Usability and Privacy Aspects of Moodle: Students' and Teachers' Perspective

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Choosing complex sets of tools, usually called learning management systems (LMSs), for creating perfect blends of traditional classroom activities and the most appropriate e-learning course components has become a common practice. Our institutions have opted for open source LMS Moodle. After years of its application in everyday teaching practice we were inspired to analyse the effectiveness of this platform. In this paper, results of the surveys compiled in order to reflect the student and teacher experiences with Moodle are presented. Main focus is providing insights into opinions, expectations and possible reluctance regarding usability and privacy when using its functionalities

Povzetek: V prispevku so predstavljene dolgoletne izkušnje in analize sistema Moodle.

1 Introduction

Contemporary standards in education require usage of different tools in order to supplement teaching and learning processes, as well as efficient assessment. A learning management system is often the foundation of a reliable e-learning platform and complies with standards and best practices recommended by respectable educational and corporate stakeholders (Georgouli, Skalkidis, & Guerreiro, 2008).

At our departments at the Faculty of Science, University of Novi Sad in Serbia and the Faculty of Electrical Engineering and Computer Science, University of Maribor in Slovenia such a solution is used for the design and delivering of courses that are supporting classroom training (Budimac, Putnik, Ivanović, Bothe, & Schützler, 2011).

Several years ago we decided to use and possibly extend an existing e-learning platform for our eCourses instead of developing a new one from scratch. After testing several systems we drew conclusions on the available tools. The system we chose had to be one of the established general purpose LMS solutions, preferably an open source one (Ahmed, 2005). Such a platform, apart from its flexibility and considerable cost savings, would offer possibilities for extensibility and customization according to one's specific needs.

The evaluation of open source LMSs was conducted according to a set of minimum criteria, which included active community, stable development status, good documentation, didactic objective and focus on the presentation of content and communication functionalities.

Our final choice was Moodle (Rice, 2008), for its fine basic features, great extensibility and even some potential adaptability features which were further developed in Novi Sad (Komlenov, Budimac, & Ivanović, 2008). A number of comparative studies and research papers (Al-Ajlan & Zedan, 2008; Di Domenico, Panizzi, Sterbini, & Temperini, 2005; Graf & List, 2005; Munoz & Van Duzer, 2005; Stewart et al., 2007) corroborated our choice.

Moreover, this solution has been accepted by the University of Maribor as the official LMS, and has also been introduced at a significant number of faculties in Novi Sad in the last couple of years, which certainly makes joint studies and reuse of teaching material among our universities more feasible (Bothe, Budimac, Cortazar, Ivanović, & Zedan, 2009).

Moodle is a modular and extensible platform which offers features to support different educational styles. It chiefly follows the established usability conventions (Melton, 2006): it has a simple interface, uses a minimal number of words, features roll-overs providing extra information, etc. Still, usability and privacy concerns must be addressed in detail when using such a solution.

In this paper the results of two surveys are presented in order to reflect the experiences of students and teachers with Moodle, regarding mainly those issues, and consequently the impact of using this LMS in everyday teaching practice on the academic achievements of students. The study was conducted as a part of a bilateral project between our institutions. Participation in the study was voluntary and anonymous for both students and teachers.

The results of our study should be of interest to university administrators, faculty members, and students who plan to offer, teach, or take courses implemented in Moodle. Also it can help many universities that are still deciding the extent of their offerings of online or blended

courses and the most appropriate platforms to use in structuring their offerings.

The rest of the paper is organized as follows. In Section 2 research endeavours somewhat similar to ours are observed, since their results and methodologies applied induced our investigation. However, it is focused on slightly different aspects of the platform in question. Section 3 discusses the survey outline and methods used in the conducted research. The discussion of the results from both students' and teachers' perspectives is presented in Section 4. Conclusions are drawn in Section 5 to foster future research and innovations in online teaching practice.

2 Related work

A significant number of published papers report on students' and/or teachers' perceptions of e-learning and the usability of the employed e-learning tools. This certainly includes Moodle (Kakasevski, Mihajlov, Arsenovski, & Chungurski, 2008; Kennedy, 2005; Kirner, Custódio, & Kirner, 2008; Liyanagunawardena, 2008; Melton, 2006), as one of the LMSs most frequently used at universities worldwide. Their focus groups were, however, usually students participating in one selected study program or even more often a single course, quite rarely complemented with their teachers.

However, some of the studies provided valuable conclusions and provoked further research. While some of them focused on technology-based components of such platforms, others studied the human factor of those systems considering student and instructor satisfaction, the importance of participant interaction in online environments, etc. There were even attempts to develop comprehensive assessment models, incorporating concepts from both information systems and education disciplines (Ozkan & Koseler, 2009).

It was, for instance, found that most information technology majors perceive learning to be more fun and of better quality within a technology-enhanced online learning environment (Parker, 2003). Furthermore, students who take online courses perceive a higher level of quality in their educational endeavours (Hannay & Newvine, 2006). However, lack of interaction, presence, or both may result in students' different observations on how well they may or may not have performed in an online class (Picciano, 2002; Song, Singleton, Hill, & Koh, 2004).

There seems to be a strong positive correlation between the degree of social presence and perceived learning as well as perceived quality of the instructor (Richardson & Swan, 2003). Not surprisingly, it was also revealed that participants of elective online courses tend to rate the modules positively while those in the obligatory courses often rate them more negatively (Smart & Cappel, 2006).

Students that experienced at least one well designed course enriched with resources, timely feedback and interactions with teachers generally report positive experiences (Weaver, Spratt, & Nair, 2008). The instructor's support in learning in fact strongly contributes to learning achievements and course satisfaction.

Besides the instructor's expertise and support, only a few other variables proved to be important for students' perceptions of learning achievements and course satisfaction (Paechter, Maier, & Macher, 2010): the structure and coherence of the teaching material and the course, the stimulation of learning motivation, and the facilitation of collaborative learning.

Teachers may also exhibit differing opinions about online learning and its effectiveness for the student (Bisoux, 2007). It is not rare for teachers to still perceive online learning as having numerous shortcomings, including (Totaro, Tanner, Noser, Fitzgerald, & Birch, 2005): the lack of instructor-student/student-student interaction; no structured classroom environment; students tending to teach themselves the course material; the difficulty of teaching quantitative courses online; the challenges of administering exams online, etc.

The open source learning management system Moodle is widely adopted at many universities and other organizations thanks to its tightly integrated set of tools designed from a social constructivist perspective. The advantages it offers over other (commercially) available LMSs were often analysed during the last couple of years.

The benefits of Moodle over rather popular proprietary LMSs like Blackboard (Kennedy, 2005) can be seen in Moodle's outstanding facilities developed to support communication in various ways, but also in providing better structure for all sorts of courses, i.e. more functional and likeable course organization. Additionally, Moodle's registration system and assignment submission module (Melton, 2006) and other standard modules (Kakasevski et al., 2008) were also assessed to some degree in terms of usability.

Nevertheless, surveys conducted in parallel at more than one university, with comparable groups of students of similar background, as well as their teachers (Tanner, Noser, & Totaro, 2009), are quite rare, especially those that address not only basic but also some important advanced features of the chosen platform.

Accenting privacy issues is also very important since the urge to protect security and privacy of data has lately become significant and extensively studied subject (Eibl, 2009; Klobučar, Jenabi, Kaibel, & Karapidis, 2007; Weippl & Tjoa, 2005).

Therefore we decided on conducting such a twofold survey at our institutions to provide ourselves and our colleagues from other universities, but also other interested parties, with possibly useful students' and teachers' insights in the current usability and privacy aspects of Moodle.

3 Survey outline and methods

The survey was twofold – one part aimed at students and the other at teachers. It was composed of a majority of closed questions, and some specific ones offering the possibility for answering more freely. Most open questions were bond to the closed ones in two ways:

- additional description after choosing an answer (e.g., "Do you distribute you teaching material periodically or at the beginning of the semester? Periodically. Period: ____");
- additional description after answering (e.g., "Do you use the blog functionality within Moodle? YES NO – If NO, please indicate why: ____").

We distributed the survey electronically, using Moodle's Feedback module. The response of both students and teachers was surprisingly fast – we needed only about 10 days to collect all answers in the survey for students and about 3 weeks to conduct the survey for teachers.

However, there were some differences between the aims of the survey used to collect teachers' experiences and opinions and the one prepared for students. The goal of the featured survey for students was to provide insights into their opinions, expectations and reservations regarding the usability of Moodle, the quality of teaching material available, usage of assessment means, communication and collaboration tools, as well as their privacy concerns.

The survey intended for teaching staff was compiled of differently formulated questions. Yet the goal was similar – to provide insights into their experiences, opinions, expectations and cautiousness regarding the effects of using Moodle in their teaching practice. Teachers were required to assess the usability of various Moodle's modules and comment on the ways they employ them in the courses they maintain and teach.

4 Results and discussion

Our institutions, the Faculty of Science, University of Novi Sad in Serbia and the Faculty of Electrical Engineering and Computer Science, University of Maribor in Slovenia, have been implementing e-learning using Moodle for several years now.

The Faculty of Electrical Engineering and Computer Science, University of Maribor employed Moodle for the first time as an obligatory teaching tool in the year 2007 when the execution of the teaching process according the Bologna declaration started. Nevertheless, Moodle had also been used to some extent before that.

The Faculty of Science, University of Novi Sad started using Moodle in 2004. Until now the majority of courses have been implemented in this LMS, especially those taught within Computer Science study programs.

After Moodle was used for several years, we decided to analyse its many specific aspects. A joint project between our institutions gave us the possibility of investigating possible differences in two different study/work environments.

4.1 Students' perspective

The survey was conducted at both institutions, with comparable numbers of students (136 in Slovenia, 130 in Serbia). However, the distribution of participants according to their year of studies was different (Table 1), because the existing undergraduate studies in Slovenia have recently been transformed into a three-year program, which also involved obligatory use of Moodle, so only students from the first two years were available at the time the survey was conducted.

Slovenian results were collected at study programs Computer Science and Informatics (65.44%), and Communication Technologies and Media Communications (34.56%), while Serbian survey participants were all students of Computer Science.

Table 1 depicts the distribution of survey participants according to their year of studies at both universities.

Year of study	Novi Sad	Maribor
1	43.85%	36.76%
2	16.92%	63.24%
3	17.69%	
4	10.00%	
5	8.46%	
PhD	3.08%	

Table 1: Survey participants according to their year of studies.

Gender-wise, there was more than 2/3 of male, and 1/3 of female students (Table 2).

Gender	Novi Sad	Maribor
male	67.69%	77.21%
female	32.31%	22.79%

Table 2: Survey participants according to their gender.

4.1.1 Overall quality of the existing teaching material

The majority of students assessed the quality of the teaching material currently available at our Moodle sites (mainly static content plus some electronic lessons for self-study purposes, enriched by assessment and communication facilities) as very good or good (Figure 1). Interestingly, there were 10 times more students that graded the available material as excellent in Novi Sad, and also none of the survey participants there assessed the available resources as very bad.

It might be possible that students from an EU university have greater expectations than the students in a developing country, but this result certainly shows that it is possible to develop and conduct courses of high quality even without any special funding or much institutional support.

What we were especially curious about were students' suggestions on how to improve the teaching material quality. They included the following: introducing additional exercises with different difficulty levels or examples of previous exams, more tests and assignments for students' self-evaluation, lessons with adaptive elements, video content, links to additional literature, etc.

All this suggests that students actually value course creators' efforts to involve more complex and interactive activities and resources in their courses, which in some cases might require usage of additional, either third-party or own, modules implemented for Moodle.

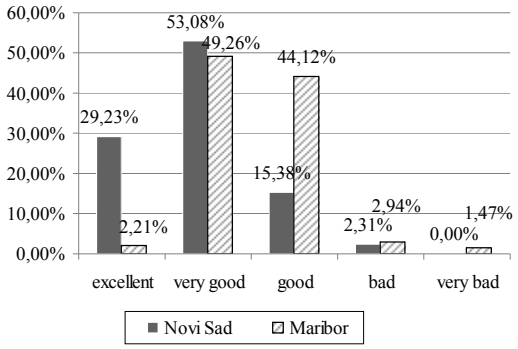

Figure 1: Overall quality of teaching material.

4.1.2 Graded tests

Quality of Moodle features, primarily Quiz module and similar, that enable students to take graded tests was also investigated in this research. 72.31% (Novi Sad) / 42.65% (Maribor) of survey participants had already been examined in such a way. They found it to be very convenient and they especially valued the increased speed of the grading process. The main problems that arouse while solving online tests identified by our students are the time limits and the possibility of hardware failure, which lowers their concentration.

Only 26.15% (Novi Sad) / 35.29% (Maribor) of students think that tests done using computers offer more possibilities to cheat compared to the usual settings when paper tests are used. Nevertheless, the teaching staff keeps constant efforts to reduce this ever existing assessment problem to the minimal possible level by administering tests in controlled environments like supervised computer rooms, limiting the access to certain IP addresses, etc. This practice is understood and supported by 81.54% (Novi Sad) / 44.12% (Maribor) of students. Thus, apart from the fact that online testing is much more employed in grading students in Novi Sad than in Maribor, it is interesting to notice that Serbian students are less resistant to all kinds of cheating restrictions.

4.1.3 Collaborative assignments

Regarding teamwork experiences, 27.94% of students in Maribor and 52.31% of students in Novi Sad (almost twice as much) had already done some collaborative assignments using Moodle's modules suitable for such efforts (Wiki, Workshop, etc.). They generally found these activities both challenging and valuable as learning experiences, and responded very well to the team-building practice promoted through them.

The fact that students are willing to work in small teams in order to solve various assignments, together with their satisfaction with what Moodle's modules intended to foster collaborative activities offer, is backing the already proven hypothesis that students who use opportunities in self-regulated and collaborative learning experience higher learning achievements (Paechter et al., 2010).

4.1.4 Usage of communication tools

Moodle has communication capabilities leaning towards Web 2.0 functionalities, like blog, forums, wiki, or chat. However, students are not very eager to use those features in their studies (Table 3).

Most of them say they still prefer personal communication with professors and teaching assistants or use email communication instead, which to some extent fits global trends noticed in other studies.

Tools	Novi Sad	Maribor
forums and instant messages	18.46%	39.71%
blogs	23.08%	11.03%
chat	26.15%	30.88%

Table 3: Frequent usage of communication tools.

4.1.5 Expressing opinions

Considering online surveys like this one, great majority of students, 91.54% (Novi Sad) / 80.15% (Maribor) of them, had no problem with filling the surveys out if they were to be completed anonymously. In general they value every opportunity to state their opinion on matters that directly influence the quality of the courses they attend. The rest of the surveyed students expressed their lack of belief in the possibility to be completely anonymous while filling out online surveys in environments like Moodle which systematically keep records of all user actions.

However, it is important to notice that 26.92% (Novi Sad) / 62.5% (Maribor) of the students are afraid of the consequences if they express a negative opinion or criticize a teacher within a Moodle course, for instance using a discussion forum. Yet only 6.92% (Novi Sad) / 16.47% (Maribor) of those students claim that their fear is based on some previous negative experience. Additionally, students would assess their teachers and courses they attend more freely if they would be assured anonymity.

4.1.6 Privacy concerns

Most of the survey participants (93.85% in Novi Sad and 91.18% in Maribor) are satisfied with privacy in Moodle. Others that are not so satisfied gave their reasons for that. As the most frequent cause they stated that other students who participate in the same course are able to track their online status and participation in various activities (for example submissions of assignment solutions). So the majority of students stated their wish for privacy,

signalling that at least Moodle's grade book should be more frequently and thoroughly used by their teachers.

On the other hand, some Serbian students in fact wished to be able to see all student grades thinking of that possibility as of a way to improve the transparency of grading. These dilemmas support previous evaluations of student perceptions of various e-learning components that showed that the students' strongest preference was to submit assignments and have the ability to check their grades online (Buzzetto-More, 2008).

A specific view of privacy in Moodle was investigated in detail, namely who should be able to access data from other users' profiles (Figure 2). Considering the question used to explore which pieces of information from user accounts should be hidden, expected answers such as email addresses, phone numbers, student ID numbers, etc. were received.

Some students also mentioned hiding first/last access times and activity logs of course participants. Most of these problems, now that we are aware of their existence and impacts on students' confidence, can be easily solved by changing certain system administration settings and introducing small modifications in course access privileges for users in the student role.

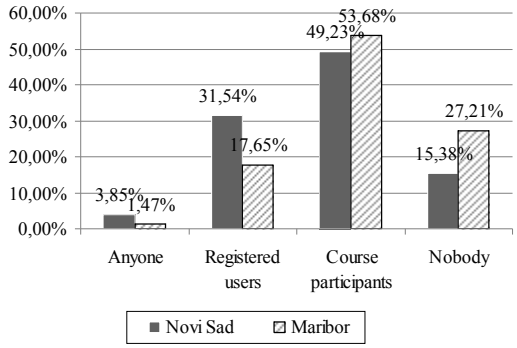

Figure 2: Accessing data from user accounts/system logs.

4.1.7 Technical problems and localization

A number of complaints appeared regarding the stability of the platform – 23.85% (Novi Sad) / 16.18% (Maribor) of students reported some technical issues. They had been usually in fact facing hardware and software limitations of the employed servers. The inconveniences were identified as: connection problems, slow response in case of many users connected to Moodle, difficulties when opening or downloading specific types of files in certain browsers, etc.

In Maribor, practically all of the survey participants believe that the Slovenian localization of Moodle is rather good. Similarly, Serbian language packs are well maintained according to 96.92% of the questioned students.

Students generally consider the localization to be rather important, which corresponds with the findings of other studies claiming that the use of native language in Moodle makes the accomplishment of students' tasks easier (Melton, 2006). Still, a lot of them habitually prefer using the interface in English.

4.2 Teachers' perspective

The other part of the survey was conducted with comparable numbers of teachers and teaching assistants, 25 in Maribor and 18 in Novi Sad, all working with students that participated in the first survey.

4.2.1 Design and implementation of learning resources provided online

Preparation of online learning resources is becoming one of the regular activities of our teaching staff, although it is not strictly required by the management at our faculties. Nevertheless, it requires extra effort and a certain amount of time (Table 4).

However, we expected the teachers to complain even more about the time management problems. Relatively mild feedback could, unfortunately, be credited to the fact that a lot of teachers simply are not motivated to, or do not have enough time, energy, or possibly even skills to produce more than small quantities of very simple online resources (totally opposite from what their students expect them to do).

Answer	Novi Sad	Maribor
more than for traditional resources	38.89%	28%
less than for traditional resources	33.33%	48%
the same as for traditional resources	27.78%	24%

Table 4: Time needed for the preparation of teaching material.

Although teachers from both institutions see the benefits of organizing e-learning efforts by using systems like Moodle, in Novi Sad 33.33% of them still prefer having their own home pages for (at least some of) their courses, saying that it is easier to maintain such pages, that it makes their work more flexible and independent, or that they are simply not significantly motivated to change their habits.

Interestingly, none of the survey participants in Maribor prefers such an option. In fact, 76% of them, as well as 44.44% of teachers in Novi Sad think that using Moodle is much better than maintaining separate course pages.

They point out that the LMS solves administrative issues, keeps all resources in one place making them easily accessible to students, and provides better structure of courses and more features to implement various online activities.

Finally, 22.22% (Novi Sad) / 24% (Maribor) of teachers prefer neither Moodle nor their own course

pages. They use the LMS in some of their courses, but still employ other mechanisms for specific course activities.

Separate tools often have a simpler and more likeable GUI or provide specific development instruments for certain course segments – lessons created and followed in a flexible way, more readable forums, better implemented chat and instant messaging options, freely structured surveys, complex wiki editing and tracking, special types of quizzes, etc.

Regarding the existing standard modules in Moodle, Lesson module seems to be one of the most precious ones equally in Novi Sad and Maribor (Figure 3).

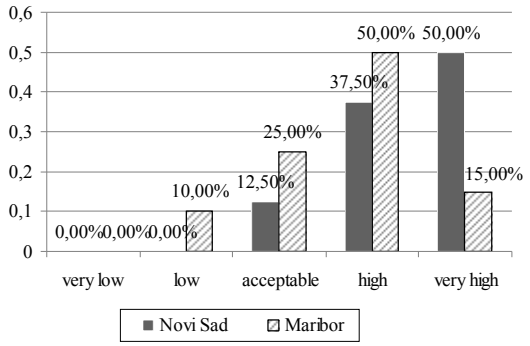

Figure 3: Usability of Moodle's Lesson module.

Teachers that participated in the survey, when using Moodle, apart from providing downloadable resources (lecture slides, assignments used for lab exercises, etc.) or links to external references, often present the teaching material shaped as more or less complex eLessons, built using Lesson module. This module was even extended in order to support creation of (semi-)adaptive eLessons (Komlenov et al., 2008).

Some of the questioned teachers also use modules like Glossary to explain key terms related to the topics they teach, or to provide their students with different kinds of tips or generally offer them easily accessible reference points. Glossary module received relatively good grades as well, especially in Novi Sad (Figure 4).

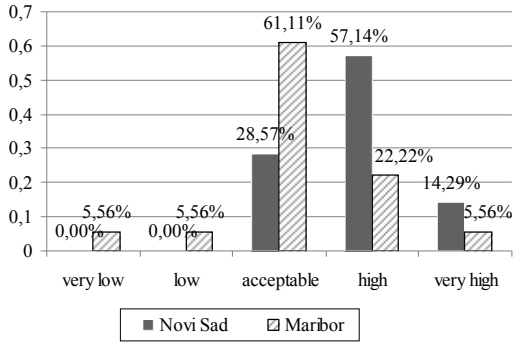

Figure 4: Usability of Moodle's Glossary module.

4.2.2 Graded tests

Only 16.67% (Novi Sad) / 32% (Maribor) of survey participants use online tests to officially assess their students. The rest of them do not use this possibility at all or they just provide tests for students' self-assessment that are always available and can be solved numerous times, but teachers that offer such tests do not analyse the results of their students.

Generally our colleagues still prefer paper tests due to possible organizational problems that can appear when online testing is practiced, issues concerning security and cheating, or they simply do not find online testing serious enough for grading the topics they teach. For some specific subjects there are also no suitable types of questions within the available tools.

Teachers that use online tests for official assessment have rather positive experiences with them. They especially value the implemented grading mechanisms that save them a lot of time so they can invest some more hours in preparation of bigger pools of questions that can be exploited in the following years as well. To prevent cheating they restrict solving tests to:

- certain amounts of time (all such teachers in both Novi Sad and Maribor),
- specific computer labs (all teachers in Novi Sad and 75% of teachers in Maribor),
- only particular IP addresses (all teachers in Novi Sad and 25% of teachers in Maribor).

Generally not many survey participants think that students have more opportunities to cheat when solving tests in Moodle than when doing paper tests (Table 5).

Interestingly, although about the same percentage of students (26.15%) and teachers (27.78%) believe so in Novi Sad, Slovenian teachers should take some more measures of precautions, since only 4% of them believe that it is easier for students to cheat when solving electronic tests instead of paper ones, while 35.29% of their students support that claim.

Assessment	Novi Sad	Maribor
more than when doing paper tests	27.78%	4%
less than when doing paper tests	27.78%	57%
the same as when doing paper tests	44.44%	39%

Table 5: Opportunities for cheating within tests solved in Moodle.

Quality of Moodle testing features, mainly Quiz module, was assessed as well (Figure 5). Some teachers that had not previously used this functionality chose not to grade it, so the assessment would not be influenced by their lack of experience with the options it offers.

4.2.3 Individual and collaborative assignments

The practice to distribute individual assignments to students using Moodle, and afterwards to collect their solutions, is rather common at both institutions.

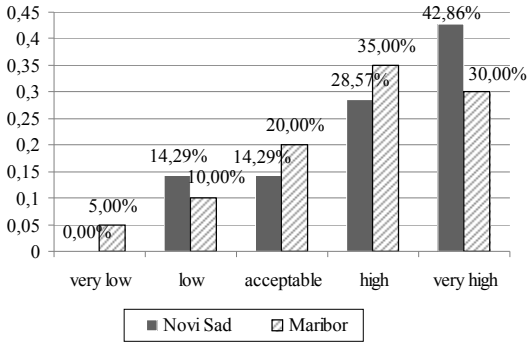

Figure 5: Usability of Moodle's Quiz module.

For this purpose teachers usually apply a variety of options provided in the Assignment module. And they are generally very satisfied with its quality (Figure 6).

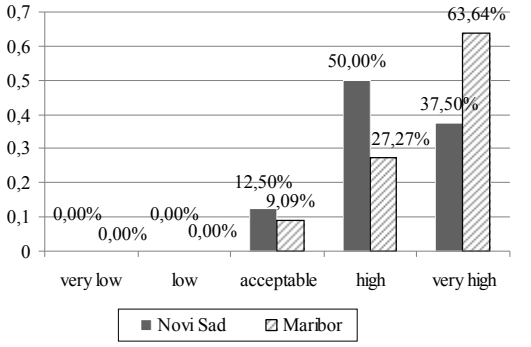

Figure 6: Usability of Moodle's Assignment module.

On the other hand, collaborative activities using appropriate Moodle's modules like Wiki have so far been introduced in only a couple of courses at both institutions.

Hence we received only 5 responses regarding the quality of functionalities of the Wiki module in Novi Sad. In Maribor, however, 20 survey participants assessed this module (Figure 7).

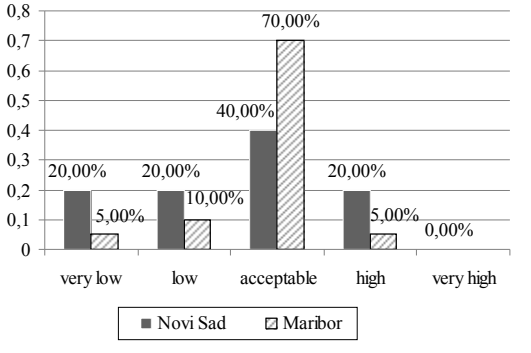

Figure 7: Usability of Moodle's Wiki module.

All in all, it received a lot of negative comments. Nobody addressed its usability as very high. Although this module satisfies the basic needs of students in their efforts to solve various team assignments, it is obvious that, despite its recent restructuring, teachers still think that it is not as functional as separate wiki systems.

4.2.4 Usage of communication tools

Moodle's communication tools are leading mechanisms of informing students about organizational and other issues within our courses according to 72.22% (Novi Sad) / 84% (Maribor) of teachers. Other common communications means are regular message boards (used by 11.11% of teachers in Novi Sad and 16% of teachers in Maribor), electronic message boards (used by 11.11% of teachers in Novi Sad and 68% of teachers in Maribor), personal/course pages, etc.

Teachers were therefore asked to assess the quality of Moodle's communication tools (Figures 8, 9 and 10), particularly having in mind their fitness to the teaching methods they practice and needs/habits of their students.

Discussion forums (Figure 8) seem to be well implemented in Moodle, while Chat module (Figure 9) received significantly lower grades.

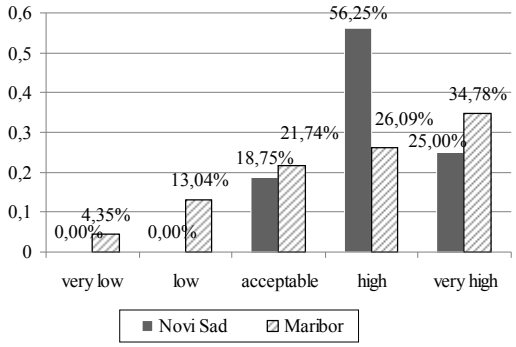

Figure 8: Usability of Moodle's Forum module.

Chat module is in fact implemented with very basic functionalities, so it certainly cannot be an adequate replacement for one of the separate chat products leading on the current software market. One would then expect students to use chat in Moodle much more rarely than discussion forums, but such a conclusion would be quite wrong. Students have obviously found proper uses for chat as well, even with limited functionality and Spartan design of this LMS component.

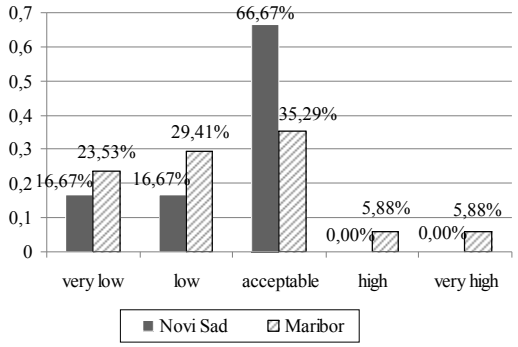

Figure 9: Usability of Moodle's Chat module.

Instant messaging system integrated in Moodle is more commonly applied by our teachers in their communication with students and colleagues, alike among students themselves, possibly because of its possibilities to serve as both synchronous and asynchronous means of communication, but also because of its more user-friendly implementation.

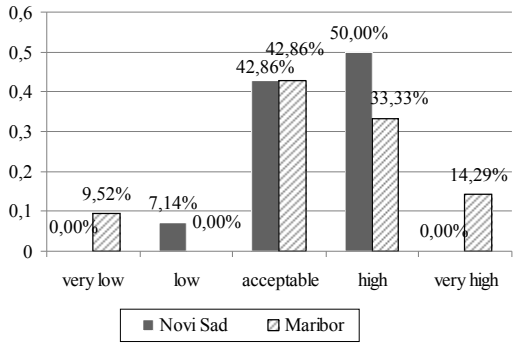

Figure 10: Usability of Moodle's instant messaging functionalities.

4.2.5 Expressing opinions

Majority of teachers, 72.22% (Novi Sad) / 71% (Maribor) of them, do not have a problem with answering this type of surveys. Actually they believe that conducting online surveys is a rather uncomplicated task if Moodle's Feedback module is used. Its usability was assessed as pretty high (Figure 11), thus it does not surprise that this once third-party module became one of the standard Moodle modules.

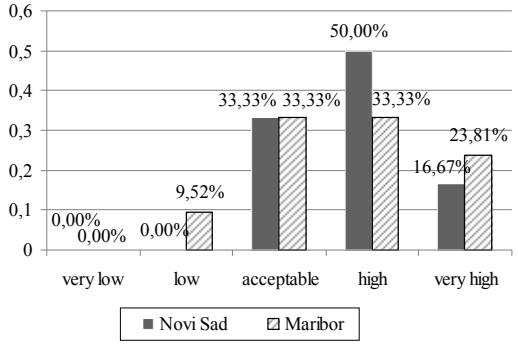

Figure 11: Usability of Moodle's Feedback module.

When it comes to dealing with opinions of students concerning course organization, quality of teaching material, grading issues and other course matters, our teachers find it too challenging.

In fact, only 16.67% (Novi Sad) / 20% (Maribor) of them already received critics within Moodle (usually in discussion forums). In such cases they elaborated their decisions online or in face-to-face meetings with students and/or improved the material in question.

4.2.6 Privacy concerns

All teachers that took part in the survey are generally satisfied with the level of privacy Moodle provides for their students. For example, they are content with the fact that students can only check the data regarding their own marks using the integrated grade book, with the possibility for groups of students to be defined both as separate and visible to each other, etc.

Teacher that took part in the survey have no privacy concerns regarding their own personal data, probably since they publish just some bits of information they really wish to share with their students. They are also protected to a certain extent by the role they have within the system.

4.2.7 Technical problems and localization

On the subject of technical problems, 33.33% (Novi Sad) / 37.5% (Maribor) of teachers said that they had encountered some difficulties while using Moodle. Primarily they were connected to responsiveness of the system while updating content, time required to clear cash/reload material, slow GUI rendering, lack of mass show/hide/move resources, etc.

Some of the issues are obviously the responsibility of the employed server, not Moodle itself, but there is also a certain amount of difficulties caused by Moodle's interface and specific implementation of some of its features that novice teachers have to get familiar with. Of course, some of the problems existed only in previous versions of the platform, not in the latest one.

Regarding localization, 33.33% of teachers in Novi Sad consider it properly done, while others have no opinion on the quality of Serbian language packs since they have never used them. In Maribor, however, 94% of survey participants are satisfied with the quality of Slovenian translation.

While only the teachers in Novi Sad still have the habit to use Moodle's interface in English, all of them, as well as 83% of teachers in Maribor, think that usage of course content in foreign languages is beneficial for their students. That practice promotes mobility of students and internationalization of studies in general, opens more possibilities for students to attain double/joint degrees, and is also valuable for their later professional life.

5 Conclusions

In this paper we presented the analysis of a survey conducted among Serbian and Slovenian students and teachers investigating usability and privacy aspects of

Moodle. Comparison of the results from each group showed that a number of differences in perception exist, possibly due to the heterogeneous points of view and motivations for online learning between teachers and students.

Still, while not always being able to formulate precisely their problems and dilemmas, both students and teaching staff are generally aware of the benefits of e-learning strategies and are very willing to present ideas for potential changes in the application of certain features of the system, as well as initiatives for upgrades of teaching material and techniques.

Students in both Maribor and Novi Sad are generally satisfied with frequently used Moodle's features and currently available teaching material. Teachers find most of the available Moodle modules to be rather functional, but they also commented on the poor functionalities of some of them.

From the teachers' perspective, the major obstacle to even greater application of various online activities in their practice presents a relatively low percentage of students who use instructive and communicative features of Moodle. Forums, chats, blogs, wikis, and other elements characterizing Web 2.0 are fairly unexploited. Online activities can be a good supplement to traditional methods of teaching and learning, but students have to be willing to participate in them and use the offered tools in a proper way.

Mechanisms that we currently employ using Moodle's modules make it easier for teachers to produce clear and easy readable, high quality teaching material and improve communication with their students. Problems that teachers are facing in the application of Moodle's features are mainly connected with the lack of time to learn how to use them and to prepare all the wished resources and activities.

A number of teachers that participated in the survey believe that their efforts would be much more successful if professional instructional designers were hired to help them in the preparation and maintenance of their courses.

Regarding possible privacy issues, the majority of students are satisfied with the privacy level offered by Moodle, though they gave specific remarks and expressed their general opinion that access to their private data should be limited. Teachers, on the other hand, seem to have no privacy concerns whatsoever.

We are aware of the fact that participants of our surveys were highly computer-skilled individuals due to their professional orientation, thus some of the assessments might have been somewhat different if they were made by students and teachers in different fields of study.

Other possible limitations of this investigation could be those that we did not take into consideration neither the possibility that some students might have experienced Moodle only within elective courses, which could have added to their general enthusiasm, nor the students final achievements and grades earned in courses supported by resources and activities developed in Moodle. A wider study with similar goals but varied groups of participants of diverse profiles could additionally prove the correctness of our conclusions.

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