

**Электронное собрание «рабочего опыта» студентов
как обучающий инструмент, доступный в онлайн-режиме**

**An Online Digital Repository of Students'
Work-based Experiences as an Educational Tool**

**Електронне зібрання «робочого досвіду» студентів
як навчальний інструмент, який доступний в онлайн-режимі**

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Представлена система *ELVIS* (Экспериментальное обучение с помощью обмена опытом работы, *Experiential Learning Via Industrial Stories*, далее – Система). Это образовательная сеть, которая дает студентом возможность обмениваться опытом своей работы в форме рассказов в интерактивном режиме.

В основе создания Системы лежит постулат, что одной из важнейших составляющих студенческой жизни является возможность дискуссий по различным вопросам реальной жизни. Центры Системы фактически представляют собой электронные собрания историй и полученных уроков. Система предоставляет возможность определять собственные навыки, участвовать в групповых сессиях, заимствовать идеи и способы написания историй, участвовать в руководимом студентами семинаре и оценивать истории в электронном режиме.

В докладе описывается технология внедрения Системы, программные продукты и процедуры, используемые для ее реализации, а также степень вовлеченности студентов в работу Системы. Отмечаются положительные моменты и делается вывод, что Система вполне жизнеспособна и полезна.

Meet *ELVIS* (*Experiential Learning Via Industrial Stories*), an educational framework that enables students to share their workplace experiences, thus promoting peer-sourced, interactive, story-based learning. *ELVIS* draws on the premise that a crucial part of any student's development is to engage in discussion over real-life issues. The framework centres on an electronic repository of stories and lessons learnt, supported by a skills-profiling tool, quiet reflection periods in group sessions, a notebook for capturing ideas and story outlines, a student-led workshop, and an on-line evaluation.

The paper discusses the current implementation of this novel approach, its software tools and procedures, and levels of student engagement. The findings are analysed to outline a number of improvements to maximise *ELVIS*' viability and ongoing usefulness.

Подана система *ELVIS* (Експериментальне навчання за допомогою обміну досвідом роботи, *Experiential Learning Via Industrial Stories*, далі – Система). Це освітня мережа, яка надає студентам можливість обмінюватися досвідом своєї роботи у вигляді розповідей в інтерактивному режимі. В основі створення Системи полягає той постулат, що однією з найважливіших складових студентського життя є можливість дискусій із різних питань реального життя. Центри Системи фактично являють собою електронні зібрання розповідей та отриманих уроків. Система дає можливість визначити власні навички, брати участь у групових сесіях, запозичити ідеї та способи написання розповідей, брати участь у семінарі, який проводять студенти, й оцінювати розповіді в електронному режимі. У доповіді описується технологія впровадження Системи, програмні продукти й процедури, що використовуються для її реалізації, а також ступінь залученості у роботу Системи студентів. Зазначено позитивні моменти та зроблено висновок, що Система цілком життєздатна та корисна.

Introduction

ELVIS (*Experiential Learning Via Industrial Stories*) is an interactive learning framework, the central component of which is a digital online repository, to capture and disseminate students' work-related experiences.

ELVIS is a part of our final-year module, entitled *Software Quality, Professionalism and Ethics*, for students on computer science and software engineering sandwich courses, where students spend their first two years studying, their third year in industrial employment, and their final year back at university. The experience gained during industrial employment forms the crucial core of the ELVIS framework and the principal source of data for the repository.

The module addresses two crucial issues:

- An overlapping study of software technology, its application and ethics; so that students appreciate fully the wide-reaching implications of their work in the real world
- Student engagement in discussion and debate, concerning a range of real-life professional issues, within the three related topics mentioned above.

In meeting these objectives, the module uses a blended-learning environment, comprising weekly large-group interactive sessions; a virtual learning environment (VLE); and, various software technology clinics.

A review of the module alerted the authors to the potential of using students' industrial experiences as a rich knowledge-base to be mined. The conclusion that this was an invaluable source of knowledge that students would benefit from was inevitable. Thus, the idea for ELVIS was born.

The original idea subsequently became the ELVIS project, funded by a Research Informed Teaching Award (RITA), to address the question of how to capture and share this knowledge, and integrate it with the existing learning objectives of the module.

The ELVIS Pedagogy

ELVIS integrates a variety of proven learning techniques, the first of which is experience-based learning, similar to the problem-based learning model of Juwah (2002).

ELVIS promotes experience-based learning, in line with findings (Andresen et al, 1999, p225) that advocate "the recognition and active use of the learner's relevant life experiences", except that, in this case, instead of life experiences, industrial experiences are used. The driving conviction behind this approach is agreement with the assertion that "[if] new learning can be related to personal experiences, the meaning thus derived is likely to be more effectively integrated into the learner's values and understanding" (ibid).

Storytelling is the mechanism for utilizing students' experiences. Storytelling is widely recognized as a significant learning tool (see, for example, Clandinin and Connelly, 1998; McDrury and Alterio, 2002; McEwan and Egan, 1995; Pendelbury, 1995; and Witherell and Nodding, 1991). It offers advantages, summarized by Alterio (2003), like:

- linking theory to practice
- stimulating students' critical thinking skills
- capturing complexities of situations
- encouraging self review

Students consider their experiences in view of topics under discussion and record them in the form of short stories, each one accompanied with a meaningful title, summary of lessons learnt, and a set of characteristics to define the nature of the story. This way, "dialogue is strengthened when it focuses on lived experiences, familiar contexts and real emotions. Storytelling accommodates the inclusion of these aspects and can assist students to view their experiences from different perspectives" (Alterio, 2003).

The creation of an electronic repository solved the problem of capturing and disseminating these stories. The idea is simple: individuals create their stories and enter them into the repository. As the year progresses and more and more stories are released to the group domain, individual learning is gradually replaced by collaborative learning. This transformation takes place in classroom-based interactive group sessions and also during the preparations for a student-led seminar, the aim being to enhance the knowledge of all members. ELVIS is, therefore, a student collaboration tool, as advocated by Christiansson (2004).

Another ELVIS technique is reflection, leading to deep learning (Hinett, 2002a). Reflection is another valuable learning tool that, according to Philip (2006, p37):

- Enables students to maximize the benefits of their education
- Sets the scene for life-long learning
- Enhances employability and enterprise skills

Indeed, Kolb (1984) suggests that reflection is the key to cyclic experiential learning. McDermott et al (2002) reinterpret the Kolb cycle as an alternation between experiential and reflective groups of activities. In our case, the students' industrial employment and their final-year projects constitute the experiential activities, while the reflective activities are the *Software Quality, Professionalism and Ethics* module itself and ELVIS within it.

There are, of course, barriers to students being able or, indeed, willing to be reflective. In fact, the authors' experiences suggest that the biggest barrier to reflection is the current assessment-driven nature of students. However, the authors are not alone in this, because it is also noted elsewhere (Philip, 2006, p. 37) that "this is a natural strategic approach that is widespread amongst students, and maybe we should be more accepting of this and so ensure all desired learning outcomes are taken into account during the assessment process".

Such barriers notwithstanding, ELVIS promotes the idea of students becoming deep learners via reflection, of the type that was originally defined by Marton and Säljö (1984) and subsequently endorsed by Duignan (2002, p218), who states "The deep learner examines theoretical ideas in the light of his or her experience; evidence is gathered, organised and structured into a form that renders coherence to the information and to its relationships and cognitive consequences."

The pedagogical model resulting from the integration of these learning techniques forms the basis of the ELVIS framework, described below.

The ELVIS Framework

The ELVIS framework, shown Figure 1 below, comprises:

- An industry-standard skills profiling tool (SFIA), so that (a) students appreciate the complete spectrum of skills used in IT and understand where their work fits into this scheme; and (b) tutors monitor the type of work their students were involved in
 - A quiet period during the weekly sessions to reflect on the topics covered, linked to
 - A student notebook for capturing all reflections, ideas and story outlines, leading to releasable stories
 - A shared electronic repository of those stories that students have chosen to release
 - A student-led workshop, and
 - An on-line evaluation using the resident Virtual Learning Environment (VLE)

Tutors need to know of their students' experiential background. Students supply this information using the categories of the SFIA skills profiling tool, as part of their registration process under ELVIS, having first studied the range of skills in IT and determined their own place in it.

Registration is followed by two parallel strands of work:

- Production of stories
- Preparation for the student-led workshop

The production of stories involves several phases:

- Reflecting on the topics covered in weekly sessions and how these topics relate to their own experiences
 - Participating in discussions during weekly sessions, to generate and refine thoughts
 - Making notes to identify potential stories
 - Writing up and releasing a minimum of six selected stories to the group domain
 - Commenting on the released stories of peers, thus opening up new avenues for discussion
 - Discussing their ideas on VLE

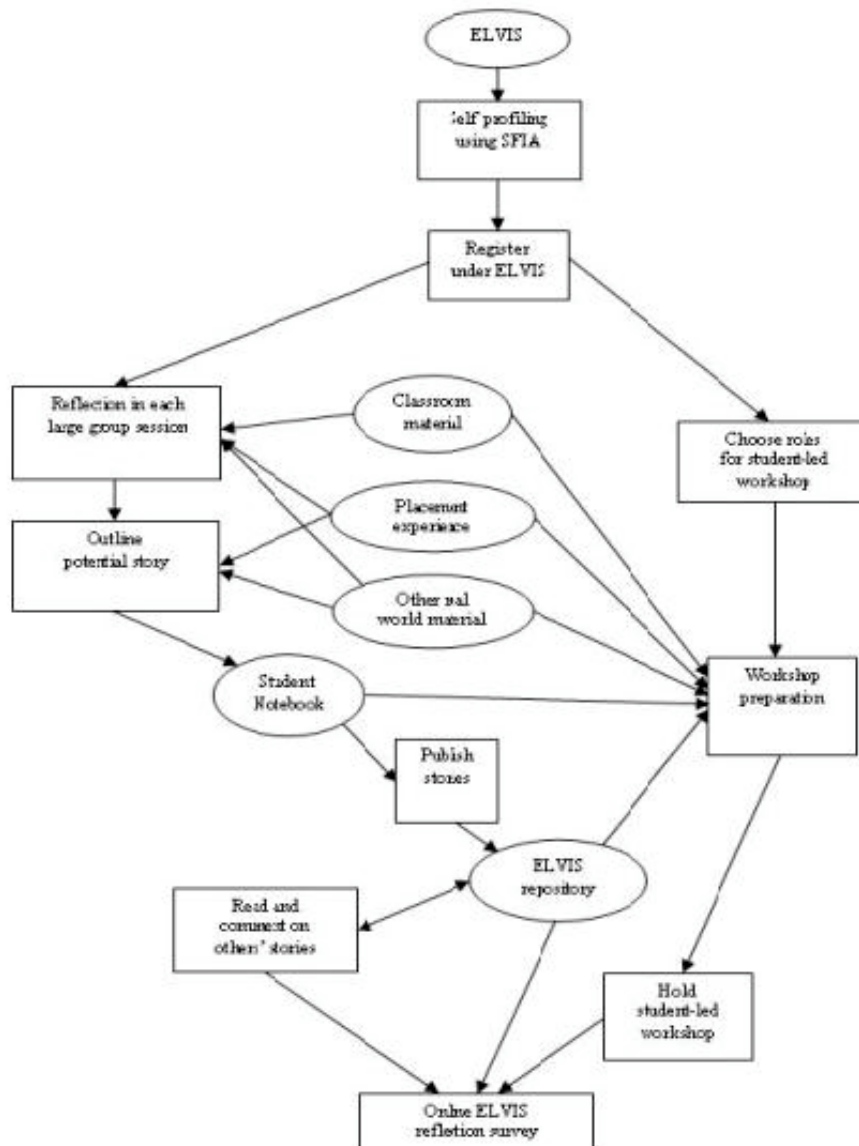


Figure 1. The ELVIS Framework

The culmination of ELVIS-related activities is the student-led workshop. The purpose is for students to work in teams, bringing together their ideas, making presentations and discussing the issues raised in an open forum.

The last activity is the online reflection survey which provides students with one last opportunity to consider the relationship between study and practice.

Software Support

Wherever possible, ELVIS is supported by existing packages, like VLE for online discussions and the final evaluation. However, many activities are supported by custom software because of functionality requirements that package software could not provide.

The system enables students to create stories, set various defining characteristics, and finally release them to the group domain. Students can also enter their comments on the released stories of their peers. The system also enables tutors to perform various managerial tasks, like recall published stories, remove stories from the repository, and request various reports.

The system is currently under review and is subject to change.

Observations on Student Engagement

The storytelling aspect of the framework was the barrier to student engagement, simply for not knowing what to do. It was disappointing but not surprising, because Alterio (2003) does suggest that some students may feel comfortable from the onset but others may need time and assistance to accept this type of learning. This is reiterated by Hinett (2002b) who states, “[students] often only appreciated [the value] some time after the process of reflection has begun.” That was certainly true in our case.

There was also a problem for those students who had not done placement and who had no first-hand experience of the workplace. The advice to such students was to read computing publications and the IT sections of daily newspapers. The expectation was that, over time, they would pick out news items that they could reflect on and then write up as stories, in their own words. The reality was that they were reluctant to “read around”, being unable to make the link between such undirected reading and learning.

For students with work experience, the expectation was that they would reflect on the link between their classroom topics and their workplace experiences, recording their observations and conclusions, which they would then write up as stories.

Even these “experienced” students were not problem-free. Many seemed unable to carry out reflection, without direct guidance and active help.

Our conclusion is that neither their schooling nor the first two years of their studies prepare students for such activities.

Many students were confused about what to record in their notebooks. Even those who understood the concept of reflection had difficulty putting it into practice.

This problem was noted when the notebooks were evaluated in week 6 of the year (without prior warning) and too many were found wanting. This poor performance alerted tutors to the mindset of students and the crucial role they had to play in encouraging student engagement.

The student-led workshop was the most popular activity, judging by the levels of participation. All roles were claimed quickly, indicating that students had taken ownership.

The final activity is the online evaluation, which is yet to take place; so, there are no findings to report.

In summary, while a few students engaged readily, others had problems. Student unease was found to arise from:

- Encountering a different learning experience, the novelty of which prompted students to question its necessity
- The removal of the traditional scaffolding of tightly specified requirements
- This novel approach being taken in a 30-credit module (out of a total of 120 final-year credits) and its potential negative influence on degree classifications
- The extra engagement required in an already challenging module, in terms of its topics, activities, and delivery style, the relevance of which is not immediately obvious
- The predictable learner opposition to anything that threatens the safety derived from familiar requirements
- The perception of ELVIS being a research tool for the tutors and, therefore, having little or no relevance to their learning

Lessons Learnt

At the beginning, students were given time to adjust to ELVIS. As it turned out, they could not manage their time effectively. Instead of learning to adjust, they simply did nothing. The conclusion was that students need:

- Encouragement, in terms of sample stories and support clinics
- Incentives, like “early birds get more marks”
- Milestones, like the first story in by the middle of November, three stories in by the end of first semester, five stories by the end of second semester, and all stories in by the time the workshop is held

Effort is needed by the tutors, certainly in the early days of the academic year, to get students to take ownership of the framework. An email/VLE-announcement campaign is recommended. Otherwise, given the daily pressures students are under, ELVIS may become temporarily invisible, until deadlines loom, which defeats the purpose.

In our experience, ownership is the best driver for active engagement and participation. Also, for students to take ownership, the relevance of their contributions must be fully visible. In other words, the “big picture” motivates students.

Another recommendation is to show students the relevance of their stories to the overall learning experiences of the cohort. This should happen naturally next year, when the repository will be already populated with stories. The slow build up of stories this year may have distanced students from ELVIS.

It is also essential to provide examples of good and bad stories. Students cannot cope with an alien idea without first being prepared for it. When coaching and sample stories were provided, the participation rates went up.

Students should be asked to record in their notebooks the name and date of what they read. Furthermore, it is important to monitor the use of ELVIS and emphasise the need for engagement whenever necessary, not unlike advertising campaigns in the media.

Finally, the period of quiet reflection needs:

- Structure, in terms of what students are required to do, within what time frame, and with what expected outcomes
- Pointers, derived from the session topics, so that students have something to focus on, which may be reduced as time goes by

Conclusion

ELVIS promotes a mixture of individual and shared learning experiences, based on a single, shared repository. At the start of the academic year, the learning is on an individual basis, where students compose their stories and submit them to ELVIS. Later on, when the workshop teams are formed, the learning becomes shared amongst team members.

The principles that ELVIS is founded on are:

- Promotion of deep learning, rather than surface learning, through reflection
- Sharing of stories in order to support and enhance the relationship between students, thus creating new knowledge and learning from peers
- A reflection log (i.e. student notebook) that facilitates purposeful learning
- Encouraging students to learn from each other by way of complementing the traditional student-teacher learning relationship
- to overcome the barrier of assessment-driven pedagogy, replacing it with a learning-driven pedagogy
- to use storytelling as a means of encouraging reflection

ELVIS has contributed to the ethos of the module which is to create “an environment of learning activities and assessment from which it is very difficult for the student to escape without learning”! (Houghton, 2004)

Finally, in spite of the initial problems encountered by many students, subsequent informal feedback is that ELVIS is a novel way of getting students involved in activities that they have not encountered before.

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