AskEris – A many-to-one communication platform for higher education

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Abstract

In recent years much research has been conducted examining the opportunities of using modern Web 2.0 applications in teaching. Today, wikis, forums, podcasts or classical email communication are widely used media through which students can get in touch with their instructors or can discuss certain topics with each other. However, the usage of so-called many-to-one communication, where a number of persons transmit their messages to one recipient, has been considered only rarely. In this paper, we present AskEris – an innovative many-to-one communication platform for higher education. It bases on previous investigations regarding various communication forms and their use in higher education. In this article, we describe its development and benefits. Finally, we provide insights into the evaluation of AskEris. Due to the positive results of this evaluation, AskEris was forwarded to the internal university computer center, which integrated AskEris into the university-wide document and communication platform.

1. Introduction

Since the early 1990s, computers are used in university teaching and support training staff in the presentation of texts, images and graphics as well as in the supervision of students. In line with developments in computer technology and the emergence of Web 2.0 applications, learning theories changed steadily [25]. Thus, the modern constructivist theories of learning assume that knowledge cannot be taught by an instructor to a student. Rather, students have to construct knowledge in an active process for themselves [15]. This means students must not only listen to instructors, but have to deal with problems or share and discuss topics with each other [15]. Thus, the instructor becomes to a moderating figure who accompanies the students in their learning process [16, 35].

These new roles for instructors and students can be supported by Web 2.0 technologies like wikis or forums, since they encourage the communication between instructors and students on the one hand and between students among each other on the other hand. For this purpose, today there are various applications used in higher education and analyzed by many researchers like [3, 10, 39] in their functionalities, benefits and challenges. In doing so, not the technology itself is in center of most research, but its potential to minimize labor costs, to promote an active learning process and to establish an educational value [21].

This paper describes a platform enabling instructors to create transparency on students’ level of knowledge in mass lecture events and thus improve their learning opportunities. The design of the platform bases on the results of constructivist theories proposing that new Web 2.0 technologies change and improves the way of learning as well as teaching [25]. The paper is structured as following: First we provide an overview on existing literature regarding modern technologies in higher education. For this purpose, we cluster the studied technologies according to Xia et al.’s [32] presented classification. This overview, we use to identify research gaps. Hereafter, we describe our specific research design, by going into details about our motivation, derive the research questions and outline the used research methodology. In the subsequent section, we present the implementation process which bases on the design science methodology. Following this approach, we will describe the implementation and the functionality of the platform. Afterwards, the implementation was evaluated and refined again by integrating the AskEris in the university-wide platform for communication and document database. Although we could solve some of the mentioned issues of our developed platform there remain some open questions, which we discuss at the limitations section. In a final section, we provide a conclusion and some implications with regard to alternative pedagogies.
2. Related work

One way to classify electronic communication technologies can occur along the two dimensions: level of interactivity and degree of aggregation [32]. The level of interactivity is defined as “... the extent to which messages in a sequence relate to each other, and especially the extent to which later messages recount the relatedness of earlier messages” [28]. The degree of aggregation is determined by the previous structuring of the content before communication data is transferred. The classification among these dimensions and exemplary applications is depicted in Figure 1.

![Figure 1. Classification of communication technologies (according to [32])](image)

Since most of electronic communication is also used in universities, our subsequent literature review focuses on the usage of these kinds of communication in higher education.

One-to-one communication. One-to-one communication is characterized by a high degree of interactivity, which arises from the direct communication between two individuals without changing the communication form, and little aggregation due to the fact that content is not or only to a small extent pre-structured or combined. One of the most public kinds of one-to-one communication is the usage of emails.

There is a multitude of research dealing with the use and benefits of emails in higher education. Bloom [3] analyzed various kinds of learning under considering three conditions of instruction. In particular, he highlights the importance of tutoring as a possible application of emailing within higher education. When using tutoring methods, students can apply directly their instructors, whereby firstly a knowledge transfer and, secondly, a reflection on acquired knowledge takes place. Thus, tutoring is an effective method to convey course content, but it is very time consuming [3]. Hassini [17] also discusses the benefits, downsides and email-etiquette in the email-based student-instructor communication [17]. Both researchers identify possibilities to create an exceptional learning success, to adjust the communication to the needs of the partners as well as to use emails as a private platform for shy students to come in contact with the instructor as benefits. Nevertheless, in addition to the enormous expenditure of time, this approach cannot be used extensively, when the number of parties has reached a critical mass [3, 18] resulting in students feel disadvantaged or discriminated.

One-to-many Communication. At the one-to-many communication the transmitter contacts multiple recipients. It is characterized by a low level of both, interactivity and aggregation. The advantage of receiving many recipients by one channel was also recognized by institutions of higher education and educational researchers. Based on these communication media, the instructor can intensify certain topics or spread important, organizational information to the crowd [34]. Students can also use one-to-many communication in form of blogs to create electronic portfolios, which may include researched articles [11]. Ducate and Lomicka [10] focus their research on blogs used in education. They observe a shift of students’ behavior from a mere reader of blogs to an active writer. Furthermore, they analyze the impact of blogging on foreign language skills. They notice an improvement of students’ learning in terms of reading, writing, vocabulary and even cultural knowledge [10]. Blogs offer the advantage of creating a diverse response due to a large number of participants. By positive feedback on blogged findings, such resonance positively influences students’ motivation [9]. In studies like [22] or [6], the researchers examine the ways to use blogs as proof of performance, since these can provide a deeper insight into the work of students. Another intensive studied Web 2.0 application at universities is podcasting. By increased mobility and nowadays widespread use of MP3 players, podcasts offer a modern way of lectures from remote locations or while traveling. For universities with spatial constraints podcasts can be used to offer all students the same opportunity to follow the lecture [13]. Today, podcasts are already used for recording lectures [13]. For the instructor, no additional effort is associated with this form of lecturing. He simply needs to record his voice and make it available on the web [26]. For students with learning difficulties, podcasts offer the ability to reproduce the lecture and match the learning content to its own pace by adjusting the replay or pause the recording [8].

Beside its many advantages, both applications pose some disadvantages. Harris and Rea [16], for example, mention risks such as vandalism, plagiarism, humiliation or victimization [16]. Boulos et al. [4] report disadvantages when podcasts are provided by students. They criticize the potential lack of content quality because of limited control and a “lack of vital article meta-information” [4, p 44]. In case of blogs, Ramos and Pieper [29] identify blog spam – the so-called “splogs” – as another issue.
Many-to-many communication. The many-to-one communication is characterized by a high degree of interactivity and aggregation represented by wikis as a typical application. Wikis allow an autonomous designing and publishing of content like blogs, with the difference that in general wikis are designed and edited by several authors [33]. Bergin [2] examines in his research the use of wikis for frequently asked questions (FAQ) to provide answers for a broad audience and thus to avoid their redundant reply in personal conversations or one-to-one communications [2]. Therefore, he offers in each of his courses a wiki website for knowledge transfer on several topics. This wiki websites allow him to correct dispel misconceptions and correct errors easily and quickly. The documentation of research projects and the presentation of work in higher education are further research areas investigated by Duffy [11]. In his work, Duffy analyzes the characteristics and educational benefits of several Web 2.0 applications and provides some strategic guidelines for using these applications in teaching events.

Heterogeneity of the wiki participants causes a diversity of problem-solving approaches. As a result, perspectives and thinking of their fellow students become accessible to individual students [35]. By a joint editing of texts and content, students learn how to offer constructive criticism. This phenomenon is examined by Guth [14]. He observes some advantages of wiki use in teaching such as the promotion of collaboration, an increased sense of responsibility and a sense of empowerment due to knowledge sharing. On the other hand, an increased necessity of attention for following the editing rules or a more confident feeling of students when editing language mistakes than content are some disadvantages of this application.

However, a common, collaborative processes of content creation in which all group members follow their target with the same effort, is rarely the case. Brooks and Ammons [5] analyze the so-called free rider problem, which could discomfit more ambitious students. As one possible solution to avoid such dysfunctional behavior they propose the usage of an evaluation system which provides feedback during the group’s project. In their research, they could show that such a system can reduce the free rider problem. Since wikis offer the possibility to trace the processing history, they create a transparency about the origin of the article, which also can mitigate dysfunctional behavior, but not eliminate it completely [12]. Because many users access the contents and are able to edit them, the instructor has to protect the contents against “vandalism”. This poses the risk that the instructor will act as a mere supervisory authority [27]. Nevertheless, instructions by the instructor are extremely important for the successful use of wikis in teaching [30].

Many-to-one Communication. In a many-to-one communication, many transmitters contact one recipient. This unidirectional connection, however, requires a high level of aggregation because its possibility of message heterogeneity. The data and information of messages must be collected in a way that non-text messages are possible [7]. The most common applications of a many-to-one communication are ratings and votes. According to Xia et al. [32], researchers paid little attention to this form of communication. For the case of higher education, Thoms [31] noted that there are no scientific studies on the use of rating functionality. Today, many-to-one communications are used in politics. One popular example is the platform DirektZurKanzlerin where German citizens can directly contact with their political concerns and questions to the Angela Merkel – the German Chancellor. They can formulate their own contributions or participate in the voting process of already asked questions. Top rated articles are regularly forwarded to the Chancellor, who responds on the questions and concerns.

Especially in mass events of higher education, this form of communication may help to administrate the students and provide an overview on knowledge gaps. By voting of students’ questions the instructor gets immediate feedback and can thus adapt the speed and difficulty level of teaching content to students with less effort. Furthermore, the instructor can deepen several topics in extra sessions or special exercises and thus has the possibility to improve learning effects. So far, the potential of many-to-one communication is still underestimated in research and teaching.

3. Research design

As mentioned above the goal of our work is to establish and evaluate an electronic teaching platform which uses many-to-one communication techniques for improving transparency of knowledge gaps for students and instructors as well as increasing efficiency for instructors. When instructors react on the results of this transparency, we strongly believe that the quality of teaching and student support can also be improved. In this section we provide our motivation, introduce the key research questions and the research approach.

3.1. Research motivation

The number of student enrollments at our university is growing consistently. Thus, the university is just as a company exposed to the challenge of providing more services with constant or even fewer resources.

1 http://www.direktzurkanzlerin.de/
With unchanging number of lecture halls and staff the increased number of students results in mass events, which require an enormous organizational effort.

Our research was motivated by such a mass lecture. Each year our chair offers a course for Business Administration and Business Education students, which covers the basics of information systems. Because of heterogeneity of lecturers’ participants, the course poses some issues. Beside the main interest of these students is not focused on information systems and therefore there is little prior knowledge on this topic, the course is attended by about 700 students, which originates a high administrative effort. In 2009, this course caused a tremendous tutoring (one-to-one communication via email) overhead. Within three months, the course instructor received 316 emails containing questions from students. With an average processing time of 12 minutes (5 minutes to read the email and 7 minutes to answer) the tutoring effort resulted in a cumulative processing time of 3792 minutes, or about 63 hours. Many of these emails were redundant. Answers were provided only for individual students, which leads to a distortion of equal opportunities. Furthermore, it is not possible for the instructor to determine, if these issues exist for the majority of students.

Our university already offers a wide range of communication forms such as wikis or discussion forums, which, however, for a course of this size are not sufficient. As an essential one-to-one communication, our institution uses mainly emailing. By their nature, this form of communication leads to frequent answering the same questions each to only one student. The instructor obtains no overview on the relevance of questions. It can be assumed, that not all students post a question to the instructor due to a lack of anonymity or simply fear. In consequence, the instructor must perform same work redundantly. Furthermore, the university offers via forums and wikis the possibility of many-to-many communications, which are part of the ILIAS\(^2\) platform – a commercial e-learning platform. Both approaches are helpful for a course of this magnitude, but require an enormous, additional administrative effort. In forums, students can discuss different topics with each other. To avoid the distribution of erroneous information among the students, this content needs to be checked and corrected if necessary. With approximately 700 students as potential participants, the number of opened discussion streams grows rapidly. This can result in errors or individual questions remain unanswered in the final consequence due to a lack of clear appearance. Wikis are another possible kind of communication at our universities. These are few of communication rather than the distribution of information, which also provide no transparency regarding the understanding of the content on specific issues.

Despite the large number of different electronic forms of communications at the university, the potential of Web 2.0 applications have not been exhausted. Aiming to improve both the communication between the instructor and students as well as the learning itself by offering adequate learning opportunities, the objectives of our research can be articulated by the following two research questions:

**RQ1:** Under what conditions can one use the many-to-one communication for a more efficient organization of teaching in mass events in order to create more transparency on course content and knowledge gaps?

**RQ2:** What benefits from a student perspective can be achieved by introducing such a platform in a large scale course?

### 3.2. Research approach

With this motivation, we have considered carefully what research method is most suitable for assessing the research questions. Due to the planned intervention two approaches seemed most appropriate to us: Action Research (AR) and Design Science Research (DSR). According to Järvinen [20], both approaches are very similar in their activities and characteristics. Ivani and Venable [19], however, illustrate that both approaches are not equivalent to each other. In their opinion AR is a research approach, which depends on the context and tries to incorporate the wishes and needs of the clients. On the other hand, they define DSR as a research approach, which should solve problems of general nature by intervention or by building new artifacts. In direct comparison, they note that the main difference between AR and DSR is that “DSR assumes neither any specific client nor joint collaboration between researchers and the client.” [20, p. 4]

Based on the discussions regarding AR and DSR at the information systems area as well as our motivation to develop an effective approach to improve teaching in general, we chose the DSR approach and oriented our research according to the guidelines of Hevner et al. [18]. They describe seven principles for the implementation of Design Science. In the following, these principles are explained with regard to the context of the proposed artifact [18].

**Design as an artifact:** Motivated by the existing lack of transparency on students understanding of course content, we have designed a platform that with the help of simple many-to-one communication capabilities provides a solution of the problem.
Problem relevance: As described in the previous sections, all forms of communication are examined for their possible uses in teaching. The usage of many-to-one communication seems today to be paid no or only less attention.

Design evaluation: The usefulness and efficiency of the artifact was evaluated by a questionnaire based on paper and pencil. It was conducted among the course participants of our mass event.

Research contributions: The artifact creates transparency for instructors and makes it easier for students to come in contact with the instructor. Especially for shy students the platform offers the opportunity to ask their outstanding questions and get answers in an anonymous way.

Research rigor: For the implementation of the DSR project a literature study was conducted in advance to develop a clear picture of current research. For this purpose the major papers of the information systems area and education area are investigated. Using the results of the literature study, we developed a first concept of the platform, which then was evaluated with the aid of requirements analysis assessed by the staff of our chair. Then the platform prototype was developed, analyzed by expert tests and refined in a cyclical process. Once the platform has reached a stable state, it was introduced in another mass event and evaluated by the students. The results of the evaluation were included in a further implementation cycle.

Design as a search process: As defined a search process was implemented, which evaluated the design (the solution to the stated problem) and refined it in several cycles.

Communication of research: In this paper we want to share our findings with all researcher interested in this topic.

4. The AskEris platform for many-to-one communication

According to the seven principles for the implementation of Design Science, we have created a platform, which takes advantage of the many-to-one communication and tries to meet the needs of students and instructors perfectly. In the following we briefly describe the four phases of our development cycle and subsequently the functionality of the AskEris platform.

4.1. Development

Due to the low complexity we chose a simple spiral model for the development of the AskEris platform. Therefore, we went through the following four phases of software development: i) analysis, ii) design, iii) implementation, and iv) testing. In the analysis phase we conducted the requirements elicitation based on the findings of our literature review (cf. related work section) as well as expert interviews with several instructors.

We identified that the user group of the platform consists of the two roles: students and instructors. Students use the platform for questions concerning content and organizational issues. Avoiding redundant work through the provision of the corresponding answers on the platform is in the centre of consideration on side of the instructors. In order to ensure a location-independent and highly available access to the platform we chose an internet-based solution, hosted at the university computer centre, so that students can use it from everywhere. The roles and use cases resulting from the analysis phase were depicted in a use case diagram, which is shown in Figure 2.

Furthermore, we designed the database schemata for the corresponding backend of the platform. The third phase – the development phase- was centered on the implementation of the AskEris platform. It is based on PHP and was seamlessly integrated into the existing homepage of the chair. This not only simplifies the navigation within the platform but also the access to further information. The application of the corporate design of the university was chosen to foster the acceptance of the platform. In addition a single-sign-on procedure was developed, so that students could use their existing university accounts to log into the AskEris platform. In this way we wanted to offer the students a maximum of convenience. For storing the questions and answers we used a MySQL\textsuperscript{3} database.

Finally, we conducted an intensive testing phase. In this phase we analyzed if the developed platform meets the functional and non-functional requirements (e.g. response time, usability, design, etc.) stemming from the requirements elicitation. We therefore consulted the above mentioned experts interviewed in the analysis phase once again. Figure 3 displays a screenshot of the final platform resulting from the four development phases.

\textsuperscript{3} http://www.mysql.com/
4.2. Functionality

The starting page of the platform contains three main functional areas. In more detail, these are:
- **Ask a question**: If a student has a new question, (which is not already available in the archives of answers) he/she can put his/her new request on the platform. Questions can thereby be tagged with several items. This allows an easy categorization and retrieval of thematic content.
- **Vote for a question**: In this area, students can look at the questions of their classmates. If they are interested in the same topic, they can easily vote for that question. Every student has one vote for each question. The voting functionality represents the key feature of the platform. The more students vote for a certain question, the bigger a problem seems to be. The relative importance of a question, or rather a problem domain, can be estimated on the basis of the associated votes. This creates awareness on the part of the teaching staff and the curriculum can be adapted accordingly, for example by reducing the complexity factor.
- **Archives of answers**: At regular intervals the questions with most votes are answered and automatically shifted into an archive of answers. This archive is visible and accessible for all students.

Additionally, the platform provides a set of functionalities which are described briefly in the following. A search function enables students to look for existing questions and to identify thematic content more easily. Besides the title and the content it is also possible to search for certain tags of a question. The used tags are displayed in form of a tag cloud to ease the search of questions and answers to certain topics. In the top right-hand corner of the platform, there is a clock which indicates the time to the next answering-session of open questions. Thus students always know when their questions will be answered, and therefore do not have to check the platform daily. By the integration of social media (Facebook and Twitter), students can easily broadcast the questions in their social network and thereby exchange information quickly and efficiently with their fellow students.

5. Evaluation

The AskEris platform was introduced and evaluated during the fall term 2010 in a course with more than 600 students. Therefore, we presented the platform in the first lecture of the term by explaining its functionalities and the expected codes of behavior. The survey was carried out at the end of the term during the last lecture. No incentives were given. Overall, 264 people participated in the survey and 142 people completely filled out the questionnaire. The data sample consisted of 54.9% female and 45.1% male students from the Business Administration and Business Education courses of studies on a bachelor level.

The survey was structured in three sections. In a first part we asked the subjects questions concerning clear appearance, design, and usability of the AskEris platform. Table 1 illustrates the mean ratings of all attributes which were questioned in that first part.

<table>
<thead>
<tr>
<th>Table 1. Results of the AskEris evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute Description</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>The AskEris platform has a clear appearance.</td>
</tr>
<tr>
<td>I like the design of the AskEris platform.</td>
</tr>
<tr>
<td>I consider the AskEris platform as meaningful.</td>
</tr>
<tr>
<td>The use of the AskEris platform is simple.</td>
</tr>
<tr>
<td>I had no difficulties using the AskEris platform.</td>
</tr>
<tr>
<td>The AskEris platform is a useful addition to existing platforms of the university.</td>
</tr>
<tr>
<td>Overall, I am satisfied with the AskEris platform.</td>
</tr>
</tbody>
</table>

*Ratings obtained from a five-point scale of “strongly agree” to “strongly disagree”
Table 2. Importance and performance ratings

<table>
<thead>
<tr>
<th>Attribute Description</th>
<th>Mean Importance Rating*</th>
<th>Variance</th>
<th>Mean Performance Ratingb</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast response time</td>
<td>1.58</td>
<td>0.656</td>
<td>2.56</td>
<td>0.631</td>
</tr>
<tr>
<td>Transparency</td>
<td>1.73</td>
<td>0.697</td>
<td>2.32</td>
<td>0.717</td>
</tr>
<tr>
<td>Equal opportunities</td>
<td>1.85</td>
<td>0.713</td>
<td>2.30</td>
<td>0.848</td>
</tr>
<tr>
<td>Revelation of unclear teaching contents</td>
<td>2.04</td>
<td>0.970</td>
<td>2.57</td>
<td>0.701</td>
</tr>
<tr>
<td>Clear appearance</td>
<td>2.14</td>
<td>0.732</td>
<td>2.47</td>
<td>0.790</td>
</tr>
<tr>
<td>Voting functionality</td>
<td>2.56</td>
<td>1.241</td>
<td>2.62</td>
<td>0.961</td>
</tr>
</tbody>
</table>

* Ratings obtained from a five-point scale of “very important” to “very unimportant”

b Ratings obtained from a five-point scale of “very satisfied” to “very dissatisfied”

In general, it can be concluded that students evaluated the AskEris platform very positively across all attributes. In total, an overall satisfaction of 2.48 could be achieved on part of the students.

The results can be interpreted along the four quadrants of the matrix. The attributes transparency and equal opportunities, located in the top right-hand quadrant, are evaluated by students as high in both satisfaction and importance. These characteristics represent the strengths of the AskEris platform and should be consequently maintained.

In the top left-hand quadrant, the importance is rated high but current performance does not meet the needs of the students. Therefore, further efforts should concentrate on improving the response time and the revelation of unclear teaching contents. Regarding the response time it seems to be obvious that students always prefer an immediate answer to their questions. To get the optimal response time additional research is needed analyzing the best answering sequence by asking students as well as instructors. The revelation of unclear teaching contents is the second attribute of this
6. Discussion and limitations

The application of the AskEris platform accumulates highly relevant thematic content in a rather short period of time. This knowledge base reflects the gaps of students' competencies in an optimal way and provides 24/7 access to the answers for all students. It offers a whole range of benefits for both, students and instructors. In more detail, these are:

- **Maximum transparency and equal opportunities**: In contrast to an email based question-answer system, every student has the same level of information since he/she is able to see all questions of his/her fellow students as well as the corresponding answers of the instructor. In this way there are no information asymmetries on the part of the students.

- **Faster response times due to the consolidation of questions**: Instructors are no more flooded through the mass of personal- or email-requests of the students. Thus, questions can be answered faster. There are no more mails containing the same questions and thus there is no more redundant work.

- **Clear appearance**: Students can use tags for the categorization of their questions. The applied tags are then presented on the AskEris platform in form of a tag cloud. In this way often requested content is revealed more quickly.

- **Revelation of unclear teaching contents**: The voting-functionality for questions reveals unclear teaching contents and exposes existing knowledge gaps of platform’s participants.

- **Improved learning opportunities**: Through the revelation of unclear teaching contents the instructor could provide extra sessions and exercises to fill the corresponding knowledge gaps. We believe a clear transparency on knowledge gaps helps to improve teaching methods of the instructor and thus enhance students’ learning effects.

However, beside the advantages of the AskEris platform it is appropriate to reflect some limitations. Given the existence of many different platforms offered by the university, the introduction of an additional platform led to mixed reactions among students. Not all students were satisfied with that solution. Integration into the existing information technology landscape of the university has been mentioned as a major point of improvement by many students within the evaluation. Since students have to use their university account they cannot ask their questions anonymously. Therefore shy students who do not like to ask questions in front of many people are not satisfied by the platform. However, at this point anonymity should been trade off against the public asking of questions. On the hand, the main advantage of anonymity is the possibility of involving shy students. On the other, our experience has
shown that public asking of questions can act as a natural barrier avoiding inappropriate or even impolite behavior on the platform. Finally, it must be concluded, that the AskEris platform cannot serve as a substitute for personal mentoring during the conduction of mass event. Moreover, it is intended to provide an innovative supplement to traditional lecturing methods.

In addition to these general limitations of the AskEris platform the limitations of our research progress should also be discussed at this point. So far, our research bases on the assumption that an improved transparency for students and instructors as well as higher efficiency for instructors result in improved learning effects in mass lecture events. This assumption has to be scrutinized in further research. Another limitation bases on the evaluation of the overall satisfaction by analyzing satisfaction on usability and design as well as functionalities in one question which revealed mixed results. So, a clear identification of reasons for satisfaction is not possible.

Finally, another Importance-Performance-Analysis is needed to examine instructors’ perceptions of relevant attributes of the AskEris platform and whether the performance met their expectations.

7. Conclusion and implications

Today, many of the modern communication platforms are already used in higher education. Theses platforms can be categorized according to the two dimensions: level of aggregation and degree of interactivity. A high degree of interactivity with low level of aggregation is represented by one-to-one communication applications such as emailing or instant messaging. Both are not sufficient for mass events because they demand high effort for instructors and result in redundant work very often. Furthermore, only those students daring to ask questions will get an answer which unleashes a distortion of equal opportunities. Wikis are typical examples for many-to-many communications characterized by a high degree of interactivity and a high level of aggregation. Wikis or FAQ wikis need a critical mass of students editing the articles which has to be promoted or even rewarded. Because some students feel discomfort in editing content, it is highly probable that they do not answer fellow students’ questions despite they know the answer. Other students could answer the questions incorrectly which leads to the necessity of corrections by instructors. A third category of modern communication is the one-to-many communication. Podcasts are one exemplarily application of this communication category. Our chair also made some experiences in podcasting lectures. We realized that students tend to stay away from lecture events and start to deal with the content at the end of the term, a few weeks before the examination. Thus, many questions directed to the instructors arise at one single point of time which again costs much effort for instructors. Therefore, we decided to no longer offer podcasts. In all of these three modern communication forms much research is done. The many-to-one communication as the fourth category of modern, technology-based communication is rarely considered despite its many advantages.

We have realized the potential of many-to-one communications. Nevertheless, we consider this form of communication as an extension of existing teaching methods instead of a substitute. In the presented paper, we have introduced a platform that takes advantage from many-to-one communication in teaching to ensure increased transparency of teaching contents and to minimize administrative efforts in mass events. The platform was evaluated in fall semester 2009 by approximately 260 students. Most of them recognized the platform as an added value. Because the platform was so successful, the internal university computer center integrated AskEris into the already existing ILIAS platform. Thus, a major point of students’ criticism – the use of an additional platform – is fixed. Our development resulted in a university-wide roll-out in spring semester 2010 and can now be used in all courses of the university.

Despite the university-internal success of our platform, further research has to be carried out. Because our research bases on the assumption that an improved transparency for students and instructors as well as higher efficiency for instructors result in an improved learning in mass lecture events, an investigation e.g. in form of a longitudinal study can be used to provide quantitative evidence for this underlying assumption. Furthermore, the requirements and satisfaction of instructors using such a platform should be evaluated to design a platform including an optimal set of functionalities.

9. References


