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Identifying Categories of Open Educational Resource Users

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4. Identifying Categories of Open Educational Resource Users

Martin Weller, Beatriz de los Arcos, Rob Farrow,
Rebecca Pitt and Patrick McAndrew

The Open Educational Resource (OER) movement has been successful in developing a large, global community of practitioners, in releasing high quality learning material and influencing policy. It now stands at the cusp of mainstream adoption, which will require reaching different audiences than previously. In this contribution the findings of the OER Research Hub are used to identify three categories of OER user: OER active, OER as facilitator and OER consumer. These groups have different requirements of OER and thus varying strategies would be required to meet their needs if mainstream adoption was to be realized.

Introduction

Open Educational Resources (OER) have been part of the open education movement since 2002, with the advent of MIT's OpenCourseWare project. The history of OER goes back further than this if one considers the Learning Object developments of the 1990s and emergence of openly licensed software as precursors. Their premise is a relatively simple one, and has remained largely unchanged since the initial MIT project: creating educational content with an open license so it can be accessed freely and adapted. The Hewlett Foundation's definition of an OER is:

> […] teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge. (Hewlett Foundation, [n.d.])

This gives a clear definition of OER, but for many practitioners this becomes blurred in practice, and overlaps with any online resource, regardless of licence. Although this chapter is concerned primarily with OER as defined here, this mixed economy is part of the practice of users, and so is reflected in some of the later discussion.

The OER movement has been something of a success story compared with many educational developments, for instance the aforementioned learning objects, which gained a good deal of initial attention. There is a global OER movement, with repositories in most major languages. Funding has been provided by foundations such as Hewlett and national bodies such as JISC in the UK, and sustainable models that do not require external funding have begun to emerge, for example the Open University's OpenLearn project (Perryman, Law and Law, 2013). It is difficult to quantify OERs by time or projects, since it will vary depending on definition, but Creative Commons have estimated there are over one billion CC licensed resources (Creative Commons, 2015). For example, should online collections from museums be included? Or more general resources such as YouTube videos, SlideShare presentations, iTunes U downloads? Even if the focus is solely on university based OER projects then there is considerable output, with the Open Education Consortium

listing over 200 institutional members, all of whom have a commitment to open education and releasing OERs (OE Consortium, 2015). MIT has now made over 2,000 courses freely available (MIT OCW, 2015) and the Open University's OpenLearn site has released over 10,000 hours of learning resources.

One major development in OERs over this period has been the advent of open textbooks, although these represent just one form of OER. The premise of open textbooks is relatively simple — create electronic versions of standard textbooks that are openly licensed and freely available and can be modified by users. The physical versions of such books are available at a low cost to cover printing, for as little as $5 USD (Wiley, 2011). The motivations for developing open textbooks are particularly evident in the US, where the cost of textbooks accounts for 26% of a four-year degree programme (GAO, 2005). This creates a strong economic argument for their adoption in higher education, and a similar case can be made at K12 level.[1]

There are a number of projects developing open textbooks using various models of production. A good example is OpenStax, who have funding from several foundations to develop open textbooks targeting the subject areas with large national student populations, for example "Introductory Statistics", "Concepts of Biology", "Introduction to Sociology", etc. The books are co-authored and authors are paid a fee to work on the books, which are peer-reviewed. The electronic versions are free, and print versions available at cost. The books are released under a CC BY license, and educators are encouraged to modify the textbooks to suit their own needs. In terms of adoption, the OpenStax textbooks had been downloaded over 120,000 times and 200 institutions had decided to formally adopt OpenStax materials, leading to an estimated saving of over $30 million in a little over two years (OpenStax College, 2014).

The OER movement has managed to grow substantially over the past decade. It has released a vast amount of educational material, and seen diverse implementation projects across the globe. The OER movement has gone through different phases, from startup, to growth and, in places,

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1   K12 is a term for the sum of primary and secondary education sectors. The expression is a shortening of kindergarten (K) for 4- to 6-year-olds through twelfth grade for 17- to 19-year-olds, the first and last grades of free education in a number of countries including Australia and the US.

sustainability. This has happened in parallel with a number of related developments in the open education movement, namely the success of open access publishing, particularly through national mandates (SPARC, 2015), and the more recent popular attention garnered by MOOCs. Education policy has also started to recognise the potential of OER, for example the US Department of Labor launched a $2 billion programme, Trade Adjustment Assistance Community College and Career Training (TAACCCT), aimed at improving workforce and employability training. All new material produced through these grants was mandated to release their content under a Creative Commons licence (Allen, 2016). This has created a context in which the OER movement views the next phase as one of becoming mainstream in educational practice. For example, the Hewlett Foundation White Paper (2013) on OERs states that its goal is "to pave the way towards mainstream adoption of OER in a manner that promotes greater, sustainable educational capacity", and the theme of the 2015 OER conference in the UK was "mainstreaming open education" (OER conference, 2015).

In order for OERs to enter the mainstream of educational practice, their use by learners, educators and policy makers would need to become common practice; the default option. The broad approach of the OER movement thus far has been to increase OER awareness and to grow the OER community. However, for mainstream adoption it may be that other approaches are now required and what was a successful strategy in one stage of development may not be successful in another. This may not have been an overarching, or deliberate strategy, but reflects the manner in which movements develop. This contribution will examine different forms of engagement with OER, using the research of a project based at the Open University, the OER Research Hub, as the basis for proposing three forms of engagement. By understanding these types of engagement, strategy for OER adoption can be influenced.

The OER Research Hub

The OER Research Hub (http://oerhub.net) was a project funded by the Hewlett Foundation, which commenced in 2012. The aim of the project was to create an evidence base for the OER community. Much

of the initial phase of the OER movement can be characterized as being belief-driven about the potential benefits of OERs. These beliefs might be stated as obvious, undeniably true or based on anecdote, but rarely backed up by evidence. This was because the movement had to gain sufficient momentum to have evidence to investigate whether this potential was realized. The OER movement may now have realized this critical mass of evidence needed to investigate these more fully. The OER Research Hub set out to establish this evidence base, using 11 hypotheses which represented the commonly stated beliefs and claims in the OER community:

A. Performance: Use of OER leads to improvement in student performance and satisfaction.

B. Openness: The Open Aspect of OER creates different usage and adoption patterns than other online resources.

C. Access: Open education models lead to more equitable access to education, serving a broader base of learners than traditional education.

D. Retention: Use of OER is an effective method for improving retention for at-risk students.

E. Reflection: Use of OER leads to critical reflection by educators, with evidence of improvement in their practice.

F. Finance: OER adoption at an institutional level leads to financial benefits for students and/or institutions.

G. Indicators: Informal learners use a variety of indicators when selecting OER.

H. Support: Informal learners adopt a variety of techniques to compensate for the lack of formal support, which can be supported in open courses

I. Transition: Open education acts as a bridge to formal education, and is complementary, not competitive, with it.

J. Policy: Participation in OER pilots and programs leads to policy change at an institutional level.

K. Assessment: Informal means of assessment are motivators to learning with OER.

Methodology

The project adopted a mixed methods approach. As well as gathering existing evidence onto an evidence map (oermap.org), the project worked with fifteen different collaborations, across four sectors: K12,[2] community college, higher education and informal learning. Interviews, case studies, and quantitative data were gathered, but this paper mainly reports on responses to surveys. A set of survey questions was created, addressing the eleven hypotheses. Although slight variations were permitted depending on context, the same pool of questions was used across a wide range of respondents. These included students in formal education, informal learners, educators at K12, community college and higher education level and librarians. In total, twenty-one surveys were conducted, with nearly 7,500 responses.

The collaborations were as follows:

1. The Flipped Learning Network (FLN) — a community of teachers whose mission is "to provide educators with the knowledge, skills and resources to successfully implement flipped learning" (Flipped Learning Network, [n.d.]).

2. Vital Signs — a citizen-science programme for middle-school children run by the Gulf of Maine Research Institute. The aim is for 7th and 8th grade kids to learn science by doing science "using inquiry, peer review and scientific tools to investigate genuine research questions about invasive species" (Vital Signs, [n.d.]). Community College Consortium for OER (CCCOER) — a coalition of more than 240 colleges across 11 states in the US, who are starting to use OER.

3. Open Course Library (OCL) — a collection of shareable learning materials, including syllabi, course activities, readings, and assessments designed by teams of experts in the Washington area.

4. OpenLearn — the OU's web-based platform for OER. It hosts hundreds of online courses and videos and is accessed by over three million users a year.

5. TESS-India — a project developing OERs for teacher training in India.

6. Bridge to Success — a project that developed and piloted whole course OER in math and learning/personal development skills (*Succeed with Math* and *Learning to Learn*, respectively).

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2   For a definition of K12 please see Chapter 4, fn 1 in the present volume.

7. OpenStax CNX (formerly Connexions) — a repository of OER, which have been shared and peer-reviewed by educators. The OpenStax CNX platform also enables users to remix and create their own resources. OpenStax College are providers of a range of open textbooks.

8. School of Open — an initiative of Creative Commons and Peer to Peer University (P2PU) which provides facilitated and non-facilitated open courses on different aspects of "openness" (e.g. copyright and licensing, OER, Wikipedia etc.).

9. BCcampus Open Textbook Project — this aims to create 40 open textbooks for use in HE institutions in British Columbia, Canada.

10. MERLOT — an OER repository and community.

11. ROER4D — a project investigating the impact of OER in the Global South.

12. The Saylor Academy — a non-profit organization offering free courses.

13. Siyavula — math and science open textbook providers based in South Africa.

14. Project Co-PILOT (Community of Practice for Information Literacy Online Teaching) — this project promotes OER on digital and information literacy in the higher education sector.

Each of the collaborations had a researcher from the Research Hub assigned to work with them. Three or more of the 11 hypotheses were also allocated to each collaboration, with hypotheses A (Performance) and B (Openness) being relevant to all. In addition, one fellow from each collaboration visited the Open University to focus on a specific area of research.

Supplementary to the evidence acquired from these targeted collaborations, the project also incorporated evidence from the OER community and published research which was added to the evidence map. The team adopted an agile methodology adapted from software development. This was focused around week-long sprints which targeted particular hypotheses. One such sprint focused on populating the evidence map from research repositories and through regular review of academic journals.

The overall survey data was gathered across the collaborations, with 7,498 respondents in total, and the frequencies analysis of this data

constitutes the main evidence basis for this chapter. The breakdown of respondents from each of the collaborations was as follows:

Flipped Learning Network (n=118); CCCOER (n=128); Saylor (n=3213); OpenLearn (n=1668); OU iTunes U (n=1114); Siyavula (n=89); Librarians (n=218); General Survey (n=147); School of Open (n=129); BCCampus (n=85); Open Stax (n=400) and OU YouTube (n=189).

A detailed analysis of the evidence is given for the following: each hypothesis (Weller *et al.*, 2015); open textbook use (Pitt, 2015); K12 teacher adoption (de los Arcos *et al*., 2016); informal learners (Farrow *et al*., 2016). The aim of this contribution is to use this data to identify different types of OER users, which can be classified by different forms of engagement with OERs. This analysis focuses on identifying categories of OER engagement that will inform the intention of making OER use mainstream practice, and is based on the authors' interpretation of the OER data set.

Types of OER Users

Open education in general, and OERs specifically, form a basis from which many other general teaching practices benefit, but often practitioners in those areas are unaware of OERs explicitly. The focus in the OER community thus far has largely been to expand this group of "OER aware" users, but mainstream adoption will see OER usage by new audiences. Analyzing the findings of the OER Research Hub reveals three main categories of OER users: OER active, OER as facilitator, and OER consumer. The categories include users from different sectors, including educators, formal and informal learners, higher education and K12. However, some categories may see higher representations of some user types, for instance the OER active category may have a higher proportion of educators than learners, since it is focused on engagement with the OER movement, but it will not be exclusive to educators.

OER active

This category of user is aware of OER issues, in that the term itself will have meaning for them, they are engaged with issues around open education, are aware of open licenses and are often advocates for OERs. This group has often been the focus of OER funding, conferences and

research, with the aim of growing the size of this audience. An example of this type of user might be the community college teacher who adopts an openly licensed textbook, adapts it and contributes to open textbooks.

Much of the OER Research Hub work focused on this group, and the findings highlight the positive benefits for this community, for instance increased confidence from learners, reflection by educators and cost savings. However, the findings also highlight the difficulties in expanding this group, for instance in terms of their awareness of OER and the significance of licenses.

With regards to the positive aspects, there is a strong claim concerning the benefits of OERs for both learners and educators, for example 62.1% of educators and 60.7% of formal learners reported that using OER improved student satisfaction, and 44.1% of educators and 38.9% of formal learners agreed that OER use resulted in better test scores. It must be remembered, however, that these results are self-reported and may not accord with actual performance.

However, the research also revealed that knowing where to find resources is one of the biggest challenges to using OER and that awareness of well-established OER repositories, such as MERLOT, is low compared with free resource sites such as the Khan Academy and TED.[3] There was also a disparity in belief and practice that suggests that there may be practical barriers in expanding this group of users. For example, only 14% of informal learners (i.e. those learners not currently enrolled in a formal study programme) selected OER with an open license allowing adaptation, despite the fact that 84% of all informal learners said they adapted the resources they found to fit their needs (although what "adaptation" means here may vary, as discussed in the next category). Similarly, only 14.8% of educators created resources and published them with a Creative Commons license despite the fact that a majority of educators (70.4%) considered open licensing important and 58.9% were familiar with the Creative Commons logo.

While the OER active group has continued to expand and has established a successful community, it is unrealistic to assume that every educator will become interested and active in the OER movement. It

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3   For a discussion of TED see Chapter 4 in this volume: Situated Learning in Open Communities: The TED Open Translation Project by Lidia Cámara de la Fuente and Anna Comas-Quinn.

may not be necessary for every educator to engage with OER for it to be considered mainstream, but as with eLearning in general, it would need to impact upon the majority of educational practice. A recent survey of educators in US higher education found that awareness of OER was low, but that awareness was not a requirement for adoption (Allen and Seaman, 2014). This leads to the second category of OER user.

OER as facilitator

This group may have some awareness of OER, or open licenses, but they have a pragmatic approach toward them. OERs are of secondary interest to their primary task, which is usually teaching. OER (and openness in general) can be seen as the substratum, which allows some of their practice to flourish, but their awareness of OER issues is low. Their interest is in innovation in their own area, and therefore OERs are only of interest to the extent that they facilitate innovation or efficiency in this. An example would be a teacher who uses Khan Academy, TED talks and some OER in their teaching.

One of the collaborations on the OER Research Hub was the Flipped Learning Network. Flipped Learning moves the direct instruction element away from the face-to-face component and into the individual's learning space (Flipped Learning Network, 2014). The face-to-face time is then spent on dynamic, interactive group learning. The claim is that the flipped model reverses the traditional approach as class time is spent doing tasks where students exercise critical thinking and homework is used to support understanding and knowledge acquisition. In practice, this often means giving students videos and other online resources to view at home. OERs are therefore of relevance, in that they can help these educators realize their main aim, which is "flipping" their classroom. They are not absolutely necessary, however, for instance many educators use YouTube videos without paying attention to the license it has been released under. As well as this, flipping a classroom could be achieved by using licensed materials from content providers, for example the commercial publisher Pearson offer a course on the "Foundations of Flipped Learning" (Pearson, [n.d.]), and could presumably offer all of the resources to "flip" a classroom for a subscription fee.

However, the OER Research Hub found that adaptation was a key requirement for educators, with 79.4% of all OER users adapting

resources to fit their needs. As stated above, though, people's interpretation of adaptation varies. For some users it means using the resources as inspiration for creating their own material, as this quote illustrates:

> What I do is I look at a lot of free resources but I don't usually give them directly to my students because I usually don't like them as much as something I would create, so what I do is I get a lot of ideas.

This is particularly relevant for those in the Flipped Learning network as they are seeking new ideas to teach their subject. While this is an important use of OER, it arises principally as a result of their online availability rather than openness, and so does not necessarily require OER in order to be realized. However, the freedom to reuse ideas is encouraged by an open license and users feel able to do so without fear of infringing any copyright.

For other users, adaptation is more direct, e.g. editing or re-versioning the original or aggregating elements from different sources to create a more relevant one, as this quote demonstrates:

> The problem where I teach now is that we have no money; my textbooks, my Science textbooks are 20 years old, they're so out-dated, they don't relate to kids […] so I pick and pull from a lot of different places to base my units; they're all based on the Common Core; for me to get my kids to meet the standards that are now being asked of them, I have no choice, I have to have like recent material and stuff they can use that'll help them when they get assessed on the standardised test.

And for others, adaptation may be taking an existing resource and placing it in a different context within their own material. The resource is not adapted, but the manner in which it is used is altered.

What this suggests is that there may be a continuum of adaptation in practice, ranging from adapting ideas for their own material to full re-versioning of content. The degree to which OER are required to realize this adaptation also increases along that continuum. At the "inspiring ideas" end, they are not required for simple reuse in a different context; the open license is useful, but many educators will ignore rights issues if the material is only being accessed by their class. At the full adaptation end of the continuum, open licensing is required.

It is likely that teachers will not remain static on this continuum, one of the findings of the OER Research Hub was that the more educators used OER, the more willing they were to share. For example, high numbers of both OpenStax College using educators and Siyavula educator survey respondents report being "more likely" to use other free educational resources/open educational resources for their teaching as a result of using Siyavula/OpenStax (Siyavula: 90.2%, n=55 and OpenStax: 79.5%, n=58). Sharing content is made much easier if there are no concerns around licenses.

In the example of Flipped Learning, then, OERs are useful for realising a different aim, they are a related topic of interest, but not the primary one. However, the open aspect leads to developments which are not possible with resources that are merely digital and online.

Cost savings for students can also be viewed as a goal, which OER can help achieve. Much of the motivation for the open textbook movement relates to the financial burden of buying proprietary textbooks. The potential savings here are one area of OER impact that has seen rigorous, quantitative research. Hilton *et al*. (2014) found an average saving of 90.61 USD per student per course, across a wide range of community and stage college courses. In the OER Research Hub study, 79.6% of formal students (i.e. those enrolled in a programme of study at a higher education institute) reported that they saved money by using OER, primarily open textbooks. Cost savings also have other positive impacts on study, for example in student retention, and immediate access to content, as this quote demonstrates:

> I sure think that if the institution more fully made use of open educational resources that we could benefit financially: by retaining more students who otherwise have to drop out because of the high cost of textbooks; by providing higher quality and more diverse and accessible learning and teaching resources which would be a great financial benefit.

However, if cost savings were the only goal, then OERs are not the only answer. Materials could be made free, or subsidized, which are not openly licensed. The intention behind the OER approach is that it has other benefits also, in that educators adapt their material, and it is also an efficient way to achieve the goal of cost savings, because others will adapt the material with the intention of improving its quality, relevance

or currency. As with the Flipped Learning Network, OERs are, in this instance, one means of achieving a related objective.

OER consumer

This group will use OER amongst a mix of other media and often not differentiate between them. Awareness of licences is low and not a priority. OERs are a "nice to have" option but not essential, and users are often largely consuming rather than creating and sharing. An example might be students studying at university who use iTunes U materials to supplement their taught material.

For this type of user, the main features of OERs are their free use, reliability and quality. One under-reported use of OERs is by formal learners to sample study in their topic before entering formal study, with 52.7% of formal learners accessing OER indicated that they were using OER to supplement their formal studies. Similarly, 32.4% of learners stated that their interest in using OER was a chance to try university-level content before signing up for a paid-for course. Similarly, many learners were using OERs to supplement study whilst currently in formal education, with 46.9% of all formal learners in our sample stating that OER had a positive impact in helping them complete their course of study. For these users, the OERs need to be freely available, at the appropriate level of study and from a reputable institution. The open license is not a primary concern for this group, although there may be circumstances when they wish to adapt, or share them. This was reflected in the importance learners placed on the factors that influence their selection of OER, the top three of which were: relevance to their particular needs; a good description of learning objectives and outcomes; ease of download. The presence of a Creative Commons license was ranked fourteenth out of a possible seventeen options.

A related use of OER is that for informal learners it can function as an alternative to formal study. For these learners, the quality and zero cost were important, with our study showing that 89% of learners using OER say that the opportunity to study at no cost influenced their decision to use OER.

These learners are studying for personal interest predominantly: 86.3% state this as the main reason over improved job opportunities or mandated requirements. For these learners, the quality of the content is

of prime interest, and the lack of formal support is not seen as significant for their goals, with only 18.7% stating that not having the support of a tutor/teacher to help them was a barrier to their use of OER.

For this category of OER user, open licensing is at best an additional bonus, over the quality and usefulness of the resource. This is captured in this quote referring to the Siyavula open textbook project in South Africa:

> OER *per se* does not excite learners. Good content does — free or paid, legal or pirated. Siyavula's stuff works because it is GOOD. Being CC makes it legal to download, not fun to use. There are 100's of free/CC Geogebra resources. 98% are useless to me.

Discussion

Three categories of OER use have been identified through the work of the OER Research Hub: OER active; OER as facilitator; OER consumer. In expanding the OER community over the past twelve years, the focus has largely been on growing the first of these groups, that is, making people aware of the benefits of OER use and adaptation. This has been a successful strategy in establishing a sufficiently large OER community globally such that OER projects can be developed, funding can be secured and advocacy can be conducted. All of these actions are required to establish a sustainable community, and represent the necessary foundation for a movement to enter the mainstream. However, in order for OER to become part of mainstream practice in education, additional strategies are required in order to meet the needs of the other two categories of users identified here.

(2009) has talked of "Dark Reuse", that is when reuse is happening in places that cannot be observed, analogous to dark matter, or simply it is not happening at all. Wiley challenges the OER movement about its aims:

> If our goal is catalyzing and facilitating significant amounts of reuse and adaptation of materials, we seem to be failing. […] If our goal is to create fantastically popular websites loaded with free content visited by millions of people each month, who find great value in the content but never adapt or remix it, then we're doing fairly well.

Wiley contrasts creating popular websites and the reuse of content, but by considering these three perspectives of OER engagement, it is possible to see how both elements of Wiley's goals are realizable, as they represent different aims for each category. The main focus of OER initiatives has often been the OER active group. It is this group that creates open resources and advocates the movement. For example, Wild (2012) suggests three levels of engagement for HE staff that progress from piecemeal to strategic to embedded use of OER. The implicit assumption is that one should encourage progression through these levels, that is, the route to success for OER is to increase the population of what we have here labelled the OER active group. Perryman and Seal (2016) expand on this model which incorporates inhibitors and enablers (such as internet access) to account for uptake in developing nations.

Whilst expanding the OER active group is undoubtedly a requirement for the mainstream adoption of Open Educational Resources, it may not be the only approach. Another strategy may focus on increasing penetration of OER into the other categories of users identified here. As awareness of OER repositories was very low amongst these users, a way of improving uptake for these groups is to increase the visibility, search engine optimization and convenience of the resources themselves, without presuming a specific knowledge of open education. This might be realized through creating a trusted brand to compete with resources such as TED. If this was desirable then the funding and ownership of such an open brand would then be a focus for development.

Similarly, a strategic aim to engage with the second two groups would influence both the formats of OER and the content. For instance, the popularity of content varied across users' groups, with educators favoring science and maths, formal learners preferring science, psychology and philosophy, and computer science, economics and business preferred by informal learners. Video was the preferred format across all groups, but if the OER community were to target the OER consumer directly, then shorter content that is more viral in nature may be preferable. The community would then be focusing on promoting the development of these types of OER.

These categories of OER users are not exclusive, nor does an individual remain fixed within a category. Once users have encountered OER they are keen to access more of it, with 84.5% of informal learners

stating that they are more likely to take another open course or study a free open educational resource. Educators in particular often become advocates, with 95% saying they share OERs. This quote from a K12 teacher was typical of the increase in sharing practice brought about by exposure to OERs:

> Free online resources have virtually opened up my world for sharing resources. Our district will never be able to pay, nor will I, so sharing was just a chance thing before now. Now, it is a daily occurrence most times.

There may be some progression, therefore, from either OER consumer or OER as facilitator into the OER active category. However, it is not necessary for this progression and increased OER awareness to occur for OERs to achieve mainstream adoption. Within one project or institution it is possible to witness all three types of user in operation. For example, Tidewater Community College embarked on the Z-degree programme (to make zero cost textbooks available to students) with two aims (DeMarte and Williams, 2015):

- To improve student success through increased access and affordability
- To improve teaching efficiency and effectiveness through the ability to focus, analyze, augment, and evolve course materials directly aligned to course learning outcomes

OER was seen a facilitator of these aims, but the project required its adopters to be OER aware. As the project expands to more courses in the college, it may be that the instructors are more interested in OER as a facilitator that allows revised course design and improved retention.

Although the OER Research Hub survey represents one of the most comprehensive studies of OER usage, it has its limitations; further investigation is needed in order to validate these categories and to assess some of the finer detail within each. The first of these limitations is geographical coverage. There were 180 different countries in the respondents but a concentration in the United States (35.8%) and United Kingdom (21%). In considering the strategies to realize mainstream adoption of OER, it is likely that the needs of these three categories of users will differ by region, so more focused studies in specific areas are needed. Similarly, the needs of users across different demographic groups within these categories are likely to vary. The respondents in the OER Research Hub surveys tended to be well qualified with a majority

holding a postgraduate (34.4%) or undergraduate degree (27.5%), and a very small percentage declaring that they have no formal qualification (4.3%). Lastly, these surveys looked at users who were already accessing OERs through one route, even if they were unaware of the term "OER". In order to gain mainstream adoption it will be necessary to study how other, casual users can gain access to OERs.

Notwithstanding these limitations the Research Hub survey represents the best cross section of OER users currently available and as such it provides a useful means of considering the next phase of OER strategy. If the intention to become part of mainstream practice is to be realized then an expansion of usage beyond the current OER active group is required. As well as attempting to grow the community that constitutes this OER active group, different approaches will be required to meet the needs of the OER as facilitator and OER consumer groups.

Conclusion

The OER movement has seen steady growth and development since its inception, and elements are now being accepted into the mainstream of educational practice. In order to achieve widespread adoption it is likely that new strategies will be required by the OER community, whether researchers, funders, practitioners or policy makers. In order to inform this work, it will be necessary to develop a better understanding of how different communities use Open Educational Resources and the problems OER solves for them.

The work of the OER Research Hub provides a basis for this analysis as it provides a large data set of attitudes and perceptions of OER users. The three categories outlined in this paper of OER active, OER as facilitator and OER consumer represent an initial, but not exhaustive attempt, to rationalize these different forms of OER engagements. This analysis highlights that different strategies will be required to suit the expectations of these users, and thus a coordinated, directed vision may be necessary. This will present a challenge for a loose, open community but can be realized through open discussion and targeted funding and projects.

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