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Options brief pack for The Netherlands (English version)

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Contents

Summary

With Wikiwijs, the Netherlands had a national programme in place aiming at mainstreaming OER in all educational sectors (ranging from primary education to higher education). This programme finished at the end of 2013. The main conclusion from five years Wikiwijs is that for mainstreaming OER the Wikiwijs program should go along with other interventions that are more oriented toward prescriptive policies and regulations. In particular: the Dutch government should be more directive in persuading executive boards and teachers on schools to adopt OER as an important part of educational reform and the acquisition of 21st century skills.

Owing to the uptake of MOOCs in the last year, the government has formulated a policy on open and online education for higher education[1]. Prof.dr. Fred Mulder, chair holder of the UNESCO chair on OER at the Open Universiteit has formulated recommendations[2]. His recommendations are:

1. Present a broad initiative under the umbrella of - say – (More) Open Education NL. This fits in well with the initiative launched in September 2013 by the European Commission 'Opening up Education' and makes use of the opportunity and the momentum that this will generate

2. With Wikiwijs, the Netherlands is a recognized world leader in OER. Continue the international visibility of the Netherlands with a successor with an updated agenda and approach tuned to this agenda (a 'Dutch case').

3. This successor should contain new trends and developments like MOOCs in higher education. But it should also build on the initial mission of Wikiwijs, opening up education ranging from primary to higher education through the massive use of OER, possibly with other tools added.

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[1] http://bit.ly/1lZiLA7 (in Dutch)

[2] http://www.scienceguide.nl/201401/voorbij-moocs-naar-echt-open.aspx (in Dutch)

1   Summary of POERUP

POERUP is part funded by the European Commission's Lifelong Learning Programme. It builds on previous OER initiatives, such as OPAL[3], OLnet[4] and OERtest[5], produces country reports, case studies investigating the communities behind OER activities, and policy papers. The overall aim of POERUP is to develop policies to promote the uptake of OER, especially across the EU, in all main educational sectors. The project is led by a consortium of institutions and organisations in Europe and Canada. Partners are the University of Leicester (UK), Sero Consulting (UK), Open University of Netherlands (Netherlands), University of Lorraine (France), EDEN (UK/Hungary) and Athabasca University (Canada).

POERUP started in November 2011, and is funded to June 2014. The project has already created an inventory of more than 500 OER initiatives worldwide which are documented on the project wiki[6] and shown on interactive maps[7]. POERUP put substantial effort into understanding the state of play of OER in a range of countries, within the policy context and as part of the wider development of online learning in these countries. The project has produced more than 30 country reports, each covering individual countries and overall summaries of initiatives in Latin America, Asia, Africa and North America (though the USA report is less comprehensive than the others, given its dominance of the OER landscape)[8]. Each report provides an overview of the educational system, internet policy and provision, state of e-learning, copyright law, and major OER initiatives in that particular country.

2   Context of the Netherlands

The Dutch Ministry of Education, Culture and Science has funded a five years program to encourage the use, creation and sharing of Open Educational Resources (OER) by teachers from various types of schools. This program is known as Wikiwijs. Ultimo 2013, the program came to an end.

In January 2014, the government of the Netherlands has formulated a policy on open education, targeted at higher education. This has been triggered through parliamentary questions following the emergence of MOOCs. Prof. Fred Mulder (Open University and holder of the UNESCO Chair in OER) has commented on this policy letter.

The recommendations in the remainder of this document are based on both the lessons learned from Wikiwijs and the comments of Fred Mulder. These recommendations apply to

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[3] http://www.oer-quality.org/ THIS IS NO LONGER OPAL – it is a p/w website

[4] http://www.olnet.org/

[5] http://www.oer-europe.net/

[6] http://poerup.referata.com/wiki/Countries_with_OER_initiatives

[7] See https://mapsengine.google.com/map/edit?mid=zYG2prGO09jE.kdZ-SJFcZEoM

[8] http://poerup.referata.com/wiki/Countries

all sectors of education in the Netherlands (primary, secondary, vocational and college / university).

3   Lessons learned Wikiwijs

The lessons learned from the Wikiwijs program are a solid base for the recommendations in the next chapter. In appendix 1, the lessons are underpinned by observations and theory. Summarized, the main lessons are:

1. Quality is important
2. Creating OER is a collective activity
3. Creating OER is a complex task
4. Sharing OER has to be encouraged and should be made easy
5. One interface does not fit all
6. Existing OER communities do not join voluntary in Wikiwijs
7. Governmental policies and regulations are needed

4 Opinion

1 Present a broad initiative under the umbrella of - say – (more) open () Onderwijs.NL. This fits in well with the initiative launched in September by the European Commission 'Opening up Education ' and makes use of the opportunity and the momentum that this will generate.

2 Choose whether to turn on a suitable successor to the internationally visible and recognized Wikiwijs with a new name, changed / shifted activities agenda and a sector-specific approach.

3 Use this new platform to establish a site for both new developments, such as the MOOCs in higher education, whilst building on the original mission of Wikiwijs, which is to open education in all sectors of education through widespread deployment and use of Open Educational Resources (OER), possibly supplementing this with other tools, celebrating and sustaining the diversity in our teaching and education.

4.1 Considerations, recommendations and substantiation

(a) If the Netherlands is to maintain its international profile, then MOOCs card alone will not really help. There is already a great deal of MOOC activity in various countries and a growing number of institutions. In addition, MOOCs are mainly associated with universities with an excellent reputation (in research and / or teaching). Colleges, vocational and secondary education need to be included as well.

(b) The concept of open education has more substance and broader value when all sectors of education are included, and the Netherlands has Wikiwijs as a credible site for development. This movement of OER and Open Education is reaching an increasing number of governments – mainly because of the efforts from UNESCO and OECD – where national strategies are considered because of a wide spectrum of advantages this approach could bring.

(c) The proposed approach is an extension of the answers to the questions posed by the members Duisenberg and Straus (VVD) on European MOOCs. This already outlined a broader context, with references to Wikiwijs, the EU initiative 'Opening up Education "and the commitment of UNESCO, including the 2012 Paris OER Declaration.

(d) This advice for Open Onderwijs.NL stressed that purely instrumental or ad hoc solutions should be avoided. It is of great importance to establish that we are aware of the need not only to think long term, but also to act.

(e) We recommend that Onderwijs.NL be selected to modernize education by a deliberate intervention system.

(f) It should be a national initiative for all levels of education (primary, secondary, vocational, college, university) and all teaching situations (formal education, informal education, postgraduate education, training, lifelong learning). There will of course be sector - specific content and target audiences, but within overall goals, concepts

and tools, and the ability to participate effectively as well. Transitions between sectors and groups will be facilitated.

(g) The current financial situation of our country compels us even more than before to make us reflect on the sustainability of our teaching and education, and to look for alternatives (with the same or fewer resources) for ensuring accessibility, quality and efficiency the triple responsibility of government for education). Making education open (there) can contribute as well, it can be argued.

(h) The government will have to work to promote this national initiative and all its available tools effectively. This will require rules and regulations, financing institutions, performance agreements, grants and related conditions, the maintenance of an adequate infrastructure (for both ICT and education), facilitating and monitoring of private initiatives, encouraging public / private partnerships, encouraging changes in HRM policies and professionalism, consistently communicating the adage ' Knowledge is a public good' (with the associated implications), and the like. And this will be need to be sustained over a long period - longer than the full term of a parliaiment. Open Onderwijs.NL can do this with a limited budget. And the tools mentioned above can be deployed more effectively and benefit from the regular educational environment, the budget may be lower.

(i) The initiative should not start from the IT perspective but rather from the educational point of view, in the full knowledge and thorough understanding of the new opportunities that arise due to (new) ICT concepts and tools, rather than being driven by technology. The focus should be on pedagogical innovation using ICT rather than on ICT innovation in education for its own sake.

(j) Discussions with the publishing world should be clearer and more transparent, following many years of conversations where the potential consequences are often denied or avoided. It is not fair nor helpful to avoid reality and pretend that almost nothing will change for the publishers. Their business will be significantly different with an unmistakable shift in developing and producing content for the provision of training, testing and other educational services. It is up to the companies themselves to make this change, but government, educational institutions and teachers can, if desired, be active in thinking and contributing towards this.

(k) Wikiwijs has taught us a lot. Reasonable revenus has been achieved by deploying more and more enthusiasts and involvement with a range of learning materials has grown compared with initial targets, in spite of the limited budget. But there are also barriers and imperfections experienced that require adjustment and improvement: the excessive permissiveness in a separate programme, insufficient specific interpretation to sectors and target groups, the human factors which resist change, the continuing emphasis on a central platform, insufficient clarity in the relationships between the publishers and sometimes reluctant partner agencies (as synergy should be sought), a name that has not helped us, and other factors as well. These issues can be useful to us at thinking through the approach and design of open

Onderwijs.NL. The Digital University (2000-2006) has also yielded lessons that we can be learnt from.

(l)   Open Onderwijs.NL may seem more ambitious than it is intended to be, or will be in practice. However, these proposals are realistic, if pursued with commitment, determination and perseverance. It is a multi-year expedition without a five- year plan completely in place. The dynamics of this timeline will generate further dilemmas and these will need to be evaluated and evidence sought for necessary adjustments.

(m) Tagging and synchronization with 'Opening up Education ' requires coordination with the European Commission. Advantages of the link with 'Opening up Education' - in addition to the intended positive effects for the modernization of education in the Netherlands - may lie in the areas of : visibility and reputation in the EU and internationally ('The Dutch case'), competence building, evidence development, acquisition of European subsidies, making expertise available to others, involvement in UNESCO activities (eg in the follow -up to the 2012 Paris OER Declaration) and OECD work (eg in the 2013-14 programmes Researching the evidence base on OER).

5   Recommendations by sector

The following are additional recommendations to promote the use of OER in all sectors of education. These recommendations are linked to education sectors.

• Increase communication and awareness about OER

Encourage continuing supply of information on the use and effects of open learning materials and support that communication with evidence that research has been obtained (see also under research). *Sectors: Primary, secondary, vocational, college / university*

• Financing

Encourage the development of open learning materials by providing financial resources. *Sectors: Primary, secondary, vocational, college / university*

• License and copyright issues

- Start a service " clearinghouse for copyrights". Teachers or institutions who wish to publish material can use this service to find out what rights are still linked to the materials, and the institution or teacher can then be given advice on how to proceed. This service should be financed by government and / or ask for a small contribution from the applicant organisation. Built up best practices and make them available to everyone (e.g. through FAQs).

Sectors: Primary, secondary, vocational, college / university

- Legislate to ensure that all learning material that is created with public funding is made freely accessible. Describe exceptions explicitly and unambiguously (eg learning materials for medical purposes often contains patient data that may not be published openly).

Sectors: Primary, secondary, vocational, college / university

- Encourage use of the CC-BY licence in publishing open learning material

Sectors: Primary, secondary, vocational, college / university

-Encourage an optimal mix between open and closed material by involving organisations in actions and activities, without uncomfortable close relationships with the same publishing educational publishers (see also opinion of Fred Mulder).

Sectors: Primary, secondary, vocational

• Quality Issues

Define and communicate a minimum quality model or adopt the minimal model already developed so that teachers have hands-on insight into what are absolute minimum standards for the publication of Learning materials.

 Sectors: Primary, secondary, vocational, college / university

Higher education institutions should

(a) understand how new forms of learning (including online, remote, and OER MOOC) have influence on quality assurance and recognition.

(b) ensure that there is no implicit non - evidence-based prejudices against these new modes for the assessment and accreditation of courses.
Sector: Higher Education

• **Professional development of teachers and policy makers**

Make creation and (re) use of (open) digital learning materials (including IPR issues) a compulsory part of the curriculum of teacher training and also professional trajectories like BKO (HBO / WO) and inclusion in the register of teachers (
Sectors: Primary, secondary, vocational)

Teach as you preach : Encourage development of open learning materials for professional development of (prospective and current) teachers in the field of (open) digital learning content and make these centrally accessible.
Sectors: Primary, secondary, vocational, college / university

• **Infrastructure**

Realize a portal for OER for HBO / WO. Due to the different demands and requirements in relation to the other sectors and because management and development of the Wikiwijs portal from 2014 lies in schools sector content which has no traction in the college / university, it is expected that Wikiwijs will have fewer and fewer HBO / WO joining.
Sectors: HBO/WO

Encourage joint development of open online variations for known "stumble" courses such as Dutch, English, mathematics, statistics and research methods. First hand experience can be gained by institutions of higher education in producing and publishing open learning material and secondly this contributes to efficiency for institutions and more flexibility for students (who can access materials for CPD at any time and in any place).
Sectors: HBO / WO

• **Research**

Encourage research into sustainable business models for OER.
Sectors: Primary, secondary, vocational, college / university

Define a national research agenda for the mainstreaming of OER and overcoming barriers to adoption, and the effects of use of OER on learning performance. This research includes elements of educational technology, psychology, business administration, computer science and law.
Sectors: Primary, secondary, vocational, college / university

• **Certification and Accreditation**

Encourage institutions to recognize credits for open / online courses.
Sectors: HBO / WO

Work towards a situation where it is allowed under clear conditions to give credit for open courses from elsewhere . HBO / WO.

• **Legislation and regulation**

Pass legislation to redefine contact hours. Currently contact hours are only counted for funding if in same time same place conditions. This hampers online forms of education. (Primary and secondary education have `leerplicht´ and have exceptions for which this is already regulated (eg long-term sick).
 Sectors: MBO, HBO / WO

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Appendix 1.   Wikiwijs, lessons learned

This chapter is based on a paper (Schuwer et al, 2014).

6.1 Theoretical framework

To understand the lessons learned, discussed in the next section, the PRECEDE—PROCEED model of Green and Kreuter (2005) is used. Whilst this model is very well known in the domain of health education and health prevention, the model is fairly unknown in the OER domain. Yet we believe that this model is quite applicable to our OER domain so to develop interventions that encourage the use of OER by teachers. The PRECEDE—PROCEED model was used in conjunction with two other theories, namely the Reasoned Action Approach of Fishbein and Ajzen (2010) and Self Determination Theory of Deci and Ryan (2000). We describe each of these models and theories shortly.

The PRECEDE—PROCEED model

The PRECEDE—PROCEED model has two components that should be considered. The first component is the 'educational diagnosis' PRECEDE; the acronym stands for 'Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation.' The second component is the 'ecological diagnosis' PROCEED; this acronym stands for 'Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development.' These two components represent respectively the individual, the social and environmental factors that influence teachers' behavior to adopt OER.

In PRECEDE, the predisposing factors encompass the individual's or population's values and beliefs, attitudes, self-efficacy, perceived norm, descriptive norm, knowledge and skills, intention, awareness, etc. Reinforcing factors are strengthening the intention to perform certain behaviors because the behaviors are positively evaluated by others or because of the feedback given by them or the confirmation that the performed behaviors do satisfy expected behaviors. Enabling factors are those affordances of the environment that make it possible that certain behaviors can be performed. They refer to the financial, technical, and the organizational resources that can be utilized to perform the desired behaviors (i.e., using, creating, and sharing OER). A lack of these enabling factors may inhibit the performance of the desired behaviors.

In PROCEED policies, regulations and organizations should help to realize the adoption of OER by teachers. PROCEED, thus, pays attention to the implementations aspects of an intervention that should encourage the adoption of OER. This holds that care should be taken for involving all potential stakeholders, that policies are formulated by the government which, in turn, require the formulation of regulations to ensure that these policies become maintained. An organization should be setup to be responsible for the implementation of the intervention (i.e. the Wikiwijs program) and the deployment of it.

Reasoned Action approach (RAA)

Central in RAA (Fishbein & Ajzen, 2010) is *intention*. Intention is a predictor of the actual adoption of OER by teachers and is itself predicted by teachers' attitude toward the adoption of OER, perceived norm to adopt OER, and perceived behavior control regarding the adoption of OER.

Teachers' attitude can be defined as the overall feeling of sympathy or antipathy towards the consequences when adopting OER or when using the Wikiwijs repository or a Wikiwijs tool. Perceived norm is a form of social influence which is pressuring (Ajzen 1991; Fishbein and Ajzen 2010) and can be defined as a person's aggregated belief that most people who are considered important (e.g., the school director, colleagues) think that he or she should adopt OER, the Wikiwijs repository or a Wikiwijs tool.

Perceived behavior control or self-efficacy refers to "people's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives" (Bandura 1991, p. 257). Self-efficacy, in other words is about the convictions a teacher has in actually adopting OER and his/her ability to overcome the impediments that hinder the adoption of OER.

Self-Determination Theory (SDT)

SDT (Deci & Ryan, 2000) purport that the satisfaction of three psychological needs, namely competence, relatedness and autonomy, are innate conditions for teachers' motivation to adopt OER, the Wikiwijs repository or Wikiwijs tools. As a consequence of the striving to satisfy these needs the motivation will be controlled versus self-determined or intrinsic.

Intrinsic motivation refers to the state of fun and pleasantness one expects. Controlled motivation means that the motivation is external and in its most extreme manifestation one is forced to perform a certain behavior; the latter is referred to as extrinsic motivation. With respect to the basic needs, autonomy refers to the need of self-regulation regarding the adoption of OER. The concept is generally described by Deci and Ryan (2000) as 'the organismic desire to self-organize experience and behaviour and to have activity be concordant with one's integrated sense of self' (p. 231). It is the feeling that one is the origin of one's action.

Competence, according to Deci and Ryan (2004) is the feeling that one is effective (in adopting OER), and that there are sufficient opportunities to demonstrate efficacy. Relatedness is the feeling that one is connected and valued by others and that one experiences a sense of belonging with respect to the adoption of OER.

RAA and SDT are models that show the theoretical relationships between all the variables, the PRECEDE—PROCEED model is more an approach for developing and planning

interventions based on the insights that emerged from RAA and SDT (or from any other theory) and as such, does have phases and procedures. Also, the PRECEDE—PROCEED model helps policy makers to formulate the policies and strategies that encourage the adoption of OER and to create an organizational structure that support and evaluate teachers' OER adoption.

Past research on the use of ICT by teachers has shown that teachers are generally reluctant to use ICT in their pedagogical practices (Becta, 2010). Indeed Ward (2005) pointed out that professional development of teachers regarding the educational use of ICT and the availability of a high tech ICT infrastructure in schools does not mean that teachers are going to use ICT. This may also be the case for OER. Or, in other words, the availability of high quality OER or the availability of sophisticated tools to create OER and to share OER does not necessarily implicate that teachers will adopt OER. Other factors may play an important role in the decision process of the teachers whether or not adopt OER.

Kreijns et al (2013) suggested that psychological dispositions such as attitudes towards using, creating and sharing OER, and task and environmental factors such as the school and even the regulations of the Ministry may determine teachers' intentions, and consequently teachers' behavior. In addition, motivational factors may play a role in the teachers' decision processes. Kreijns et al (2014) demonstrated that self-determined motivation was affecting teachers' attitudes and, therefore, teachers' intentions to use OER.

6.2 Main lessons learned

Lesson One: Quality is important

It was assumed that all OER entered into the Wikiwijs repository have an acceptable degree of quality. This turned out not to be true. Teachers were complaining that some of the OER they accessed through the Wikiwijs repository were beneath standards. Teachers, therefore, tend not to visit the Wikiwijs repository anymore when they too often find OER that do not meet the quality they want. Besides, the image of Wikiwijs was becoming to be damaged.

The Reasoned Action Approach does predict that quality of OER in terms of perceived usefulness and perceived usability (i.e., ease-of-use) determine teachers' attitudes towards OER which in turn directly influence intention to use OER. If these attitudes are very negative, then it does not matter whether or not teachers have high levels of perceived behavior control or that they perceive social pressure to use them. Many studies either using RAA (or a "stripped down" version of it known as the Technology Acceptance Model; see Davis, 1986) have shown how important quality is and how it affects attitudes and intentions (e.g., Adeyemo et al, 2013). From these two frameworks it is 'logical' that teachers won't visit the Wikiwijs repository when the quality of OER is questionable.

It was also assumed that it was completely unnecessary to have any quality assurance system, because Wikiwijs assumed a self-regulatory system on quality having teachers as

owners; a teacher would know best what quality he or she need. During the program, however, it turned out that teachers needed some yardstick on quality to use for their own OER. Wikiwijs therefore defined a minimum quality model (Schuwer, 2012). This minimum quality model addressed the types of errors that were most reported by users of Wikiwijs by defining quality criteria for each type of error.

Also, a system of quality marks was established. Each organization or group that can judge on the quality of OER is allowed to act as an issuer of quality marks. These organizations or groups actively search for OER available in the Wikiwijs repository and judge if these OER comply with their quality standards. If this is the case an icon representing the quality mark marks the material. The introduction of quality marks potentially makes quality of OER measurable and transparent.

Finally, it was taken for granted that teachers as users from OER would improve OER that do not meet the quality standards. Based upon our current experiences with Wikiwijs OER, we have no indications that this assumption will prove to become true. To support this observation with empirical data, we currently are administering a questionnaire that addresses this issue.

Summarized: the lessons learned is that we must not underestimate the role that quality of OER have in the usage of OER and Wikiwijs. In addition, we may not assume that all Wikiwijs OER have acceptable quality thereby removing the necessity to have some form of quality assurance. These lessons learned are in accordance with the research described in (Atenas et al, 2014).

Lesson Two: Creating OER is a collective activity

Initially, it was assumed that teachers would create OER on their own. The tools offered by Wikiwijs to create OER was, therefore, oriented towards the individual teacher. However, it slowly became clear that most of the OER was created by a group of teachers within one institution or dispersed among different institutions. This observation has led to the provision of tools that permit teachers to collaborate with each other. Because these tools more matched the needs of the teachers it was observed that the number of OER contributions was increasing.

From the RAA framework this increase can be fully explained. Because first the supporting tools for creating OER were completely oriented towards the individual teacher these tools were perceived as less useful when teachers wish to create OER with other teachers. Teachers' attitudes toward tool use were low and hindering the creation of OER. As a result, the growth of new OER in the Wikiwijs repository underperformed expectations. Adapting these tools with support for the collective creation of OER did change teachers' attitude towards the tools and teachers felt more efficacious to create OER with these adapted tools. Besides, from SDT it can be argued that creating OER with other teachers is strengthening

the interpersonal relationships between them and may possibly reinforcing feelings of competence. Also, these teachers may be completely autonomous in selecting which OER and how much is created. According to SDT feelings of relatedness, competence and autonomy contribute to feelings of intrinsic motivation to create OER.

Summarized: the lesson learned is that teachers do not create OER on their own but with other teachers. Accordingly they need tools that support this collective activity and that bring teachers together.

Lesson Three: Creating OER is a complex task

Creating OER is to be understand from a series of activities that possibly could be performed by teachers. Creating OER means that teachers may:

1. start from scratch and develop their own OER

2. collect existing OER and perhaps also their own OER with the purpose to remix them into new OER

3. use existing OER and perform minimum alterations so that these OER better suit the needs of teachers.

Irrespective of how OER is created or remixed, it is a complex task for teachers. To support teachers in creating/remixing OER, the Wikiwijs repository includes a remix tool supporting the situations 2 and 3. Teachers creating OER from scratch use their own tools, so there seemed no need for Wikiwijs to support this. However, there were problems with the use of the provided remix tool that ranged from missing functions to hang-ups of the tools. Not surprisingly, teachers were complaining.

To remedy this problem, Wikiwijs conducted some usability studies in labs that gave insights where precisely teachers were struggling with the remix tool. This has led to the improvement of the remix supporting functions. Besides, the usability studies also gave insights how teachers were experiencing the navigation and the search engine of the Wikiwijs website that give access to the Wikiwijs repository. According to RAA and TAM, it could be expected that the improved Wikiwijs remix tool will lead to a positive acceptance of it and, therefore, an increase of new OER. The statistics of Wikiwijs showed indeed an increase in number of shared remixes over 2013 from 1237 to 2466.

Due to the complex nature of creation and remixing OER, teachers' self-efficacy to create or remix OER can be low and, thus, they need the knowledge and skills of how to make OER both technically and didactically. According the RAA framework, an increase of competence will increase their self-efficacy for creating and remixing in the future. Besides, an increase of competence will lead to a more positive attitude on using Wikiwijs. Wikiwijs responded to this with providing many sources that teachers could use to professionalize themselves in creating and using digital learning materials. To support them in using the Wikiwijs platform,

a train the trainer program was set up. At the end of 2013, about 1800 teachers had finished this program.

Summarized: the lessons learned here is that underestimating the complexity of creating and remixing OER will cause demotivation of teachers to create and remix OER. They need carefully designed easy to use remix tools. They also need a series of training sessions for acquiring the competences to create and remix OER technically and didactically. However as is warned for in the introduction, the availability of good ICT tools such as the Wikiwijs remix tool and specific professional development programs regarding creating/remixing OER does not imply that teachers will suddenly create and remix OER, though both conditions must be satisfied.

Lesson Four: Sharing OER has to be encouraged and should be made easy

Sharing OER means that these OER are made available for various groups of people. Data from a questionnaire administered in February-March 2013 with 1228 respondents showed that 64.5% of the respondents wished to share some of their OER with trusted colleagues within the same department/section and only 2.9% wished to share them with the broad public (i.e. the 'world') (Van Buuren et al, 2013). Consequently, sharing happened most often through the electronic learning environment of the school or via email. Teachers have several beliefs that prevent them from sharing. Most notably is the belief that when they share they will lose control over their OER and that other people can modify their OER at will, which is something that they want to avoid. It is further suggested that teachers believe that their OER is only useful for their colleagues and that they do not trust the quality of their own OER for sharing them with the broad public. These beliefs drive the forming of a low to moderate attitude towards sharing OER with the broad public and a moderate to high attitude toward sharing OER with trusted people.

An important hindrance to share OER is the condition that for sharing OER teachers have to add meta-data to their OER before they can upload them. NL-LOM, the Dutch standard derived from the standard Learning Object Metadata LOM was adopted by Wikiwijs for this purpose[9]. The Wikiwijs upload functionality contains an NL-LOM template with fields to fill in specific keywords that specifies the NL-LOM attributes such as the title, the target school level, etc.

Filling in the meta-data, however, was felt as a heavy burden. Teachers have difficulties to understand what they were doing, how they should do it and why it is necessary to fill in all the mandatory fields. These difficulties translated into the issue that teacher were completely unacquainted with the concept of meta-data and its role when classifying OER and in finding OER via search engines such as the built-in search engine of the Wikiwijs repository.

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[9] Information about NL-LOM can be found on https://wiki.surfnet.nl/display/nllom /Home

As a result, teachers developed a negative attitude towards filling in meta-data and they feel less efficacious to fill in the meta-data template. The RAA framework predicts that for these reasons it is less likely that teachers will share their OER despite that they may have a positive attitude towards sharing their OER in general. In other words, teachers may want to share their OER but not when they have to fill in meta-data and certainly not when the meta-data template is not helping them to finish this task. The latter refers to the perceived usefulness and perceived ease to use of the meta-data template.

It is to stress here that perceived usefulness and perceived ease to use are important variables in the decision process of teachers whether to use this meta-data template or not which in turn will impact the sharing of OER. From the SDT perspective, a lack of competence to use the meta-data template will decrease self-determined motivation to use this template. To address this, Wikiwijs created an upload service to support teachers in adding meta-data to OER, thereby decreasing the burden for teachers of sharing OER. During the program several thousands of OER were uploaded using this service.

Summarized: here the lesson learned is that we assumed that teachers are willing to fill in the meta-data, are competent to do so and know why it is important to have meta-data. It is hoped for that in the future this task will be accomplished by fully automated tools.

Lesson Five: One interface does not fit all

Initially, Wikiwijs had one user interface for all sectors of education. This design was selected because of the aim that teachers would be able to search for and access OER independent of the educational organization they are working from. For example, the demand for continuous learning paths crossing educational sectors would benefit by this. It appeared, however, that the demands from the educational sector for a user interface were very different. For example, teachers from primary education wanted a bright, playful user interface whereas teachers from higher education wanted a more sophisticated user interface. Furthermore, teachers from higher education expressed a hesitation to share their OER through the same interface where teachers from primary education were also sharing. The current front-end now offers for each educational sector a bespoke user interface. However, it remains unclear whether these bespoke user interfaces is causing a higher adoption rate of OER by teachers, so future research should investigate this issue.

Summarized: Assuming that one interface would serve the needs of all educational sectors turned out to be wrong. A user requirements phase should have taken place before a user interface is to be designed and implemented. Such user requirements phase would have shown that different educational sectors need different user interphases.

Lesson Six: Existing OER communities do not join voluntary in Wikiwijs

Wikiwijs is dependent on a vibrant community of teachers. They should create, remix, and share OER. Therewithal, it was expected that teachers would improve shared OER by writing reviews on their usefulness and by adding to the meta-data. Wikiwijs had decided not to start a new community, but to seek close cooperation with an already existing community with similar aspirations. This community had their own repository with learning materials that they shared within the community. Initially, connecting to this community with Wikiwijs was a hard case as they wanted to protect their work and autonomy. But, in the end Wikiwijs had managed that this existing community has removed their doubts and objections to cooperate with Wikiwijs.

A short overview of what has happened is listed here:

- the existing community owners and members were all teachers whereas the project members of Wikiwijs were not. Therefore, there was considerable opposition to the "outsiders" who told them that they have to participate. By adding an experienced teacher to the Wikiwijs team to act as an intermediary between the existing community and Wikiwijs caused that eventually the resistance diminished. This is in accordance with (Gollwitzer, 1999) who stated that the use of peers to communicate persuasive messages is highly recommended.

- in the existing community certain ideas existed on how to extend functionalities of their repository. Wikiwijs adopted these ideas to improve the functionality of the Wikiwijs repository thereby making the members of the community more enthusiastic about Wikiwijs and increase their willingness to cooperate with Wikiwijs.

- the existing community was funded by Kennisnet, one of the parties that implemented Wikiwijs. During the program the conditions for the budgets became stricter and target driven. Cooperation with Wikiwijs made it easier for this existing community to fulfill the targets.

Summarized: The lesson learned here is that we may not assume that existing communities would surrender without resistance to Wikiwijs just because we need them. A combination of strategies is needed. In fact, it is an intervention in its own right to help the existing community cross the line. Here the intervention was by using an experienced teacher as an intermediary, adopting the good ideas about improving a repository, and by the mild treat that otherwise cuts in budgets would be expected it they won't cooperate.

Lesson Seven: Governmental policies and regulations are needed

For both school management and teachers, adopting OER is not a natural thing to do. We have the following observations. First, it is remarkable that less than 48% of the teachers did know about the existence of Wikiwijs and from these only 65% have once visited the Wikiwijs repository. Furthermore, the majority of the teachers (78%) reported to use OER

that was found on the Internet using search engines (e.g. Google) and less than 18% of the teachers reported that the OER was found in the Wikiwijs repository (van Buuren et al, 2013). Third, teachers felt no social pressure at all to use OER whatsoever (Kreijns et al, 2013).

According to RAA this means that teachers' intention to use OER in their lessons is mainly determined by their personal motives (i.e. their positive attitude, their intrinsic motivation, and their knowledge and skills to use OER). Regarding the creation and remixing of OER, far less teachers (3.1% of the teachers) were engaged in these activities. This can be partly explained by the lack of support given by the school management: 9% of the teachers reported that they were facilitated by their school (van Buuren et al, 2013).

The PRECEDE—PROCEED model points out that interventions can only be effective when the intervention includes all stakeholders that in some way can influence the adoption of OER. The government should involve parties that can exert influence on school management, headmasters, and teachers. All should participate together and this forms one of the critical factors. For the case of the Netherlands, starting only the Wikiwijs initiative was not sufficient to reach the goals which the Ministry had set in realizing mainstreaming OER. More prescriptive policies and regulations are also needed to avoid the current situation where no sense of urgency is felt by both management and teachers to adopt an OER policy.

Summarized: When interventions aims to change the behavior of individuals more is needed than just facilitating an infrastructure (i.e. the Wikiwijs repository) and professional development regarding the adoption of OER (i.e. the teacher training sessions). Again, these are necessary conditions but the satisfaction of these conditions does not mean that teachers start adopting OER. The PRECEDE—PROCEED models clearly pointed to the gaps in the Wikiwijs program, most notably, the weak governmental policies and associated facilitations and regulations that are needed to complement the Wikiwijs program.