Decision-making resources for embedding theory into practice

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Abstract

This paper illustrates a way in which practitioners can be supported in the process of engaging with theory in order to underpin practical applications in the use of Information and Communication Technologies (ICT). This approach involves the use of decision-making resources ('toolkits'); three examples are described. The ways in which this embeds specific theoretical assumptions is discussed, and a model for toolkit specification, design and evaluation is described.

1. Introduction

Decision-making resources range from highly restrictive ‘templates’ or ‘wizards’, which provide high levels of support and step-by-step guidance but little possibility of user-adaptation, through to ‘theoretical frameworks’, which provide a context and scope for the work but leave the user to devise their own strategy for implementation. Between these extremes lie a range of resources, including checklists and guidelines.

A number of pedagogical frameworks have been developed to support ICT. All develop from a particular theoretical viewpoint, aiming to encourage the application of good practice according to a specific pedagogical approach. In this context, ‘good practice’ is taken to mean practice that is informed by and which exemplifies (or contributes to) theory. A framework for integrating ICT has been developed by Conole and Oliver [1]. It provides a structured approach to integrating learning materials into courses and is designed to support the process of ‘re-engineering’ a course [2]. Various features of an existing course can be described and evaluated, allowing an analysis of strengths and weaknesses, the suitability of different media types and limiting factors, including resource issues and local constraints. The framework can be applied as a series of stages, starting with the review of existing provision, working through a process of shortlisting and selection of teaching techniques, and concluding with a mapping of the new course.

Another approach involves the use of structured decision-making systems: templates and wizards, which can provide structured, pre-defined layouts or structures for the user to base their document or presentation on. A wizard is a tool that makes decisions on behalf of the user, based on solicited information and drawing on pre-defined templates. In most cases, the way in which these outputs are generated is hidden from the user. As a result, they are relatively easy to use, but are restrictive in the range of outputs that can be achieved, and allow very little engagement with issues or response to the values and assumptions built into the system. There are many examples of templates and wizards that provide a generic structure that guides users through a set of options. Online shopping sites, book stores and travel centres often have ‘wizards’ which guide the user through a series of options or interests, helping them to focus in on topics of particular interest. It is evident that these types of semi-structured forms of support and guidance are becoming increasingly important as a way of guiding users through the plethora of online information.

These types of resource both share a common aim of supporting a users’ engagement with an area. Clearly, however, they are working at very different levels and making different assumptions about the type of support that the user might need. Theoretical frameworks provide a structure and vocabulary that support the exploration of concepts and issues. Wizards provide automated processes that support the production of resources. They are predicated on the assumption that the user is primarily concerned with the efficient design and production of a resource.

These two positions can be characterised as extremes of one continuum. At one extreme there are frameworks, which are flexible and versatile, but which offer relatively little support for practitioners attempting to engage with them. At the other there are wizards and templates, which are highly restrictive, but (by virtue of the constraints that they impose) are able to offer much closer support and guidance to users. Toolkits can be viewed as a mid-point on this continuum [3]. They are more structured than frameworks; they use a model of a design or decision-making process, together with tools provided at key decision-making points, to help the user engage with a theoretical framework and apply in the context of their own practice. Each of the tools that is drawn upon as the user works through the process model is designed to help the user to access a knowledge base in order to make informed decisions. The format of toolkits means that they can be used in a standard, linear fashion, or can be "dipped into" by users whose level of expertise is stronger in some areas of the design process than others.
2. The philosophy behind developing toolkits

This section will explain the philosophy behind the concept of toolkits and will outline an approach to developing and evaluating them. Toolkits are predicated on the assumptions that they are:

- derived from an explicit theoretical framework
- easy-to-use for practitioners
- able to provide demonstrable benefit
- able to provide guidance, without being prescriptive
- adaptable to reflect the user’s practice and beliefs
- able to produce outputs that reflect the local context

The process of the development of each toolkit consists of a number of steps, which can be coached in terms of the following framing questions.

1. Assessment of need: Is there a need for a toolkit in this particular area to support practitioners?
2. Theoretical underpinning: What theory and models are relevant to the toolkit?
3. Toolkit specification: How can the range of options available at each stage be translated into a practical, but flexible form of guidance for non-experts?
4. Toolkit refinement: How useful and flexible is the toolkit?
5. Inclusion of user defined features: Is the toolkit sufficiently flexible that it can be adapted by end users to take account of local factors?
6. Build up of shared resources, through input of practitioner case studies: Are the completed toolkit plans produced by practitioners of any value as case studies or templates for other users?

3. Examples

Media Advisor is a toolkit for curriculum design [1, 3]. It considers different teaching methods in terms of their relevance and value against a set of four types of teaching activity, namely – delivery, discussion, activity and feedback. The formative evaluation of an initial prototype combined with a process of iterative tailoring to meet users’ needs is an important feature of this approach. The evaluation also generated a number of unexpected results. In particular, mapping teaching techniques (both traditional and new) in terms of their support for the four ‘types’ described above was originally a way of identifying types of teaching that were systematically emphasised or neglected in a course. However, evaluation showed this was at least as important as a way for individuals to express their own approach to teaching, or to develop ideas about new ways in which traditional resources (such as videos) could be incorporated into the course. Moreover, the simplicity of the description meant that it could be used as the starting point for discussions between practitioners about the differences in their approach to teaching.

The Evaluation Toolkit provides a structured resource to help practitioners to evaluate a range of learning resources and activities [4]. It guides them through the scoping, planning, implementation, analysis and reporting of an evaluation. It assists the practitioner in designing progressively more detailed evaluations, and allows users to access and share evaluation case studies. It consists of three sections: Planner, Advisor and Presenter, which guide the user through the evaluation process; from the initial scoping of the evaluation question(s) and associated stakeholders, through selection of data capture and analysis methods, and finally through the presentation of the findings. One of the emerging values of this toolkit is that the plan the user produces can be made available to others as a case study within the toolkit, such as assessing Web site usability or selecting resources.

The information toolkit provides a means of mapping information resources against types of information activity (gathering, processing, communicating and evaluating) [5]. This helps the user to gain an understanding of information resources to produce their own tailored information plan. It guides the user through the process of articulating their needs in the form of an information plan for a particular task.

4. Conclusion

Evaluation feedback has been positive, with many users reporting that the toolkits helped them to reflect upon and structure their thought process in a particular area by providing expert guidance and support as well as useful links to further information and support. An additional benefit was the ability to build up case studies covering common types of design, evaluation, or information maps.

Toolkits clearly represent a valuable type of resource for a range of staff, such as practitioners, educational developers, learning technologists and ICT researchers. They provide a means of articulating the use and evaluation of ICT and help users to engage with different aspects of the use of ICT towards the development of better learning and teaching practices.

5. References