main knowledge types**:

1. Factual knowledge
2. Conceptual knowledge
3. Procedural knowledge
4. Metacognitive knowledge

Currently, many institutions adopt a 'blended learning' approach and use their learning management system (LMS) as a sort of 'resource bank'. However, these approaches are prone to addressing only factual and conceptual knowledge, since these are easy to capture in written documents. Unfortunately, it can be problematic to reserve the physical classroom as the only space in which **higher-order thinking and knowledge types** are addressed - particularly when dealing with large or diverse groups.

Educators may therefore benefit from considering the affordances offered by Moodle, in order to address **all four knowledge types** successfully.



1. Establishing and reinforcing *factual knowledge*

Although factual knowledge is often associated with the lower-order cognitive skill of 'remembering', it is important to recognise its psychological value. Since factual knowledge provides learners with a sense of certainty and confidence, it is an important foundation to build before encouraging deeper engagement - even when such engagement involves questioning prior assumptions.

As mentioned, this type of knowledge can easily be conveyed through written text (although additional multimedia formats can also be used to increase engagement). In this case, the following Moodle affordances are best suited for disseminating factual knowledge:

- Books
- Files
- Labels
- Pages
- URLs
- Lessons
- Non-collaborative wikis

Reinforcement can be encouraged through the following affordances:

- Quizzes
- SCORM packages
- The choice tool

2. Developing *conceptual knowledge*

Conceptual knowledge forms the basis for understanding a variety of different subjects. As such, the process of unpacking key concepts is often essential for enabling discourse within a particular subject or field. It is important for educators to approach this process with sensitivity - even within the resources that are used to establish such factual knowledge.

In addition to the resources recommended for factual knowledge, it is valuable to consider how strategically formulated quizzes can be used to develop conceptual knowledge. Other affordances suited to this type of knowledge include:

- Assignments
- Forums
- Glossaries
- Wikis
- Workshops

3. Facilitating *procedural knowledge*

Procedural knowledge is highly subject-dependent, and often represents one of the most challenging types of knowledge to teach - especially when it doesn't occur in the applicable practical context. In other words, if the factual and conceptual bases are covered in-depth, but the relevant practical equipment and demonstrations are lacking, it is exceptionally difficult to facilitate procedural knowledge successfully. This challenge may persist for many practically orientated subjects, until virtual reality (VR) simulations become the norm.

In the meantime, it is still possible for educators to facilitate procedural knowledge on Moodle. The most immersive approach, here, would include:

- SCORM packages
- Quizzes (when these are based on real-world scenarios – particularly ones involving decision-making)

4. Encouraging *metacognitive knowledge* development

Metacognitive knowledge is often neglected in primary and secondary education. It is regarded as the highest level of knowledge. In Bloom's Taxonomy, it would relate to the processes of analysing and evaluating. Often, the development of this knowledge depends on the prompts that educators give to their students.

Consequently, this form of knowledge can be facilitated through a variety of affordances, including the following:

- Assignments
- Workshops
- Wikis
- Forums
- Surveys

- The blog tool
- Quizzes (especially open-ended questions)

Conclusion

By reflecting on the different types of knowledge that exist, educators are likely to feel more empowered in providing their students with a holistic understanding of the subject matter. Nevertheless, it may be challenging to provide the necessary individual attention for ensuring that all four knowledge types are developed adequately, where learning occurs in a physical classroom setting. By using the appropriate Moodle affordances, however, educators can achieve this with greater efficiency – whether they take a blended or fully online approach.

References:

Anderson, L. W. and Krathwohl, D. R. (2001), *A Taxonomy for Learning, Teaching, and Assessing*. New York, NY: Longman Publishing.

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