Engaging users and producers

Thematic synthesis report

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EdReNe

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Author(s)	*Tommy Byskov Lund with contributions from network members and UNI•C colleagues*

e*Content*plus

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[1] OJ L 79, 24.3.2005, p. 1.

Contents

Conclusions

In order to be a success any educational repository need to attract a high number of returning users. Many successful major web sites support this goal by building active and engaged user communities and the same trend is now seen for educational repositories that were often initiated long before the advent of the social web.

This report summarizes the discussions within the EdReNe network and gathered experiences on how to build online communities. It also contains an introduction to common repository functionality and suggests using design patterns as one of the methods to identify best practise, whenever adding new functionality. Another source for giving priority to new features, are the insights that can be gathered from an analysis of repository use. Examples of this type of analysis are given at the end of this report.

If the ambition is to reproduce the feeling of a vibrant teacher room buzzing of ideas in an online environment, the recommendations in this report include:

- Describe why you want an online community – to yourself and all involved stakeholders
- A dedicated and skilled community manager is essential
- A strong community cannot be built quickly – plan for long term sustainability
- Keep it simple
- Make it easy to participate – for all members
- Build trust and defend your brand
- Make the community the centre of your web site - never hide it
- It should be easy for users to invite friends
- Reward user activity
- Keep moderation to a minimum
- Encourage and facilitate real life meetings between users
- Find out as much as possible about the usage patterns of your repository
- Do careful usability studies - be inspired by best practice from other sources, for example through the use of design patterns

These are only the results of the first discussions of the network, which will continue as ensuring an active user community is both one of the most important but also complex aspects of running a successful repository.

Introduction

This report summarizes discussions and presentations from EdReNe workshops on different strategies for engaging users of educational repositories.

Focus will be on providing strategies to follow when building online communities and describing common features and functionality of repositories. The aim of the report is to give inspiration on issues necessary to consider in order to engage users of educational repositories. Parallels to other major social web sites will thus be included where relevant.

As in other EdReNe reports emphasis is on pre-university repositories, from where most examples are taken. Many of the arguments are however very general.

- More than 400 million active users
- 50% of our active users log on to Facebook in any given day
- More than 35 million users update their status each day
- More than 60 million status updates posted each day
- More than 3 billion photos uploaded to the site each month
- More than 5 billion pieces of content (web links, news stories, blog posts, notes, photo albums, etc.) shared each week
- More than 3.5 million events created each month

Achieving a level of engagement comparable to the major social networks of the world would meet one of the primary success criteria for most educational repositories: Frequently returning and contributing users.

Facebook statistics, March 2010 (see most recent at http://www.facebook.com/press/info.php?statistics)

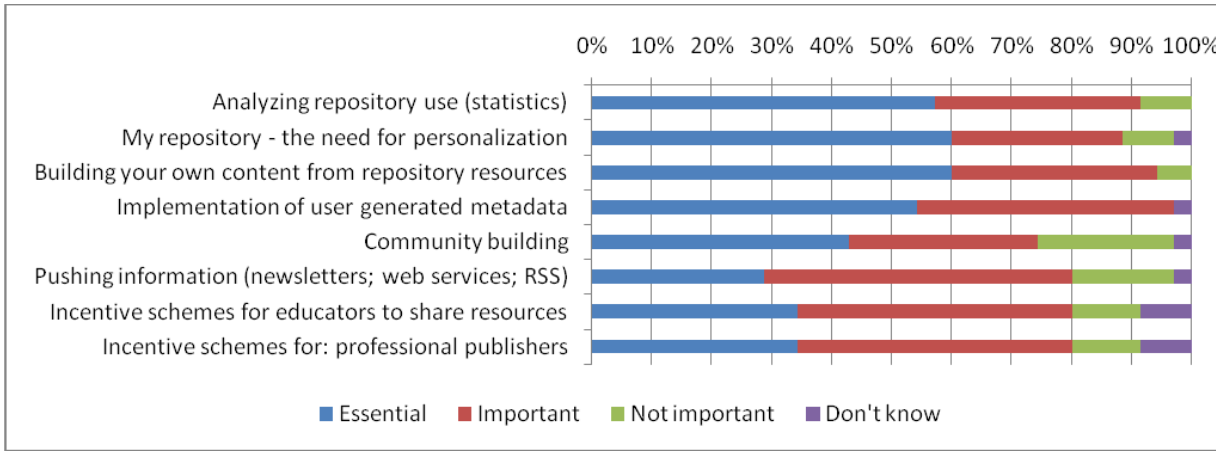
When looking at EdReNe member repositories, a trend is clearly that building repositories on existing communities of practice with defined needs, seems to be one of the most promising strategies. Such approaches encourage ownership and trust, often cited as essential requirements for sharing. They also offer important roads to support sustainability of services. In spite of members of a community moving away, the underlying needs of the community will remain.

It is worth noting that 90% of surveyed member repositories have an ambition of teachers visiting their repository at least once a week. This should be seen in comparison with estimates from the same repositories stating that from 5% to maximum 60% of the primary target group actually visited during the last month. This is in stark contrast with some of the social behemoths of the general web, such as Facebook, that display much more active user involvement.

A general observation is that it is not easy to make teachers share materials[2]. It is important to any repository with ambitions to know their target groups well – to provide a starting point for what can be potential barriers both on the technical, organisational, process and emotional level.

From the EdReNe member repositories it seems that bottom-up approaches or user-based repositories seem to have more success with involving teachers and creating an active community around their repository than is the case for most traditional top-down approaches. Part of the explanation could be that

[2] Becta has for example published research findings that identify the drivers and blockers to teachers accessing, repurposing and sharing digital resources (see online presentation from 2nd EdReNe seminar).



Issues given priority by EdReNe members. Selected results from a survey conducted during the 2nd strategic seminar (Lisbon, June 2008), showing which issues participants judged as being important to share knowledge about concerning engagement of users.

the starting point here has been a personal network – the basis for a growing community with a built-in dedicated community manager.

Under the heading of *Engaging users* EdReNe members have also discussed the features and functionality of current repositories. As the illustration above shows, quite a number of the issues given high priority are related to personalisation and social aspects of repositories. The reasoning behind this is that a number of the repositories, built before the era of the social web, are in the process of implementing these features and thus looking for interesting practise within this area.

As changes are introduced to existing repositories, it is even more important to have a very clear picture of who the users are, where they come from, what they are doing (and not doing) during a visit to the repository. The final section of the report thus gives examples of the importance of analysing repository use.

There are many other aspects of how to attract and engage users of educational repositories. Some of these are reflected in the EdReNe synthesis reports on *Standards and Interoperability*, *Rights Issues* and *Repository Strategies*.

This report does not discuss barriers that are general or specific to the use of ICT in schools either, even though it is clear that it is still relevant to have a focus on issues such as: lack of skills in relation to using learning environments and web-based tools; access to computers when needed; connectivity and band width; authentication and access etc.

As engaged and active users are critical to the success of repositories, other aspects of this complex issue will undoubtedly also have a prominent place in future discussions of the EdReNe network.

Building – or supporting – communities

If a repository is not actively used it is not a success. So what does it take to build an active community of users? In essence it probably comes down to *locating an existing community of practise* and *supporting it efficiently* online. When combined with an area of as broad interest and with as many stakeholders as education, the possibilities for reaching a very high number of actively contributing, satisfied users should be good.

In general, many repository strategies stress the importance of building communities of practice, where users share resources, evaluate them and inspire one another on how to use them. The strongest communities of practice between educators are often subject based or built upon personal relations (e.g. close colleagues from your own institution).
It is often the case that what is initially shared within such educator communities is exactly *experiences*, *ideas* on practice and *advice* on specific questions – with the sharing of learning resources as a side effect. This is in contrast with the approaches often taken from (early) central repository initiatives where focus has been on providing an infrastructure for sharing (as in depositing) content and the community aspect only recently being added as an important strategy component.

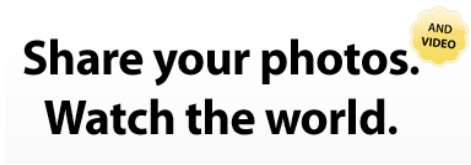
As teachers have become acquainted with the major social networks the idea behind education specific networks should be much easier to communicate. It is also worth noting that most (if not all) successful social networks are not just about connecting people – there needs to be "social objects" included in the equation – e.g. pictures (flickr), links (delicious), articles (Wikipedia)[3] – so this should be good news for the sharing and exchange of learning resources as well, even though it might prove easier to start with discussing practice and exchanging experiences than actually sharing content.

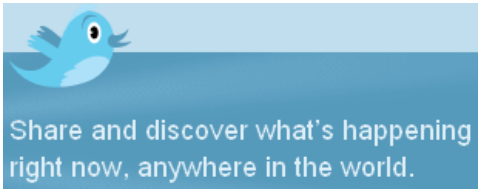
The following sections will list some of the important things to consider when planning, building and supporting an online community[4]. It does by no means intend to be a comprehensive list, but should serve as inspiration when planning to add community features to a repository. Most of the issues are general statements concerning online communities. There can be a number of "context specific" incentives for educational repositories on a more strategic level as well (support from institution management etc.). These are detailed in the synthesis report on *Repository Strategies*[5].

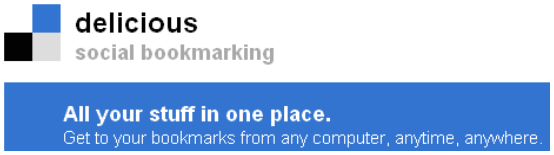
[3] You could argue that Facebook invalidates this argument – but the counter would be that this is the exact reason why: applications are so popular; most users only frequently communicate with people they have strong offline relationships with.
[4] Recommendations have been collected during group discussions and feedback at EdReNe workshops, but are also inspired by a number of insights provided from a range of online sources on community building and social media.
[5] Can be downloaded from edrene.org
(direct link: http://edrene.org/results/deliverables/EdReNeD3.4TSR_Repository_strategies.pdf)

You need to know why you want an online community – and describe it clearly

Even though this should not be necessary to mention, it is an important fact that is quite often not communicated strongly enough. It begins with the naming of your community, should be clearly evident from the front page of the repository website and supported by functionality and navigation features.
This should be evident throughout the user interface as well – reflected by both adopting a conversational tone and using clear indications to possible actions everywhere in the user interface.







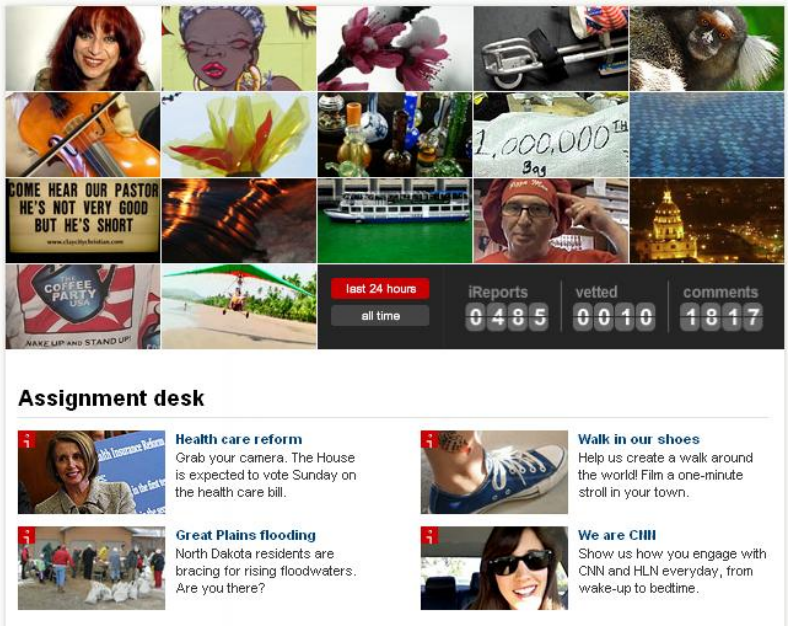
Why am I here? Clearly communicate the goal of your community – and the possible actions that users can perform.
Examples are from the front pages of flickr.com, facebook.com, twitter.com, wikipedia.org and

Online communities need a dedicated community manager

It takes time and a strong personality to be a dedicated community manager. But it is important to have an approachable, consistent, personable, visible, proactive and not least passionate community manager, who actively engages with the community. Also, all online communities need to have visible (and enforced) guidelines and rules. The important tasks for a community manager also include acting as a matchmaker by introducing members to other members, and give lots of encouragement and compliments.
A helpful reminder is that *asking questions* is the single most effective way of generating activity in an online community (and ideas and responsibility as well). Bear in mind though that it takes hard work to make users answer the first questions posed in any forum.

Make it easy to participate – for all members

The barrier for users to actively contribute should be lowered. One way of turning observers into contributors is to have a continuous but often *updated* call to action (see illustration with example from ireport.com). It should be very clear to users that they can do things on a site, otherwise they won't. Create multiple entry points[6] and ways to access the online community and use personal, actionable language.
Many EdReNe member repositories have also featured different forms of competitions with the intent to inspire users (teachers) to deposit user generated content. Although some of these have been successful, a



Take good care of new users – and make it easy to participate. New users of any community should feel welcome in order to return. As a community manager make sure to welcome new members, engage with them, help them feel at home. [Screenshot on the left is from delogbruk.no - a popular Norwegian Ning community for teachers – showing a special forum "for those of us who don't know so much"]. The main screenshot is from CNN's ireport.com that features an "Assignment desk" to continually encourage participation

careful design of these competitions, often with a dedicated theme is important.

A community typically has some prominent members (for example within a specific subject). Even though these members are important and their effort should be acknowledged, don't focus exclusively on these "power members", but work hard to get new and dormant members active and involved. Welcoming and nursing new members is often well worth the effort. It is important to realise that a community cannot be declared a success based on member count alone.

A strong community cannot be built quickly – plan for the long term

With the possibilities now offered through many major social networks, there are examples of communities expanding very rapidly. In these cases it is still essential to continuously foster strong relationships between

[6] Open up by for example integrating with other services, and providing widgets and possibilities to embed.

community members – otherwise the risk is they will turn out as “graffiti walls” similar to many (but not all) Facebook fan pages.
That time is an important issue can be illustrated by the feeling of community that surrounds Education Highway which is by far the biggest educational repository in Austria offering over 35 subject oriented portals with more than 80.000 titles, selected and described by a team of over 80 teachers of various subjects. It has 9 million page views per month. Teachers as well as students find up-to-date information as well as comprehensive material on topics related to schools and education selected by educationalists. It is successful because it has *been available for a long time*, not vanishing when a given project is finished, its references are *subject based* and *the editors are teachers themselves*. One major challenge is to add community features which could make the high number of returning users *contribute* and not only consume the centrally provided content.
Another lesson learnt by experienced community managers is that dormant online communities can be turned around over time, by engaging with and listening to users. This is relevant to existing repositories that are planning to add community features in an attempt to activate previously passive users.

Never hide your community

As your users are the most important asset if you wish to add a social dimension to your site, they should be highlighted as such. Feature both new and power users regularly, make sure that all members of your community know that there is a real person behind each user name. Encourage people to have as complete profiles as possible. If you wish to involve your users, their effort should be as visible as possible – it doesn’t belong behind a “community tab”.

Keep it simple

Keep features down to a minimum, and be confident that your community is easy to use. Change your community rarely, and when you do be sure to provide help. It is hardly ever your choice of technology that matters. As a rule of thumb, *planning* a community – including why, when and how to contact users - should take longer than the design and coding stage.

Make sure users are able to invite friends to your community easily

This is essentially about keeping your community as open as possible. You *will* need to actively go and find new users – and should make it easy for them to do the same. Find out where your users also can be found and use this information as a possibility instead of a threat. Whenever possible befriend your “competitors”.

Trust is critical

Users should never be in doubt that they can feel safe as part of the community. The reputation of the community is important and should be defended. This does not mean for example, that you should edit or delete negative comments, but instead respond to them openly. Your brand is important so defend it keenly. Building trust can take years, whereas loosing it can be much, much faster.

Highlight and reward user activity. User activity should be rewarded and highlighted. One way of doing this is through user profiles. The screenshot is from ireport.com where active users are promoted to "superstars" by CNN staff based on their contributions to the community site. Other examples include presenting members through interviews and feature articles (see a Swedish example of this as it is used by lektion.se in their newsletters), and awarding credits based on activity.

Find ways of rewarding your users when they contribute

Examples of this include highlighting new and/or quality content, awarding special status or bonus to active members (do not pay cash – for a number of reasons including that this does not encourage a feeling of equality within the community and undermines trust).

Credit systems are also in use in many online communities. One example from the repository world is KlasCement.eu where the explanation of the credit system says[7]:

"[…] Members who share teaching resources, experiences, reactions, … will benefit more from KlasCement than those who never contribute anything. In this way we hope to hear more from all our members. […] Upon registration every member receives 1000 points. [..] Retrieving the details of one record card costs 2 points. For each record you can only lose 2 points, even if you retrieve the details several times. […] Winning points is easy:

- *Posting a reaction on a contribution: +20*
- *Giving a score: +10*
- *Adding news: +40*
- *Adding a site: +50*
- *Adding a document: +70*
- *Adding software: +100*
- *Adding an article: +60"*

[7] Full text can be found at http://www.klascement.net/eqnet/info/punten/

Users are reminded by email when their credits are running low – something not completely unsimilar to the physical world of schools either.

Too much moderation will kill your community

Once you get users to contribute their content be timely about posting it – don't foster the impression that it disappears into a gaping hole. One example of how this can kill user involvement is moderated comments that do not post in real-time, which will interrupt the conversation. There is a reason why conversation progresses more smoothly in smaller groups than large auditoriums.
Time lags on user-submitted content getting posted to the site will in general interrupt the natural flow and make users feel moderated instead of part a community (and they are perfectly right about that). This is relevant also in relation to quality assurance processes of repositories. When possible, trust your users to do most of the necessary moderation - the more you moderate or intervene, the less active your community will be.

Facilitate real life meetings

Successful educator communities often excel because they are seen as an opportunity to become part of a meaningful dialogue with other professionals in the field, and/or experts in didactics and pedagogical issues. The sub-communities that form (often around subjects) will often involve quite a lot of online communication sometimes followed by a wish to meet face-to-face.
Such face-to-face meetings can lead to more active use and suggestions to improvements that will help further strengthen the online community. It is however more likely for users to engage in such activities if the online community in some way encourages or facilitates a (loosely defined) format for such events[8].

Connecting with existing face-to-face meetings where a large part of your community might be present anyway is an obvious possibility.

[8] Examples of "meeting formats" include TeachMeet, Creative Commons Salons, TEDx events, ...

Engaging producers

The motivations for producers to actively support and get involved with educational repositories differ substantively from what is most discussed in this report. It is nevertheless a common feature that if producers should take any interest in a repository, there should be a high number of users.

This again makes the building of active and engaged user communities an important aspect for content producers, irrespective of whether they wish to make money by selling content or wish to support a specific topic or case by reaching as many users as possible.

Different strategies for fostering a community feeling have been employed by commercial suppliers. As an example, SMART run content creation seminars – bringing people together foster creativity and helps subsequent online collaboration and sharing. In this case (one of) the aim(s) is to ensure a critical mass of content in formats relevant for their hardware.
In the case of Britannica there is lots of relevant content available, and focus is instead on the best delivery method. They are also connecting with users by offering training and supplementary guides built around the use of learning platforms and the development of lesson plans, in part because traditional marketing has proved less effective.

Apart from representing a direct route to market and potential access to a high number of users, repositories can also help in providing easier content delivery to the most important platforms by supporting (enforcing) common formats for content production and delivery.

In the case where many producers contribute to the same repository there will also be increased possibilities for easy access to market data and intelligence – and possibly idea generation from user generated content.

Features and functionality

One of the lessons taught by building online communities is that you don't need an excessive number of features. Keep it simple is also in this case a recommended strategy.

Nevertheless there are quite a few elements that are shared across almost every repository, related to the common task of finding, retrieving, rating, downloading, describing and depositing content.

The following sections will detail some of these aspects by building upon the results from the first workshop on *Engaging Users*, which dealt primarily with the user interface of repositories. Not all aspects are described in detail but a general approach for deciding upon design is suggested.

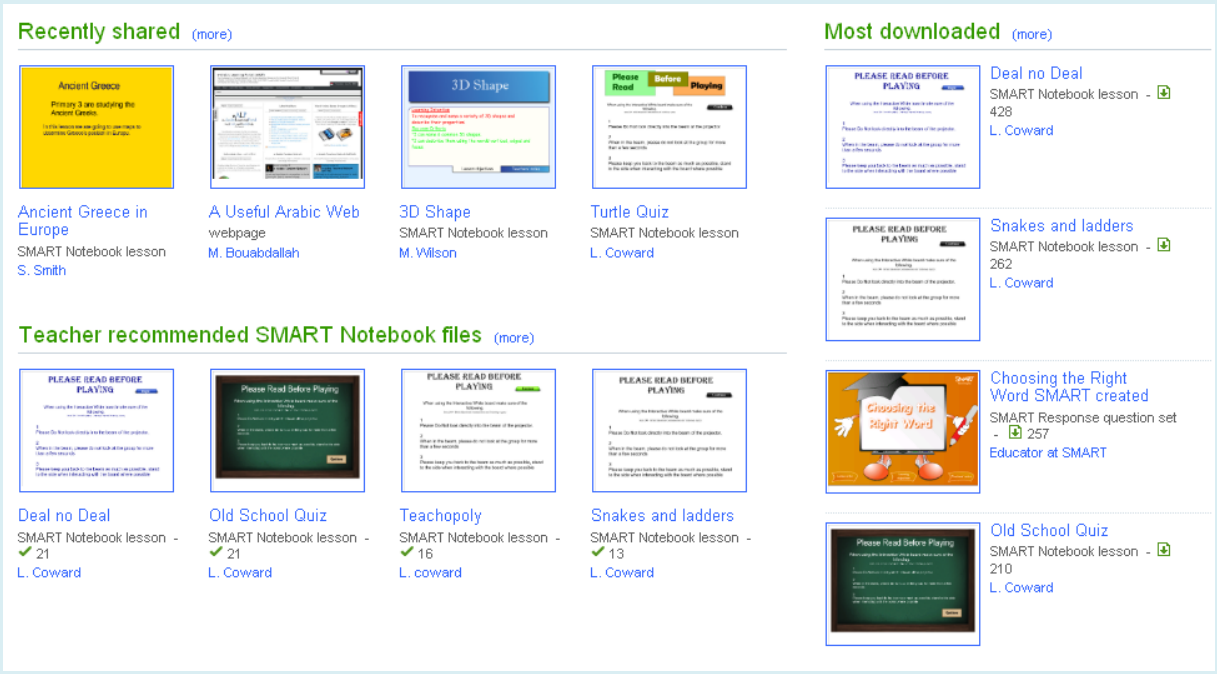
From inspiration to best practice: Design patterns

The concept of design patterns is well known from software engineering, as descriptions or templates for how to solve specific problems that can be used in many different situations. This same principle can also be applied at the user interface design level. As many of the tasks that are performed by users of an educational repository are very similar to operations performed at other web sites these same users might frequently visit, some consistency across interfaces could help improve the user experience.
The development of repositories should include usability studies as all interface development. The intention of this section is to suggest that there are many sources of inspiration possible as *the general functionality of educational repositories is similar to that of many other web sites* where significant resources have been invested in producing solutions that work in practice. Also, the repositories that are members of EdReNe present a number of different solutions to the same set of problems, and as such can act as inspirational examples. Different – but similar - working solutions to a specific problem, describing best practice to the specific function are called design patterns. It is important to understand that design patterns point the way to proven solutions, and are not intended to impose restrictions on graphic design etc[9]. Likewise, design patterns should not replace or diminish any usability studies done during development, but merely act as an additional set of guidelines helping the design process.

The major strengths of design patterns are that they:

- solve specific problems
- are very concrete
- are proven concepts
- describe relationships and represent knowledge in a structured form
- impose design discipline on design teams

[9] A number of design pattern libraries are available online for inspiration – it's not an exact science and e.g. classification of patterns still debated (see for example http://www.boxesandarrows.com/view/ui-pattern).
In this report a few pattern examples relating to repository functionality are taken from:
Yahoo! Design Pattern Library: http://developer.yahoo.com/ypatterns/ (link to examples marked with Y!)
Welie.com – Patterns in interaction design: http://www.welie.com/patterns/ (link to examples marked with W)
UI Patterns – User Interface Design Pattern Library: http://ui-patterns.com/ (link to examples marked with UI)
The first EdReNe workshop also initiated a repository specific pattern collection (see workshop proceedings)



What's new?. In repositories with a focus on a community approach and more user generated content, it will be relevant to personalize the recent activity instead of "just" showing the newest, most popular or most downloaded content as is currently the most widespread approach within educational repositories. Screenshot from the SMART Exchange repository. Sample patterns related to this: Y!: Updates; UI: Activity stream

The following section will not provide patterns to all of the suggested functionality, but can hopefully serve as inspiration and provide ideas for the development of great user interfaces of educational repositories. It should be noted that in order to present some of the already implemented solutions in repositories, this section is not completely true to the concept of design patterns, where one of the most important things to keep in mind is that best practise can be derived from completely unrelated types of web sites – as long as they share the need for the specific functionality in question.

Repository homepage

The clear trend in front pages of repositories (and community sites in general) is that they should provide:

1. *potential* users with a clear idea of why they should join (up-front value proposition[10])
2. *existing* users (logged in)with personalized news and activity since their latest visit to the site

As community features are currently only beginning to be added to repositories, the personalization is often not very prominent. Instead the front pages of today's repositories often offer displays of *"What's*

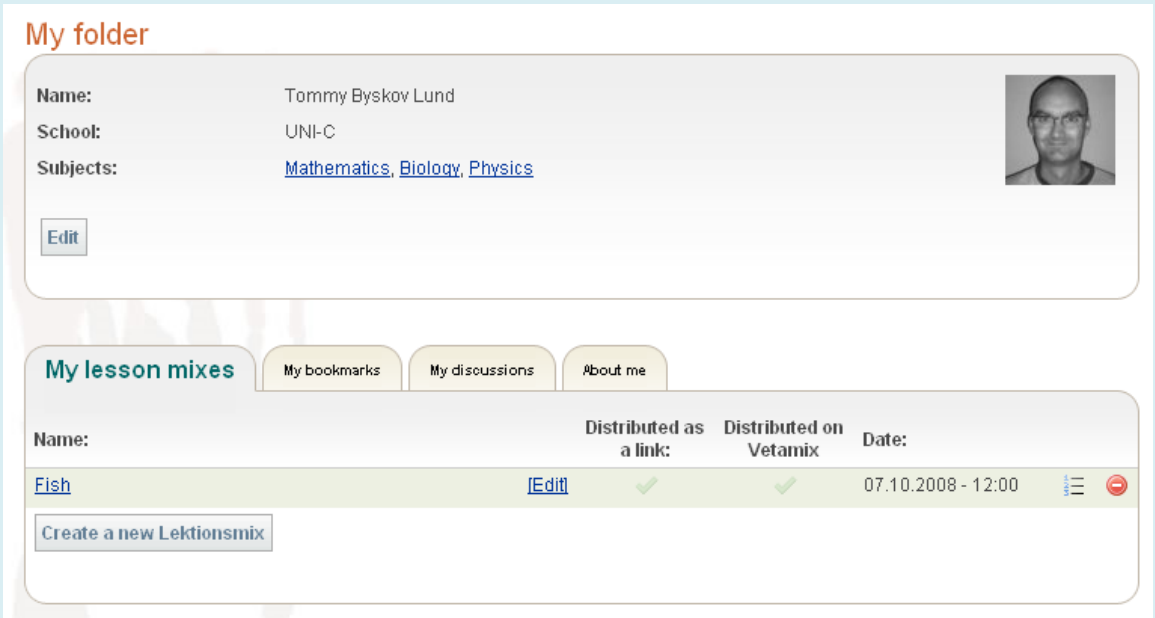
[10] As illustrated earlier in this report, examples of value propositions from major websites include: "Facebook helps you connect and share with the people in your life"; "Share your photos. Watch the world" (flickr.com); "Share and discover what's happening right now, anywhere in the world." (twitter.com).

new”, *“What’s popular”* and/or *“Featured content”*.
If more community features are built into repositories this will dramatically add to the possibilities of a user tailored front page. Especially for national repositories, these are often part of a larger educational portal and personalization of the front page will typically be done for the entire portal instead of just the repository.

“Your repository” - the need for personalization

As evidenced by the names of popular sites like for example MySpace and YouTube there are two schools of thought on how individualized pages should be labelled.

The use of "My" would take the point of view of the user in a sense similar to a fictional user putting labels on different parts of the site: My blog, My profile, My settings. The problem with this is that it is not the user who did it – but actually the site did it for them.
Labelling with the use of "Your" instead reinforces the conversational dialogue often used in social sites, mimicking the way another human being might address you when talking about your stuff.



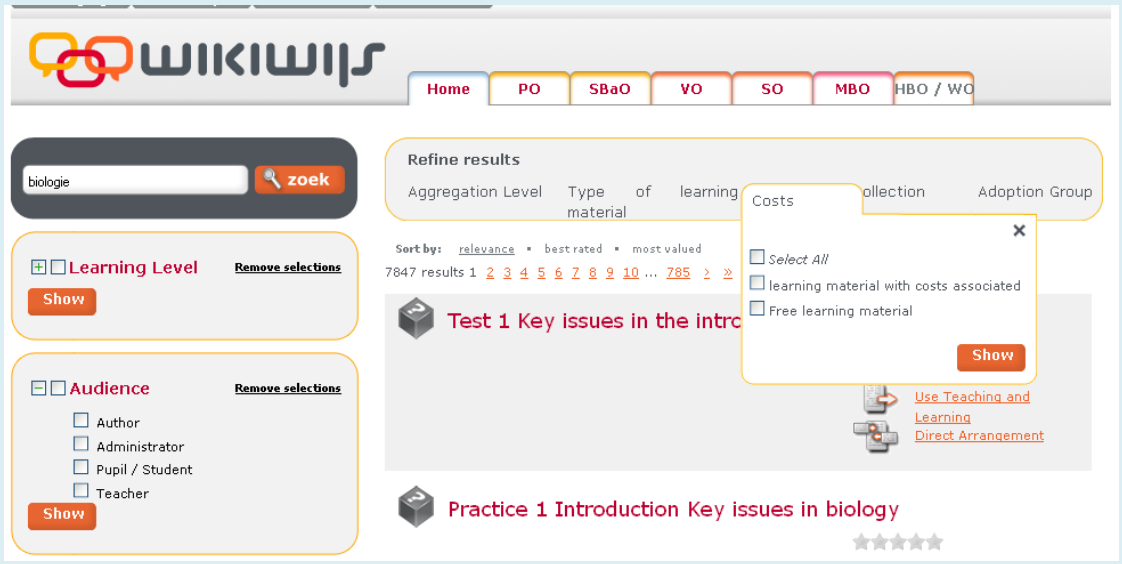
Personalization.
As repositories begin to add community features, personalization gradually becomes more evident in the user interface. The examples shown are the profile page from the Finnish Vetamix repository (top; Google-translated) and the updated overview with links to profile, settings, contributions since last visit, personal messages and available credits that is shown at the top of all pages after login to klascement.eu (left)
Sample patterns: Y!: Social section

Irrespective of the jargon used on the site, repositories are beginning to include elements found on other social networks including: Profile pages; personal settings/options; list of favourites / personal collections; ; accounts of recent activity; personal messages; possibility to follow/unfollow users; sharing; inviting etc..

This paragraph will not detail all of these, but just underline the many sources of nspiration already available at major social networks. In terms of design patterns a special section on social aspects constitutes a major (and growing) part of the Yahoo! Design Pattern Library.

Navigation

The major forms of navigating repositories do not differ from web sites at large and generally consist of *searching and browsing*.



Searching, filtering and browsing.

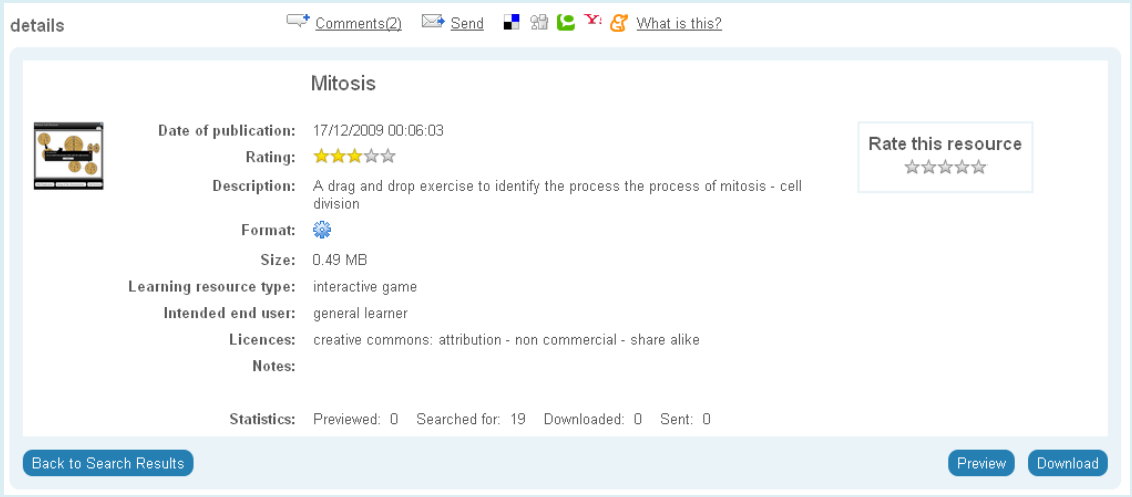
Filtering (top). Example from the Dutch WikiWijs (Google-translated) showing an implementation of filtering of results by target group ("audience") and free/ not free materials.
Sample patterns: W: Table filter; UI: Table filter; Live filter

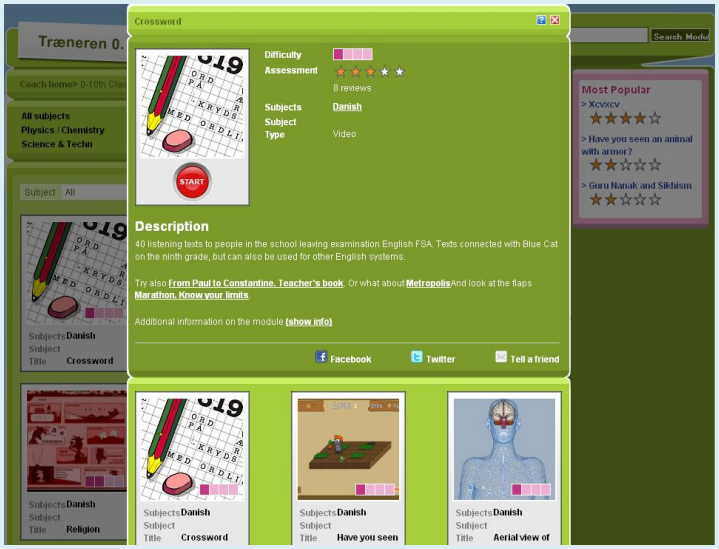
Breadcrumbs (left). A horizontal list of labels that reflect the location of the current page in the hierarchy of a website to provide context and help the user understand where on the website he is.
Screenshot from the Swedish repository Länkskafferiet
Sample patterns: Y!: Breadcrumbs; W: Breadcrumbs; UI: Breadcrumbs

Most sites contain both a simple search form, typically linked to an advanced search form (or an expandable search area) giving more fine grained control over search parameters and filtering of results.

One of the features implemented in most major search engines but currently not in many educational repositories is *auto-completion* and/or *suggest-as-you-type* as an integrated part of the search box.

A common element of the basic navigation which also needs careful consideration is of course the page listing the search results including the special version of it where no results are found. In the general case consideration to what level of detail should be shown (can the user choose between different formats), what sorting and filtering options should be available, and what actions related to a specific resource can be initiated from a list of search results (rating, adding to favourites, sharing, commenting etc.) are





Resource description page. The page describing details of an individual learning resource typically also presents most of the possible user actions in relation to the resource. The examples are from (top) the National Digital Resource Bank (ndrb.org.uk) showing possibilities to share, rate, preview and download the resource and (left) a Danish repository targeting pupils to be launched mid 2010 (Træneren), again with rating and sharing but also showing related content at the bottom of the page overlay.

necessary considerations.

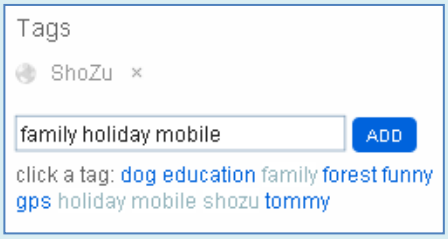
When browsing resources the different possibilities of navigation are closely linked to the amount of (structured) descriptive metadata available for the individual resources. Often the most hierarchical structures are represented by links to the relevant curriculum or use of library classification system or thesauri. When navigating hierarchies the subcategories often have a prominent place in the centre of the page , but even if this is not the case one of the most common navigational elements is a trailof "breadcrumbs" near the top of the page.
Other descriptive metadata is typically relevant only for filtering purposes.

Using tags (often in the form of tag clouds, but also just as "traditional clickable keywords") as a means of navigation is also beginning to occur at a number of repositories.

Resource description page

The page providing the most detailed view of an individual resource present all available (relevant) metadata to the user. This is also where most possibilities for interaction with a resource is provided – including those not available from a list of search results.

Aparts from interactions (including rating, tagging, commenting, previewing, downloading, adding to favourites/collections, sharing...) this is also where a site typically makes use of other user generated metadata/attention metadata to for example recommend other relevant content.



Rating, commenting and tagging.
The top screenshot is from YouTube illustrating a typical implementation of both star rating and "vote to promote" (for comments).
When adding tags to images at flickr.com (left) you can either choose from tags you used previously (by clicking) or type new ones. Once added, each tag is shown above the input field in a vertical list. Each tag can easily be removed.
Sample patterns: Y!: Tag an object; Rating; Vote to promote
UI: Tag

Implementation of user generated metadata

The strategies for implementing user generated metadata such as ratings, comments and tagging vary considerably across repositories. For most repositories the major problem with this is presumably not the choice between “thumb up” or “one to fie stars” but rather to ensure an engaged community actually willing to tag, rate and comment.

Collecting and sharing resources

When browsing or searching a repository, users would need to collect interesting resources they find for example to review later, share with others, discuss or collaborate around.

In some cases, the use of temporary collection methods which doesn’t require login can be adequate but in many others there will be a need to provide them with a personal and public collection of items.

Having users build personal collections and allowing them to share these both through the repository itself, but also to other communities they participate in, is an important aspect of community building – for example allowing the connection of people that share interests, attracting new users from other communities and recommending other learning resources.

Linked to this functionality is also the possibility to save searches, keep track of your search history and being updated about new relevant content.

Many parallels to this functionality – and thus inspiration for designing such functionality - can be found at major web shops’ implementation of shopping carts, wish list etc.

Keep users updated

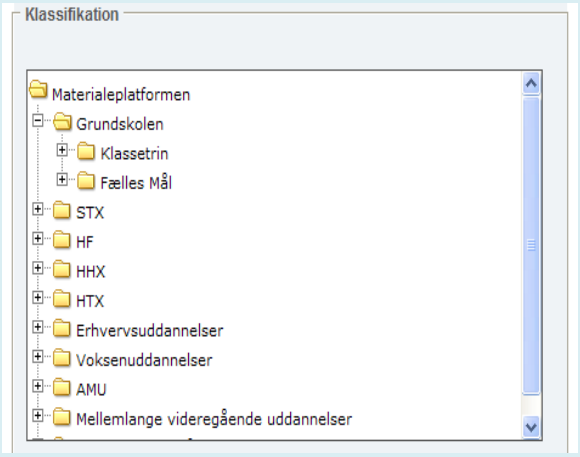
Often educational repositories are not in use every day by their primary target group of users. This of course makes it important to repository owners to provide possibilities for users to be updated when activity relevant to them occurs.
A number of repositories provide email newsletters which can often be customized to information relating to e.g. specific subjects you teach or other areas of interest. Other examples include email alerts, feed subscriptions to user defined searches and providing widgets to be embedded in e.g. Learning Management Systems.

Again these functionalities are very general and by no means repository specific, why already proven solutions should be employed and resources instead using on ensuring i)that users know of and how to use these possibilities, and ii)integrating with the relevant systems.

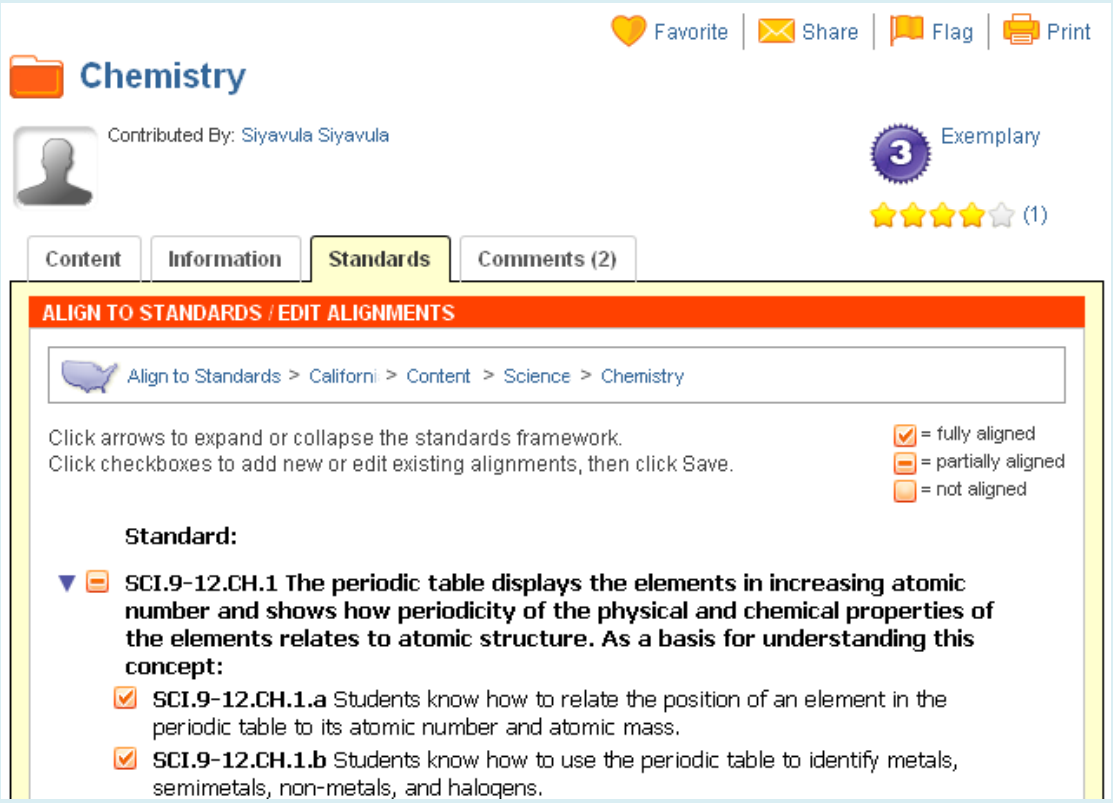
Adding descriptive metadata

When users deposit content they are required to provide descriptive metadata for their learning resources. The pages/tools for doing this currently range from very simple forms, to use of complex stand-alone tagging tools.
As describing a resource presumably is one of the most difficult tasks for users to perform, and often cited as a (perceived) barrier, this could qualify it as a particularly important area to optimize design of.

Most fields in the entry forms on a repository depositing page would correspond to other familiar forms. Of particular interest in relation to educational repositories would be how resources are linked to the



Linking to the curriculum. This is often one of the most complex task for end users when adding descriptive metadata – and often it is either not completed (if not enforced) or done with low quality as a result.
The screenshot on the left is from the Danish Materialeplatformen, where users navigate and select in a Windows Explorer like interface.
The screenshot below is from curriki.org where *all* users are allowed to align *any* content with state standards. This example also shows that resources can either be thoroughly reviewed by dedicated staff (marked "Exemplary" in this case) or by all users using one to five stars.



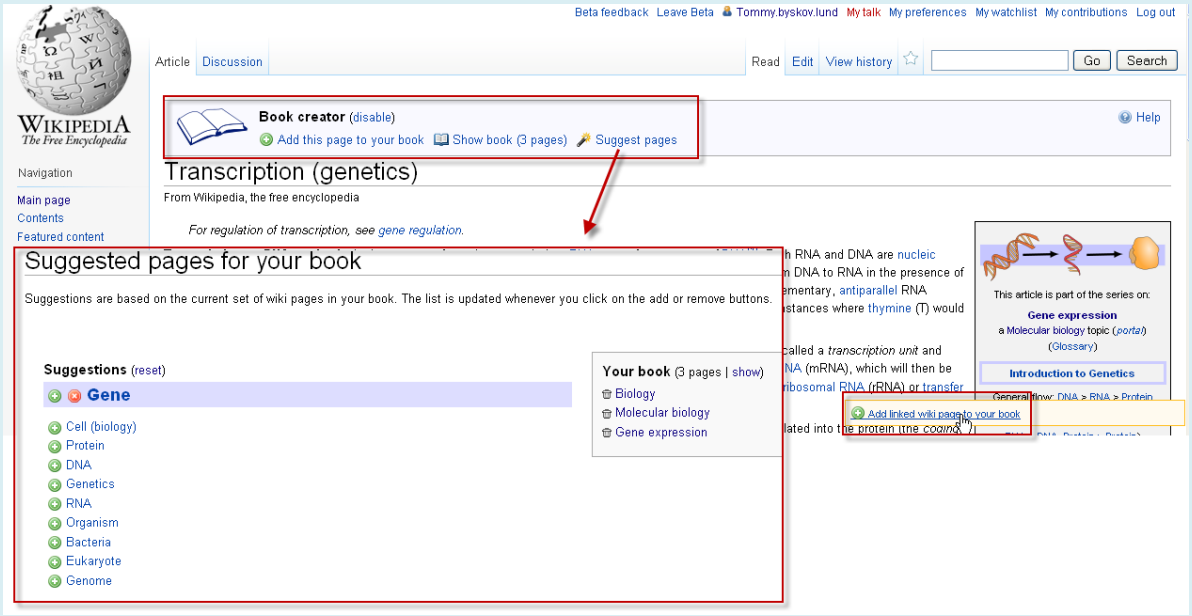
curriculum[11], and for user generated content also how licensing scheme / user rights are specified in an easy comprehensible manner.

[11] This in many cases is quite similar to classification/thesaurus use in e.g. library systems.

Remixing content

Building your own content from other repository resources is something not yet easily feasible in most educational repositories.

Workflows as simple as “Build a book” in Wikipedia (see illustration) are presumably required in order to be successful. The question is also whether the combination of resources should really take place in repositories. With the dramatic increase in use of learning management systems, they might be more suitable environments for combining content – again underlining the need for good integration between such systems (open or closed) and content repositories.

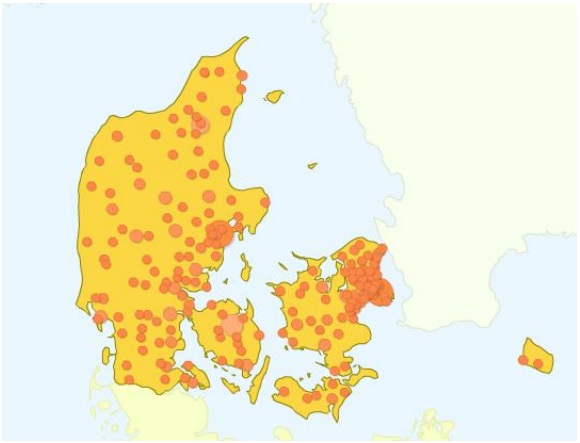


Build your own books from Wikipedia. An example of a very easy to use interface for producing “books” (currently in the format of pdf or odf, presumably soon also ePub for eReaders) is to add the “Build a book” toolbar while browsing Wikipedia. This will allow you to add the currently viewed article to a book on the topic you are currently investigating, suggest other articles to include, allow easy rearrangement of pages and subsequent editing after download.
By having all content under the same license this is currently a dramatic simplification in comparison with most educational repositories.

Analyzing repository use

To further develop any online service it is essential to have as much knowledge as possible about the behaviour of its current users. A combination of qualitative usability studies and analysis of web server logs with appropriate tools can reveal answers to many relevant questions and give valuable information concerning both development and marketing.

All EdReNe member repositories do some sort of analysis of user behaviour, but it seems a common trend that this is often not clearly connected to setting goals and describing further developments of the repository, but quite often done for reporting purposes and on a need-to-know basis.



Analyzing repository use can provide much insight regarding who your users are and how they use the repository. The example above shows the geographical distribution of visitors from Denmark to the Danish repository Materialeplatformen in the first week of March 2010.

Examples of basic analysis performed by member repositories include:

- Identifying popular functions/pages
- Determining popularity of individual links on pages; following changes in user behaviour after layout changes
- Interpreting search strings and results. Identifying popular searches, content missing in repository, improving search help
- Identifying traffic sources
- Characterization of user types such as:
    - Returning / new visitors
    - Visiting time, frequency
    - Geographical distribution
    - Browser profiling (browser type; operating system; screen colour and resolution; java/flash support etc.)

A number of repositories report that they (infrequently) also do surveys of users visiting their repository, often in order to prioritize between different development strategies and/or obtain impressions of user satisfaction.