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Safety training needs of educational institutions

Timo Savolainen
Department of Safety, Security and Risk Management, Laurea University of Applied Sciences – Leppävaara Campus, Espoo, Finland; Aalto University School of Engineering, Espoo, Finland and Estonian Business School, Tallinn, Estonia

Kaisa Airo
Laurea University of Applied Sciences – Tikkurila Campus, Vantaa, Finland, and

Tuuli Jylhä
School of Engineering, Aalto University, Espoo, Finland

Abstract

Purpose – The overall quality of education may be compromised due to the limited availability of safety and security (S&S) courses in professional teacher education. The purpose of this paper is to identify the main safety-related training needs of a higher education institution, which may provide insights for improving the quality of education from a safety perspective.

Design/methodology/approach – This study included 17 interviews with students and staff experienced in S&S due to their professions. The study also used Laurea University of Applied Sciences' (Laurea) S&S reports, which have a variety of S&S events from 28 October 2020 to 20 December 2021. Both data sets were analyzed using qualitative theory-driven content analysis.

Findings – Safety risks at schools are mainly constructed through the negative psychosocial atmosphere and lack of safety knowledge and/or skills. There is a need for safety training covering key topics such as crime prevention, violence, fire safety and understanding inclusion and diversity.

Practical implications – The study proposes a new risk-based training and development management model for school management and the planning of training activities.

Social implications – The analysis offers valuable perceptions of the S&S challenges of educational institutions, which can be used as a starting point to enhance overall educational quality and safety.

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Originality/value – This paper provides a novel way of improving the safety of education by approaching training needs from a risk assessment perspective.

Keywords Human resource development, Risk management, Safety and security management, Training and development, Quality management

Paper type Case study

1. Introduction

Safety and quality are intertwined in all organisations. Without well-integrated systematic safety, security and risk management (SSRM) systems, the quality of education cannot be assured. If a student or lecturer feels unsafe in a learning environment, the entire teaching and learning process suffers (Savolainen, 2023; Nouri *et al.*, 2010). Khaw and Teoh (2023) asserted that staff and students in higher education have inadequate awareness of the risks and are not sufficiently involved in the development of SSRM policy and implementation. One reason for this could be that SSRM is not taught as a mandatory topic at professional teacher education institutes. For example, even in Finland, where schools are safe at the institutional level (Statistic Finland, 2024), Hämeenlinna University Applied Sciences (2023) did not offer any courses that address safety, as of 2023, and JAMK University of Applied Sciences' professional teacher education curriculum had only one optional five-credit course about safety and well-being. This is an issue because all educational institutions still have safety and security (S&S) challenges at the institutional level. These challenges include school shootings (Oksanen *et al.*, 2013), violence in general (cf. Hurme *et al.*, 2019; Ervasti, 2012; Salmi and Kivivuori, 2009; Savolainen and Airo, 2020), illicit drug use among university students (e.g. El Ansari *et al.*, 2020) and other school safety issues. Many authors (e.g. Liljeroos-Cork Mykkänen *et al.*, 2021; Martikainen, 2016; Savolainen, 2023; Vallinkoski and Koirikivi, 2020) also assert that in Finland, schools need to focus more on SSRM and safety training to make educational institutions safer for their users.

According to the Occupational Safety and Health Act (738 / 2002), "*Employers have a duty to take care of the safety and health of their employees while at work by taking the necessary measures*". In other words, the main responsibility for improving safety in education lies with management and leadership. However, there is a gap in knowledge on how to address safety issues because educational institutions' employees usually have not received basic SSRM training during their studies during their professional teacher education. This can violate employees' and learners' right to a safe school environment as demanded by Finnish law regarding educational institutions (Universities of Applied Sciences Act 932/2014). To address this issue, this study analyses data collected from Laurea's quality deviation reports and interviews with safety S&S professionals working or studying within Laurea's SSRM programme. The study adopts a constructive worldview and is interpretative from an epistemological perspective. This perspective allows multiple individual conceptions of how to enhance the safety of educational institutions while also improving quality. The study is tied to the context of higher education, as it reflects the views of Laurea students and staff about educational institutions' safety. However, the essence of the results can be interpreted and reflected in primary and secondary education contexts as proactive measures to enhance their safety.

In the following sections, we introduce the study's theoretical framework, that is, integrated quality management (QM), SSRM and human resource development (HRD). This helps to understand how the concepts of training, SSRM and quality are intertwined. Thereafter, we describe the methods used to collect and analyse data from Laurea. The results show the types of safety issues Laurea students and staff have experienced, which enables a discussion about

the types of safety training higher education institutions in particular may need. We also introduce a new practical implication of an improved risk-based training and development management model for identifying safety training needs in advance before unwanted events occur to mitigate risks and improve the safety of educational institutions.

2. Integrated quality and systematic safety, security and risk management approach

Quality, safety, security and risk management (QSSRM) approaches can be integrated into one management system to ensure the safety of the environment and produce high-quality products or services. This integrated system helps to reduce the consequences and likelihood of unwanted events (Confederation of Finnish Industries, 2024; Kerko, 2001; Martikainen, 2016; Waitinen, 2011). Most management system standards are based on the plan-do-check-act (PDCA) cycle (Ispas and Mironeasa, 2022; Čekanová, 2015). According to Kleijnen *et al.* (2011), the PDCA cycle was a widely used continuous improvement model for enhancing processes in schools.

The risk management (RM) process has six phases: choosing the scope, identifying, assessing, evaluating, treating risks and reporting (ISO 31000, 2018). Risks can be categorised in many ways, but typically they are divided into strategic, operative, financial and hazard risks (Bromiley *et al.*, 2016). Negative threats requiring risk treatment can be categorised into possible unfortunate unintentional events (safety issues) and activities done intentionally (security issues) (Martikainen, 2016). One way to manage risks is to review S&S subdivisions one at a time. According to the Confederation of Finnish Industries (2024) and Rikander (2021), S&S subdivisions can be divided into nine parts: personnel security, premises' security, emergency and preparedness, security of production and operations, environmental safety, information security, compliance control, contingency and crisis management and occupational safety and health (OHS). Every S&S subdivision has its own unique goal, which enhances the overall S&S and the organisation's strategy towards its vision. A summary of the purposes and principles of these S&S subdivisions is presented below (Confederation of Finnish Industries, 2024; Rikander, 2021):

- The purpose of personnel security is to guarantee the safety and capability of people, including employees, customers and key persons, by protecting them from crime and accidents.
- The goal of premises security is to create a disturbance-free and safe working environment, as well as to prevent the theft of valuable information or materials.
- Emergency and preparedness include actions that prevent fire and other accidents, such as first aid training.
- The purpose of security of production and operations is to secure safe products and services. This includes, for example, logistics, insurance policies and network management.
- The essence of environmental safety activities is to proactively approach ecological sustainability and meet customers' and other stakeholders' environmental expectations.
- Information security actions and decisions ensure the confidentiality, availability and integrity of an organisation's information.
- Through compliance control, the organisation proactively prevents and investigates misconduct, crimes or other disruptive events affecting its operations from both inside and outside of the organisation.

- The organisation leverages contingency and crisis management to identify unexpected crises and situations, thereby protecting itself as efficiently as possible. The principles of contingency and crisis management are closely related to business continuity management processes.
- OHS aims to ensure the safety and functionality of employees by protecting them from crimes and accidents. Additionally, it secures the critical human resources essential for the organisation's operations.

The main difference between educational institutions and other organisations is that the former also focuses on student welfare and safety. Student welfare aims to promote students' learning and balanced development as well as prevent marginalisation, bullying and other problems with studying (Waitinen, 2011, p. 65).

3. Human resource development and training

Management's role is to acquire talent, foster success and optimise organisational performance and quality, all in pursuit of its vision (Price, 2004; Salaman *et al.*, 2005, p. 2). In the context of education, this means that a high-quality educational institution produces intelligent and committed graduates and staff who contribute to spreading and developing new knowledge (Tam, 2001). One way to achieve this is to provide training opportunities for staff to develop themselves, which is one of the primary components of HRD processes in all organisations:

> The purpose of HRD is to focus on the resources that humans bring to the success equation—both personal success and organizational system success. The two core threads of HRD are (1) individual and organizational learning, and (2) individual and organizational performance (Swanson, 2022, p. 4).

Training enables staff to learn and develop new skills, which leads to positive changes in their behaviour at work (Swanson, 2022; Garvin *et al.*, 2008). However, training is also crucial because our world is constantly changing. The assumption is that training and development will become even more important with the increasing pace of social and technological changes (see McDiarmid and Zhao, 2022). Organisations now recognise that training is not only a necessity but also improves employee productivity (Swanson, 2022). Most safety training studies focus on occupational health and safety (e.g. Cohen and Colligan, 1998; O'Connor *et al.*, 2014). However, fewer studies have taken a more holistic approach to the training and development process as a comprehensive quality and safety improvement treatment in educational institutions.

4. Research methods

This study aims to identify interpretively safety-related training needs in a higher education institution that others can use as a starting point to enhance their organisations' safety.

4.1 Data collection

The empirical research was divided into two phases. In the first phase, 20 interviews were conducted from March 2021 to October 2021 with people who had special knowledge and experience to gain in-depth data on S&S situations at higher education institutions. Only individuals with an S&S background, such as police officers, rescue workers and SSRM lecturers, were included in the study. The interviews lasted between 30 and 60 min, and all of them were transcribed. Before giving their consent, the interviewees were assured that they would remain completely anonymous and that their comments would only be handled

by the interviewer. The interviewees told stories about unsafe events that they had experienced during their studies or professional careers. Of the 20 narratives, 17 were included in the analysis because three of the narratives were not from a school environment.

In the second phase, S&S reports – the so-called quality deviation reports – were collected from the Laurea University of Applied Sciences. This University of Applied Sciences has 7,800 students and 660 staff members and offers education in five locations in four cities in South Finland. The university offers a wide range of bachelor's and master's degree programs, such as business management, business information technology and cyber security, nursing, service innovation and design and crisis management. Due to the multiple geographical locations and wide range of educational programs, Laurea University's campuses have a diverse group of users; thus, the nature of the S&S events can be expected to include a wide range of events. In total, the reports documented 116 unsafe events from all five locations of the university from 28 October 2020 to 20 December 2021. The reports included descriptions of unsafe events reported by witnesses who were either staff members or students. Research permits were requested from the university before starting the data collection and analysis. The quality deviation reports were anonymised by the university before they were given to the two researchers, who reviewed and analysed the data based on S&S subdivisions (Confederation of Finnish Industries, 2024; Rikander, 2021).

4.2 Data analysis

The analysis of this study had been conducted by closely following Tuomi and Sarajärvi's (2018) theory-driven approach. This means that stories from both quality deviation reports and interviews were investigated by seeking similarities and differences from the raw data and summarising the concepts according to QSSRM theory. The codes were derived from the theory and defined before the actual data analysis (see Tuomi and Sarajärvi, 2018; Hsieh and Shannon, 2005). In other words, the transcripts of the recorded interviews and quality deviation reports were analysed based on the S&S subdivisions (Confederation of Finnish Industries, 2024; Rikander, 2021), which are presented in Section 2 of this paper. Microsoft Word's text highlight colour function was used in the coding process to map the stories to various categories. This approach helped in compiling the database, disabling, reassembling and interpreting the data and finally drawing conclusions, as Yin (2018, pp. 177-179) proposed for content analysis. The focus was on establishing what the interviewees had said and what was written in the reports. The interview transcripts were analysed by the first author, and the security deviance reports were double-checked and analysed in collaboration with a senior researcher.

5. Results

In what follows, we present the results based on the interview data, followed by the findings based on the quality deviation reports.

5.1 Results of the interviews

Table 1 shows that most of the stories were related to OHS and personnel security issues. The third most common issue was related to premises security. However, some of the stories were dissected into two or multiple different categories, as expected by the Confederation of Finnish Industries (2024).

5.1.1 Personnel security and occupational safety and health. The analysis showed that the interviewees' typical stories were related to personnel security and OHS because most of the interviewees talked about violence. For example, Interviewee B talked about the police's Preventive School Security Group, which prevents violence by informing educational

Interviewees	Personnel security	Premises security	Emergency and preparedness	Security of production and operations	Environmental safety	Information security	Compliance control	Contingency and crisis management	Occupational safety and health (OHS)
Interviewee A			X						
Interviewee B	X							X	X
Interviewee C	X								X
Interviewee D		X							
Interviewee E		X							X
Interviewee F			X						
Interviewee G		X							X
Interviewee H	X								
Interviewee I			X						
Interviewee J	X	X							X
Interviewee K	X							X	X
Interviewee L			X						
Interviewee M				X					
Interviewee N				X					
Interviewee O		X							
Interviewee P							X		
Interviewee Q									X

Source: Authors' own work

Table 1.
Summary of the interview data

institutions about possible threats. The interviewee gave an example in which the police arrested a person who threatened to commit an act of violence in school and posted it on social media. Interviewee K told a similar story. In that story, a student posted a school shooting threat on social media. Emergency number 112 received many calls. Interviewee K was the first police officer on the scene. The interviewee first gave quick instructions to scared teachers and students. After that, he started searching for the shooter with a rookie officer. At the end of the day, no school shooter was found. It turned out to be a bad prank.

Interviewees C and H, who also worked as police officers, argued that the root cause of violent behaviour is usually bullying and inequality. A perceived negative psychosocial atmosphere, that is, social isolation or discrimination, may lead to violent outcomes when people feel like they do not belong to the group (Interviewees B, C and H). This suggests that schools should introduce more ways to embrace the diversity of people and support their well-being. Interviewee H was especially concerned about the lack of resources and collaboration between schools, social and health services and the police.

Interviewee C gave an example of a police assignment in which he protected a teacher when an intoxicated student was so violent that the teacher was unable to handle the situation. Interviewee Q, by contrast, talked about a situation in which the teacher was able to protect himself from a special needs student who attempted to hit him with scissors and later tried to run away from school. However, both interviewees C and P questioned whether the teachers had the skills and knowledge of how to act in these types of situations and whether they could mitigate the risks to prevent such events from happening in the first place. Many interviewees, such as B and D, also said that the staff needed safety training and other resources to mitigate these types of risks.

5.1.2 Premises security. Security of premises was also a typical topic among interviewees. These stories focused on events in which different physical obstacles made the lesson environment dangerous for the students or the staff. Interviewee G told a small story about almost hitting their head on the wall because of a broken chair in the classroom. Interviewee E shared a story about a piece of a ceiling in the classroom falling due to low-quality repair work. Fortunately, there were no injuries. Interviewee O had a close-call accident while riding a bicycle due to poor lighting on the university premises in late autumn. The car driver did not see him, but they were able to avoid a collision. The incident led to a heated argument between them.

Interviewee D shared a positive story about how risk identification and management practices prevented a probable fatal accident on their campus. Surveillance cameras installed on the roof and barriers on the ladder prevented unknown children from climbing onto the rooftop where a dangerous solar plant was located. The roof was identified as a hazardous area in a previous risk assessment workshop.

5.1.3 Emergency and preparedness. Most typical emergency and preparedness stories were about fire and first aid situations. For example, Interviewees A, F and I talked about fire accidents. Interviewee L shared a story about a student having an allergic reaction in the school canteen. Initially, they were unsure whom to contact for help and attempted to reach the school nurse. Finally, someone realised they needed to call the 112 emergency number and follow instructions.

Interviewees A and F mentioned witnessing occasions when no one went to the evacuation assembly area after fire alarms were activated. In A's case, the university was on fire. Interviewee F saw this as a cultural problem, and suggested that fire alarms should work and that teachers should set an example of how to act when a fire alarm has been activated.

5.1.4 Security of production and operations. Interviewees M and N told stories about the security of production and operations. Interviewee M shared an occasion of practising driving on a slippery road, and they felt that the teachers did not give adequate instructions, which resulted in them driving off the tracks. Fortunately, accidents were avoided.

5.2 Results of the quality deviation reports

The events of the quality deviation reports were divided into categories according to the S&S subdivisions, as presented in the previous section. Some of the events could be included in more than one category, as was the case with the interviews. Table 2 shows the events that were the most typical.

The most typical events were related to personnel security (77 events out of 116), followed by OHS issues (44 events out of 116) and premises security concerns (19 events out of 116). The second most relevant events were related to compliance control, information security and emergency issues. However, emergency and preparedness issues were often linked to premises security. One informant, for example, wrote: "*The downstairs exit in the direction of the shopping centre is blocked from the inside with a board. However, the lights and signs guide you to the exit*". Another good example of the linkage between premises security and emergency issues was provided by another informant:

> The janitor did a monthly test of the fire detector. Our mobile device did not register it, and it did not give an alarm. The S&S device on the info wall also did not react. We use this device to acknowledge fire and burglary alarms.

5.2.1 Personnel security and occupational safety and health. The reason for the existence of more personnel security reports than OHS reports was that some of the threats or unwanted situations only applied to students. However, these situations often concern both parties, staff and students. Those reports related only to personnel security depict situations in which, for example, a student had not been able to do an internship because of personal problems at home. Sometimes, students were being bullied or they expressed stress. A good example of such situations was shared by an informant:

> The student's internship has been cancelled for the second time (the first time the student himself interrupted). We went to Teams to discuss the grounds for the cancellation of the internship. In conversation, the student doesn't listen, doesn't admit what happened, doesn't accept feedback, and behaves hysterically. Repeats the same things; in my opinion, everything went well. From the previous interrupted training or internship period, the feedback has been similar.

Another valid example is when the informant mentions that: "The student's mental situation has raised concerns, and they have openly talked about being in medical contact in a psychiatry outpatient clinic".

Almost all the OHS reports covered situations in which a student was violent or threatening towards others and seemed to be mentally unstable. One report, for instance, explains:

> The student's behaviour in lessons and leisure time on social media has started to worry terribly and distress the rest of us. They write in a very nasty tone in their free time about teachers and school-related matters on social media. Lessons are time wasted when they start to argue with teachers several times about pointless things. They deliberately bother teachers during the classes quite often.

However, not all violent behaviour was linked only to students. Two reports addressed inappropriate behaviour among staff. Some alarming threats were linked to drug use. For

Table 2.
Summary of the quality deviation report data

Reports	Personnel security	Premises security	Emergency and preparedness	Security of production and operations	Environmental safety	Information security	Compliance control	Contingency and crisis management	Occupational safety and health	Total
Campus A	9	1				1			9	20
Campus B	6	1	1			2	2		5	17
Campus C	3			2			1		1	7
Campus D	6	4					1		2	13
Campus E	1									1
Campus F	24	10	5				3		8	50
Campus (other)	28	3	2		1	4	3	4	19	64
Total	77	19	8	2	1	7	10	4	44	172

Source: Authors' own work

example, some unknown people entered the university premises and went to the lavatory to use drugs, leaving needles and syringes there.

Since reports were written during the peak of the COVID-19 pandemic, many of them can be categorised as contingency and crisis management, personnel security and OHS because they addressed the use of masks. Some people also raised concerns about why the university was partly open. One informant described the situation as follows:

> The COVID-19 situation is getting worse, and our campuses will still remain open. Only mandatory teaching—that is, nursing workshops and a national exam—is being organised as face-to-face teaching. There is protective equipment available for everyone, but people seem to use them only occasionally.

5.2.2 Information security. Most information security issues were related to situations in which people accidentally sent documents to incorrect recipients. Additionally, reports also highlighted cases in which restricted information intended for specific recipients was accessible to anyone having access to the course. For example, in one study course, the storage of the personal data of external interviewees violated information security guidelines. The student had pointed out the matter to the lecturers, who had not reacted to it. On the notification date, the file was still in the Teams folder of that course.

5.2.3 Compliance control. Compliance control reports at Laurea were usually related to thefts or some other criminal activity, such as finding illegal drugs on campuses or using them. The most distinct compliance control issue that could also be categorised as an environmental and OHS threat was an event in which an employee conducting a security walk noticed a bottle leaking an unknown liquid on a shelf. The liquid turned out to be dangerous, corrosive and environmentally toxic sodium hypochlorite. Fortunately, no adverse incidents happened to the employee or the environment.

5.3 Summary of the results

Based on the analysis, three conclusions can be drawn. Firstly, an event can have both S&S features. For example, the story in which Interviewee O had a close-call accident with a car while riding his bicycle may be perceived as an unwanted safety issue. However, because this incident led to a heated argument between the two participants, it also had the features of an intentional security issue. Secondly, certain events can be categorised into multiple S&S subdivisions. An example of this is one quality deviation report of a staff member who received a new computer with an old monitor and a dock that were non-compatible with the new computer, which nearly caused an explosion. This type of event can be divided into many different categories. For example, if the computer is on campus, it can be categorised as premises security, emergency and preparedness, OHS and personnel security issues depending on which feature of the event one focuses on. If the computer is at home, the event can still be categorised as an OHS issue but not school premises security. Due to the potential loss of data, this type of event can always be categorised as an information security issue. The third conclusion is that although certain events can be categorised into multiple S&S subdivisions depending on what has happened, where it has happened, and to whom something has happened or could have happened, it is worthwhile to systematically analyse and study specific S&S issues present in an educational organisation. Based on the analysis of both data sets of this research, most of the S&S issues can be presumed to arise from a negative psychosocial atmosphere caused, for example, by bullying, discrimination, misunderstanding of others and the lack of safety knowledge/skills. In other words, most of the issues were related to personnel security and OHS issues because many of the stories discussed stress, mental health and violence-related issues. The next section discusses how

all educational institutions, including professional teacher education institutes, can identify safety training needs and create new safety courses.

6. Discussion

The results of both data sets, that is, quality deviation reports and interviews, suggest that safety issues are often linked to the psychological well-being of students and staff. According to Luo (2022), external factors, namely, social factors, including interpersonal disputes, could be complex and lead to various S&S issues. The constant change in social and technological environments can also create unidentified risks and root causes that hinder safety in general (Roussos, 2023). According to the results of this study, a common issue seems to be how teachers should act when they encounter a violent student and how, in general, the risk of violence, both consequences and likelihood, can be mitigated. The lack of premises security was also found to be a typical safety issue in both data sets (see Tables 1 and 2). We assume that these safety issues can be improved through training. Vallinkoski and Koirikivi's (2020) findings supported the implementation of safety- and security-related training and competence within school environments in general. Meyer (2017) reached the same conclusion from a chemical engineering education perspective. He asserted that in academic labs, the users should be trained in two parts:

(1) for a more general safety perspective, such as first aid, and

(2) for basic learning of the good practices of lab work for hazards, such as chemistry-, physics-, lasers- and engineering-related specific safety issues.

In line with this study's findings, which highlight many S&S deficiencies, and consistent with previous studies (cf. Hurme *et al.*, 2019; Ervasti, 2012; El Ansari *et al.*, 2020), it is reasonable to suggest that educational institutions should offer holistic training modules that address issues such as violence, bullying, drug-related problems, student interaction, information security, theft, chemical use and creating a safe psychosocial environment for all students, including minorities and special needs students. Identifying how school management can arrange training for mitigating the risks mentioned is a solid starting point for improving the safety of education, as it seems that school staff may not have the necessary resources and knowledge to mitigate various safety risks. In other words, this study suggests that most of the safety issues that educational institutions need to address through training provided to their employees are generally related to OHS, personnel security and premises security. Kurki *et al.* (2019) also found that schools needed to focus on OHS training and that the problems are were usually caused by the physical and/or psychosocial environment.

Next, we discussed how school management can improve the safety of education by adopting a new systematic approach to the risk-based training and development management model, which was inspired and based on Swanson's (2022) training and development model, ISO 31000 (2018) RM principles, and the results of this study. Martikainen (2016) emphasised that educational institutions need to identify and implement safety training as well.

6.1 Risk-based training and development process

The purpose of the risk-based training and development management model is to help educational institutions improve their process quality and safety by enhancing the skills and knowledge of staff and the organisation. The model has seven intertwined parts:

(1) choosing the scope,

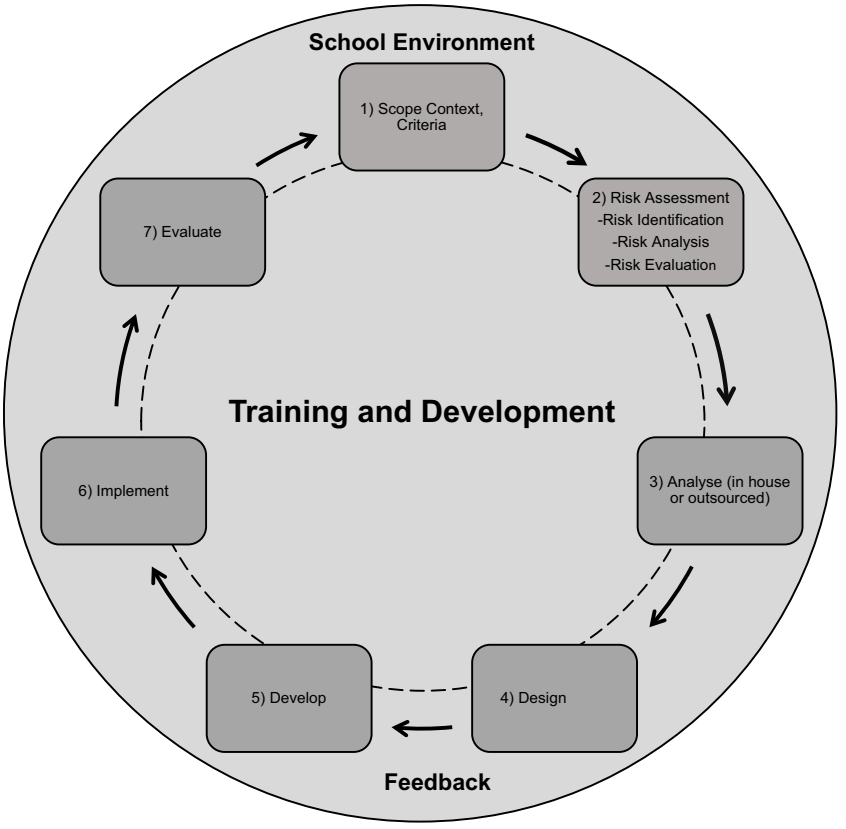
(2) risk assessment,

(3) analysing,

(4) designing,
(5) developing,
(6) implementing and
(7) evaluating the training course.

Parts 1 and 2 are adapted from the ISO 31000 (2018) standard and the rest from Swanson's (2022) work (see Figure 1).

The first step of the model aims to map the educational institution's typical critical safety training needs to develop the necessary training courses. This could be carried out by following the beginning of ISO 31000 (2018) RM steps, which began with choosing a context (e.g. OHS, premises' security and information security) for identifying potential risks. This is especially important if the school management does not have a situational picture of its own critical safety training needs. The more detailed the situational picture and the more comprehensive the initial risk identification, the greater the potential the educational institution has for mitigating and eliminating risks. The most severe critical risks that need



Source: Author's own work

Figure 1. Risk-based training and development management model adapted from Swanson (2022) and ISO 31000 (2018)

to be mitigated by training are chosen first. Risk identification can be executed, as in this study, by investigating the educational institution's own safety and quality deviation reports and by interviewing experts and other staff. This investigation can be extended to national and international statistics, which describe the types of unfortunate events that are most common in specific or similar contexts. During the risk identification phase, educational institutions need to consider the needs of all staff and students, including those who may have physical, psychological or learning disabilities, as indicated in the results of this study. Other typical methods for risk identification include workshops, surveys and observations (ISO 31000, 2018; Goh *et al.*, 2013).

The next steps are risk analysis and risk evaluation. In the risk analysis phase, the consequences of the identified risks are estimated, while the evaluation phase estimates the probability of those risks occurring. Both qualitative and quantitative approaches can be used, depending on the resources and the level of accuracy required. At the end of the risk assessment phase, school management takes their "final" position according to their risk appetite (ISO 31000, 2018). In other words, the school management chooses whether the aim is to reduce the risk through training. If the management goes forward with training, the objective is to carefully analyse the type of training programme needed and determine whether it can be conducted in-house or whether to purchase it from an external source, such as SSRM consultants. It is also important to assess the level of support that educational institutions can receive from special needs professionals, health-care professionals, fire departments and the police, depending on the type of safety training that is needed, as the interview results of this study also suggest.

The next steps are a more precise design, the development of the training course with available resources, implementation and evaluation. Justification of the content of the training course may be based on feedback from the participants. Once the training course is ended, the process restarts from the risk assessment phase again, as potential changes in student demographics or environments in general would necessitate identifying new risks, and training needs. Determining critical safety training needs and developing training courses involves systematic, holistic and continuous collection and analysis of safety data. This requires assessing trends in education, identifying associated risks and selecting context-specific training programs tailored to the educational institution's specific needs, although the results of this study suggest more emphasis on OHS, premises security and personnel security issues.

6.2 Limitations and future research

The results of the research are limited to theoretical generalisation, which is typical in qualitative research (Robson and McCartan, 2016). This suggests that the findings are transferable to similar contexts in higher education institutions in Nordic countries, where the education systems are comparable but not as directly as in primary schools. The validity of the results is enhanced by data and researcher triangulation. Interviews and S&S reports were used to triangulate the data, and two researchers analysed the data to minimise alternative explanations for the results. To enhance the study's external validity, purposive sampling was conducted to cover a wide range of views on the topic, as suggested, for example, by Singleton *et al.* (1988). This sampling method also ensured that interviewees had an advanced understanding of QSSRM as a phenomenon. Similarly, the S&S reports in the second phase covered evidence across the campuses nationally, including six campus locations, to capture a holistic view of the S&S needs of the university. The presented conceptual offering, that is, the risk-based training and development management model, is recommended for testing in a diverse range of educational institutions to assess its practicality because its structure is universal.

7. Conclusion

There are four main reasons to argue that educational institutions need to pay more attention to QSSRM. Firstly, QSSRM is not taught as a mandatory topic at the professional teacher education institute, which means that most school staff do not have tools for risk mitigation on safety issues. Secondly, according to the Occupational Safety and Health Act (738 / 2002) "*Employers have a duty to take care of the safety and health of their employees while at work by taking the necessary measures*". Thirdly, employees and learners have a right to a safe school environment, as stipulated by Finnish law (Universities of Applied Sciences Act 932 / 2014). Fourthly, many scholars have emphasised that educational institutions have various S&S challenges and that they need to focus more on training to manage them (e.g. Oksanen *et al.*, 2013; Savolainen and Airo, 2020; Liljeroos-Cork Mykkänen *et al.*, 2021; Martikainen, 2016; Savolainen, 2023; Vallinkoski and Koirikivi, 2020).

This study aimed to identify the main safety-related training needs of a higher education institution, thereby providing useful insights for improving the overall quality of education from a safety perspective. In the first phase of the study, the researcher interviewed 17 students and staff members who had S&S experience due to their professions. In the second phase of the study, the quality deviation reports of the University of Applied Sciences were investigated for the same purposes. Both data sets were analysed using qualitative theory-driven content analysis.

The main findings of the study are that safety risks at schools are usually constructed through a negative psychosocial atmosphere and a lack of safety knowledge and/or skills. There is a need for safety training covering key topics, such as crime prevention, violence, fire safety and understanding inclusion and diversity. Inspired by the findings and the purpose of this study, this paper presents a novel way of improving the safety of education by approaching training needs from a risk assessment perspective. Thus, regarding the practical implications of enhancing the safety of educational institutions, this study proposes a new risk-based training and development management model that school management and the planner of training activities can use for risk mitigation purposes.

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Corresponding author
Timo Savolainen can be contacted at: timo.savolainen@laurea.fi