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KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) AMONG BINDURA UNIVERSITY STUDENTS AND STAFF TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE BACHELOR OF ENVIRONMENTAL SCIENCE HONOURS DEGREE IN SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT

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DECLARATION

To be compiled by the student

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I Anesu Mwaedza do hereby declare that this work is entirely the product of my own findings and has never been presented to any academic institution. Any reference to previously published work has been clearly indicated.

Signature of the student……Date……

To be compiled by the supervisor

This dissertation is suitable for submission to the faculty and has been checked for conformity with the faculty guidelines.

Signature of the supervisor……Date……

ABSTRACT

Background

Bindura University is part of educational institutions in Zimbabwe where the students and staff are dealing with real learning hazards and risks that Bindura students and staff are exposed to during their learning process. These include physical, chemical, mechanical, biological, ergonomic, and psychosocial hazards, such as high temperatures in the surroundings, faulty laboratory machines, students neglecting personal hygiene, design of learning environment that can cause back pain, and lack of team work among the students during lectures and practical sessions. This information entails how KAP is important among students and staff at the university towards hazards and risks in the environment.

Materials and methods

The researcher used interviews, observations and a semi- structured questionnaire to collect data. The researcher personally administered the questionnaires with a combination of closed and open-ended questions by hand to the students and staff at Astra Campus. The respondents were given enough time to fill in the research questionnaires which consisted of four sections: Demographic characteristics, Knowledge, Attitudes and Practices of hazards and risks among students and staff at Bindura University. The researcher was dealing with the sample size of 60 participants.

Data Analysis

The Microsoft excel and SPSS version 20 were used for data analysis. The researcher used tables to present the results. The research questionnaire had 22 questions to determine the knowledge of the participants, 4 questions to evaluate the participant's attitudes, and 8 questions to determine the participant's practices toward hazards and risks in the environment at BUSE. A score of 1 was given for each correct answer and a score of 0 for each wrong and neutral/don't know. The average score for each character was calculated,

and if the score was above 70% the response was categorized as ‘Good’, from 51–69% as ‘Fair’, as and less than 50% as ‘Poor.

Results

The results indicated poor knowledge, attitude and practice among students and staff at Astra Campus with average knowledge score of 33.4%, attitudes average score 32.6% and practices average score was 31.7%. Although other lecturers expressed positive knowledge, attitudes and practices towards hazards and risks, they also lack important information about safety and health issues at Astra.

Conclusions and recommendations

According to the results, quick strategies to be put in place by Bindura University to institute and undertake activities in form of workshops or trainings, safety buildings and the environment, establish safety plan and safety committee as well improved safety culture. These remedial measures are essential among students and staff to get well prepared for emergencies at Astra.

Key terms

Hazards, Risks, Remedial measures, Astra campus of Bindura University.

DEDICATION

I dedicate this study to my family, my husband Chamunorwa for the support they have accorded me all through. Thank you for your love, patience and encouragement. I further dedicate this to my mother Agnes Muronde and my father Alec Mwaedza for their investment in educating me and their constant encouragement in my endeavours.

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I acknowledge the great assistance of my supervisor Mr Nyamugure in guiding me through this project and without whom this project's construction, submission and approval would not have been possible. I also wish to express my gratitude to Bindura University and all the respondents for being instrumental in the achievement of my academic goal. I am equally grateful to my colleagues and friends at the University of Bindura for having offered me professional assistance towards my research project. I also sincerely thank my entire family for the great moral support they have given me all through. Above all, I would like to thank the Almighty God who continues to guide and protect us daily.

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CHAPTER 1

1.0 INTRODUCTION

The learning environment at Bindura University is a complex and dynamic space that can expose students and staff to a range of hazards and risks. Physical, chemical, biological, ergonomic and psychological hazards are among the most common types of risks that students and staff may encounter in the learning environment. The research will focus on identifying the most common types of hazards and risks that students and staff encounter in the learning environment, as well as their current knowledge, attitudes, and practices towards these risks. The research findings will inform the development of strategies to promote a culture of safety and health among students and staff at Bindura University.

1.1 BACKGROUND

Knowledge, attitude and practices (KAP) are important factors that influence the behaviour of individuals towards hazards and risks in the learning environment among students and staff at the university. (Sirat, Sahrai et al. 2023). The knowledge of students and staff about hazards and risks in the learning environment can affect their understanding of the risks and their ability to take appropriate measures to prevent and respond to the risks. Attitudes towards hazards and risks can affect the perception of the risks and the willingness to take preventive measures. Practices refer to the actions taken by students and staff to prevent and respond to hazards and risks in the learning environment. Therefore, knowledge refers to the understanding of the risks and

their potential effects, attitudes refer to the perception and beliefs towards the risks, and practices refer to the actions taken to prevent and respond to the risks.

Students and staff at the university may be exposed to a range of hazards and risks in the learning environment, including physical, chemical, biological, ergonomic and psychological hazards. These hazards can affect the health and well-being of students, staff, and other individuals present within the premises. Physical hazards in the learning environment can include slip, trip, fall hazards, such as uneven flooring or loose carpets, which can result in injuries to students and staff. Inadequate ventilation, poor lighting, and exposure to extreme temperatures can also contribute to physical hazards and risks. Chemical hazards can arise from exposure to toxic substances such as cleaning products, pesticides, and other chemicals used in laboratories or during maintenance. These substances can cause respiratory problems, allergic reactions, and other health issues when not handled properly.

Psychological hazards can include stress, anxiety and other mental health issues caused by academic pressure, bullying and other forms of harassment. These can affect the well-being of students and staff and may have long-term effects on mental health. Ergonomic hazards include the effect of musculoskeletal disorders among students and staff in the learning environment. Biological hazards in the learning environment can include the spread of communicable diseases such as influenza, measles, COVID-19 etc. These diseases can spread rapidly in close-contact settings such as universities. (Ozdemir, Gul et al. 2017)

The KAP of students and staff towards hazards and risks in the learning environment can vary depending on factors such as age, gender, level of education, and cultural background. For example, female students can be more aware and knowledgeable about health and safety issues in the learning environment as compared to male students. Similarly, students who had received previous training on health and safety had a better understanding of

the risks and more likely to adopt safe practices. Some students may have a good understanding of the risks and take appropriate measures to prevent and respond to hazards, while others may have a limited understanding of the risks and may not take appropriate measures to protect themselves and others.

The hierarchy of control is a framework used to identify and implement solutions to hazards and risks in the learning environment. It consists of five control measures, with each level prioritized based on its effectiveness in reducing risks. Here are the solutions to hazards and risks in the learning environment among students and staff at the university, using the hierarchy of control.

Elimination is the most effective solution to hazards and risks to eliminate the hazards altogether. Thus it can be achieved by removing the source of the hazard. For example, universities can eliminate hazards caused by outdated laboratory equipment replacing them with newer and safer equipment.

If elimination is not possible, the next solution is substitution, where the hazards is replaced with a less hazardous alternative. For example, universities can substitute toxic cleaning products with safer alternatives.

Engineering controls involve modifying the physical environment to reduce the risk of hazards. For example, universities can install ventilation systems to reduce the risk of airborne contaminants in laboratories.

Administrative controls involve modifying policies, procedures and work practices to reduce the risk of hazards. For example, universities can implement policies that require the use of personal protective equipment in hazardous areas.

Personal Protective Equipment is the least effective solution to hazards and risks as it relies on the user to wear and use the equipment correctly. However, PPE can still be an important control measure in some situations. For example, universities can provide students and staff with PPE such as gloves, goggles, respirators etc., when working with hazardous materials.

Universities can use the hierarchy of control to identify and implement solutions to hazards and risks in the learning environment. The most effective solutions involve eliminating and or substituting the hazards. However, where this is not possible, engineering controls, administrative controls and personal protective equipment controls can be implemented to reduce the risk of hazards and risks to students and staff at the university. (Manuele 2005)

Effective communication and education are important in promoting positive KAP towards hazards and risks in the learning environment among students and staff at the university. Educational institutions can provide students and staff with information on hazards and health risks in the learning environment, including how to identify the risks, the potential health effects, and strategies to prevent and respond to the risks. By promoting positive KAP towards hazards and risks in the learning environment among students and staff at the university, educational institutions can create a safer and healthier learning environment for all individuals.

1.2 PROBLEM STATEMENT

Despite the potential hazards and risks present in the learning environment at Bindura University, there is limited information on the knowledge, attitudes, and practices of students and staff towards these risks. This lack of knowledge and understanding may lead to ineffective or inadequate measures being taken to prevent or mitigate hazards and risks, potentially putting the safety and health of students and staff at risk. Therefore, there is a need to understand the knowledge, attitudes, and practices of students and staff towards hazards and risks in the learning environment at Bindura University to better inform and promote a culture of safety and health among students and staff.

1.3 JUSTIFICATION

The purpose of this proposed research is to assess the knowledge, attitudes, and practices towards hazards and risks in the learning environment among students and staff at Bindura University. The assessment will provide valuable insights into what students and staff know, believe, and do in relation to hazards and risks in the learning environment. This study is important because it will be the first of its kind at Bindura University, and the results will help to create awareness and promote a culture of safety and health among students and staff. The research will be conducted through a study that will be administered to a sample of students and staff at Bindura University. The survey will cover various aspects related to hazards and risks in the learning environment, including physical, chemical, biological, and psychological hazards. The survey will also assess the knowledge of students and staff on the hierarchy of control, which is a framework used to identify and implement solutions to hazards and risks in the learning environment.

The results of this study will be useful in several ways. Firstly, they will help to identify knowledge gaps and misconceptions among students and staff regarding hazards and risks in the learning environment. Secondly, the results will provide insights into the attitudes of students and staff towards hazards and risks and their willingness to take preventive measures. Finally, the study will also provide information on the practices of students and staff towards hazards and risks in the learning environment.

The findings of this study will be used to develop strategies to promote a culture of safety and health among students and staff at Bindura University. The results will be disseminated through various channels, including seminars, workshops, and publications. The information obtained from this study will also be useful

in developing policies and guidelines for the university to ensure the safety and health of students and staff in the learning environment.

1.4 RESEARCH AIM

To assess the Knowledge, Attitudes and Practices of students and staff at Bindura University towards hazards and risks in the learning environment.

1.5 OBJECTIVES

1. To determine the knowledge of the students and staff at BUSE towards hazards and risks in the learning environment.
2. To evaluate students' and staff' attitudes at BUSE towards hazards and risks in the learning environment.
3. To determine the student and staff practices at BUSE towards hazards and risks in the learning environment.

1.6 RESEARCH QUESTIONS

1. What knowledge do the students and staff at BUSE have towards hazards and risks in the learning environment?
2. What are the attitudes of students and staff at BUSE portray towards hazards and risks in the learning environment?
3. What are the practices of BUSE students and staff towards the hazards and risks in the learning environment?

1.7 LIMITATIONS

There are some challenges that have been encountered by the researcher when conducting this research on knowledge, attitudes, and practices towards hazards and risks in the learning environment among students and staff at Bindura University.

One potential challenge is the accessibility of all students and staff at Bindura University. It may be difficult to reach all students, and some may be reluctant to share information or participate in the study, which could limit the generalizability of the findings.

Another challenge is the possibility of response bias from the data collected through a self-administered questionnaire. Some students may overestimate or underestimate their knowledge, attitudes, and practices towards hazards and risks in the learning environment, leading to inaccurate data.

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

This chapter dwell on previously published work on the Knowledge Attitudes and Practices towards hazards and risks in the learning environment among students and staff at Bindura University.

2.1 KNOWLEDGE OF STUDENTS AT UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Thandar Soe Sumaiyah Jamaludin *et at*. 2018) investigated the knowledge related to first aid among university students. The study found that nursing students have a moderate level of knowledge towards first aid. Nursing students were aware that first aid was the initial help given to a victim of accident, 48% knew the exact way to handle the case of choke on the same food, 86% were aware that positioned victim to sit comfortably is important in case of suspected heart attack, only 16% knew that direct pressure should be applied on the wound in case of severe bleeding due to cut injury in arm whereas many answered that arm should be kept in cold water and 62% knew that if a victim lying on ground and not responding, airway should be checked first.

A study by (Van Wassenhove, Foussard *et al.* 2022) investigated the knowledge of undergraduate students towards hazards and risks at Paris University . The study found that students had a low level of knowledge about hazards and risks, with only 23% of the respondents who had received training on hazards and risks. The study concludes that there was a need for universities to provide more training and education on hazards and risks in order to improve students' knowledge.

A study by (Gańczak, Barss *et al*. 2007) investigated the knowledge of medical students towards hazards and risks at United Arab Emirates. The study found that medical students had a moderate level of knowledge about hazards and risks, but also had gaps in their knowledge regarding specific hazards and risks. The study recommended that universities should provide more training and education on specific hazards and risks to medical students in order to improve their knowledge.

A study by (Mehrdad, Joolaee *et al*. 2012) investigated the knowledge of Iranian nursing students towards hazards and risks in the learning environment. The study found that nursing students had a moderate level of knowledge about hazards and risks, but also had gaps in their knowledge regarding specific hazards and risks. The study recommended that universities should provide more training and education on specific hazards and risks to nursing students in order to improve their knowledge.

A study by (Davoren, Shiely *et al*. 2015) investigated the knowledge of undergraduate students among University students towards hazards and risks. The study found that students had a moderate level of knowledge about hazards and risks, but also had gaps in their knowledge regarding specific hazards and risks. The study recommended that universities should provide more training and education on specific hazards and risks to undergraduate students in order to improve their knowledge.

A study by (Maraqa, Sweedan *et al*. 2016) ,(Hunt, Koenders *et al.* 2012) investigated the knowledge of engineering students towards hazards and risks in the learning environment in the middle East and North Africa. The study found that engineering students had a low level of knowledge about hazards and risks, with only 16.5% of the respondents having received training on

hazards and risks. The study concluded that there was a need for universities to provide more training and education on hazards and risks to engineering students in order to improve their knowledge.

A study by (Dung, Mankilik *et al.* 2017) investigated the knowledge of undergraduate students towards hazards and risks in the learning environment in Nigeria. The study found that students had a moderate level of knowledge about hazards and risks, but also had gaps in their knowledge regarding specific hazards and risks. The study recommended that universities should provide more training and education on specific hazards and risks to undergraduate students in order to improve their knowledge.

In conclusion, the studies indicated that students at universities generally have a moderate to low level of knowledge about hazards and risks in the learning environment and that there were gaps in their knowledge regarding specific hazards and risks. Universities could improve students' knowledge by providing more training and education on hazards and risks, particularly on specific hazards and risks. This can help students to identify and respond to hazards and risks in the learning environment, and improve the safety of the learning environment for all students.

2.2 KNOWLEDGE OF STAFF AT THE UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Hunt, Koenders *et al.* 2012) investigated the knowledge of university staff members on hazards and risks related to laboratory and workshop activities in Higher Education. The results of the survey showed that while most staff members had some knowledge of the hazards associated with these activities, they lacked knowledge in some areas, such as the proper disposal of hazardous waste and the use of personal protective equipment. Overall, the survey found that there was room for improvement in the training and education of staff members on these topics.

A study by (Bhattacharya 2009) investigated the knowledge of university staff members on fire safety at Cardiff University in United Kingdom. The results of the survey showed that while most staff members had some knowledge of fire safety, there were some areas where their knowledge was lacking. For example, many staff members did not know the location of fire extinguishers or the proper procedure for evacuating a building in the event of a fire. The survey recommended that more training be provided to staff members to improve their knowledge in these areas.

A study by (Schellhous 2017) investigated the knowledge of university staff members on earthquake safety in the learning environment at California State University. The results of the survey showed that while most staff members had some knowledge of earthquake safety, there were some areas where their knowledge was lacking. For example, many staff members did not know the location of emergency exits or the proper procedure for taking cover during an earthquake. The survey recommended that more training be provided to staff members to improve their knowledge in these areas.

A survey conducted by (Osaili, Al-Nabulsi *et al.* 2021) , (Aldosky, Tahir *et al.* 2016) assessed the knowledge of university staff members on food safety among Jordan Universities and Duhok University. The results of the survey showed that while most staff members had some knowledge of food safety, there were some areas where their knowledge was lacking. For example, many staff members did not know the proper temperature for storing food or the proper procedure for handling raw meat. The survey recommended that more training be provided to staff members to improve their knowledge in these areas.

A survey conducted by (Riva, Freeman *et al.* 2020) at Higher Education Studies assessed the knowledge of university staff members on mental health in the learning environment. The results of the survey showed that while most staff members had some knowledge of mental health issues, there were some areas where their knowledge was lacking. For example, many staff members did not know how to identify the signs of mental health problems in students or how to provide appropriate support. The survey recommended that more training be provided to staff members to improve their knowledge in these areas.

In conclusion, these studies demonstrate that while university staff members generally have some knowledge of hazards and risks in the learning environment, there are areas where their knowledge is lacking. The studies recommend that more training and education be provided to improve staff members' knowledge and ensure a safe and healthy learning environment for students.

2.3 ATTITUDES OF STUDENTS AT UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Thandar Soe Sumaiyah Jamaludin *et at.* 2018) investigated the attitude related to first aid among university students. The study found out that attitudes towards first aid implementation were better among students whose teachers implemented the program enthusiastically and were more knowledgeable in first aid. In terms of effectiveness of their skills, these students also performed higher self-efficacy scores, such as, a higher degree of confidence.

A study by (Gańczak, Barss *et al.* 2007) investigated the attitudes of medical students towards hazards and risks at United Arab Emirates. The study found that medical students had a high level of awareness about hazards and risks, but also had a high level of risk-taking behaviour. The study concluded that there was a need for universities to provide more practical training on risk management to medical students in order to improve their behaviour towards hazards and risks.

A study by (Van Wassenhove, Foussard *et al.* 2022) investigated the attitudes of undergraduate students towards hazards and risks at Paris University. The study found that students had a low level of awareness about hazards and risks, but a positive attitude towards the role of universities in mitigating these risks. The study recommended that universities should prioritize the provision of first aid facilities and emergency response training to improve the safety of the learning environment.

A study by (Maraqa, Sweedan et al. 2016), (Hunt, Koenders *et al.* 2012) investigated the attitudes of engineering students towards hazards and risks in the middle East and North Africa. The study found that engineering students had a high level of awareness about hazards and risks, but also had a high level of risk-taking behaviour. The study recommended that universities should provide more practical training on risk management to engineering students in order to improve their behaviour towards hazards and risks.

A study by (Dung, Mankilik *et al.* 2017) investigated the attitudes undergraduate of students towards hazards and risks in Nigeria. The study found that students had a high level of awareness about hazards and risks, but also had a low level of risk-taking behavior. The study recommended that universities should provide more practical training on risk management to students in order to improve their behaviour towards hazards and risks.

A study by (Mehrdad, Joolaee *et al*. 2012) investigated the attitudes of Iranian nursing students towards hazards and risks in the learning environment. The study found that nursing students had a high level of awareness about hazards and risks, but also had a low level of risk-taking behaviour. The study recommended that universities should provide more practical training on risk management to nursing students in order to improve their behaviour towards hazards and risks.

A study by (Davoren, Shiely *et al*. 2015) investigated the attitudes of undergraduate students among university students towards hazards and risks. The study found that students had a high level of awareness about hazards and risks, but also had a low level of risk-taking behaviour. The study recommended that universities should provide more practical training on risk management to students in order to improve their behaviour towards hazards and risks.

In conclusion, the studies indicated that students at universities generally have a high level of awareness about hazards and risks in the learning environment, but their behaviour towards these risks varies depending on their discipline and level of study. Students who were in healthcare-related disciplines have a higher level of awareness and lower level of risk-taking behaviour compared to those in engineering and medical-related disciplines. Universities could improve the safety of the learning environment by providing more practical training on risk management to students, regardless of their discipline and level of study.

2.4 ATTITUDES OF STAFF AT THE UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Hunt, Koenders *et al.* 2012) assessed the attitudes of university staff members towards hazards and risks related to laboratory and workshop activities in Higher Education Studies. The results of the survey showed that while most staff members recognized the importance of the hazards and associated with these laboratory and workshop activities, there was a significant minority who felt that health and safety regulations in laboratory and workshop activities were unnecessary and restrictive. The study also found that staff members who held negative attitudes towards health and safety in laboratory and workshop activities were more likely to engage in risky behaviours.

A study by (Bhattacharya 2009) assessed the attitudes of university staff members on fire safety at Cardiff University in United Kingdom. The results of the survey showed that while most staff members recognized the importance of fire safety, there were some who felt that fires were unlikely to occur and therefore did not see the need for preparedness measures. The study also found that staff members who held negative attitudes towards fire safety were less

likely to take part in emergency drills and training sessions. The survey recommended that more training be provided to staff members to improve in these areas.

A study by (Schellhous 2017) assessed the attitudes of university staff members on earthquake safety in the learning environment at California State University. The results of the survey showed that while most staff members recognized the importance of earthquake safety, there were some who felt that it was not a priority and occurrence of earthquakes is rare. For example, many staff members did not know the location of emergency exits or the proper procedure for taking cover during an earthquake. The survey recommended that more training be provided to staff members to improve in these areas.

A survey conducted by (Osaili, Al-Nabulsi *et al.* 2021) , (Aldosky, Tahir *et al.* 2016) assessed the attitudes of university staff members on food safety among Jordan Universities and Duhok University. The results of the survey showed that while most staff members recognized the importance of food safety, there were some who felt that it was not a priority or who felt that it was not a serious issue. The study also found that staff members who held negative attitudes towards food safety were less likely to handle raw food properly and to report incidents or support colleagues who had been affected from diseases.

A survey conducted by (Riva, Freeman *et al.* 2020) at Higher Education Studies assessed the attitudes of university staff members on mental health in the learning environment. The results of the survey showed that while most staff members recognized the importance of preventing mental health, there were some who do not know how to identify signs and symptoms of mental health. Also there were some who felt that it was not a serious issue or that it was part of the culture in school. The study also found that staff members who held

negative attitudes towards school mental health were less likely to report incidents, to provide appropriate support or support colleagues who had been affected.

In conclusion, these studies demonstrate that while most university staff members recognize the importance of hazards and risks in the learning environment, there are some who hold negative attitudes towards health and safety, emergency preparedness, environmental sustainability, workplace bullying and harassment, and diversity and inclusion. These negative attitudes can impact staff members' behaviours and their willingness to engage in safe and inclusive practices. Therefore, it is important for universities to address these negative attitudes through training, education, and communication to ensure a safe and healthy learning environment for all members of the university community.

2.5 PRACTICES OF STUDENTS AT THE UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Thandar Soe Sumaiyah Jamaludin et at. 2018) investigated the practices related to first aid among university students. The study found that students had low level of practice towards first aid. A vast majority 94% of students agreed that it was very important for them to learn first, and most wanted to learn more despite their lack of knowledge. Medical student had poor practice regarding first aid, and was average in awareness regarding the fire safety before the training, their awareness regarding both first aid and fire safety was significantly increased.

A study by (Davoren, Shiely *et al.* 2015) investigated the practices of undergraduate students among university students towards hazards and risks. The study found that students had a moderate level of practice towards hazards and risks, with 46.7% of the respondents practising good hygiene and 42.2% attending safety drills and emergency response training. The study recommended that universities should provide more practical training on risk management to students in order to improve their practices towards hazards and risks.

A study by (Van Wassenhove, Foussard *et al.* 2022) investigated the practices of undergraduate students towards hazards and risks in Paris University. The study found that students had a low level of practice towards hazards and risks, with only 22% of the respondents practising good hygiene and 10% attending safety drills and emergency response training. The study concluded that there was a need for universities to provide more training and education on hazards and risks in order to improve students' practices.

A study by (Maraqa, Sweedan et al. 2016), (Hunt, Koenders et al. 2012) investigated the practices of engineering students towards hazards and in middle East and North Africa. The study found that engineering students had a low level of practice towards hazards and risks, with only 16.5% of the respondents practising good hygiene and 13.7% attending safety drills and emergency response training. The study recommended that universities should provide more practical training on risk management to engineering students in order to improve their practices towards hazards and risks.

A study by (Gańczak, Barss *et al.* 2007) investigated the practices of undergraduate students among towards hazards and risks at United Arab Emirates. The study found that students who experienced hazards and risks were more likely to adopt protective behaviours such as practising good hygiene and attending safety drills and emergency response training. The study concluded that universities should prioritize the provision of first aid facilities and emergency response training to improve the practices of students towards hazards and risks.

A study by (Mehrdad, Joolaee *et al.* 2012) investigated the practices of Iranian nursing students towards hazards and risks. The study found that nursing students had a moderate level of practice towards hazards and risks, with 52.3% of the respondents practising good hygiene and 64.2% attending safety drills and emergency response training. The study recommended that universities should provide more practical training on risk management to nursing students in order to improve their practices towards hazards and risks.

A study by (Dung, Mankilik *et al.* 2017) investigated the practices of undergraduate students towards hazards and risks in the learning environment in Nigeria. The study found that students had a moderate level of practice towards hazards and risks, with 54.4% of the respondents practising good hygiene and 42.4% attending safety drills and emergency response training. The study recommended that universities should provide more practical training on risk management to undergraduate students in order to improve their practices towards hazards and risks.

In conclusion, the studies indicated that students at universities generally have a moderate to low level of practice towards hazards and risks in the learning environment. Students who experienced hazards and risks are more likely to adopt protective behaviours such as practising good hygiene and attending safety drills and emergency response training. Universities could improve the practices of students towards hazards and risks by providing more practical training on risk management, prioritizing the provision of first aid facilities and emergency response training, and taking a proactive approach to addressing hazards and risks. These measures could help to improve the safety of the learning environment for all students.

2.6 PRACTICES OF STAFF AT THE UNIVERSITY TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

A study by (Hunt, Koenders *et al.* 2012) assessed the practices of university staff members towards hazards and risks related to laboratory and workshop activities in Higher Education Studies. The results of the survey showed that while most staff members were aware of laboratory and workshop safety practices, there were some who did not follow proper safety protocols. For example, some staff members did not wear appropriate personal protective equipment or did not properly label chemicals. The study recommended that more training and education be provided to staff members to ensure that they were following proper laboratory safety practices.

A study by (Bhattacharya 2009) assessed the practices of university staff members on fire safety at Cardiff University in United Kingdom. The results of the survey showed that while most staff members were aware of fire safety practices, there were some who did not follow proper safety protocols. For example, some staff members did not keep fire exits clear or did not test fire alarms regularly. The study recommended that more training and education be provided to staff members to ensure that they were following proper fire safety practices.

A survey conducted by (Riva, Freeman *et al.* 2020) at Higher Education Studies assessed the practices of university staff members on mental health in the learning environment. The results of the survey showed that while most staff members were aware of the university's policies on mental health in schools, there were some who did not follow proper protocols. For example, some staff members witnessed incidents of mental health but did not report them. The study recommended that more training and education be provided to staff members to ensure that they were following proper protocols and reporting incidents of mental health in universities.

A study by (Schellhous 2017) assessed the practices of university staff members on earthquake safety in the learning environment at California State University. The results of the survey showed that while most staff members were aware of earthquake safety practices, there were some who felt that emergencies were unlikely to occur and therefore did not see the need for preparedness measures. The study also found that staff members who held negative attitudes in earthquake safety were less likely to take part in emergency drills and training sessions. For example, some staff members did not know the location of emergency exits or did not take cover during an earthquake. The

study recommended that more training and education be provided to staff members to ensure that they were following proper earthquake safety practices.

A survey conducted by (Osaili, Al-Nabulsi *et al.* 2021) , (Aldosky, Tahir *et al.* 2016) assessed the practices of university staff members on food safety among Jordan Universities and Duhok University. The results of the survey showed that while most staff members were aware of food safety practices, there were some who did not follow proper safety protocols and lack the practising of good hygiene. For example, some staff members did not know the proper temperature for storing food or the proper procedure for handling raw meat. The study recommended that more training and education be provided to staff members to ensure that they were following proper food safety practices.

In conclusion, these studies demonstrate that while most university staff members are aware of hazards and risks in the learning environment and the proper safety protocols, there are some who do not follow proper safety practices. Training and education are necessary to ensure that all staff members are following proper safety practices to maintain a safe and healthy learning environment. Universities must ensure that staff members are aware of the hazards and risks in the learning environment, and all staff members must be trained in proper safety protocols to ensure that they are following proper safety practices.

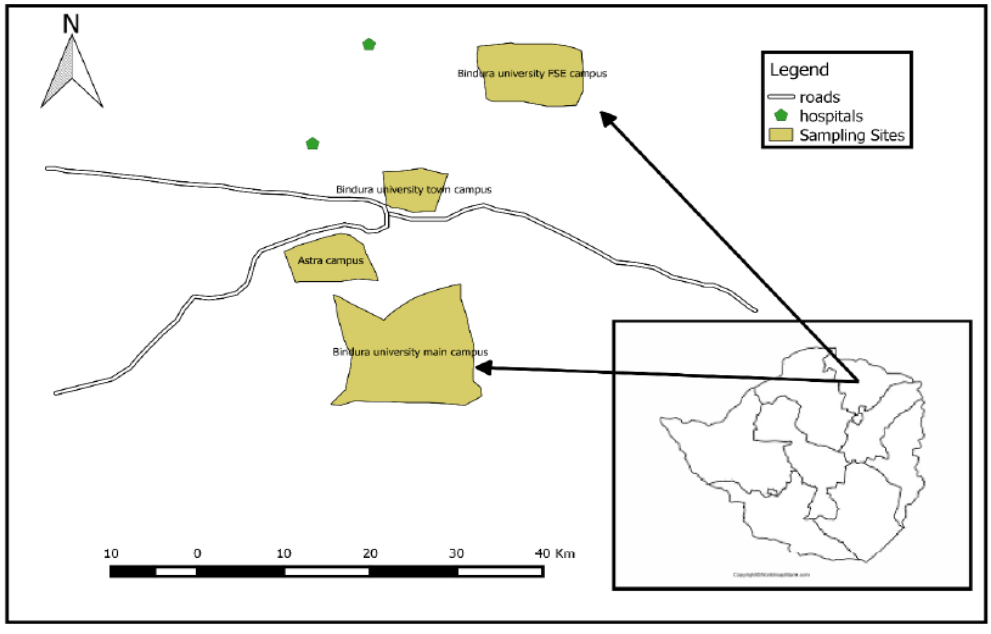
CHAPTER 3: METHODOLOGY

3.0 INTRODUCTION

This chapter aims to outline the research study area, tools, and instruments, processes and techniques that will be used to assess the current state of knowledge, attitudes, and practices of students and staff towards hazards and risks within the university environment. The chapter also describes the study design, sample size, target population (students and staff), and sampling techniques. The research validity, research reliability, research ethics, tools as well as data analysis methods for the research are also emphasized in this chapter.

3.1 DESCRIPTION OF THE STUDY AREA

Figure 3.1: Map showing Bindura University and its Campuses



The research was carried out at Bindura University which is located in Bindura town, 17.3251°S 31.3326°E in Mashonaland Central Province, of Zimbabwe. Bindura University is about 87km north east of Harare. BUSE has four campuses namely Main campus, FSG campus, Town campus and Astra Campus which is located along Trojan Road. Bindura is a small urban environment.

3.2 STUDY DESIGN

A cross-sectional study design was used to collect data at Bindura University. A cross-sectional study is a research design that involves the simultaneous collection of data from a sample of individuals to estimate the prevalence of a health outcome or exposure at a single point in time. The data collected can be in the form of self-reported information, physical measurements, or biological samples (Wang and Cheng 2020). It is an effective tool when assessing the KAP on hazards and risks among students and staff in the learning environment. To achieve this, qualitative and quantitative data collection methods were used through interviews and self-administered questionnaires. The questionnaire was then distributed to a sample of students and staff at Astra Campus. A sample of 70 participants was used randomly to collect data during the research. The research was designed to collect information on the knowledge, attitudes, and practices of students and staff towards hazards and risks at BUSE. The study questions cover various aspects of hazards and risks such as physical, chemical, biological, ergonomic and psychological hazards, as well as the hierarchy of control used to identify and implement solutions to hazards and risks. A cross-sectional study is much easier as compared to other studies. Also, it is very cheap, that is, it captures various aspects at once and allows for the collection and analysis of a large number of findings and results.

3.3 DATA SOURCES

Both primary and secondary data sources were used in this research. Primary data is information obtained directly from primary sources by researchers through interviews, observations, surveys, or experiments. The students and staff at Astra Campus were the primary sources of primary data. The data was obtained by the use of semi-structured questionnaires and interviews. Secondary data is information that has already been gathered from primary sources and made available for researchers to use in their own research as in the literature review such as E-Journals.

3.4 SAMPLING METHOD

Since the population of interest at BUSE is large, the researcher used a multistage sampling. Multistage sampling allows researchers to obtain a representative sample of a large and diverse population with relatively less effort and cost compared to other sampling methods. It is a sampling method that involves dividing a population into smaller and more manageable subgroups or clusters and then selecting a random sample from each of the subgroups (Sharma 2017).

In the first stage, the population was divided into clusters then a random sample of clusters was selected from the population. In the third stage, a random sample of individuals was selected from each of the selected clusters. It is important to ensure that the subgroups or clusters are selected in a way that reflects the diversity of the population to minimize bias and increase the generalizability of the study findings. A multistage sampling approach was used in the research to make the sampling process more practical.

BUSE is made up of five faculties namely FAES, FOC, FSC, FSE and FSSH where the researcher selected the FAES. The researcher used a

convenience sampling method. A convenient sampling is a non-probability sampling technique where participants are selected based on their availability and willingness to participate in a study. This method involves selecting individuals who are easily accessible to the researcher (Etikan, Musa et al. 2016) . Convenient sampling is a quick and easy way to gather data. Simple random sampling was also used by the researcher to select 70 participants (students and staff) from FAES only. This technique is also a reliable method of obtaining information where every single member is chosen randomly from the faculty. Everyone from the department has a chance to get chosen and be part of the sample as well as the researcher had a chance to get all the information from the department too.

3.5 SAMPLE SIZE

The following statistical formula was used to calculate the sample size with a known number.

$n=N/1+N\ (e^2)$

Where, n= the expected sample size

N=the population

E=level of precision

Since the estimated population of students from the faculty of FAES was known computations and proportional calculations were done using Microsoft excel to randomly select 60 respondents from FAES as shown below.

Table 1. Figure 3.2 Sample size

Campus	Faculty	Population of students and staff members	Sample size
Astra	FAES	1999	60
Total		1999	60

3.6 RESEARCH TOOLS

The interviews, observations and questionnaires were used by the researcher as researching tools. An interview is a research method that involves a face-to-face conversation between a researcher and a participant, with the goal of gathering information about the participant's attitudes, beliefs, behaviours, experiences, or other characteristics of interest. Interviews can be conducted in various formats, including structured, semi-structured, or unstructured, depending on the research question and goals (DeJonckheere and Vaughn 2019). A questionnaire is a research instrument that consists of a set of questions designed to elicit information from individuals about their attitudes, beliefs, opinions, behaviours, or other characteristics of interest. Questionnaires can be administered in various formats, including self-administered paper-and-pencil questionnaires, online surveys, or face-to-face interviews (Sukamolson 2007). The questionnaires give a more effective evaluation behaviour, of attitudes, preferences, views, and intentions of large groups than other approaches. The researcher personally administered the questionnaires with a combination of closed and open-ended questions by hand to the students and staff at Astra

Campus. The respondents were given enough time to fill in the research questionnaires which consisted of four sections:
Demographics Characteristics;

Knowledge about hazards and risks in the learning environment among students and staff at BUSE

Attitudes towards hazards and risks in the learning environment among students and staff at BUSE

Practices towards hazards and risks in the learning environment among students and staff at BUSE; respectively.

The researcher then collected back the filled questionnaires from respondents for her analysis. Using questionnaires, surveying with the use of questionnaires gathers information from the target population at a specific point in time.

3.7 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENTS.

The main concept of reliability and validity is to assess the quality of the research study. They give a description of how well a method, technique, or test measures a particular parameter. Validity refers to a measure's accuracy, while reliability refers to its consistency (Heale and Twycross 2015). The researcher pre-tested the questionnaires before running the actual data to determine their acceptability to respondents and ensure that only relevant information was incorporated. Also, reliability and validity were improved by randomly selecting students and staff at Astra Campus and how well the results matched established theories.

3.8 STATISTICAL ANALYSIS

The researcher used Microsoft Excel and SPSS version 20 for data analysis. The Excel file was then imported into SPSS 20 software for analysis.

The research questionnaire had 22 questions to determine the knowledge of the participants, 4 questions to evaluate the participant's attitudes, and 8 questions to determine the participant's practices toward hazards and risks in the environment at BUSE. A score of 1 was given for each correct answer and a score of 0 for each wrong and neutral/don't know. The average score for each character was calculated, and if the score was above 70% the response was categorized as 'Good', from 51–69% as 'Fair', as and less than 50% as 'Poor. The scores were combined to come up with total KAP scores. The total KAP score is used to rank the level of knowledge, attitude, and practice, of the participants toward hazards and risks in the learning environment at BUSE. The analysed data was represented in tables and graphs. Statistical analysis was done at 5%, significance, and 95% confidence intervals.

3.9 RESEARCH ETHICS

The study complies with moral issues or core principles when dealing with humans or animals in a research study. With the help of the Supervisor and the Chairperson of FAES, the researcher was granted permission from the registrar to conduct a study at BUSE under normal terms and conditions. The researcher thoroughly discussed the main objectives and methods of the survey. The researcher made it clear to participants that there were no negative consequences or punishments for their refusal to participate. Therefore, participants voluntarily participated and provide data needed willingly for example

study’s benefits, risks, funding, and institutional approval. Since all participants have a right to privacy, the researcher protected their personal data, thus confidentiality wherever possible. In addition, the researcher explained to the participants that they had the right to withdraw from the study at any time without having to give explanations. The researcher made it clear that writing the names or addresses of respondents is not necessary to guarantee anonymity on the data collection tool. The respondents who did not participate were not excluded from the study unjustly and unfairly on the basis of race, colour, ethnic group or social status.

CHAPTER 4: RESULTS

4.0 INTRODUCTION

The researcher used tables for data presentation and analysis of results in this research project.

4.1 SECTION A: DEMOGRAPHY

Table 2. Figure 3.3: Summary of demographic characteristics

Demographic variable	**Category**	**n =60**	**%=100**
Age	18-21	19	31.7
	22-25	22	36.7
	26-30	9	15.0
	31 and above	10	16.7
Gender	Male	35	58.3
	Female	25	41.7
Faculty of study	Agriculture and environmental science	60	100
Academic level	0	15	25
	Level 1	15	25
	Level 2	15	25
	Level 3	00	00
	Level 4 and above	15	25
Status	Student	45	75
	Staff	15	25

A sample population of 60 respondents only under the Faculty of Agriculture and Environmental Science participated in this survey. The majority of the respondents aged 22-25 (36.7%), and that males (58.3%) outnumber females (41.7%). The 0 on academic level represented staff members and level 3 students were not accessible since they were on industrial attachment. So it is worth noting that no respondents were recorded in Level 3. Additionally, the majority of respondents in the sample population were students (75%).

4.2 SECTION B: KNOWLEDGE ABOUT HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

Table 3. Figure 3.4: Knowledge about hazards and risks in the learning environment.

Knowledge variable	**Participant response**			**Score**
		N	**%**	
K1. What is your understanding of a hazard?	Unable to define	12	20	
	Able to define	48	80	**0.800**
K2. What is your understanding of risk?	Unable to define	16	26.7	
	Able to define	44	73.3	**0.733**
K3. What risks are present in the Astra laboratories and workshops?	Physical	38	63.3	**0.633**
	Chemical	30	50	**0.500**
	Biological	12	20	**0.200**
	Psychological	6	10	**0.100**
	Ergonomic	5	8.3	**0.083**
K4. What risks are present in the learning classrooms/blocks?	Physical	44	73.3	**0.733**
	Biological	8	13.3	**0.133**

	Psychological	8	13.3	**0.133**
	Ergonomic	8	13.3	**0.133**
K5. What risks are faced by students and staff in the transportation system at BUSE?	Overloaded buses	25	41,7	**0.417**
	No transport for students	19	31.7	**0.317**
	Student trafficking	8	13.3	**0.133**
	Accidents	25	41.7	**0.417**
K6. Which risks are faced by Astra as a result of its location?	Flooding	27	45	**0.450**
	Close to mines	17	28.3	**0.283**
	Close to industries	15	25	**0.250**
	Water pollution	14	23.3	**0.233**
	Noise pollution	17	28.3	**0.283**
	Air pollution	15	25	**0.250**
	Wetland in nature	18	30	**0.300**
	Close to railway line/road	13	21.7	**0.217**
K7. Do you think water at Astra is safe and healthy?	No	28	46.7	**0.467**
	Yes	32	53.3	
K8. If No, Why?	Close to mines	17	28.3	**0.283**
	Close to industries	11	18.3	**0.183**
	Cause stomach pains	13	21.7	**0.217**
K9. Do you think generators pose a hazard at Astra?	No	23	38.3	
	Yes	37	61.3	**0.613**
K10. If Yes, Why?	Noise pollution	24	40	**0.4**
	Air pollution	16	26.7	

	Fires/faults	9	15	
	Fuel explosion	3	5	
K11. Do you think the toilets at Astra are hygienic or not?	No	26	43.3	**0.433**
	Yes	34	56.7	
K12. If No, Why?	Lack of toilet paper	21	35	**0.35**
	Poor water system	20	33.3	**0.333**
	Few toilets for a greater population	15	25	**0.25**
K13. Do you think the structure and set up of Astra labs and workshops is good?	No	23	38.3	**0.383**
	Yes	37	61.7	
K14. Where are fire extiquishers located at Astra?	Unable to identify	58	96.7	
	Able to identify	2	3.3	**0.033**
K15. What are the major causes of hazards and risks at Astra?	Negligence	21	35	**0.35**
	Location	25	41.7	**0.417**
	Poor labs/stores	17	28.3	**0.283**
	Old furniture	8	13.3	**0.133**
	Unsafe drinking water	13	21.7	**0.217**
	Lack of trainings and awareness	13	21.7	**0.217**
K16. Do you think student desk set up promote a good social distancing and COVID-19 prevention.	No	26	43.3	
	Yes	34	56.7	**0.567**
K17. Do you think there is adequate space in staff members' offices?	No	39	66.1	**0.661**
	Yes	20	33.9	

K18. Have you received any information about hazards and risks at Astra during your orientation program?	No	43	71.7	
	Yes	17	28.3	**0.283**
K19. How do you receive information about hazards and risks at Astra?	Student handbook	7	11.7	
	Notices on noticeboards	20	33.3	
	Emails from the school authorities	10	16.7	
	Social media platforms	27	45	**0.45**
	Word of mouth from peers	25	41.7	**0.417**
	Seminars or workshops	12	20	
	Don’t know	9	15	
K20. Have you received any training on hazards and risks at Astra?	No	59	98.3	
	Yes	1	1.7	**0.017**
K21. Where is your nearest first aid centre located on campus?	Unable to identify	31	51.7	
	Able to identify	29	48.3	**0.483**
K22. Write down the emergency numbers to call in case of an emergency on campus?	Unable to mention	49	81.7	
	Able to mention	11	18.3	**0.183**
Total knowledge score				**16.354**

This table 4 presents the level of knowledge of the respondents towards hazards and risks among students and staff at Astra campus. The average knowledge score was 33.375 which was found by dividing the total knowledge score (16.354) by total knowledge questions/scores (49) to find the percentage knowledge average. The average score is then multiplied by 100% to give (33.4%) which is very poor.

The majority of the total respondents (80%) were able to define a hazard and (73.3%) of the participants were able to define risk. The (63.3 %) of the participants have the knowledge of physical hazards and half of the participants were aware of chemical hazards present at Astra laboratories/workshops. Only from (8.3% to 20%) participants were aware of ergonomic, psychological and biological hazards and risks in the laboratories/workshops. The majority of the participants (73.3%) had the knowledge about physical hazards and risks and only (13.3%) participants were aware of ergonomic, psychological and biological hazards and risks in the learning blocks/classrooms. Less than half of the number of participants were aware of the hazards and risks associated with the transportation systems and the location of Astra campus. Also, less than half of the participants from (21.7% to 46.7%) have the knowledge about specific aspects of Astra's facilities, such as the presence of unsafe water, the presence of hazards from generators, the unhygienic toilets, and the less adequacy of the structure and setup of the labs and workshops.

Only (3.3%) participants were aware of the location of fire extiquishers at the campus and less than half the number of participants have the knowledge of the major causes of hazards and risks at Astra ranging from (13.3% to 41.7%). Towards the knowledge for more general opinions about Astra's facilities and hazards. Only (61.7%) participants agreed that the structure and setup of the labs and workshops at Astra was good. The (56.7%) of participants thought the

student desk setup promoted good social distancing and COVID 19 prevention, while (66.1%) thought there was inadequate space in staff members' offices. The number of (28.3%) participants received information about hazards and risks during orientation, and the most common sources of information were social media platforms and word of mouth from peers. Only (1.7%) of participants received training on hazards and risks, and just under half (48.3%) were able to identify the location of the nearest first aid centre on campus with only (0.2%) participants who were able to mention the emergency numbers to call in case of an emergency at Astra campus.

4.3 SECTION C. ATTITUDE TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

Table 4. Figure 3.5: Attitudes toward hazards and risks in the learning environment.

Attitude variable	**Participant response**			**Score**
		N	**%**	
A23. How concerned are you about hazards and risks?	Not concerned at all	6	10	
	Slightly concerned	13	21.7	
	Moderately concerned	9	15	**0.15**
	Very concerned	19	31.7	**0.317**
	Extremely concerned	13	21.7	**0.217**
A24. How likely are you to report a hazard or risk that you observe at Astra?	Very unlikely	6	10	
	Unlikely	6	10	
	Neutral	7	11.7	

	Likely	18	30	**0.3**
	Very likely	16	26.7	**0.267**
	Don't know	7	11.7	
A25. Do you think the University is doing enough to mitigate hazards and risks at Astra?	No	43	71.7	**0.717**
	Yes	17	28.3	
A26. How important it is for the University to provide regular information on hazards and risks at Astra?	Not important all	1	1.7	
	Slightly important	1	1.7	
	Moderately important	5	8.5	**0.085**
	Very important	21	35	**0.35**
	Extremely important	32	53.3	**0.533**
	Don't know	3	5	
Total attitude score				**2.936**

The table above presents the attitudes of participants towards hazards and risks at Astra. From the table 5, the attitude average score was (32.6%). The average attitude score was obtained by dividing the total attitude score 2.936 by number of scores (9) then multiplied by 100%. The score is quite poor.

The respondents showed a low level of concern towards hazards and risks at Astra. The participants who expressed each level of concern ranged from (10% to 31.7%) with the highest percentage (31.7%) indicating that they have slightly negative attitude towards hazards and risks at the campus. From the research, the participants who expressed each level of likelihood on reporting a hazard or risk they observed at Astra ranged from (10% to 30%). This indicated that the level of attitude is quite low with the highest percentage of (30%). Therefore,

participants showed a neutral or negative attitude in reporting a hazard or risk at Astra. From the question which asked participants about their opinions on whether the University is doing enough to mitigate hazards and risks at Astra. The majority of participants (71.7%) answered "no" indicating that the University is greatly not willing in health and safety issues towards their students and staff at Astra. The participants have a positive attitude about the importance of the university providing regular information on hazards and risks at Astra. The participants who expressed each level of importance ranged from (1.7% to 53.3%) with the highest percentage (53.3%) indicating that it was quite fair. Therefore, the participants were willing to receive more information about hazards and risks at their campus.

4.4 SECTION D: PRACTICES TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

Table 5. Figure 3.6: Practices towards hazards and risks in the learning environment.

Practice variable	**Participant response**			**Score**
		N	**%**	
P27. Have you ever experienced any hazard or risk at Astra?	No	35	58.3	
	Yes	25	41.7	**0.417**
P28. If yes, have you reported the incident to the appropriate authorities?	No	48	80	
	Yes	12	20	**0.200**

P29. How do you protect yourself from hazards and risks at Astra?	Wearing protective clothing/equipment	29	48.3	**0.483**
	Avoiding hazardous areas/activities	36	60	**0.600**
	Washing hands frequently	37	61.7	**0.617**
	Using hand sanitizers	43	71.7	**0.717**
	Practising good hygiene	34	56.7	**0.567**
	Other	2	3.3	**0.033**
	Don’t know	2	3.3	
P30. How often do you take precautions to protect yourself from potential hazards and risks at Astra?	Always	25	41.7	**0.417**
	Sometimes	17	28.3	**0.283**
	Rarely	7	11.7	
	Never	10	16.7	
	Don’t know	1	1.7	
P31. How often do you attend safety drills and emergency response training at Astra?	Regularly	3	5	**0.050**
	Occasionally	9	15	**0.150**
	Rarely	5	8.3	
	Never	37	61.7	
	Don’t know	6	10	
P32. Have you ever used a fire extinguisher at Astra?	No	59	98.3	
	Yes	1	1.7	**0.017**
P33. How do you engage yourself in behaviours that could potentially expose you to hazards or risks at Astra?	Exclude myself	22	36.7	**0.367**

	Wearing PPE	4	6.7	**0.067**
	Taking precaution measures	9	15	**0.150**
P34. In your opinion, what steps could the university take to mitigate potential hazards and risks at Astra?	Hazard and risk workshops/trainings	35	58.3	**0.583**
	Good hygiene practices	40	66.7	**0.667**
	Renovations and repair	18	30.8	**0.308**
	Safety representative	7	11.7	**0.117**
	Better water purification methods	13	21.7	**0.217**
	Offering courses	7	11.7	**0.117**
	Adequate security	8	13.5	**0.135**
	Service fire extinguishers.	20	33.3	**0.333**
Total practice score				**7.612**

Table 6 showed that the average score of practices towards hazards and risks at Astra was 7.612 (total practice score) divided by 24(number of scores) then multiplied by 100% to give (31.7%). The average score is quite poor.

Less than half the number of participants do experienced any hazard or risk at Astra with (41.7%) but only (20%) of participants reported the incidents of hazards or risks to the appropriate authorities indicating that the participants were not quite willing in reporting incidents at the campus. The participants greatly used hand sanitizers at Astra as their protective measure from hazards

and risks. The participants who expressed each protective measure ranged from (3.3% to 71.7%) with hand sanitizers (71.7%). Less than 50 participants often take precautions to protect themselves from potential hazards and risks at Astra. The participants who answered each frequency ranged from (11.7% to 41.7%) with the highest percentage (41.7%) indicating that they sometimes take precautions to protect themselves from hazards and risks. The participants at Astra never attended safety drills and emergency response training with the highest percentage (61.7) from the range (5% to 61.7%). Only (1.7%) of participants at Astra used a fire extinguisher indicating that the participants lack the knowledge on how to use the fire extinguishers. This also indicated that there is no designated area for fire extiquishers at Astra where everyone is aware of.

CHAPTER 5: DISCUSSION

The aim of this study is assessing the knowledge, attitudes and practices of hazards and risks among students and staff at Astra Campus. It is important to evaluate the KAP of hazards and risks to get the related information as to minimize the exposure to the hazards and risks involved during the learning process at Bindura University. Overall, less than half of the students had poor/ low level of knowledge, attitudes and practices towards hazards and risks.

Due to the poor or low level of knowledge, attention must be paid to several aspects. Findings from this study from table 4 above indicated that the participants had a relatively average score of (33.4%) which is very poor. The findings shown that there were students who were not sure of the location of fire extinguishers at Astra campus and emergency numbers to call in case of emergence at Astra. This is evident where almost (96.7%) were unable to mention location of fire extinguishers and (81.3%) were unable to mention the emergency numbers. This situation may be due to insufficient exposure on the importance of fire extinguishers and emergency numbers at the university. This is also associated with unavailability of a designated area for fire extinguishers at Astra and difficulties when using them.

Findings revealed that Astra campus had only (1.7%) students and staff who received training on hazards and risks. This is evident where students showed little knowledge in risks found in learning laboratories and classrooms. The knowledge of students about biological, psychological and ergonomic risks found in their laboratories ranges from (13.3% to 20%) and (13.3%) in their classrooms. This research study is consistent with previous studies which were carried at Paris University among undergraduate students and in the middle East and North Africa among engineering students by (Van Wassenhove, Foussard *et al.* 2022) and (Maraqa, Sweedan *et al*. 2016) ,(Hunt, Koenders *et al.* 2012) respectively, towards hazards and risks in the learning environment. According

to (Van Wassenhove, Foussard *et al.* 2022), the findings indicated that only (23%) of participants had received training on the risks and hazards and according to (Maraqa, Sweedan *et al*. 2016) ,(Hunt, Koenders *et al.* 2012) , only (16.5%) of the respondents had received training on hazards and risks.
Some of the questions received quite high ratings, demonstrating that participants have a solid comprehension of these concepts. This is evidenced by students having knowledge percentage of (80) and (73.3) on defining a hazard and risk. Also students had (63.3%) and (50%) on physical and chemical risks found in their labs as well as (73.3%) on physical risks found in their classrooms. The findings imply that Astra has to provide additional instruction and training on hazards and risks. The majority of participants have not received any training or orientation on this topic, and their main source of information is social media with (45%) or word of mouth from peers with (41.7%), which may not be reliable or comprehensive. The learning and working environment at Astra may be made safer and healthier for everyone by increasing knowledge and understanding of risks and hazards. This will also assist reduce accidents and injuries.

According to the scores provided in Table 5, the total attitude score is (32.6%). This indicated a low level of concern and understanding about the risks and hazards at Astra, the likelihood of reporting them, and the value of regular information. However, the participants lacked faith in the university's attempts to reduce risks and hazards, with (71.7%) of them believing that the university is not going far enough in this regard. Students need to be provided with enough safety training courses or programs to increase the level of confidence among themselves to evaluate risks in the university as well as to conduct safety procedure. This is for recognizing, estimating that hazards are imperial expertise which should be part of individuals working in laboratories and other school premises. Also safety coaching from lecturers is quite important in

behaviour changes of students towards hazards and risks. These findings confirm the need to provide students with exposure to safety and health trainings that could change their attitudes towards positive culture beside creating a safer and healthier learning environment. This study found safety training as the major contributor to personnel compliance among students and staff at university.

Similar studies have revealed similar findings, showing that there was little worry or knowledge about hazards and risks, yet there was little trust in how universities are managing these risks. For instance, a study by (Van Wassenhove, Foussard *et al.* 2022) investigated the attitudes of undergraduate students towards hazards and risks in the learning environment at Paris University found that the students had a low level of awareness about hazards and risks, but a positive attitude towards the role of universities in mitigating these risks. Also studies by to (Maraqa, Sweedan *et al*. 2016) ,(Hunt, Koenders *et al.* 2012) and (Gańczak, Barss *et al.* 2007) indicated that although students had a high level of awareness towards hazards and risks, they also had a high-level of risk taking behaviour.

The study suggested that in order to increase the safety of the learning environment, the university should give priority to the provision of first aid facilities and emergency response training. The university should prioritize enhancing their strategies for information sharing and communication as students found it important to them with (53.3%), as well as offering consistent training and awareness campaigns for both staff and students. The university should also try to earn the trust of their local populations by fostering transparency, including stakeholders in decision-making, and presenting proof of their readiness efforts.

In terms of reporting accidents, findings from this study recorded a low percentage of 20 for item related to this. This situation might be due to lack of knowledge on the impact of accidents and the steps to be taken after the accident. The importance of reporting an accident is needed to be emphasized among the students so that they are aware of how crucial it is to report accidents to the responsible authorities so that action needed could be taken as possible. This is because accidents cause loss of life, pain and suffering and low performance in one' studies, so managing them is imperial.

Findings in this study showed that majority of participants were using hand sanitizers with (71.7%) as the precaution to protect themselves followed by washing hands (61.7%), avoiding hazardous areas (60%), practising good hygiene (56.7%) and wearing of personal protective equipment (48,3%). A sizeable portion (61.7%) of students and staff had never attended safety drills or emergency response training and only (1.7%) participants agreed to have used the fire extinguisher. This indicated that there is a potential gap in preparedness at Astra. Action in more education and awareness about fire safety is needed urgently. Table 6 above indicated the total practice score of 31.7%, which was a low level of engagement in practices. There are similar studies where taking precautions to protect themselves from hazards and risks is better but poor engagement in practices of oneself, lack of preparedness and need for further training and awareness.

This study is consistent to a study by (Van Wassenhove, Foussard *et al.* 2022) among undergraduate students and staff towards hazards and risks at Paris University. The study had a low level of practice towards hazards and risks, with only (22%) of the respondents practising good hygiene and (10%) attending safety drills and emergency response training. Also this study is consistent to a study by (Thandar Soe Sumaiyah Jamaludin et at. 2018) that investigated the practices related to first aid among university students. The study had low level of practice towards first aid and vast majority (94%) of

students agreed that it was very important for them to learn first. Another study that is consistent to this study is the one investigated by (Maraqa, Sweedan *et al*. 2016) ,(Hunt, Koenders *et al.* 2012) among engineering students in North Africa with a low level of practice towards hazards and risks. Only (16.5%) of the respondents were practising good hygiene and (13.7%) attending safety drills and emergency response training.

In this study, findings have shown students and staff' opinions on how Bindura University could mitigate potential hazards and risks in the learning environment. The majority of the participants indicated the practising of good hygiene with (66.7%) followed by regular training and awareness with (58,3%), service fire extinguishers (33.3%), renovations and repairs (30.8%), better water purification methods (21.7%), adequate security (13.3%), offering courses and safety representatives (11.7%). These mitigation measures were evidenced by its location-close to mines, industries, railway line/road and wetland in nature, unsafe drinking water, unhygienic toilets, negligence of students, poor labs, lack of trainings etc.

Findings in this study from the investigation of staff members at Bindura University on hazards and risks are consistent with other previous studies mentioned in literature review indicating that although other lecturers expressed positive knowledge, attitudes and practices towards hazards and risks, they also lack important information on their knowledge, attitudes and practices about safety and health issues at Astra. It is important for the university to improve their knowledge, address these negative attitudes and make sure they are aware of these hazards and risks through training, education, and communication to ensure a safe and healthy learning environment for all members of the university community.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The study concludes that there is a sizable gap between the knowledge, attitudes, and practices of students and staff at the Astra campus regarding hazards and risks. This discrepancy highlights the urgency of improving safety procedures and raising campus community knowledge of potential hazards and risks.

The low level of knowledge (33.4%) among the participants regarding hazards and risks particularly when combined with the low practice score (31.7%). These results point to the need for more thorough training and awareness campaigns to inform the campus community about potential risks and hazards, as well as how to avoid them. Additionally, the low practice score highlights the need for more practical training and drills to prepare individuals for emergency situations.

The low attitude score (32.6%) indicates that there is a lack of concern and awareness among the participants regarding hazards and risks at Astra campus. This lack of concern could be due to ignorance or a perception that the university is not doing enough to reduce risks and hazards. As a result, it is critical to raise awareness of the value of regular communication among campus residents about potential hazards and risks, as well as the university's attempts to reduce them.

The study also demonstrates that participants have little faith (71.7%) in the university's efforts to reduce risks and hazards. This finding suggests that the university needs to improve campus safety measures more significantly and effectively inform the campus community about these efforts. The campus community's confidence will rise as a result, and their attitude toward dangers and risks will be improved.

On the basis of these conclusions, a number of suggestions can be made to enhance the Astra campus's understanding, attitude, and behaviors about risks and hazards. These include:

1. Regularly conducting safety drills and training to get people ready for emergencies.
2. Raising campus community awareness of the value of regular communication about dangers and risks, including the university's efforts to mitigate them.
3. Developing and implementing a thorough safety plan that addresses all potential hazards and dangers on campus.
4. Increasing the amount of fire extinguishers on campus, placing them in strategic locations, and enhancing the emergency response system.
5. Forming a campus safety committee with representatives from faculty, staff, and students to oversee and coordinate safety initiatives.

The study's findings made clear the urgency of improving safety procedures and raising awareness of potential risks and hazards among students. By implementing the recommendations outlined above, the university can create a safer environment for all students and staff at Astra campus.

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APPENDICES

APPENDIX 1: RESEARCH QUESTIONNAIRE

RESEARCH QUESTIONNAIRE:(Knowledge, Attitudes and Practices towards hazards and risks in the learning environment among students and staff at Bindura University).

I am Anesu Mwaedza (B192094B) from the Bindura University of Science Education, Faculty of Agriculture and Environmental Science. I would like to conduct a study survey at Bindura University for my final year dissertation. The study is for learning purposes and seeks to assess the knowledge, attitudes, and practices towards hazards and risks in the learning environment among students and staff at Bindura University. All the information obtained from you will be treated confidentially and your participation in this survey is greatly appreciated.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Age (years): 18-21 ☐ 22-25 ☐ 26-30 ☐ 31+ ☐

2. Gender: Male ☐ Female ☐

3. Faculty/department of study. Faculty of Agriculture and Environmental Science ☐

4. Your academic level: 1 ☐ 2 ☐ 3 ☐ 4 and above ☐

5. Status: Student ☐ Staff ☐

SECTION B: KNOWLEDGE ABOUT HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

1. What is your understanding of a hazard?

……Don't Know ☐

2. What is your understanding of a risk?

……Don't Know ☐

3. What risks do you think are present in the Astra laboratories and workshops.?

……
……
…… Don’t Know ☐

4. What risks do you think are present in the learning classrooms/ blocks?

……
……Don’t Know ☐

5. What risks are faced by students and staff members in the transportation system at BUSE?

……
…… Don’t Know ☐

6. Which risks are faced by Astra as a result of its location?

……Don’t Know ☐

7. Do you think drinking water at Astra is safe and healthy?

Yes ☐ No ☐

8. If No, Why?

……Don’t Know ☐

9. Do you think generators pose a hazard at Astra? Yes ☐ No ☐

10. If Yes, Why?

……Don’t Know ☐

11. Do you think the toilets at Astra are hygienic or not? Yes ☐ No☐

12. If No, why?
.....Don't know☐

13. Do you think the structure and set up of Astra labs and workshops is good? Yes ☐ No ☐

14. Where are fire extiquishers located at Astra?

……Don’t know ☐

15.What do you think are the major causes of hazards and risks at Astra?

……
…… Don’t know ☐

16. Do you think student desk set up promote a good social distancing and COVID-19 prevention? Yes ☐ No☐

17. Do you think there is adequate space in staff members' offices?

Yes ☐ No☐

18. Have you received any information about hazards and risks at Astra during your orientation program? Yes ☐ No ☐

19. How do you receive information about hazards and risks at Astra? (*Select all that apply*)

Student handbook ☐ Notices on noticeboards ☐

Emails from the school authorities ☐ Social media platforms ☐

Word of mouth from peers ☐ Seminars or workshops ☐

Other ……Don't know ☐

20. Have you received any training on hazards and risks at Astra?

Yes ☐ No☐

21. Where is your nearest first aid centre located on campus?

…….....Do not know ☐

22. Write down the emergency numbers to call in case of an emergency on campus?

…… Do not know ☐

SECTION C: ATTITUDES TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

23.How concerned are you about hazards and risks at Astra?

Not concerned at all ☐ slightly concerned ☐ moderately concerned ☐

Very concerned ☐ Extremely concerned ☐ Don't know ☐

24. How likely are you to report a hazard or risk that you observe at Astra?

Very unlikely ☐ Un likely ☐ Neutral ☐ Likely ☐ Very likely ☐

Don't know ☐

25. Do you think the University is doing enough to mitigate hazards and risks at Astra?

Yes ☐ No ☐

26. How important do you think it is for the University to provide regular information on hazards and risks at Astra?

Not important at all ☐ Slightly important ☐ Moderately important ☐

Very important ☐ Extremely important ☐ Don't know ☐

SECTION D: PRACTICES TOWARDS HAZARDS AND RISKS IN THE LEARNING ENVIRONMENT.

27. Have you ever experienced any hazard or health risk at Astra?

Yes ☐ No ☐

28. If yes, have you reported the incident to the appropriate authorities?

Yes ☐ No ☐

29. How do you protect yourself from hazards and risks at Astra? (*Select all that apply*)

Wearing protective clothing/equipment ☐ Avoiding hazardous

areas/activities ☐ Washing hands frequently ☐ Using hand sanitizers ☐

Practicing good hygiene ☐ other …… Don't know ☐

30. How often do you take precautions to protect yourself from potential hazards and risks at Astra? Always ☐ Sometimes ☐ Rarely ☐ Never ☐ Don't know ☐

31. How often do you attend safety drills and emergency response training at Astra?

Regularly ☐ Occasionally ☐ Rarely ☐ Never ☐ Don't know ☐

32. Have you ever used a fire extinguisher at Astra? Yes ☐ No ☐

33. How do you engage yourself in behaviours that could potentially expose you to hazards or risks at Astra?

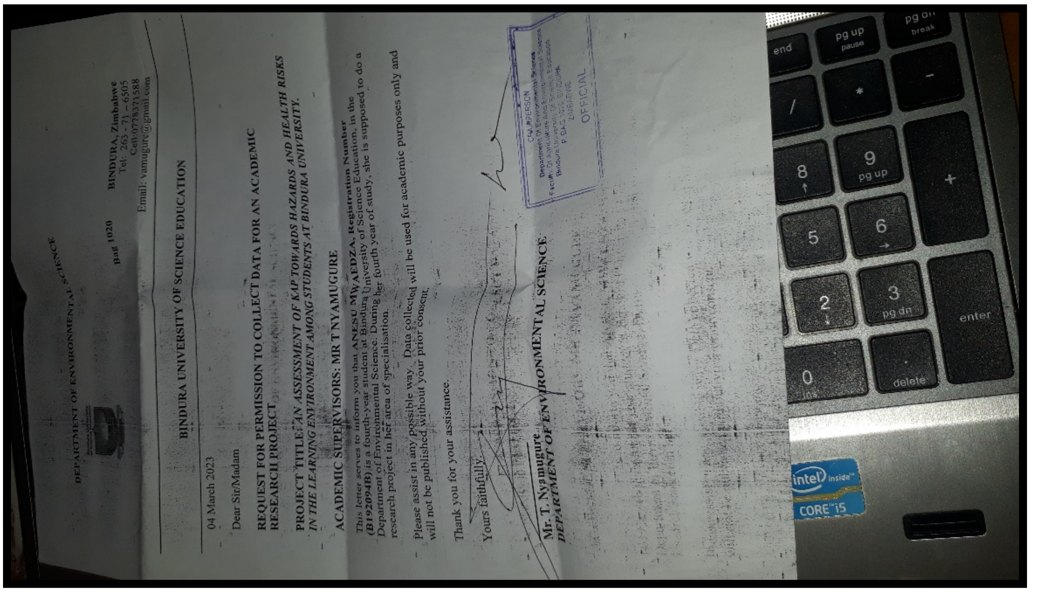
.....Don't know ☐

34. In your opinion, what steps could the university take to mitigate potential hazards and risks at Astra?

……………………..
....
....Don't know☐

Thank you for your participation in this survey.

APPENDIX II: PERMISSION LETTER FROM BUSE CHAIRPERSON



DEPARTMENT OF ENVIRONMENTAL SCIENCE

Bag 1020 BINDURA, Zimbabwe
Tel: 263 - 71 – 6505
Cell:0778371588
Email: vamugure@gmail.com

BINDURA UNIVERSITY OF SCIENCE EDUCATION

04 March 2023

Dear Sir/Madam

REQUEST FOR PERMISSION TO COLLECT DATA FOR AN ACADEMIC RESEARCH PROJECT

PROJECT TITLE: *AN ASSESSMENT OF KAP TOWARDS HAZARDS AND HEALTH RISKS IN THE LEARNING ENVIRONMENT AMONG STUDENTS AT BINDURA UNIVERSITY.*

ACADEMIC SUPERVISORS: MR T NYAMUGURE

This letter serves to inform you that **ANESU MWAEDZA, Registration Number (B192094B)** is a fourth-year student at Bindura University of Science Education, in the Department of Environmental Science. During her fourth year of study, she is supposed to do a research project in her area of specialisation.

Please assist in any possible way. Data collected will be used for academic purposes only and will not be published without your prior consent.

Thank you for your assistance.

Yours faithfully,

Mr. T. Nyamugure
DEPARTMENT OF ENVIRONMENTAL SCIENCE

CHAIRPERSON
Department Of Environmental Science
Faculty Of Agriculture And Environmental Science
Bindura University Of Science Education
P. BAG 1020, BINDURA
ZIMBABWE
OFFICIAL

APPENDIX III: PERMISSION LETTER TO BUSE REGISTRAR

Dear Registrar,

BINDURA UNIVERSITY OF SCIENCE EDUCATION;

I am writing to request permission to collect data for my undergraduate dissertation project at Bindura University. My research topic is centred on "Knowledge, Attitude, and Practices towards Hazards and Risks in the Learning

Environment among Students and Staff at Bindura University." As such, I would like to request your permission to conduct my study at Astra Campus-Faculty of Agriculture and Environmental Science.

The purpose of my study is to investigate the level of awareness that students have about hazards and health risks in the learning environment, their attitudes towards these risks, and the practices they adopt to mitigate them. This research is important because it will help identify the specific areas where students may be vulnerable to risks and hazards, and provide recommendations for improving the safety of the learning environment.

In order to conduct my research, I will need to collect data from a sample of students and staff at the University. This will involve administering a questionnaire survey to students and staff, which will take approximately 30 minutes to complete. The survey will be anonymous and voluntary, and all data collected will be kept confidential.

I understand that conducting research on the University campus requires permission from the relevant authorities. As such, I respectfully request your permission to conduct my study on campus.

I assure you that my research will be conducted in an ethical and professional manner, and I will comply with all relevant regulations and guidelines. I will also ensure that the findings of my study are disseminated to the University community, including the relevant authorities, in order to inform policy and practice.

Thank you for your consideration of my request. I look forward to your response.

Sincerely,

Anesu Mwaedza (B192094B)