PBL Exchange

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Our problem setting

One of the emerging challenges in academia is that of developing and maintaining teaching qualifications in a setting where teaching staff is often temporary and with diverse backgrounds. At Aalborg University, project-organized problem-based learning is at the heart of all degree programmes and supervision within this format has particular challenges.

There are many resources available at Aalborg University for developing competences for project supervisors, but they tend to be general in nature. Where can one go if one has a concrete problem in one's supervision practice?

These may be problems relating to e.g. group formation, problem analysis, problem statement development or conflicts among students in the group.

Our goals

The first goal of this PBL development project has been to create PBL Exchange, a web-based platform for all project supervisors at Aalborg University that will make it easy for them to ask and answer any and all questions that they have about PBL supervision practice. PBL Exchange is inspired by StackExchange.

The second goal of the project is to ensure that PBL Exchange becomes widely used across Aalborg University.

The PBL Exchange platform

Figure 1: A screenshot of PBL Exchange

For the PBL Exchange platform we initially took outset in the Question2Answer platform; this is an open-source piece of software written in PHP and using a mySQL database. Question2Answer already supports quite a few of the features that we consider important. In particular, it is easy to support a categorization of questions. Users can tag their questions to provide a classification is orthogonal to that of the pre-defined categories. Question2Answer also already supports gamification in the form of a reputation-based voting system similar to that of StackExchange. Questions and answers can be upvoted and downvoted, and users are then ranked wrt. their privileges according to how many points they receive.

However, Question2Answer turned out to have a codebase of poor modularity. Moreover, PBL Exchange must be able to interface with other systems related to teaching activities at Aalborg University. Here, the main platform is that of Moodle [1], and the common gateway to Moodle and to other web-based services is that of a single sign-on feature that enables a user to log on to several services through a common entry point.

We have therefore re-implemented a version of PBL Exchange using the Django framework. This allows us to incorporate a collection of new features, including multilingual support and mail notifications.

Crowdsourcing

Crowdsourcing is a form of collaborative user-generated creation on the WWW. A particularly well-known example is Wikipedia.

There are several examples of uses of crowdsourcing in educational settings. Crowdsourcing is often problem-based and demand-driven and takes the form of question/answer-based fora.

StackExchange [2] has become recognized as an important means of establishing crowd-sourced knowledge in a question/answer-based format, with a large user community and fora that cover a wide variety of subject areas. At its heart is a *gamification* principle: Any user can pose a question and other users can now answer the question. The community can upvote or downvote questions as well as answers or comment on questions and answers.

User satisfaction

We wanted to know whether the users found PBL Exchange useful, so far. The responses from users of the prototype version reveal that this is indeed the case.

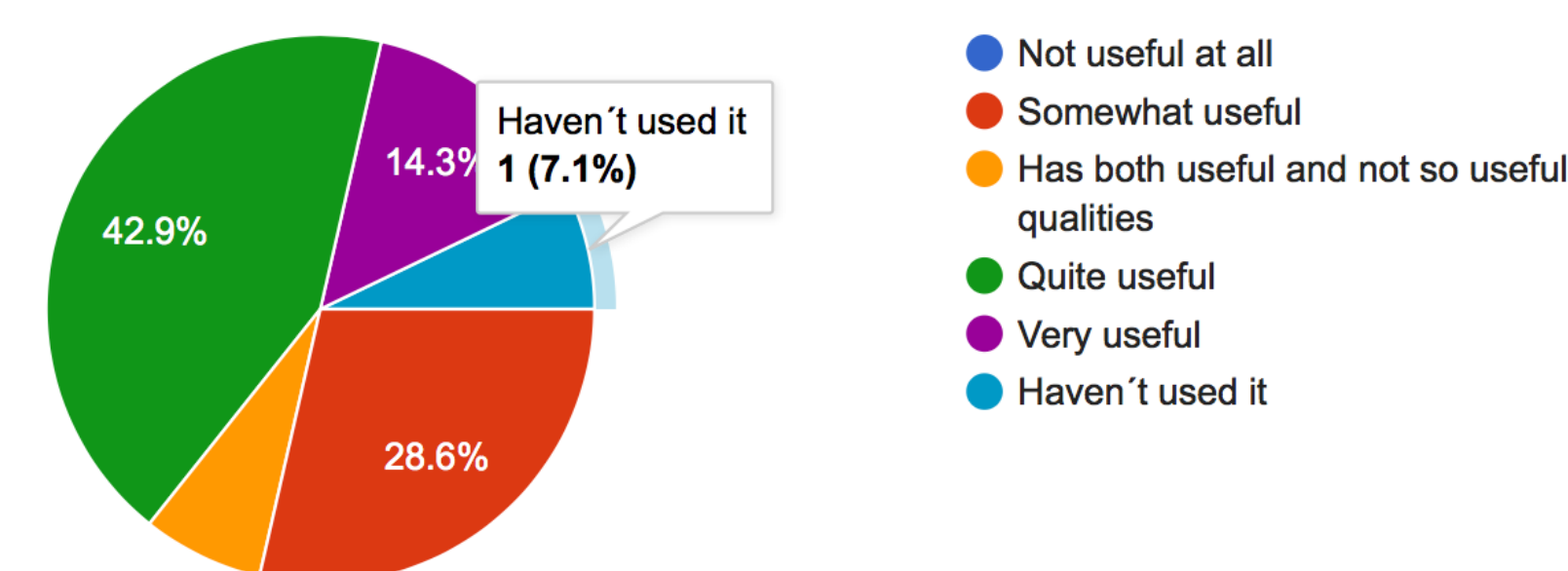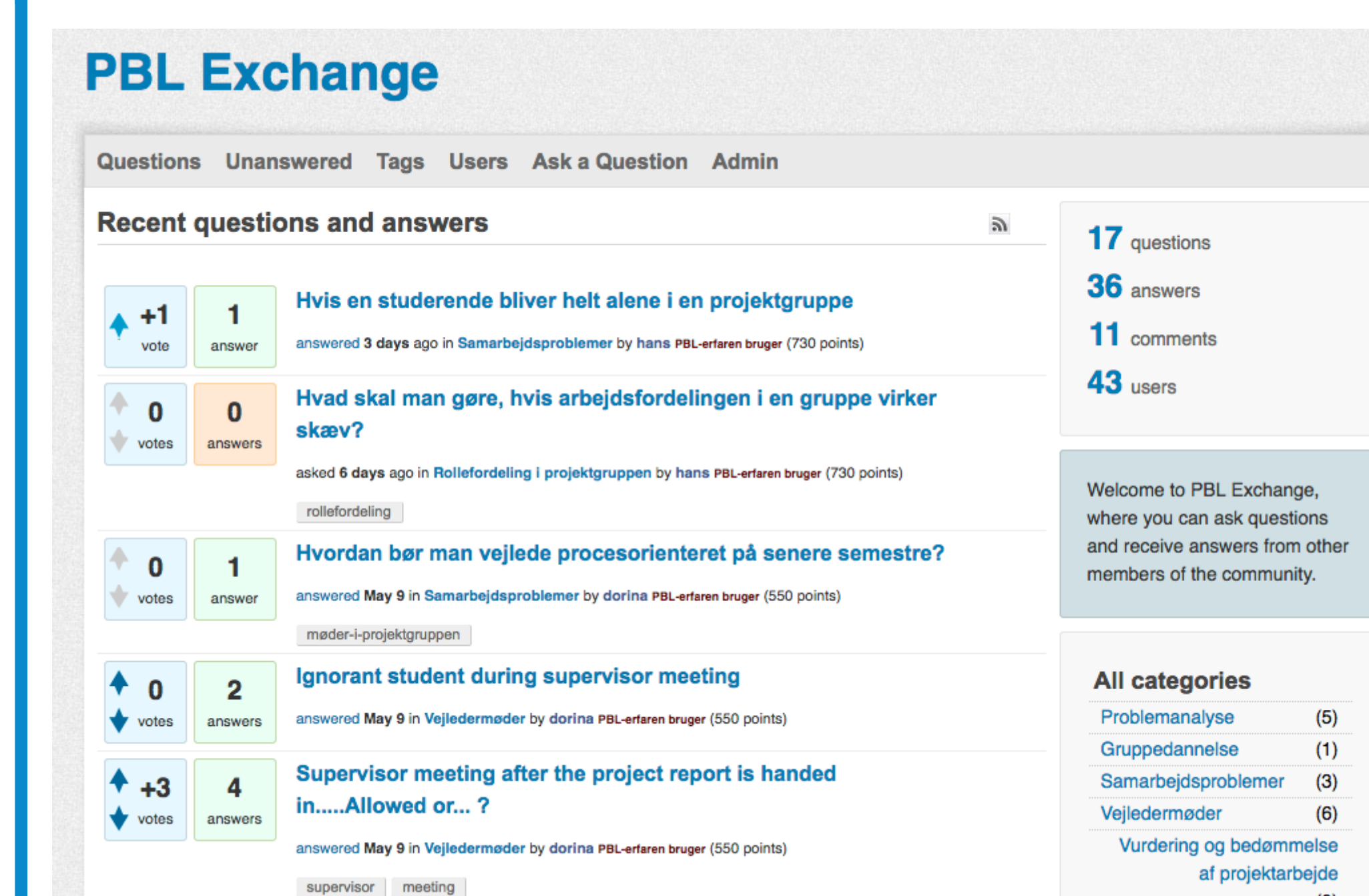**How useful do you find the present version of PBL Exchange?**
14 responses

Figure 2: User satisfaction

Conclusion

The work on developing PBL Exchange is continuing. Many of the software development issues have led us to create a new, restructured codebase which replaces the original Question2Answer codebase with a system written in Python under the Django framework.

At the level of applications to competence development, an important task is that of ensuring that PBL Exchange will be taken up by the teaching staff at Aalborg University and continue to be used. The ongoing challenge is now one of building a growing and stable community of users among the teaching staff at AAU.

A further development will be one of using PBL Exchange as a basis for similar fora at other higher education institutions that use forms of problem-based learning. In particular, there are now universities in several countries that take up forms of PBL similar to that used at Aalborg University; we believe that the PBL Exchange platform can be of particular value in settings where a new teaching practice is to be built from the ground up.

References

[1] Moodle. https://moodle.org.

[2] Jared Keller. Stack Overflow's Crowdsourcing Model Guarantees Success. *The Atlantic*, 18 November 2010.

Future Work

We are currently developing a variant of PBL Exchange called PBL Exchange/stud which is aimed at developing PBL competences among students at AAU. The codebase of the new system is based on that of PBL Exchange.

Contact Information

To learn more, contact Dorina Gnaur at `dg@learning.aau.dk`. And visit PBL Exchange at `http://pblexchange.aau.dk`.