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STEAM EDUCATION
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STEAM EDUCATION 2023

Challenges & Opportunities

Posters E-Book

THE UNIVERSITY OF FAISALABAD

Department

Of

Computer Sciences

COMPARATIVE STUDY OF MACHINE LEARNING MODELS FOR HEARTALYTICS UNLEASHED

ICASE- (2023)

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PROBLEM STATEMENT & SUSTAINABLE DEVELOPMENT GOALS

Measuring Effectiveness of various machine learning models in predicting cardiovascular diseases, considering a comprehensive set of features including age, gender, blood pressure, cholesterol, lifestyle factors, and more.

Sustainable Development Goals (SDGs): This research aligns with several Sustainable Development Goals:

1. SDG 3: Good Health and Well-being:
   - Target 3.4 aims to reduce premature mortality from non-communicable diseases, including cardiovascular diseases. By enhancing prediction models, this study contributes to achieving this target.
2. SDG 5: Gender Equality:
   - Considering gender as a feature in CVD prediction recognizes the importance of gender-specific risk factors, contributing to the goal of achieving gender equality in health outcomes.
3. SDG 11: Sustainable Cities and Communities:
   - By predicting cardiovascular diseases, especially in urban populations where lifestyle factors play a significant role, this research supports creating healthier and more sustainable communities.

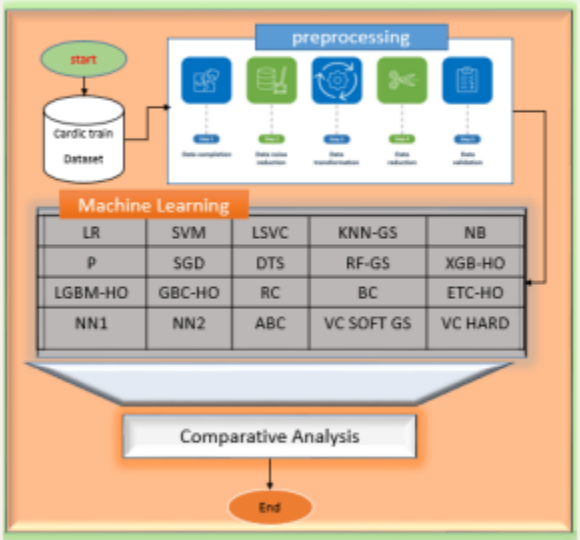
SCOPE & OBJECTIVES

Scope: This research aims to compare machine learning models for cardiovascular disease prediction, identifying optimal models and key risk factors, thereby contributing insights for improving public health strategies.

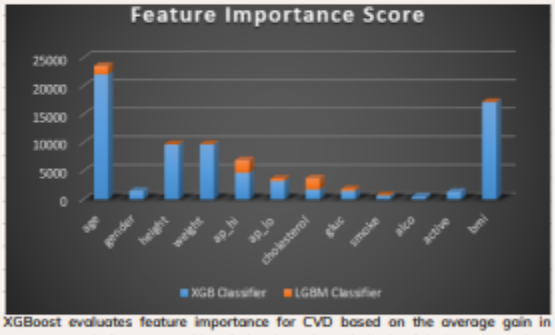
Objectives"

- O.1: ML Model Performance Evaluation
- O.2: Feature Importance Analysis
- O.3: Optimization of Predictive Models

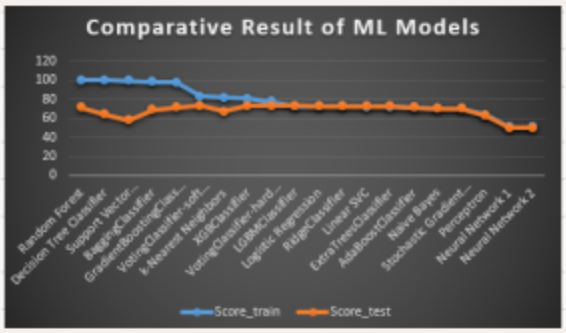
METHDOLOGY



Results & conclusion



XGBoost evaluates feature importance for CVD based on the average gain in accuracy each feature provides during boosting. Similarly LightGBM determines feature importance by considering the frequency of feature use and associated loss reduction in decision trees using a histogram-based method.



In the comparative analysis of cardiovascular disease (CVD) prediction models, Random Forest and Decision Tree Classifier exhibit the highest training scores of 99.98%, indicating strong fitting to the training data. However, Random Forest outperforms Decision Tree Classifier on the test set with a higher score of 71.56% versus 64.00%. Notably, ensemble methods such as BaggingClassifier and GradientBoostingClassifier demonstrate robust generalization, achieving respectable test scores of 69.11% and 71.34%, respectively. XGBClassifier also performs well, attaining a competitive test score of 73.09%. The VotingClassifier, employing soft voting, shows balanced performance, while traditional classifiers like Logistic Regression and Linear SVC demonstrate moderate predictive capabilities.

RESULT MAPPING				
OBJECTIVE	CORRESPONDING SDG	MODEL	SCORE_TRAIN	SCORE_TEST
O.1, O.2, O.3	SDG 3	RF	99.98	71.56
O.1, O.2, O.3	SDG 3	DTC	99.98	64
O.1, O.2, O.3	SDG 3	SVM	99.3	57.84
O.1, O.2, O.3	SDG 3	BC	98.02	69.11
O.1, O.2, O.3	SDG 3	XGB	97.52	71.34

Note: result mapping shows how effectively comparative analysis of machine learning model covers SDG3 that ensures SDG5 and SDG11 also.

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Sentiment Analysis For Depression Detection: A Stacking Ensemble Deep Learning Approach

Kinza Noor, Mariam Rehman (Supervisor)
Government College University, Faisalabad, Pakistan

PROBLEM STATEMENT & SUSTAINABLE DEVELOPMENT GOALS

Problem Statement:

Depression, a common mental health issue, poses significant challenges for early detection and prevention. Traditional approaches for identifying depressive sentiments generally fail to capture the complex relationships underlying human language. This study proposes the SENSDeep (Stacking Ensemble Deep Learning) model to fill this gap by combining the strengths of six state-of-the-art deep learning models (Bert, Roberta, DistilBert, XLNet, Xlm, and Albert) to improve the accuracy and efficiency of sentiment analysis for depression detection.

SDG's Goal:

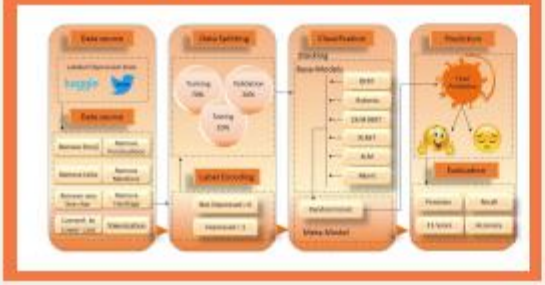
SDG 3: Good Health and Well-being:

My study contributes to the SDG 3 target of ensuring good health and well-being for everyone by detecting depressive sentiments at an early stage using effective sentiment analysis.

SCOPE & OBJECTIVES

- To identify depressive sentiment, integrate six sophisticated deep learning models: Bert, Roberta, DistilBert, XLNet, Xlm, and Albert using the SENSDeep model.
- To improve the prediction, accuracy and strength, implement stack generalization ensemble approach by combine the strength of different models.
- To evaluate the effectiveness of SENSDeep model, compare its performance against Bert, Roberta, DistilBert, XLNet, Xlm, Albert, and classic sentiment analysis algorithms.
- To show how the SENSDeep model may detect depression feelings early and provide mental health care support.

METHODOLOGY



RESULTS & CONCLUSION

	Model	Precision	Recall	F1-Score	Accuracy
1	Random Forest	0.88	0.89	0.89	0.89
2	Logistic Regression	0.93	0.90	0.92	0.92
3	Naïve Bayes	0.92	0.94	0.88	0.87
4	SVM	0.93	0.90	0.92	0.92
5	Decision Tree	0.83	0.83	0.83	0.83
6	Multilayer Perceptron	0.88	0.88	0.88	0.88
7	Machine Learning Stack	0.93	0.93	0.93	0.93
8	BERT	0.96	0.94	0.96	0.96
9	RoBERTa	0.98	0.95	0.96	0.96
10	DistilBERT	0.95	0.97	0.96	0.96
11	XLNet	0.94	0.97	0.96	0.96
12	XLM	0.94	0.93	0.94	0.94
13	ALBERT	0.96	0.94	0.95	0.95
14	**SENSDeep**	0.98	0.97	0.98	0.98

Table 1: Model Comparison

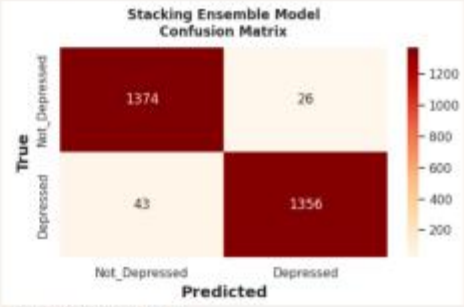


Figure 1: Confusion Matrix

- The transformer models BERT, RoBERTa, DistilBERT, XLNet, XLM, and ALBERT performed well in sentiment analysis for depression detection.
- The proposed SENSDeep model surpassed all other models in precision, recall, F1 score, and accuracy.

	Existing Study	Model	Accuracy
1	(Daza Vergaray et al., 2023)	Machine Learning	0.95
2	(Nguyen & Byeon, 2023)	Machine Learning	0.77

Table 2: Research Synthesis

CONCLUSION

This study's findings outperform previous studies by Daza Vergaray et al. (2023), and Nguyen & Byeon (2023). The future studies should examine model transferability to different cultural and linguistic settings to expand sentiment analysis's use in worldwide mental health research.

DEPARTMENT OF INFORMATION TECHNOLOGY, GOVERNMENT COLLEGE UNIVERSITY, FAISALABAD, PAKISTAN

Computer Vision and NLP Based Framework for Automated Diagnosis and Risk Assessment of Cardiovascular Disease

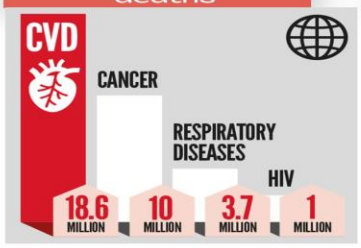
WHO Report

18.6 Million
Deaths every year from CVD

33%
of all global deaths

>75%
of CVD deaths take place in low and middle income countries

Global causes of deaths



Risk Factors of CVD

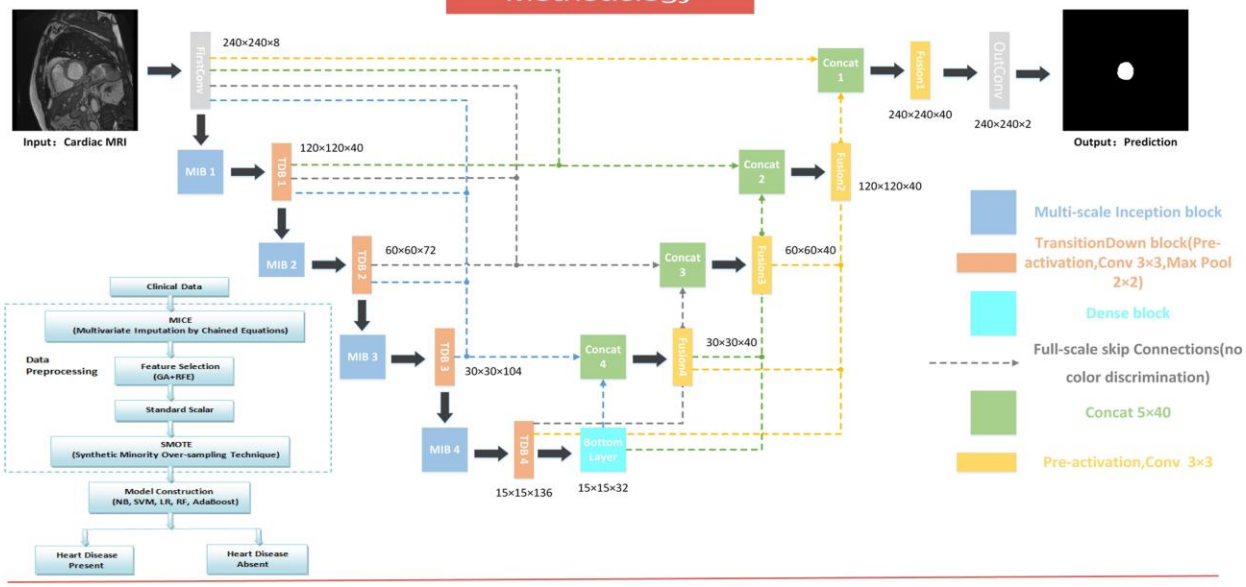
Problem Statement

- **Integration Challenge:** How can computer vision and natural language processing be effectively integrated into a unified framework for precise and automated diagnosis of cardiovascular diseases?
- **Ethical Considerations:** What ethical considerations and safeguards need to be incorporated into the design and deployment of an automated system to ensure patient privacy, data security, and fair representation in diagnosis and risk assessment?
- **Real-time Analysis and Prediction:** How can real-time analysis and predictive capabilities be embedded within the framework to swiftly identify cardiovascular disease risks and enable timely interventions for patients?
- **Clinical Adoption and Validation:** What strategies are needed to validate and gain acceptance for the computer vision and NLP-based framework within clinical settings, ensuring its reliability and trustworthiness for medical practitioners?
- **Personalized Risk:** Assessment: How can the framework be tailored to provide personalized risk assessment for patients based on their unique medical histories, lifestyle factors, and genetic predispositions?
- **Cost-effectiveness and Scalability:** How can the framework be designed to be cost-effective, scalable, and accessible, enabling its deployment across different healthcare settings and geographic regions without compromising its accuracy and efficiency?

Objectives

- **Develop a Multimodal Data Pipeline:** Create a robust pipeline to acquire, preprocess, and integrate diverse datasets comprising medical images and associated textual data related to cardiovascular diseases.
- **Design and Implement Fusion Algorithms:** Develop algorithms that effectively fuse computer vision and NLP techniques to extract meaningful information from multimodal data for accurate disease diagnosis and risk assessment.
- **Create an Interdisciplinary Framework:** Establish an interdisciplinary framework that leverages expertise from computer vision specialists, NLP researchers, and medical professionals to build a comprehensive diagnostic system.
- **Enable Real-time Analysis and Prediction:** Implement mechanisms for real-time analysis and predictive modeling within the framework to swiftly identify cardiovascular disease risks and provide timely insights for intervention.
- **Customize for Personalized Risk Assessment:** Develop mechanisms to customize risk assessment within the framework based on individual patient data, including medical history, lifestyle factors, and genetic information.
- **Optimize for Cost-effectiveness and Scalability:** Optimize the framework's architecture to be cost-effective, scalable, and accessible across various healthcare settings and geographic regions without compromising accuracy or efficiency.

Methodology



Conclusion

The integration of computer vision and natural language processing within a unified framework for automated diagnosis and risk assessment of cardiovascular disease presents an innovative frontier in modern healthcare. This research journey highlighted the significance of interdisciplinary collaboration in constructing a robust system capable of accurate disease detection and personalized risk assessment. While ethical considerations, algorithm explainability, and regulatory compliance pose challenges, the potential impact on patient care warrants continued exploration. Real-world validation studies, coupled with attention to ethical protocols and optimization for scalability, stand as crucial avenues for the successful implementation of this transformative technology. Ultimately, the envisioned framework not only promises advancements in medical technology but also signifies a pivotal shift toward more precise, individualized, and accessible healthcare solutions.

The University of Faisalabad
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1st International Conference on Advance STEAM EDUCATION: Challenges & Opportunities 2023

Memoona Gul

Supervisor:
Dr. Uzair Saeed

Co-Supervisor:
Mr. Ihsan Elahi

PROBLEM STATEMENT

Enhance the efficiency of method for allocation of patients in medical institutions on the basis of severity of patients disease and treatment capacity of hospitals during epidemics.

SUSTAINABLE DEVELOPMENT GOALS

- SDG 3: GOOD HEALTH & WELL BEING:
  Improving overall health by allocating efficiently.
- SDG 11: SUSTAINABLE CITIES AND COMMUNITIES:
  Help the patients in sustaining well being of communities.

SCOPE & OBJECTIVES

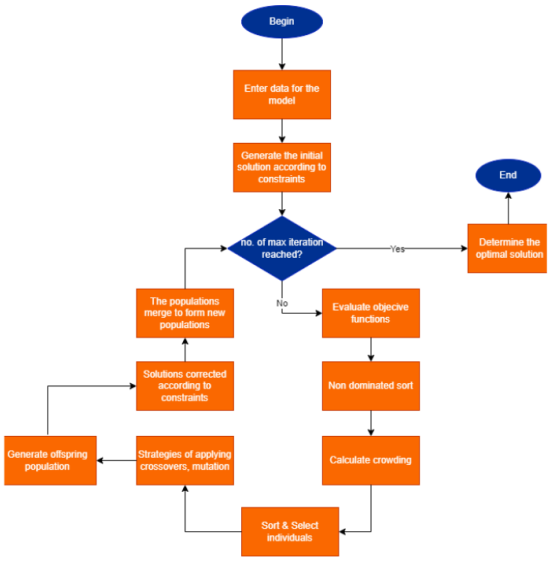
The main purpose of this study is to confront the problem of allocating patients during major epidemics under hierarchical diagnosis and treatment systems and managing resources.

- During epidemics to help in allocating patients to hospitals efficiently.
- Resources needed for different type of patients.
- Help the healthcare faculty to analyze the expansion of resources to the infected patients in hospitals.

METHODOLOGY

The research methodology, following guidance, ensures a clear articulation of the chosen multi-objective optimization technique because it has to deal with multiple objectives to focus on.
The research will improve the patient allocation method or model.
The study will use applicable and efficient multi objective genetic algorithm.
The genetic algorithm will be applied for proposed model by defining these objective functions, Effectiveness of allocating patients, minimizing travel distance for patients and the fairness of allocation.

The visual diagram is shown:



RESULTS & CONCLUSION

Efficient method for patient allocation during major epidemics, with the ultimate goal of contributing to more effective healthcare management and better patient outcomes.

- Find an efficient patients allocation method during epidemics.
- Managing the resources of hospitals.

The patients will have feasibility to allocate efficiently on the basis of their condition or stage of disease, distance to travel to hospital and the healthcare faculty will have to get benefit of using and expanding of resources efficiently among infected patients .

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1st International Conference on Advance STEAM EDUCATION: Challenges & Opportunities 2023

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Co Sup -3 Dr. Amna Iqbal

Enhancing Speech Recognition for Bengali Language

To contribute the in the field of NLP and ASR.

The research thesis aims Facilitate the approx. 210 speaker of Bengali language speaker

Scope & Objectives

Enhance in ASR can bring.

- Helpful in banking App
- Chatbot
- To understand by the Islamic sermon especially for the Bengali speakers because the computer can't recognition the it.

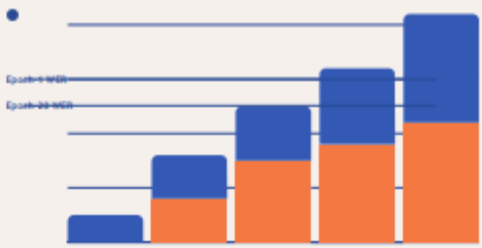
Methdology

• Preprocessing:
Clean and preprocess data, emphasizing feature extraction specific to Bengali phonetics.
• Model Training:
Select and train state-of-the-art speech recognition models, incorporating transfer learning.
• Language-specific Adaptation:
Develop techniques for Bengali linguistic nuances and diverse speech contexts.
• Evaluation:
Assess model performance using standard metrics and user feedback.

Results & conclusion

The final results after the dataset analysis and Chunks the audio files of data into different segments and the feature extraction and to train the dataset on the CNN model the research team is expecting to see the results in WER and CER of ASR system. The WER and CER focuses on the accuracy of the model

The Research team found with the hard effort it is possible to achieve the highest accuracy of the model.



This Research focuses to increase the accuracy and reliability of the ASR system using the Bengali language. The fruit of this research will be able to use in the different field like voice assistant and banking chatbot by contributing in the NLP.

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An efficient deep-learning model for underwater litter detection

Faiza Rehman Dr. Mariam Rehman
Government College University Faisalabad, Pakistan.

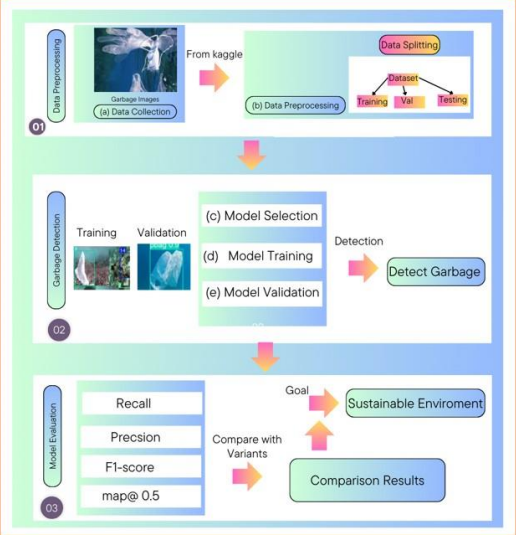
PROBLEM STATEMENT & SUSTAINALE DEVELOPMENT GOALS

- Garbage has been a growing threat to the health of marine ecosystem
- Underwater garbage is a significant problem.
  - Causes the danger to biodiversity.
- Sustainable Development Goal:14
  - Life below water.

SCOPE & OBJECTIVES

- To detect underwater garbage.
- To clean environment and improve waste management.
- To clean oceans and rivers to protect ecological habitat and reduce pollution.

METHODOLOGY



RESULTS & CONCLUSION

Evaluation:

- F1-score : 82%
- Precision : 97%
- Recall : 90%
- mAP@ : 83.8%

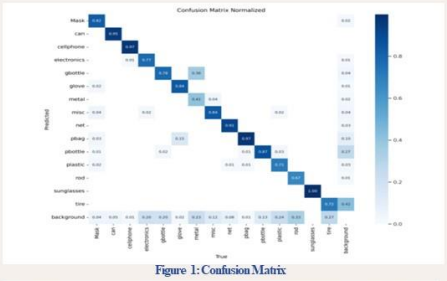


Figure 1: Confusion Matrix

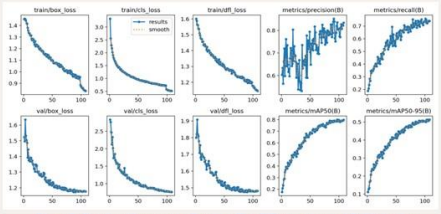


Figure 2 : Results with respect to Precision ,Recall, Training loss and Validation loss

Research Synthesis

Study	Model	Measures
(Politiko et.al 2021)	Mask RCNN	62%
(Cheng et.al 2023)	Modified U-net	42%
(Teng et.al 2022)	Improved Yolo5s	87.2%

The Proposed model achieves 97% precision of detection from underwater images on large dataset, outperforming advance YOLOV8 model in underwater garbage detection. Future research should address model Limitations and improve detection.

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Spam Detection In Roman English Reviews

Introduction

Rapid growth in the volume of online reviews has resulted in the generation of gigabytes of information, with consumers sharing their opinions on products and services across various platforms. Most of the people go through these reviews before buying any product online. These reviews for a product may turn out to be positive or negative. The positive product review will grab much more attention of the customer than the negative reviews. Therefore, these product reviews can affect any business and they also have the potential to bring along financial loses or profits. There are many reviews posted by the customers to put forward their views regarding the product they have bought. But along with these true reviews, there are many fake reviews which can affect the purchase of a good product. Product reviews play an important role in deciding the sale of a particular product on the ecommerce websites or applications like Daraz, OLX, Amazon, Priceoye, etc.Numerous studies have been conducted for Spam detection across a range of languages such as English, French, Chinese, and more.Urdu holds the 10th position in the rankings of the most spoken languages in the world. This research focused on the Detect spam in Urdu reviews by preprocessing of the data, applying feature extraction, training a classification model and innovative methods

Methodology

The task of identifying fake Roman Urdu reviews has been investigated in this study as a binary-class classification task. A transformer-based strategy has been investigated in this classification problem, employing the two target classes of fake and real.All models are trained and tested using the RU-FRDC data set.

Data Collection:

Gather a dataset of Roman Urdu reviews from various sources, such as Daraz and Amazon, as well as from social media platforms like Twitter, considering the limited availability of Roman Urdu data on some platforms

Preprocessing:

Clean and preprocess the dataset to remove noise and irrelevant features, including text normalization, stop-word removal, and handling of imbalanced classes

Feature Extraction:

Extract linguistic and behavioral features from the preprocessed dataset, such as n-grams, sentiment analysis, and user behavior, leveraging techniques like TF-IDF, Count Vectorizer, and BERT for feature extraction

Model Selection:

Choose deep learning models for Radial Base Function Neural Networks (RBFNNs), LSTM, and BERT models, considering their effectiveness in handling linguistic and behavioral features for spam detection in text data

Model Training:

Train the selected models using the extracted features from the dataset, considering the need for fine-tuning BERT and LSTM models on the Roman Urdu text data

Comparison:

Compare the results of different models to determine the most effective approach for spam detection in Roman Urdu reviews, considering metrics such as accuracy, precision, recall, and F1-score

Problem Statement

The increasing volume of online reviews in Roman Urdu, particularly in e-commerce platforms like Daraz, OLX, and Amazon, poses a significant challenge due to the prevalence of fake reviews. The presence of fake reviews alongside genuine ones can mislead consumers and impact businesses on e-commerce platforms. Detecting and mitigating the influence of fake reviews is crucial for maintaining the integrity of online reviews and ensuring that consumers make informed decisions. The research aims to explore advanced techniques, including BERT-based methods and various deep learning models, for the effective identification of fake Roman Urdu reviews, with a focus on the Roman Urdu script

Objective:

To improve spam detection in Urdu reviews using machine learning (ML) and deep learning (DL) techniques, with a focus on the Roman Urdu script. The aim is to leverage different classification models based on linguistic and behavioral features to achieve high accuracy in spam detection, thereby increasing customers' confidence and reducing the prevalence of spam reviews in the South Asian region, particularly in Pakistan. In addition, the objective of identifying suitable text feature selection methods for spam in Urdu reviews can be inferred from the search results. The objective is to determine the most effective text feature selection methods for identifying spam in Urdu reviews, with a specific focus on the Roman Urdu script. The search results provide insights into the use of linguistic and behavioral features, as well as the combination of distributional and non-distributional aspects, to evaluate the accuracy of different classification models for spam detection in Roman Urdu reviews. The objective is to identify the most suitable text feature selection methods that can enhance spam detection in Urdu reviews, particularly in the context of the Roman Urdu script.

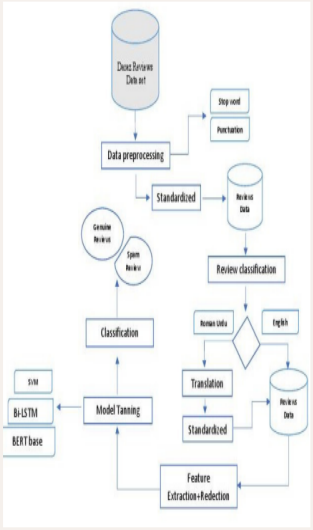
·Fake Review Detection

·To Address Multilingual Challenges

·Spam Detection in Roman English

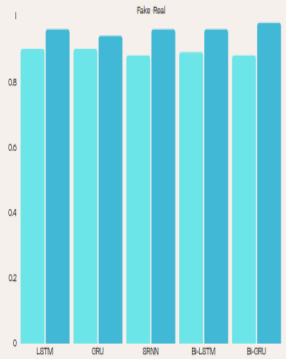
Research Questions

1. How can we enhance spam detection in Urdu reviews through ML and DL
2. Which text feature selection methods are most suitable for Spam in Urdu reviews?



Results/ Findings

The complete results for the task of identifying fake Roman-Urdu reviews are presented in graph. The term "Model" in this table refers to a BERT base or BERT large model. The deep neural network-based algorithm is referred to as" DL "LSTM", "SRNN", "GRU", "Bi-LSTM "and "Bi-GRU" refer to, Long Short Term Memory, Simple Recurrent Neural Networks, Gated Recurrent Units, Bidirectional Long-Short Term Memory and Bidirectional Gated Recurrent Units respectively. The BERT large model with Bi-LSTM layer produces the best overall results (ROCAUC=0.94 andF1 score=0.94), whereas the BERT large model with SRNN layer



References

- Hussain, N., Mirza, H.T., Iqbal, F., Hussain, I. and Kaleem, M., 2021.Detecting spam product reviews in Roman Urdu script. The Computer Journal, 64(3), pp.432-450.
- Ullah, M.F., Saeed, A., Li, J., Mahmood, T. and Adeel, M., 2023. BERT Model for Roman Urdu Fake Review Identification.

Conclusion

Roman Urdu is a recently evolved online language that has a large user base. The RU-FRDC corpus was utilized for the Roman Urdu fake reviews identification task. The current study compares two BERT-based methods for Roman Urdu Fake reviews: BERT base and BERT large. Furthermore, SRNN, LSTM, GRU, Bi-LSTM, and BiGRU are five well-known deep learning models that are used with the set two BERT based techniques. The results show that the proposed model based on BERT large with Bi-LSTM performs better than previously reported methods on the same corpus.

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SDG Peace, Justice and Strong Institutions

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The Role of Islam for the Growth of Islamic Society

Problem Statement

- What type of life, system and framework are introducing by the Islam for the growth of stable society?
- How do Islamic teachings address issues of social justice and equality within Islamic societies?

Objectives

- To explore the angle of teaching through which gives a stable society.
- To aware the researchers about challenges and addressing this perspective of Islam for the growth of Islamic society.
- To introduce the Islamic Teaching i.e., Justice, Peace, tolerance which are mandatory for the solidarity and stability of society.

Methodology >>> Descriptive and Analytical

Introduction

Islam is a complete code of life. It gives its social, religious, Political and Economic Systems and frame works. It delivers its teachings in many ways. Islamic teachings effect on social norms, Institutional structures and individual behavior, emphasizing the mutually beneficial relationship, between Islam and the development of Islamic society. A stable society is established when Justice, compassion, and Accountability. The establishment of Islamic society is based on a justice system providing equal Rights, opportunities and to every human being. Allah says in the Holy Quran:

يَٰٓأَيُّهَا ٱلنَّاسُ ٱتَّقُوا۟ رَبَّكُمُ ٱلَّذِى خَلَقَكُم مِّن نَّفْسٍ وَٰحِدَةٍ وَخَلَقَ مِنْهَا زَوْجَهَا وَبَثَّ مِنْهُمَا رِجَالًا كَثِيرًا وَنِسَآءً

O humanity! Be mindful of your Lord Who created you from a single soul, and from it He created its mate, 1 and through both He spread countless men and women.

The interpretation and application of Islamic principles may vary across regions and communities, but Islam remains a significant factor shaping the progress and development of Islamic societies.

Conclusion

1-Islamic stable society needs complete systems for the solidarity and Islam has introduced these systems.
2-Islam is a complete code of life which has its own system of life i.e., social, Economic, political and religion to run the successful society.
3-Islamic Society can address its all facing challenges through adopting system, framework and teaching given by the Islam.

References

1-Holy Quran
2-Sahih al Bukhari, Muhammad bin Ismail Bukhari, Beirut, Darul Salam, 1404H
3-Sahih Muslim, Muslim bin Hajaj, Beirut, Darul Salam, 1404H
4-Tareekh Ibne Khaldoon, Abdur Rahman Bin Muhammad Bin Khaldoon, Darulfikar, Beirut, 1988

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SDG Peace, Justice and Strong Institutions

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- To aware the researchers about challenges and addressing this perspective of Islam for the growth of Islamic society.
- To introduce the Islamic Teaching i.e., Justice, Peace, tolerance which are mandatory for the solidarity and stability of society.

Methodology >>> Descriptive and Analytical

Introduction

Islam is a complete code of life. It gives its social, religious, Political and Economic Systems and frame works. It delivers its teachings in many ways. Islamic teaching effect on social norms, Institutional structures and individual behavior, emphasizing the mutually beneficial relationship, between Islam and the development of Islamic society. A stable society is established when Justice, compassion, and Accountability. The establishment of Islamic society is based on a justice system providing equal Rights, opportunities and to every human being. Allah says in the Holy Quran:

يَٰٓأَيُّهَا ٱلنَّاسُ ٱتَّقُوا۟ رَبَّكُمُ ٱلَّذِى خَلَقَكُم مِّن نَّفْسٍ وَٰحِدَةٍ وَخَلَقَ مِنْهَا زَوْجَهَا وَبَثَّ مِنْهُمَا رِجَالًا كَثِيرًا وَنِسَآءً

O humanity! Be mindful of your Lord Who created you from a single soul, and from it He created its mate, and through both He spread countless men and women.

The interpretation and application of Islamic principles may vary across regions and communities, but Islam remains a significant factor shaping the progress and development of Islamic societies.

Conclusion

1-Islamic stable society needs complete systems for the solidarity and Islam has introduced these systems.
2-Islam is a complete code of life which has its own system of life i.e., social, Economic, political and religion to run the successful society.
3-Islamic Society can address its all facing challenges through adopting system, framework and teaching given by the Islam.

References

1-Holy Quran
2-Sahih al Bukhari, Muhammad bin Ismail Bukhari, Beirut, Darul Salam, 1404H
3-Sahih Muslim, Muslim bin Hajaj, Beirut, Darul Salam, 1404H
4-Tareekh Ibne Khaldoon, Abdur Rahman Bin Muhammad Bin Khaldoon, Darulfikar, Beirut, 1988

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SDG Gender equality 16

STEAM EDUCATION

1st International Conference on Advanced STEAM Education:
Challenges and Opportunities, 2023

The role of women in successful matrimonial life from the perspective of Islam

Problem Statement

- 1.How women are supposed to succeed in married life within the framework of Islam?
- 2.To provide a better understanding of how Islamic principles interact with contemporary dynamics by addressing these complexities.
- 3.To bridge the gap between religious beliefs and cultural expectations.

Objectives

- Investigate how communication patterns within marital relationships, guided by Islamic principles, contribute to successful decision-making processes.
- Examine the influence of societal expectations and cultural norms on women's roles.
- Analyze the impact of education and empowerment on women's roles.

Methodology

his research employs a mixed-methods approach, combining qualitative analysis of Islamic texts and academic literature to explore women's roles in matrimony. Surveys, interviews, and diverse community participation aim to examine cultural influences, societal expectations, and the impact of education on women's roles, with qualitative interviews analyzing communication patterns. Triangulating findings aims to bridge gaps between Islamic principles and societal expectations for fulfilling marriages.

Introduction

Islamic teachings prioritize marriage, emphasizing companionship, deference, and shared responsibilities. While Islam outlines roles for both genders, a deeper understanding of women's roles in successful marriages is crucial. This study delves into the complex interplay of education, communication, and individual goals, aiming to elucidate women's roles in Islamic marriages. It examines potential influences and deviations from societal expectations, exploring the impact of empowerment and education on women's roles.

The Holy Quran says: وَمِنْ آيَاتِهِ أَنْ خَلَقَ لَكُمْ مِنْ أَنْفُسِكُمْ أَزْوَاجًا لِتَسْكُنُوا إِلَيْهَا وَجَعَلَ بَيْنَكُمْ مَوَدَّةً وَرَحْمَةً إِنَّ فِي ذَٰلِكَ لَآيَاتٍ لِقَوْمٍ يَتَفَكَّرُونَ

And of His signs is that He created for you from yourselves mates that you may find tranquility in them, and He placed between you affection and mercy. Indeed those are signs for people who give thought. (Surah Ar-Rum: 21)

The Prophet Muhammad s.a.w. Said: لَمْ تَرَ لِلْمُتَحَابَّيْنِ مِثْلَ النِّكَاحِ

"There is nothing like marriage, for the two who love one another." (Sunan Ibn Majah)

Results

1. Emphasized different perspectives on women's roles in fulfilling marriages in Islamic contexts.
2. Analysis of academic literature and Islamic texts revealed certain roles that became apparent, pointing to the need for further guidance in some areas.
3. Exposed variations in societal norms, demonstrating how cultural elements impact marriage dynamics.

Conclusion

5. Accurate herstive understanding of the complex relationships between societal, cultural, and religious factors.
6. To highlight the necessity of providing recommendations that are nuanced and integrate Islamic principles with cultural and societal expectations.
7. To close the gap between religious teachings and societal norms by offering insightful perspectives that support happy marriages.

References

- Al-Quran
- Bukhari,Imam, Sahi Bukhari,Beroot, Darul Salam, 1404H
- Tirmizi,Abu Esa Muhammad Bin Esa, Jame Tirmizi, Egypt, Maktaba Mustafa Albabi Alhalbi,1395H
- Tahir ul Qadri,Islam me Khawateen kay Haqooq, Minhaj ul Quran Publications,Lahore
- Moududi,Molana,Parda, Islamic Publication Limited, Lahore

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SDG # 16

STEAM EDUCATION

1st International Conference on Advanced STEAM Education:
Challenges and Opportunities, 2023

Islam is a Religion for Peace

Basic Question
(Problem Statement)

What philosophy is taught by Religion to make and maintain peace in society and why?

Objectives

- To introduce Islam as protector of human rights
- To know term peace in Islam
- To deliver the teachings of Islam for existence of peace

Introduction

Islam, often referred to as a religion of peace, encompasses a comprehensive set of principles that aim to establish tranquility in both individual lives and society as a whole. This notion is deeply rooted in Quranic verses and Hadiths (sayings and actions of Prophet Muhammad).

- Submission & Inner peace.
- Ethical Guidelines for Peaceful Living.
- Social Justice and Equality.
- Forgiveness and Mercy.
- Personal Discipline and Spiritual Practices.
- Respect for Others and Interfaith Dialogue.
- Conflict Resolution through Dialogue.

Resuts and Conclusion:

In conclusion, Islam's teachings promote peace at both the individual and societal levels. Through submission to God, ethical guidelines, social justice, forgiveness, personal discipline, respect for others, and conflict resolution, Islam seeks to establish a world where peace prevails, and individuals coexist harmoniously. This overview only scratches the surface, and a more in-depth exploration would involve detailed analysis of specific Quranic verses and Hadiths.

References

Quran.
Sahih Bukhari : Dar-ul-salam, Berot, Labnan.
Sahih Muslim: Dar-ul-Fikr, Berot, Labnan.
Islam is Religion of Peace: Abd-ul-Rehman bin Abd-ul-Karim
Islam is Religion of Peace:Molana Abd-ul-Rauf Sufi ,AL-Azhar publication.

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5

The University of Faisalabad

SDG # 4

STEAM EDUCATION

1st International Conference on Advanced STEAM Education: Challenges and Opportunities, 2023

The Role of Institution in gaining Education (In perspective of Islam)

Background

Islamic education plays a crucial role in shaping individuals' spiritual, moral, and intellectual development within the framework of Islamic principles. Institutions, whether formal or informal, contribute significantly to the dissemination of Islamic knowledge and values.

Statement of the Problem

While there is a vast body of literature on Islamic education, there is a need for a comprehensive analysis of the role that institutions play in this process. Understanding how various institutions contribute to the dissemination of Islamic knowledge will aid in developing effective educational strategies that align with Islamic principles.

General Objectives

To examine The Role of Institution in gaining Education (In perspective of Islam) and its impact on individuals' spiritual, moral, and intellectual development.

Specific Objectives

a. To analyze the historical development of Islamic educational institutions.
b. To assess the curriculum and teaching methodologies employed in Islamic educational institutions.
c. To examine the influence of Islamic institutions on students' character and values.

Methodology

- Research Design
- Sampling
- Data Collection

Significance of the Study

This research aims to contribute to the existing body of knowledge on Islamic education by providing a holistic understanding of the role institutions play in shaping individuals' spiritual, moral, and intellectual development.

Conclusion

This research proposal outlines a comprehensive study on The Role of Institution in gaining Education (In perspective of Islam) Islamic education. By examining historical developments, curriculum, teaching methodologies, and the influence on students' character, the study aims to provide valuable insights for the improvement of Islamic educational institutions.

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SDG # 4

STEAM EDUCATION

1st International Conference on Advanced STEAM Education: Challenges and Opportunities, 2023

Function of Religion & Education

Basic Question

- How does Religion make function to educate its Followers?
- Why does a Religion forces its Believers for gaining Education?

Objectives

- To aware the individual about the responsibility of gaining the Education
- To introduce the importance of Education and its Impacts in the light of Islam.
- To develop the spirit that the Religion is Source of Knowledge.

Introduction

Religion and education are two fundamental and interconnected aspects of human society, each serving distinct yet often intertwined functions. Let's explore the functions of both:

Religion serves to provide individuals with a framework for understanding the meaning and purpose of life, often offering moral guidance, a sense of community, and a connection to the transcendent. On the other hand, education plays a crucial role in imparting knowledge, skills, and values, contributing to personal development and societal progress. Both religion and education influence individual beliefs, values, and behaviors, shaping cultures and societies in profound ways.

Conclusion

Islam is a complete Code of life. It is Deen and Religion which gives the importance of attaining the Education. Because Education is a source understanding the Philosophy of life and death. Education has great impacts on the personality of educated person. And the educated citizen can stabilize the state and Society. So the great function of education is to create the sustainable character ful persons in the society who can serve very sincerely.

Results

- Religion guides in every discipline of life.
- Religion convinces and forces its followers to gain the education.
- Religion announces the great importance of education.
- The great function of education is to produce individuals having great qualities i. e. Integrity, Tolerance, Simplicity, Loving with others etc.

References

Quran, Sahih Bukhari, Sahih Muslim, The Book Whisperer: by Donalyn Miller

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STEAM EDUCATION

SDG # 4

1st International Conference onAdvanced STEAM Education:
Challenges and Opportunities, 2023

CHALLENGES AND OPPORTUNITIES IN THE USE OF ICTS BY POST GRADUATE STUDENTS IN PUBLIC SECTOR UNIVERSITIES OF THE PUNJAB, PAKISTAN

Problem Statement

Postgraduate students in public sector universities of Punjab, Pakistan, encounter challenges and opportunities in the utilization of Information and Communication Technologies (ICTs) for their academic pursuits. Despite the recognized importance of ICT in enhancing the learning experience, disparities in access and utilization exist among students in different universities within the region. Addressing these challenges and capitalizing on opportunities is essential for fostering a more equitable and effective integration of ICTs in postgraduate education. The study aims to identify and understand the specific hurdles and advantages faced by students, highlighting the need for targeted interventions and institutional support to optimize ICT use in the academic landscape.

Scope &Objectives

This study focuses on postgraduate students enrolled in public sector universities located in the Punjab region of Pakistan. It aims to comprehensively investigate the challenges and opportunities associated with the use of Information and Communication Technologies (ICTs) in the academic pursuits of these students.

Specific Objectives:

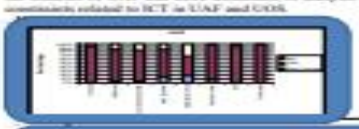
- To find out facilities and infrastructure of ICT at universities level.
- To explore opportunities and constraints of ICT at university level.
- To find out needs and demands of ICT in universities.

Methodology

Research Design	Study Area	Selected Universities	Participants	Sample Size
Descriptive Study	Public sector universities in Punjab, Pakistan	Two Universities UAF & UOS	Postgraduate students	130 students with 85% CL & 9% CI
Proportional Sampling	Sampling Method	Data Collection	Data Analysis	Statistical Test
62.9% from UOS 37.1% from UAF	Stratified Random Sampling	By Questionnaire	By SPSS	T-test

Results & Conclusion

Majority of the students of UOS had thinking that their university had ICT facilities and infrastructure such as Computer Lab. (97.7%), computers (95.5%), Wi-Fi (94.3%), projection system (89.8%), interactive white board (83.0%), video conferencing systems (73.9%), audio equipment (63.6%), and digital photo camera (55.7). T=value (2.884) shows a highly significant ($p = .006$) difference in 'students have easy access to computers in university' in favour of UAF. It means, students have more easy access to computers in UAF as compared to UOS. T-value (3.340) shows a highly significant ($p = .001$) difference in need of easy access to advanced academic material in favour of UAF. T-value (2.326) shows a significant ($p = .021$) difference in the demand of research data analysis software in favour of UAF. It means, the students of UAF had more demanded of analysis software as compared to the students of UOS. comparison of constraints related to ICT in UAF and UOS.



The conclusion of the study shows that level of constraints was also same in both selected universities. ICT affects such as Use of ICT is important for personal development, Integration of ICT facilities learning specific concepts, ICT is helpful to teach weak students, Training in ICT helps to explore different resources for research, ICT help to design research plans for thesis or assignments, Computers are not available to all students

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STEAM EDUCATION

SDG #: 04

1st International Conference on Advanced STEAM Education: Challenges and Opportunities, 2023

Problem Statement

The successful integration of STEAM educational approach in primary to higher education levels requires the acquisition of strong information and communication technology (ICT) skills by the teachers. Moreover, the 21st century is regarded as the age of invention and ICT proficiency is becoming a requirement for teachers in order to prepare the digital generation for the global economy. Therefore, this research aiming to investigate Impact of ICT skills on teachers' professional development at secondary level.

Scope & Objectives

Objective: To investigate impact of ICT on teachers' professional development
RQ: Is there any relationship between teachers' ICT skills and professional development

Methodology

Results & Conclusion

Table :Relationship of ICT with Professional Development of Teachers Variables ICT Professional Development ICT Pearson Correlation 0.760** Sig. (2-tailed) .000 N 250 250 Professional Development Pearson Correlation 0.760** 1 Sig. (2-tailed) .000 N 250 250 **

Results shows a positive relationship between teachers' ICT skills and professional development. This investigation had discovered a strong positive relationship between ICT and Professional development (r = .760) of the teachers.

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SDG #: 4
Quality Education

STEAM EDUCATION

1st International Conference on Advanced STEM Education:

Challenges and Opportunities, 2023

Problem Statement

Teachers perspectives on the benefits and role of STEM Education in the solution of complex global challenges.

Scope & Objectives

- Teachers responses toward the benefits of STEM Education.
- Teachers perceptions towards the role of STEM Education in the solution of global challenges.
- Gender wise comparison regarding benefits and role of STEM Education in solving complex global challenges.

Methodology

It is a descriptive research in which primary data was collected through secondary school teacher of Faisalabad division. A closed ended survey questionnaires based on 5-point likert scale developed after collection of data it was analysed through SPSS, Frequency, percentage mean score and t-test.

Results & Conclusion

Variables	Gender	N	Mean	Std. Deviation	t-value	p-value
Benefits	Male	50	3.90	.744	-.339	.735
	Female	50	3.94	.627		
Global Challenges	Male	50	3.89	.812	-1.111	.270
	Female	50	4.04	.552		

This study concluded that the majority of secondary school teacher agreed strongly with the benefits of STEM Education. STEM Education increases the critical thinking skills of student and make them responsible citizen.

References

Bissaker, K. (2014),Bossd, H.E ; Di Blasi, M.A, Pelem, M.A, Bergero, M.S, Carvajal, L. Geromini, N.S.(2011) Bybee, R. (2010) Chen X, Liv. S., & Shan,y. (2023)

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SDG#4

STEAM EDUCATION

1st International Conference on Advanced STEAM Education:
Challenges and Opportunities, 2023

ANALYSIS OF THE FACTORS AFFECTING QUALITY EDUCATION OF CATHOLIC SCHOOLS IN FAISALABAD

Problem Statement

PROBLEM STATEMENT

What are the factors that affect the quality education of catholic schools in Faisalabad? The quality of Catholic schools went on declining day by day since nationalization of education in 1972. The Catholic Mission owns 49 Schools and 18360 (8442 male and 9918 female) students are studying in these schools. Catholic Board of Education (CBE) Faisalabad is working to promote quality education for the holistic growth of the child. The main aim of this study was to find out the factors affecting quality of education in Catholic Schools of Faisalabad.

Scope & Objectives

- To assess quality of education in Missionary Schools of Faisalabad.
- To identify the teacher effectiveness to enhance quality of education
- To evaluate the active involvement of parents to improve the value of education

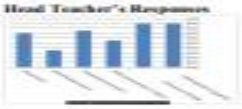
Methodology

STUDY DESIGN Survey Method	STUDY SETTING private missionary school	POPULATION 49 missionary school in Faisalabad
SAMPLE SIZE 13 out of 49	SAMPLING TECHNIQUE convenient sampling	STATISTICAL ANALYSIS Descriptive statistics was used for data analysis to calculate weighted score, mean and standard deviation (chi square test).

Results & Conclusion

From the data 44.27% having no professional training affect quality education of catholic schools. Principals/Head Teacher assessed teaching skills 89.73%, regular assessments 89.73%, teacher communication skills 85.95%, classroom participation 88.13%, teacher qualification 83.78% and absenteeism 87.57%. it can be concluded that teaching skills, regular assessments, teacher communication skills, classroom participation, teacher qualification and absenteeism were the most prevalent factors affecting the quality of education in Catholic schools.

Head Teacher's Responses



Teacher's Responses

It can be concluded that classroom participation, teaching skills, parent teacher Meeting, teacher attendance, classroom environment and student attendance was highly rated factors affecting the quality of education of Catholic Schools of Faisalabad

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STEAM EDUCATION

SDG # 4

1st International Conference on Advanced STEAM Education:

Challenges and Opportunities, 2023

Research Title

A COMPARATIVE STUDY OF E-LEARNING TECHNOLOGY IMPLEMENTATIONS FOR EFFECTIVE TEACHING AND LEARNING PROCESS IN PUBLIC AND PRIVATE UNIVERSITIES OF PAKISTAN: A SWOC ANALYSIS

Problem Statement

Pakistan's universities underutilize e-learning technology, hampering the optimization of teaching and learning processes for greater effectiveness.

Scope & Objectives

SCOPE: This study is limited to the implementation of e-learning technology in the top 10 public and private universities offering online education

OBJECTIVES:

- To identify strengths and weaknesses in e-learning technology implementations in Public and private universities.
- To explore opportunities and challenges in e-learning adoption.
- To Analyze the Impact of E-Learning on Teaching and Learning Effectiveness in public and private universities offering online education.
- To Propose Strategies for Enhanced E-Learning Integration.

Methodology

Mixed-method research in which both the quantitative and qualitative methods will be used.

Conclusion

Uncover strengths, weaknesses, opportunities, and challenges in e-learning technology implementations in public and private universities offering online education.

Habib Ullah & Ms. Razia Ph.D Scholars, Department of Education

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STEAM EDUCATION

SDG: Quality Education

1st International Conference on Advanced STEAM Education:
Challenges and Opportunities, 2023

Topic: **The Assessment of Integration of STEM in Teacher Education**

Problem Statement

The present study was about the Assessment of integration of STEM in Teacher Education programs offered through distance learning. This study was highlighted the integration of STEM in Teacher Education Programs.

Scope & Objectives

To find out the existing level of STEM Education.
To investigate the specific the am of STEM Education as the Training of individuals.
To determine the effect of STEM Education in depth understanding related to STEM

Methodology

The main objective of the study was to identify the effect of STEM Education and Assessment of integration of STEM in Teacher Education Programs to achieve the objectives of the study a research questionnaire keeping in view all aspects of the study was developed and finalized then same questionnaire was administered to the selected sample from the defined population for the purpose of data collection.

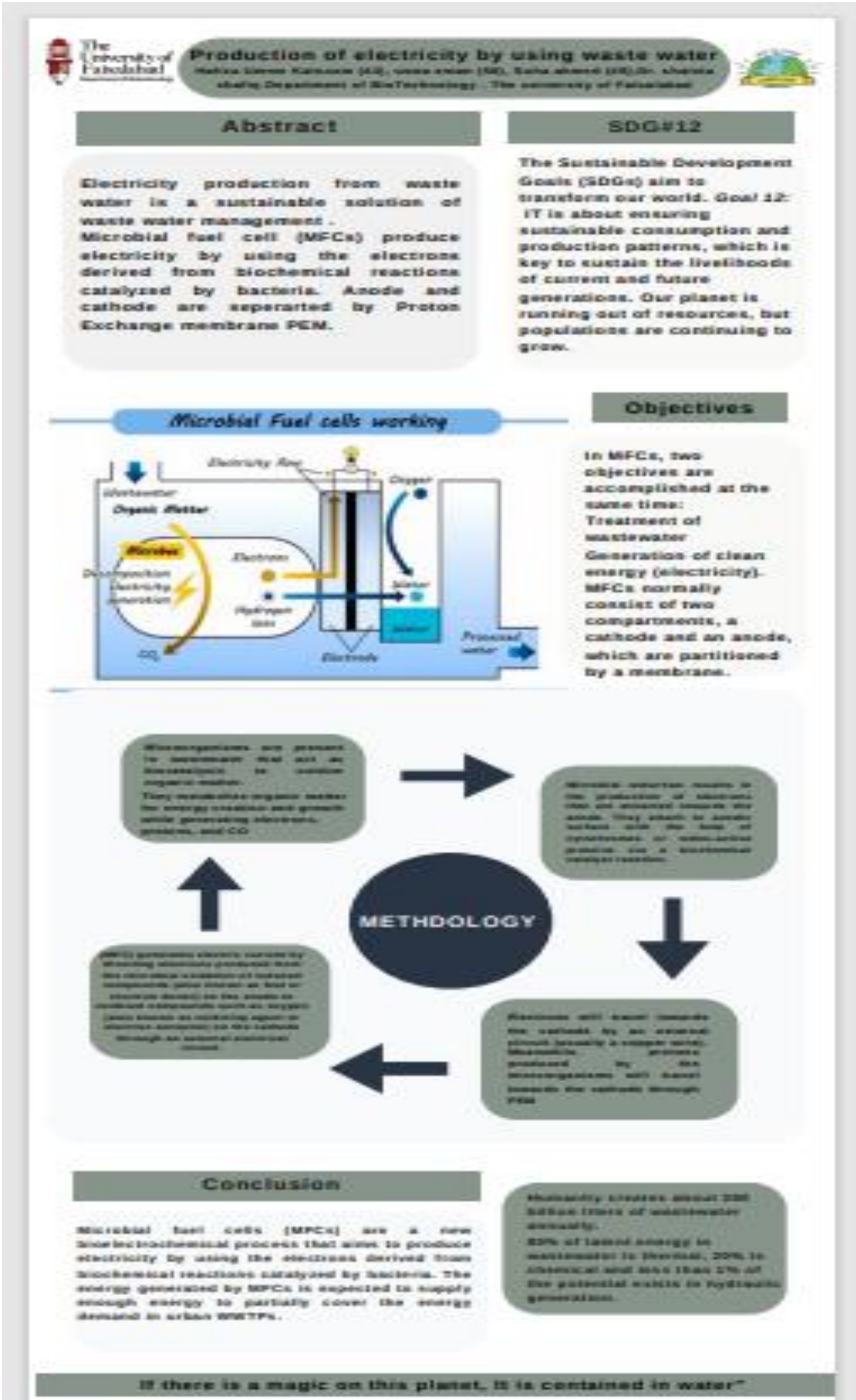
Results & Conclusion

Categories of 33 articles published between 2015-2021

Learning and Teaching Approach/model	Number of studies	Number of effect sizes	Percentage of studies (%)
Project-based Learning	11	1931	33.33
Design-based Learning	4	432	12.12
5E Instructional Model	3	119	09.09
Computer-based Learning	2	442	06.06
Problem- based Learning	1	79	03.03
Flipped Learning	1	37	03.03
Blended Learning	1	129	03.03

Ishrat Fatima

Department of Biotechnology



Production of electricity by using waste water
Abstract
Electricity production from waste water is a sustainable solution of waste water management .
Microbial fuel cell (MFCs) produce electricity by using the electrons derived from biochemical reactions catalyzed by bacteria. Anode and cathode are seperarted by Proton Exchange membrane PEM.
SDG#12
The Sustainable Development Goals (SDGs) aim to transform our world. Goal 12: IT is about ensuring sustainable consumption and production patterns, which is key to sustain the livelihoods of current and future generations. Our planet is running out of resources, but populations are continuing to grow.
Microbial Fuel cells working
Wastewater
Organic Matter
Microbes
Electrons
Oxygen
Water
Hydrogen ions
Electrode
Processed water
Objectives
In MFCs, two objectives are accomplished at the same time:
Treatment of wastewater
Generation of clean energy (electricity).
MFCs normally consist of two compartments, a cathode and an anode, which are partitioned by a membrane.
METHDOLOGY
Conclusion
Microbial fuel cells (MFCs) are a new bioelectrochemical process that aims to produce electricity by using the electrons derived from biochemical reactions catalyzed by bacteria. The energy generated by MFCs is expected to supply enough energy to partially cover the energy demand in urban WWTPs.
If there is a magic on this planet, it is contained in water"

SDG#6

Sustainable Waste Water Treatment with Bacillus Subtilis Synthesized Zinc Oxide Nano Particals

Aemin Munir Dr Sadia Dr Shaista Shafiq

Problem Statement

- Wastewater Pollution refers to the contamination of water bodies such as rivers, lakes OR oceans, by the discharge of untreated OR inadequately treated wastewater.
- This pollution can introduce harm substances like chemicals, pathogens and nutrients into the water, adversely affectingaquatic ecosystem, human health and overall water quality.
- Common sources included industrial discharges, agricultural runoff, and inadequate sewage treatment.

Scope & Obectives

Develop eco-friendly and sustainable methods for synthesizing nanomaterials used in wastewater treatment to minimize the environmental impact associated with traditional synthesis processes.

- Eco-Friendly Nanomaterials
- Biocompatibility and Safety
- Diverse Contaminant Removal

- Scalability
- Waste Minimization
- Sustainable Waste Management

Methodolgy

Biosynthesis of Zinc Oxide nano particales (Zn O Nps)

Harvesting of Synthesized nano particales → Preparation of Waste Water

Adsorption and catalytic process → Application Of ZNO Particals

Separation and Filtration → Monitoring and Quality Control

Disposal OR Reuse

Results & Conclusions

- Atomic Force Microscope (AFM) & 3D renderings or profiles.

- Ultraviolet–visible spectra & Zeta Sizer.

Waleed Iqbal (2022-
Mehdi Majid)
Supervisor: Dr. Shaista Shafiq

Synthesis of Bio-Based EpoxyResins from wood shaving

SDG#9

Introduction

Wood straw, a byproduct of forestry and wood processing, is explored in this proposal for a comprehensive study on epoxy resin production. Epoxy resins, valued for their mechanical and chemical properties in construction, aircraft, automotive, and electronics, present untapped potential in utilizing wood straw and other agricultural wastes. Given its availability as a byproduct from various industries, wood straw emerges as a cost-effective and sustainable alternative for epoxy resin manufacturing.

Problem Statement

During the constructions and in many industries engineers and workers were faces many problems like Reduced Adhesive Strength, limited Strength Reinforcement, limited temprature resistance, inferior surface protection, Smoothening the surface, protection from the corroding, insulation problems biochemists tried to resolve all these problems by the epoxy resins. In Pakistan many industries import it from foreign countries but it was costly .but now we are prepared them through ligno cellulosic wood waste.




Scope & Objectives

- Bio based epoxy resins are sustainable material and renewable resource.
- Assas environmental benefits by using wood waste and reduce the petrochemicals.
- They have high mechanical, chemical and thermal resistance to ensure industry requirements.

Methodology

Select and assess lignocellulosic source (Wood shaving) for epoxy resin synthesis based on sustainability and compatibility. Treat wood shavings for enhanced reactivity, involving size reduction, impurity removal, and chemical processes. Extract pure cellulose/hemicellulose via suitable enzymes and microbes like Bacillas and spirochete species for improved epoxy compatibility.Synthesize epoxy monomers, optimize formulations, conduct polymerization, characterize resulting resins, and assess their performance, biodegradability, scalability, and regulatory compliance.

Conclusion

This proposal details a large-scale investigation to synthesise epoxy resins using wood straw as a renewable feedstock and assess their qualities and possible economic and environmental advantages. The findings of this study have the potential to lessen the ecological impact of epoxy resin synthesis.

Acknowledged by: Dr.Saira Bashir

The University of Faisalabad

1st International Conference on Advanced steam education: Challenges and Opportunities, 2023

Production of biofuel from banana waste(Pseudostem)

SDG # 7

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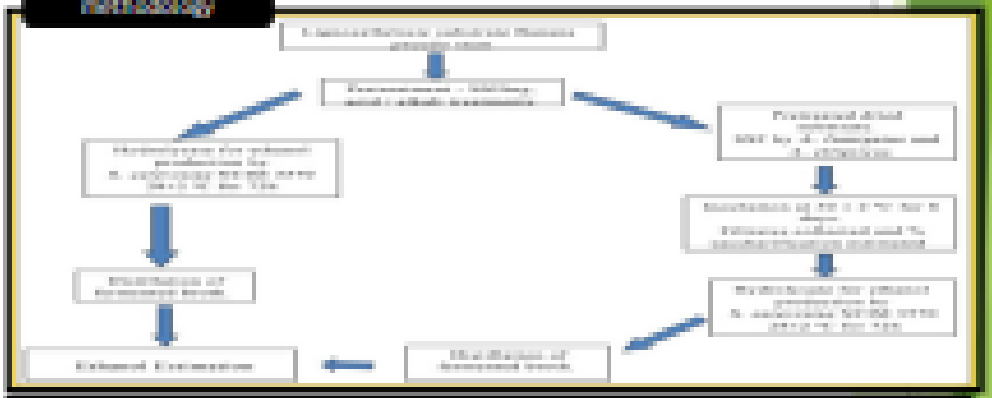
Problem statement

Banana (Musa paradisiaca) is mainly cultivated for it's ripen fruits, cooked vegetables, and leaves in almost every country. It is seen that a huge portion of banana plants are just dumped as waste causing environmental hazards and making ecosystem imbalance. Currently, millions of tons of banana pseudostem are dumped in our country as waste and most of the farmers are facing huge troubles in disposing of the accumulated banana pseudostem.

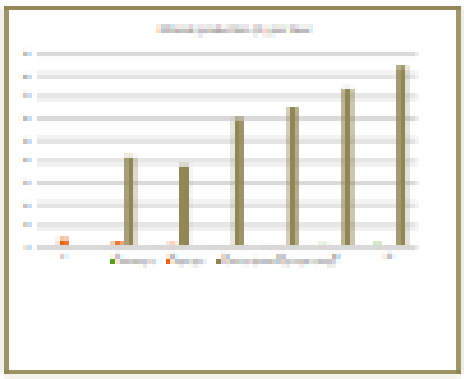
Objectives

- To provide an effective economic means of reducing environmental problem
- Reduce green house gas emission
- Clean energy using microorganisms

methodology



Results



The yeast gave maximum ethanol (17.1 g/L) with 84% yield and 0.024 g/L/h productivity, using this hydrolysate.

conclusion

Cereal grains or edible oil-based biofuels are also not affordable, as they are food commodities. Under these circumstances, abundant lignocellulose-based plant biomass is the best available option to be explored for production of biofuels.

Department

Of

Optometery

The University of Faisalabad

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

SGD# 3&4

1st International Conference on Advanced STEAM Education:

Mahnoor Sajid, Ayesha Mansoor, Rimsha Asif, Sadia Nazir, Ayesha Mukhtar

Problem Statement

EFFICACY OF ANAGLYPH 3D GAME FOR THE TREATMENT OF CONVERGENCE INSUFFICIENCY IN EMMETROPES

Scope & Objectives

To evaluate the efficacy of frequent session of anaglyph 3D game for the treatment of convergence insufficiency in emmetropes whose near work more than 6 hours

Methadology

A Quasi experimental study design through purposive sampling technique was conducted at The University of Faisalabad and The Merit School Faisalabad. The total number of subjects was 30. The study included the subjects having visual acuity 6/6, who used the screen for 6 hours and all the types of refractive errors like Myopia and Hyperopia etc., all type of systemic diseases like diabetes and hypertension were excluded.

The study duration was from September 2023 to December 2023 after taking written and verbal informed consent form. Data was collected using self-designed examination based proforma. Visual acuity was measured by Log MAR chart, near point of convergence was measured by RAF ruler. Anaglyph 3D game was played in computer by wearing red andcyan anaglyph 3D glasses for five days per week for 20 minutes for two weeks. Data was analyzed through SPSS version 23.

Results & Conclusion

Anaglyph 3D game showed significant results to treat convergence insufficiency and relief Asthenopic symptoms ($p<0.01$)

The University of Faisalabad
Department of Optometry

SDG#: 3 & 4

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

1st International Conference on Advanced STEAM education,2023

Exploring the Efficacy of Green Light Therapy on Intraocular pressure and Contrast Sensitivity in Primary Open Angle Glaucoma

Samar Zia, Shakila Abbas,Shagufta Asim, Faryal Iqbal, Aleena Amir, Maham Rao

Introduction

"Glaucoma" refers to an acquired loss of retinal ganglion cells and axons within the optic nerve, also known as "optic neuropathy," which causes a progressive loss of vision. Green light therapy can lead to a greater result for the prevention of glaucoma by reducing IOP which is the main risk factor.

OBJECTIVES

- To assess intraocular pressure and contrast sensitivity in primary open angle glaucoma patients after using Green light therapy with anti-glaucoma medication.
- To compare the effects of Green light therapy and anti-glaucoma medication in primary open angle glaucoma patients.

Methodology

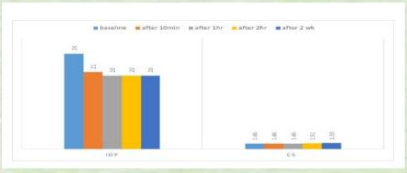
- **Study Design:** Quasi experimental study was conducted at the Ophthalmology Department of MTH Hospital, Faisalabad from September 2023 to December 2023.
- **Study Technique:** Non-probability purposive sampling technique was used.
- **Inclusion Criteria:** Both genders age range from 40 to 80 years, primary open angle glaucoma, patient using anti-glaucoma medications.
- **Exclusion Criteria:** Corneal pathology, other types of glaucoma, systemic disease, systemic medications
- **Data Collection Procedure:** The study involved 40 patients divided into two groups, one with green light therapy and anti-glaucoma drugs, and the other without green light therapy. IOP and contrast sensitivity were assessed using an Airpuff tonometer and Pelli-Robson Chart after 10 min minutes, then after 1 hour and then after 2 hours. A follow-up was scheduled for two weeks, with compliance assessed to measure significant improvement.

Result and Conclusion

Results were recorded as pre post green light therapy and significance value was recorded.
After applying Independent T-Test significant values of IOP and Contrast sensitivity is $P < 0.05$ which indicates there is significant effect with green light therapy.

Group Statistics

	grp_1	N	Mean	Std. Deviation	Std. Error Mean
data_IOP	gtt	20	20.1500	3.83920	.85847
	medication	20	25.8250	1.93496	.43267
data_cs	gtt	20	1.5925	.07304	.01633
	medication	20	1.4675	.10422	.02330



- Significant improvement was seen in Contrast sensitivity and reduction in IOP.
- Reduction in IOP and improvements in contrast sensitivity is more significant with green light therapy as compared to only using anti glaucoma medication.
- It is recommended that Green light therapy provides significant results in the short duration of time . The compliance rate is satisfactory hence this therapy should be used in clinical practice for treating primary open angle glaucoma

The University of Faisalabad

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

SDG #: 3 and 4

Effect of Hart Chart exercise for Pseudomyopes

1st International Conference on Advanced STEAM Education:

Author: Hafsah Mashal
Co- Author: Dr.Nimra Gull

Problem Statement

This study focus on Pseudomyopia which is excessive accommodation of eye due to cilliary spasm, which leads to a marked approximation of far point.
The research aims to determine the effect of Hart Chart exercise on Pseudomyopia.

Scope & Objectives

- To check the effect of Hart Chart exercise on visual acuity of Pseudomyopic patients
- To find the effect of Hart Chart exercise in alleviating the symptoms of Pseudomyopia

Methodology

A quasi-experimental study was carried out at District Health Quarter Hospital, Jhang, from September 2023 December 2023.A total of 30 subjects aged between 10 to 22 year were selected through non-probability purposive sampling. The inclusion criteria for the study was specific symptoms such as blurred vision at a distance, asthenopia, eye strain, and headaches.

Results & Conclusion

Improvement in visual acuity, pre-cycloplegic refractive power, NPA, and AA were observed with 2 weeks hart chart exercise. It concludes that **the Hart chart therapy has proven effective in alleviating symptoms in pseudomyopes.** Baseline results before therapy for NPA were (M=5.1, SD=0.38), after therapy of NPA were (M=6.47, SD=0.66).The mean differences between these two results were (1.37±0.28). There were a significant difference between two means and showed that hart chart was an effective therapy, $t=-9.38$, $df=29$, $p<0.001$.

The University of Faisalabad

STEAM EDUCATION

SDG #:3

Effect of Syntonic Phototherapy on Visual Acuity and Contrast Sensitivity in Myopics

Advanced STEAM Education:

Author:
Nimra Shahzad

CoAuthor:
Dr.Nimra Gull, Eman Jamshaid, Rameen Fatima, Mahina Akram

Problem Statement

- Myopia is worldwide problem recent study estimating that on average, 30% of the world is currently myopic and by 2050, almost 50% will be myopic, that's a staggering 5 billion people
- Syntonic phototherapy is the use of specific wavelengths of light to improve balance in the body's regulatory centers.

Scope & Objectives

- To Evaluate the effect of syntonic phototherapy on visual acuity in myopic.
- To Evaluate the effect of therapy on contrast sensitivity in myopics.

Methodology

- A Quasi-Experimental study was carried out from September 2023 to December 2023 at Govt. High School Faisalabad. Non probability purposive sampling technique was used. The consent was taken before giving the combination of filters such as red (630nm) for 15 minutes, blue(430nm) for 10 minutes and yellow (570nm) for 5 minutes. The visual acuity and contrast sensitivity of the myopic patient was measured before and after the syntonic phototherapy. The patient was seated in a semi darker room and the light target was given to the patient at the distance of 33 cm. A sample size of 60 patients aged between 9 to 18 years were included. A sample size was divided into two groups of mild and moderate categories of myopia. Data analysis was done by using paired sample-t test with SPSS version 20.

Results & Conclusion

- Syntonic phototherapy showed significant improvement in mean and SD. visual acuity in mild myopia before and after syntonic phototherapy was (0.32+0.13), (0.69+0.01) respectively. 2) contrast sensitivity before and after syntonic phototherapy was (1.74+0.02), (1.91+0.01) respectively. Syntonic phototherapy showed significant improvement in mean and SD. visual acuity in moderate myopia before and after syntonic phototherapy was (0.48±0.14), (0.18±0.13) respectively and contrast sensitivity before and after syntonic phototherapy in moderate myopia was (1.75±0.09), (1.95±0.69) respectively.
- The result of this study concludes that there was improvement in visual acuity and contrast sensitivity of myopic patient after syntonic phototherapy.

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STEAM EDUCATION
BRIDGING MINDS GLOBALLY

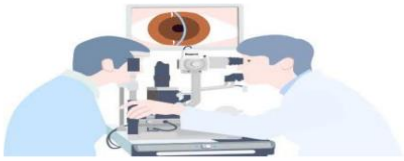
1st First International Conference on ADVANCE STEAM

SDG# 3&4

Mehreen M.Javed, Ayesha Kiran, Hafiza Misbah

Problem Statement

Comparative Effectiveness of Self-Constructed Burton Lamp versus Slit Lamp for Tear Break-Up Time Measurement in Clinical Practise

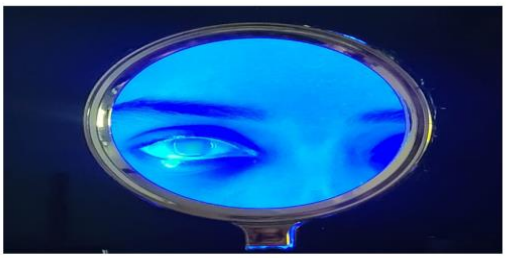


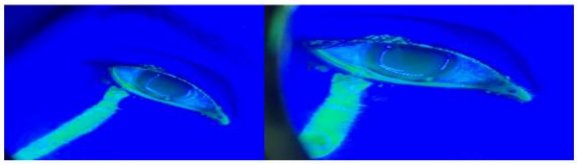
Scope & Objectives

To assess the Validity of self constructed Burton lamp with Slit Lamp. To assess and compare the accurate measurement of TBUT with Biomicroscope Slit Lamp and Burton Lamp.

Methadology

A Comparative cross-sectional study was carried out from August 2023 to Nov 2023 at The University of Faisalabad , Pakistan. A total 30 subjects age ranging from 19 to 24 years of both genders were included. 30 patients of Dry eye were selected through non-probability purposive sampling technique.





Assessed Tear Break-up Time on slit lamp by using fluorescein strip and measured duration of first tear break, then assessed TBUT on Burton Lamp and measured it . Finally compared both readings and evaluated using SPSS.

Results & Conclusion

Thirty participants(60eyes) with a mean age of 22 years were randomized. The independent sample T test was used to compare the two instruments (Slit lamp: Mean = 10.7000±2.11, Burton Lamp: Mean= 9.6000±1.77). The P value is 0.679. Tear breakup time was significantly shorter than in participants without dry eye.

Conclusions: Conventional fluorescein tear film break up time measurements were non- significant with both methods slit lamp and Burton lamp. Compared with the Slit lamp the Burton lamp has sufficient Validity for evaluating tear break up time

Department of Optometry

The University of Faisalabad
Department of Optometry

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

SDG # 3,4

1st International Conference on Advance Steam Education:
Challenges & Opportunities 2023

Ruman Yousaf Maryam Jabbar Fiza Pervaiz Eman Zahid Faisal Rashid Naseer Fatima

EFFECT OF CHANGE IN IRIS COLOR ON MYOPIA

PROBLEM STATMENT

Myopia is a major cause of worldwide avoidable blindness and its prevalence increasing rapidly.

SCOPE & OBJECTIVES

The purpose of this study was to see whether there is a link between iris colour and myopia inindividuals. The findings shed more light on the role of light wavelength in the pathophysiology of myopia.

MATERIALS & METHODS

Study Design: Cross-sessional Study Design
Study Duration: March 2021 to December 2021
Sample Size: 300 Individuals
Sampling Technique: Non-probability Purposive Sampling Technique

RESULTS

Age & Distribution of Myopia

		MYOPIA			Total
		MILD	MODERATE	SEVERE	
AGE	11-15 YEARS	42	31	40	113
	16-20 YERAS	34	34	39	107
	21 -25 YEARS	39	26	15	80
Total		115	91	94	300

Screen Time and Myopia

		Myopia			Total
		Mild	Moderate	Severe	
Screentime	1-2 hours	20	21	15	56
	2-4 hours	50	20	25	95
	4-6 hours	45	50	54	149
Total		115	91	94	300

Degree of Myopia and Iris Grading

Degree of Myopia	Iris Grading				
Myopia	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Mild	9	8	15	38	45
Moderate	4	6	11	29	41
Severe	2	4	17	30	41

Type of Myopia and Iris grading

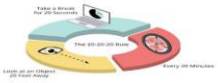
Degree of Myopia	Iris Grading				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Simple Myopia	6	9	43	19	56
Curvatural Myopia	9	9	24	54	71

RECOMMENDATIONS

Early Screening

Outside exposure

Limit screen time and near work



Practice the 20/20/20 rule

Visit your eye doctor every 3 months

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Department of Optometry

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

SDG # 3 & 4

1st International Conference on Advance Steam Education: Challenges & Opportunities 2023

Faryal Iqbal TUF | Shakila Abbas TUF | Tayyaba Shehzadi TUF | Shanza Jameel TUF | Zainab Amjad TUF

Effectiveness of Syntonic phototherapy in different degrees of Anisometropic Amblyopia

Introduction

Anisometropia is clinically significant differences in refractive error that exceed some criterion amount, e.g. ≥±0.75D [1]. As there is difference in power in both eyes, the eye which provide clearer image to brain become dominant and fellow eye has blur image [2]. There are different categories of anisometropic amblyopia including Anisohypermetropia (1.0 to 1.50D), anisoastigmatism (> 2.00D) and anisomyopia (> 3.00 to 4.00D) [3].
Syntonic phototherapy is a latest and most reliable addition for amblyopia treatment. It gives good results in a very short period of time.

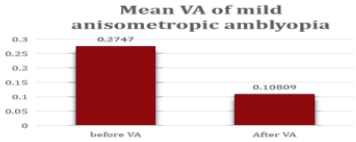
Aims & Objectives

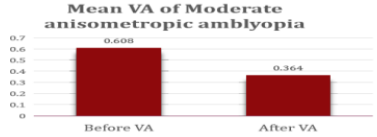
To assess visual acuity and contrast sensitivity with syntonic phototherapy in anisometropic amblyopia.

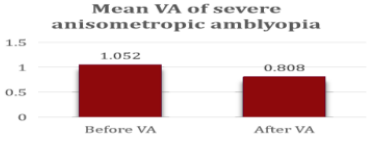
Methdology

Study design: Quasi-experimental study was carried out.
Sample size: Total of 45 patients out of which 15 of mild, moderate and severe degrees of anisometropic amblyopia each are selected
Sampling technique: Non-Probability purposive sampling technique was used
Inclusion criteria: Both genders age range from 7-18 years with any degree of anisometropic amblyopia were included.
Exclusion criteria: Subjects out of the age limit, having nystagmus or other ocular disease (e.g., ptosis) were excluded.
Data Analysis method: SPSS version 20 with paired sample T-test was used to analyse data
Procedure: Syntonic therapy in form of red glasses was given. The patient underwent syntonic phototherapy with red filters for 4 weeks, with 5 sessions per week. After 20 sessions.Pre and post syntonic phototherapy VA was assessed using LogMAR and CS through Pelli-robson and data was recorded

Results







Mean contrast sensitivity before and after Syntonic phototherapy	Mild	Moderate	Severe
	1.5600	1.530	1.4400
	1.6300	1.6200	1.5900
	0.04	0.04	0.01

Conclusions

Significant improvement was seen in Visual Acuity and Contrast Sensitivity in mild, moderate and severe degrees of amblyopia.
It is recommended that the syntonic phototherapy provides significant improvement in a short duration of time. The compliance rate is less in occlusion therapy but in syntonic phototherapy, the compliance rate is satisfactory hence this therapy should be used in clinical practice for treating amblyopia.

The University of Faisalabad
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STEAM EDUCATION
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1st International Conference on Advanced STEAM education,2023

SDG#: 3,4

COMPARISON OF THE EFFICACY OF SELF CONSTRUCTED AND STANDARD WORTH FOUR DOT TEST FOR ASSESSING FUSION , ARC AND SUPPRESSION IN PATIENTS WITH HETROTROPIA

Iqra Salam, Ayesha Kiran, Hamna Waheed

1 Introduction

The Worth's Four Dot Test is a clinical examination that is primarily used to evaluate a patient's binocular single vision. when the patient looks through Red-Green filter goggles at lights, they are asked to report the number and color of dots they can see (two green lights side by side, one red light at the top, and one white at the bottom).

2 Aims and Objectives

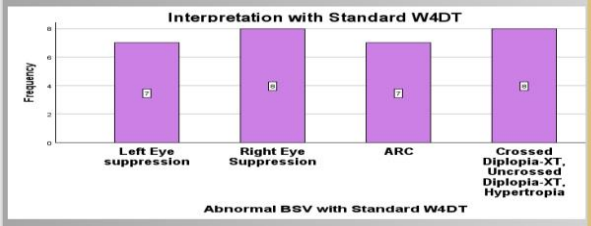
- To compare the efficacy of self-constructed and standard W4DT
- To assess Fusion, ARC and Suppression in Heterotropia with Self-constructed and standard W4DT

3 Methdlogy

- Study design: Comparative Cross-sectional study was carried out.
- Sample size: Total of 30 patients. Standard W4DT (15) and Self-constructed W4DT (15).
- Sampling technique: Non-Probability purposive sampling technique was used
- Inclusion criteria: Both genders age range from 15-25 years with any type of tropia were included.
- Exclusion criteria: Subjects out of the age limit, having

Red-Green color deficiency, Heterophorias and other ocular diseases were excluded.

- Data Analysis method: SPSS version 25 with Independent sample T-test was used to analyze
- data Procedure: Data was collected after informed consent. W4DT was performed with red and green filters at distance(6m) and near (33cm). Recordings were interpreted.



4 Results

Mean and standard deviation of test results with Standard W4DT was 7.177±2.218 and with self-constructed W4DT was 7.00±2.203. This shows that there was no significant difference in the instrument's efficacy as the p-value is greater than (p>0.05) or p=0.467.

5 Conclusion

This study highlighted the reliability of self-constructed W4DT. However self-constructed W4DT can be used for screening, and for assessment of BSV in community.

Reference

Shahid, Sharmeen. "Comparison between Bagolini Striated Glasses and Worth Four Dot Test in Assessment of Fusion and Suppression in Patients with Strabismus: 10.36351/pjo. v39i1. 1497." Pakistan Journal of Ophthalmology 39.1 (2023).

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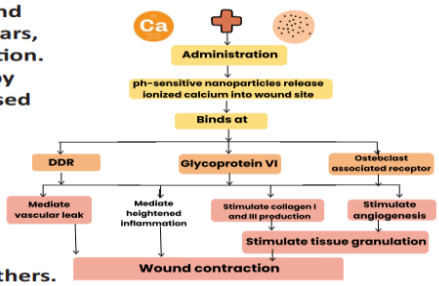
STEAM EDUCATION
BRIDGING MINDS GLOBALLY

SDG #:3

1st International Conference on Advanced STEAM Education: Challanges & Opportunities, 2023.

Problem Statement

The problem at hand is the delayed wound healing observed in Caesarean section scars, prompting the need for an effective solution. This research aims to address this issue by investigating the potential of calcium-based nano particles in accelerating the wound healing process specifically in Caesarean scars. The study seeks to understand the mechanisms of Ca-based NPs to enhance the regenerative processes, ultimately offering a novel approach to accelerate the healing of Caesarean scars and improve postoperative outcomes for mothers.



Scope & Objectives

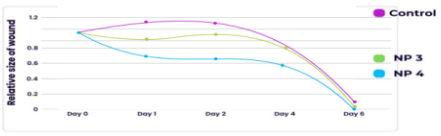
Investigate the effectiveness of calcium nanoparticles in accelerating the wound healing process of cesarean scar.Assess the impact of calcium nanoparticles on cellular responses involved in tissue regeneration. Investigate the role of calcium nanoparticles in promoting angiogenesis for improved vascularization in wound site.

Methodology

Reviewed and analysed literature available on ResearchGate, Google Scholar and PubMed.

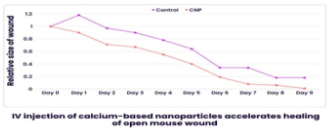
Results & Conclusion

According to the research work done by 'Kenichiro Kawai, Barrett J. Larson, Hisako Ishise,Antoine Lyonel Carre, Soh Nishimoto, MichaelLongaker, H. Peter Lorenz' on Calcium-Based Nanoparticles Accelerate Skin Wound Healing and published in Plos one, wound area in nanoparticle and control treated wounds from days 0-9 can be plotted as:



Therapeutic effect of nanoparticles on the wound site

Intravenously administered, calcium-based nanoparticles can acutely decrease open wound size via contracture. We hypothesize that their contraction effect is mediated by the release of ionized calcium into the wound bed, which occurs when the pH-sensitive nanoparticles disintegrate in the acidic wound microenvironment. This is the first study to demonstrate that calcium-based nanoparticles can have a therapeutic benefit, which has important implications for the treatment of wounds.



IV injection of calcium-based nanoparticles accelerates healing of open mouse wound

GHANIA ABID (1)
TUF

SALEHA SHAFI (2)
TUF

The University of Faisalabad

SDG # 3

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

1st International Conference on Advanced STEAM Education:
Challenges and Opportunities, 2023

Assessment of Barriers to Medication Adherence among Patients with Diabetes using a Self-Reported Adherence Survey: A Cross-Sectional Study

Problem Statement

- The problem that this study addresses is inadequate adherence among diabetes patients, its causes, and what interventions can be done to improve adherence to achieve the desired therapeutic outcomes.
- This problem statement satisfies the goal no. 3 of SDG's named as "good health and well-being."

Scope & Objectives

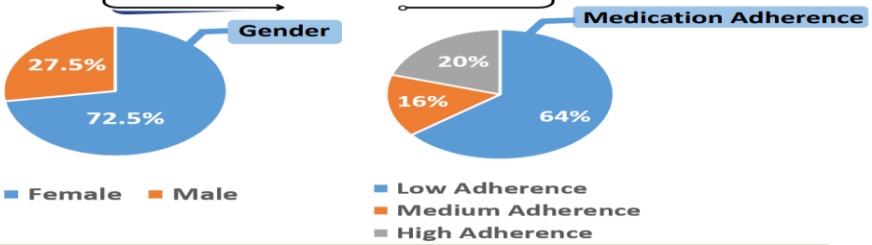
Barriers to adherence	Interventions to improve adherence
• To identify the barriers to medication adherence among patients with diabetes.	• To lay groundwork for interventions aimed at improving the inadequate adherence.

Methodology

Study Design: A cross-sectional study
Sampling Method: Convenient sampling
Sample Size: 64
Inclusion Criteria: Diabetes patients under medication for past 3 months, age ≥ 18 years.
Exclusion Criteria: Pregnancy, lactation, psychological disorder, hypertension
Data Collection Tool:
- Interviewer administered questionnaire
- Developed using the scale development process of DeVellis (2017)
- Barriers to medication adherence were determined using the questionnaire.

Data Processing & Analysis:
- Analysis using Jamovi and Microsoft Excel.

Results & Conclusion



Major barriers to medication adherence include low health literacy, carelessness, and inadequate diabetic counseling.

Healthcare professionals should be encouraged to counsel patients and focus more on those who are less educated.

A limitation is that results may be unreliable due to biased response, so it is desirable to have another measure in addition to this method.

Further research can be done to identify the impact of interventions intended to improve adherence.

Lead Author: Ayesha Bibi Co-Authors: Tahreem, Saira, Sadia, Tahira

The University of Faisalabad

SDG #:3

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

Harnessing Artificial Intelligence for COVID19 Prevention: A Futuristic Approach

Problem Statement

1. **Impact of COVID-19**
   - Public Health Crisis
   - Economic Disruption
   - Educational Disruption
   - Social and Psychological Impact
   - Travel Restrictions

2. **Challenges**
   - Healthcare System Strain
   - Vaccine Distribution
   - Economic Recovery
   - Education Adaptation
   - Virus Variants
   - Global Inequality

Scope & Objectives

1. **Scope:**
   - Explore AI's role in early detection
   - Risk assessment
   - Optimization of preventive measures for COVID-19.
   - Evaluate scalability ethics and challenges associated with AI in public health interventions.

2. **Objectives:**
   - Assess AI's potential in early detection.
   - Optimize preventive measures with AI.
   - Address ethical considerations.
   - Identify and solve integration challenges.
   - Envision the future of AI in pandemic prevention.

Methodolgy

Prevention Strategies

a. **Virtual Health Assistants:**
   - AI chatbots and virtual assistants provide accurate information.
   - Answer queries and guide on preventive measures.

b. **Remote Health Monitoring**
   - AI-driven solutions enable remote health monitoring.
   - Early detection of symptoms for timely intervention.

Results & Conclusion

1. **Benefits of AI in COVID-19 Prevention:**

a)Efficiency and Speed:
   - AI enables rapid analysis, aiding quick decision-making.
   - Accelerates prevention efforts for timely interventions.

b)Data-Driven Insights:
   - AI provides crucial data-driven insights.
   - Shapes effective prevention strategies based on real-time information.

2. **Conclusion:**
   - **AI's Crucial Role:** In global COVID 19 preventions.
   - **Key Contributions:** Early detection, contact tracing, and predictive modelling.
   - **Potential Impact:** Shapes effective and proactive pandemic responses.
   - **Embrace Innovation**: Harnessing AI for a resilient future.

Ruhma Nisar, Izza Imtiaz, Irsa Tariq, Hafiza Afifa Zahid, Minahil Abbas
Department of Pharmacy, 9th semester, The University of Faisalabad.

The University of Faisalabad

STEAM EDUCATION
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SDG#:3

Telepharmacy: Bridging Gaps in Healthcare Delivery during the COVID-19 Pandemic.

Problem Statement

The COVID-19 pandemic has disrupted traditional healthcare, leading to challenges in accessing essential pharmacy services, risking treatment adherence and patient health.

Scope & Objectives

Objective:

- Explore the pivotal role of telepharmacy during the COVID-19 pandemic.

Context:

- Global health crisis demands innovative solutions.
- Need to maintain healthcare access and ensure patient safety.

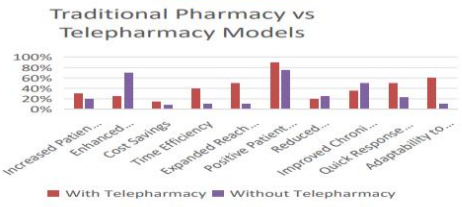
Challenges:

- Unprecedented obstacles posed by the pandemic.
- Heightened healthcare challenges.

Methodology

1. **Assess Needs:** Identify healthcare gaps and patient needs.
2. **Communication Channels:** Establish secure video and messagin channels.
3. **EHR Integration:** Integrate telepharmacy data with Electronic Health Records (EHR).
4. **Pharmacist Training:** Train pharmacists on virtual consultations and security protocols.
5. **Patient Education:** Develop clear patient instructions on telepharmacy usage.
6. **Collaborative Care:** Foster collaboration with other healthcare providers.
7. **Medication Management:** Implement a system for prescription processing and medication reminders.
8. **Quality Assurance:** Establish protocols for virtual care quality control.
9. **Security Measures**: Implement robust cybersecurity protocols for patient data protection.
10. **Patient Feedback:** Solicit and use patient feedback for continuous improvement.
11. **Accessibility:** Ensure inclusivity and accessibility for all patients.

Results & Conclusion



- Positive Impact on Patient Access
- Improved Medication Adherence
- Cost Savings and Efficiency
- Expanded Reach to Underserved Areas
- Favourable Patient Feedback
- Reduction of Healthcare Disparities
- Enhanced Chronic Disease Management
- Quick Response to Emergencies
- Adaptability during Public Consistent Superior Outcomes

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Department

Of

Physical Therapy

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SDG#: 3 GOOD HEALTH AND WELL-BEING, 4 QUALITY EDUCATION

STEAM EDUCATION BRIDGING MINDS GLOBALLY

TUF Rehabilitation Society

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Challenges and Opportunities, 2023

COMPARATIVE EFFECTS OF HAND ARM BIMANUAL INTENSIVE TRAINING (HABIT) AND PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION (PNF) PATTERNS ON UPPER EXTREMITY DYSFUNCTION IN PATIENTS WITH SUBACUTE STROKE

Ayesha Affi 2021-MS-PT-066

Problem Statement

What are the comparative effects of Hand Arm Bimanual Intensive Training (HABIT) and Proprioceptive Neuromuscular Facilitation (PNF) patterns on upper extremity dysfunction in patients with subacute strokes?

Scope & Objectives

To compare the effects of Hand Arm Bimanual Intensive Training and Proprioception Neuromuscular Facilitation patterns on upper extremity dysfunction in patients with subacute strokes.

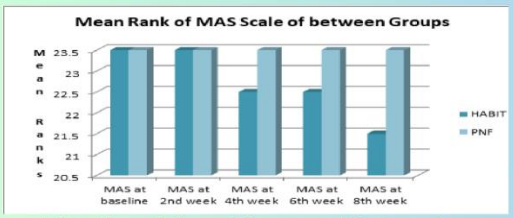
Methodology

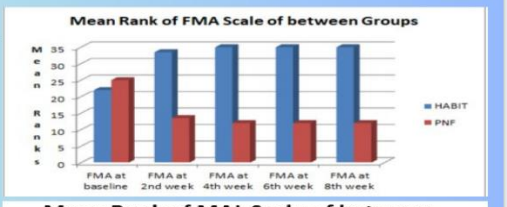
Study Design	Randomized clinical design
Study Setting	Allied Hospital, Aziz Fatima & DHQ Hospital
Study Population	Sub-acute stroke patients
Study Duration	4 months
Sample size	46 participants
Sampling technique	Purposive sampling technique
Statistical analysis	SPSS version 20.
Outcome Measure Tools	FMA MAS MAL 28
Follow up	5

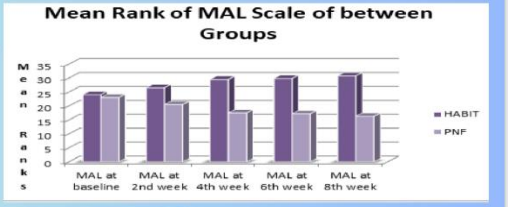
Treatment protocols of HABIT

Treatment Protocols of PNF

Results & Conclusion







The Hand Arm Bimanual Intensive Training (HABIT) gives the effective results for the best and earlier recovery of motor functions in the patients. That's why it is recommended for stroke patients.

References

1.Katan M, Luft A. Global burden of stroke. InSeminars in neurology 2018 Apr; 38(02):208-211.
2.Shahla ND, Ardashir A, Yaghoub P. The Effect of Proprioceptive Neuromuscular Facilitation (PNF) on Activities of Daily Living of client with Cerebrovascular accident. Middle East Journal Of Family Medicine. 2017 Sep 1;7(10):154.

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3 GOOD HEALTH AND WELL-BEING

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STEAM EDUCATION

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Challenges And Opportunities, 2023

COMPARING THE EFFECTS OF TAPPING AND BRUSHING THERAPY ON ANKLE DORSIFLEXION RANGE OF MOTION IN HEMIPARETIC SPASTIC CEREBRAL PALSY

Problem Statement

What are the effective treatment options between two comparative groups of tapping or brushing therapy for improving ankle dorsiflexion range of motion among patients experiencing hemiparetic spastic cerebral palsy?

Scope & Objectives

To compare the effects of tapping and brushing therapy on ankle dorsiflexion range of motion in hemiparetic spastic cerebral palsy

Methodology

Study Design	Randomized Clinical Trial
Study Setting	3 Hospitals OPD
Study Population	Hemiparetic Spastic Cerebral Palsy
Sample Size	34
Allocation	Lottery Method
Outcome Measures	1. Ankle Dorsiflexion Range of Motion 2. Calf Muscle Spasticity 3. Walking Pattern
Statistical Analysis	SPSS 23
Follow Up	3

Group A: Baseline intervention with tapping therapy

Group B: Baseline intervention with brushing therapy

Results & Conclusion

It is concluded that both groups showed improvements but Group A (Tapping therapy) showed more effective results as compare to Group B (Brushing Therapy)

	Treatment groups	Mean Rank
AADROM at baseline	Tapping Therapy	20.26
	Brushing Therapy	14.74
AADROM at 3rd week	Tapping Therapy	21.75
	Brushing Therapy	11.25
AADROM at 6thweek	Tapping Therapy	21.90
	Brushing Therapy	10.47

	Treatment groups	Mean Rank
MAS at baseline	Tapping Therapy	16.00
	Brushing Therapy	19.00
MAS at 3rd week	Tapping Therapy	11.34
	Brushing Therapy	21.66
MAS at 6th week	Tapping Therapy	9.80
	Brushing Therapy	21.81

	Treatment groups	Mean Rank
OGS at baseline	Tapping Therapy	20.53
	Brushing Therapy	14.47
OGS at 3rd week	Tapping Therapy	21.03
	Brushing Therapy	11.97
OGS at 6th week	Tapping Therapy	23.07
	Brushing Therapy	9.38

References

1. Park E-Y, Kim W -H. Effect of neurodevelopmental treatment-based physical therapy on the change of muscle strength, spasticity, and gross motor function in children with spastic cerebral palsy. Journal of physical therapy science. 2017 Feb; 29(6):966-9.
2. Derakhshanfar M, Raji P, Bagheri H, Jalili M, Tarhsaz H. Sensory interventions on motor function, activities of daily living, and spasticity of the upper limb in people with stroke: A randomized clinical trial. Journal of Hand Therapy. 2021 Oct 34(4):515-20.
3. Al-Zwaini IJ. Cerebral Palsy: Clinical and Therapeutic Aspects: BoD–Books on Demand; 2018 Dec.

JYESHA MUSTAFA 2021-MSPP-042

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3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

COMPARATIVE EFFECTS OF GASTROCNEMIUS MUSCLE ENERGY TECHNIQUE AND STRAIN COUNTERSTRAIN ON GAIT OF FAST BOWLERS WITH GASTROCNEMIUS TRIGGER POINTS

1st International Conference on Advanced STEAM Education: Challenges and Opportunities, 2023

Problem Statement

What is the comparative effect of gastrocnemius muscle energy technique and strain counterstrain on gait of fast bowlers with gastrocnemius trigger points?

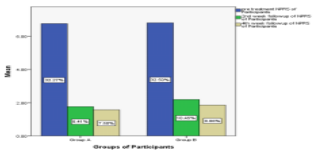
Scope & Objectives

To compare the effect of gastrocnemius muscle energy technique and strain counterstrain on pain, cadence, stride length, ankle dorsiflexion and planter flexion of fast bowlers with gastrocnemius trigger points.

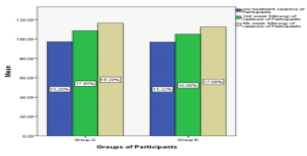
Methodology

Study Design	Randomized clinical trial, single-blinded experimental study
Study Setting	3 Cricket Clubs
Study Duration	4 months
Study Population	Fast bowlers
Sample Size	42 subjects
Sampling Technique	Simple random sampling technique
Allocation method	lottery method
Statistical Analysis	SPSS 20
Outcome measurers	Pain, Cadence, Stride length, Ankle dorsiflexion, Planter flexion
Follow up	4 week (12 days) 3 session per week

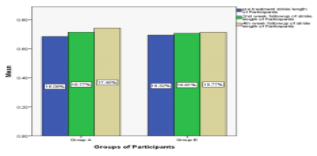
Results & Conclusion



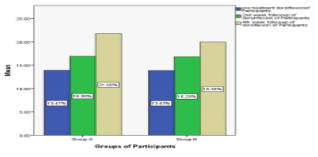
Between group A and B comparison of NPRS



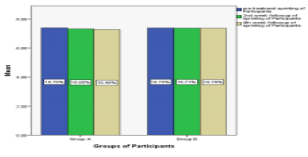
Between group A and B comparison of cadence



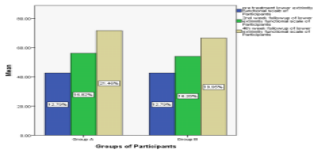
Between group A and B comparison of stride length



Between group A and B comparison of dorsi flexion



Between group A and B comparison of sprinting



Between group A and B comparison of LEFS

This study concluded, although both METs and SCS are effective techniques to decrease pain, improving ROM (ankle planter flexion and dorsiflexion), cadence, stride length and sprinting in runners with gastrocnemius trigger points but METs is better and effective technique as compared to SCS.

REFERENCES

Lee IS, Kim SY. Effectiveness of manual therapy and cervical spine stretching exercises on pain and disability in myofascial temporomandibular disorders accompanied by headaches: a single-center cohort study. BMC Sports Science, Medicine and Rehabilitation. 2023 Dec;15(1):1-1.

Li L, Stoop R, Clijsen R, Hohenauer E, Fernández-de-Las-Peñas C, Huang Q, Barbero M. Criteria used for the diagnosis of myofascial trigger points in clinical trials on physical therapy: updated systematic review. The Clinical Journal of Pain. 2020 Dec 22;36(12):955-67.

Cazeau C, Stiglitz Y. Effects of gastrocnemius tightness on forefoot during gait. Foot and ankle clinics. 2014 Dec 1;19(4):649-57.

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SDG #:

STEAM EDUCATION

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Problem Statement

Does combined effect of Kabat exercises along with mirror therapy are more effective to Kabat exercise in patient with Bells palsy ?

Scope & Objectives

To explore the effect of Kabat exercises along with Mirror in bells palsy in improving facial movement and asymmetry.
This study will be a new addition to the evidence available on different therapeutic options used in improving bell's palsy and will help other therapists to improve clinical outcomes for their patients in their clinics.

Methodology

Results & Conclusion

Patients demonstrated improvement in both techniques, As a result in this study positive significant difference were found. Positive effect of mirror therapy has been seen, Kabat exercise combined with mirror therapy is advised as compared to Kabat exercise alone for patients with Bell's palsy. Adding this form of physical therapy to Bell's palsy patient would be beneficial to achieve maximum benefit in a short period of time.

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3 GOOD HEALTH AND WELL-BEING

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STEAM EDUCATION

1st International Conference on Advanced STEAM Education:

Challenges and Opportunities, 2023

EFFECTS OF OCULOGYRATION WITH NECK PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION PATTERNS ON TRUNK STABILIZATION AND STANDING BALNACE IN SUBACUTE STROKE

Problem Statement

What are the effects of oculogyration with neck proprioceptive neuromuscular facilitation patterns on trunk stabilization and standing balance in subacute stroke?

Scope & Objectives

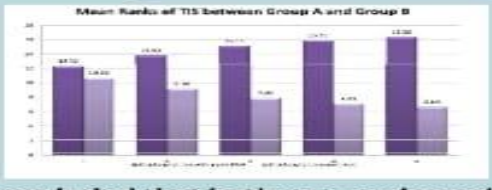
To study the effects of oculogyration with neck proprioceptive neuromuscular facilitation patterns on trunk stabilization and standing balance in subacute stroke patients.

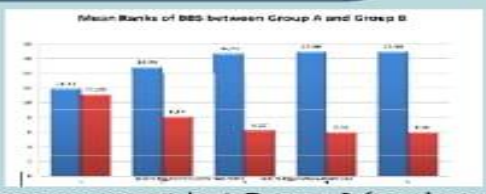
Methodology

Study Design	Randomized Clinical Trial
Study Setting	Allied Hospital, D.H.Q Hospital, Aziz Fatimah Hospital
Study Population	Subacute stroke patients
Sample Size	22
Allocation Method	Lottery Method
Statistical Analysis	SPSS 20
Outcome Measures	Trunk Stabilization Standing Balance

Group A: Oculogyration exercises with neck PNF
Group B: Oculogyration exercises only

Results & Conclusion





It is concluded that both groups showed improvement but Group A (oculogyration exercises with neck PNF) showed more effective results.

References

1. Malik A, Rusly H, Gondo AA, editors. Comparison of post-stroke patient coordination level between frequency exercise of proprioceptive neuromuscular facilitation (PNF). Journal of Physics: Conference Series 2020 Apr 1529(3):032025.IOP Publishing.
2. Luft A, Katan L. Global burden of stroke. Semin Neurol. 2018 Apr 1:38(2):208-11.

KAINAT IDREES 2021-MSPP-068

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Department of Rehabilitation Sciences

SDG
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION

STEAM EDUCATION
BRIDGING MINDS GLOBALLY

TUF Rehabilitation Society

1st International Conference on Advanced STEAM Education: Challenges and Opportunities, 2023

EFFECT OF SLUMP NEURAL MOBILIZATION FOR THE TREATMENT OF CHRONIC RADICULAR LOW BACK PAIN

PROBLEM STATEMENT

What is the effect of slump neural mobilization for the treatment of chronic radicular low back pain?

INTRODUCTION

Low back pain is now very common problem in almost all well developed countries and is being treated in health setting of all regions. Low back pain may be radiating or non-radiating in nature. It may be radiating to the leg called sciatica. There may be mechanical or non-specific type of low back pain (1). It is reported that almost 22.8 % people are suffering from low back pain who seek medical advice in their life (2).

OBJECTIVE

To find out the effect of slump neural mobilization for the treatment of chronic radicular low back pain.

METHODOLOGY

Study Type	RCT
Study Setting	OPDs of Allied, National, Govt. General, Aziz Fatima Hospital
Study Duration	4 Months
Sample Size	20 Participants
Sampling Technique	Simple Random Sampling

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Problem Statement

What Are The Effect Of ELDOA Technique And Mckenzie Extension Exercises In Specific Low Back Pain Patients ?

Scope & Objectives

To Determine The Effects Of ELDOA Technique and Mckenzie Extension Exercises On Pain, Disability And Range Of Motion In Subjects With Specific Low Back Pain

Methodology

RESEARCH DESIGN
Randomized Clinical trail, single-Blinded Experimental Study

STUDY POPULATION
Specific Low Back Pain Patients

SAMPLE SIZE
30 SUBJECTS

STUDY DURATION
4 MONTHS

SAMPLING TECHNIQUE
Non-probability Purposive Sampling Technique

STUDY SETTINGS
InMotion , PhysioFixx and ProPhysio Faisal Hospital, Faisalabad

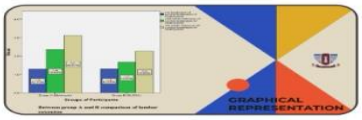
OUTCOME MEASURING
Pain, Disability, Rang of Motion

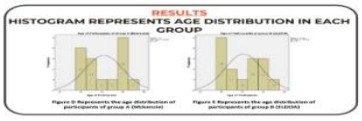
Follow Up
4TH WEEK, 12 DAYS 3 SESSION

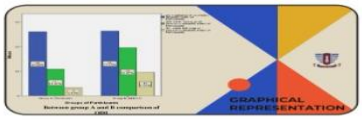
ELDOA(Haleema et al., 2020)
- Guy Voyer developed the technique in 1979
- Elongation Longitudinaux avec Decoaption Osteo-Articulaire (ELDOA) / Longitudinal Osteo Articular Decoaptation Stretching (LOADS)
- The basic principles baseed on fascial stretch which concentrates tension at a specific spinal segment and thus, creates decompression (Sajjad et al., 2021)

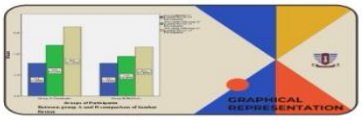
Mckenzie extension exercises (Waqqar et al., 2016)
- Robin Anthony Mckenzie gave the concept of extension exercises.
- Focuses on the centralization phenomenon for assessing and treating spinal pain (pain originates from spine refers distally with targeted repetiting movements pain migrate toward the spine) (Shamshad et al., 2022)

Result & Conclusion









Mckenzie & ELDOA
NPRS, ODI and ROM (lumbar flexion and extension) have shown significant effects in both groups.

Mckenzie Extension Exercises
Mckenzie extension exercises is better and effective technique as compared to ELDOA.

REFERENCES

Balagué, F., Mannion, A. F., Pellisé, F., & Cedraschi, C. J. T. l. (2012). Non-specific low back pain. 379(9814), 482-491.

Choi, J., Lee, S., & Hwangbo, G. J. J. o. p. t. s. (2015). Influences of spinal decompression therapy and general traction therapy on the pain, disability, and straight leg raising of patients with intervertebral disc herniation. 27(2), 481-483.

Do, H.-h., & Chon, S.-c. J. P. T. K. (2019). Comparing the immediate effectiveness of lumbar flexion and extension exercise with regards to pain, range of motion, pelvic tilt, and functional gait ability in patients with lumbar spinal stenosis. 26(4), 10-19.

Ferreira, M. L., de Luca, K., Haile, L. M., Steinmetz, J. D., Culbreth, G. T., Cross, M., ... & Mahmoodpoor, A. (2023). Global, regional, and national burden of low back pain, 1990–2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. The Lancet Rheumatology, 5(6), e316-e329.

Haleema, B., Fatima, U. J. I. J. o. P., & Sciences, S. (2020). The effect of eldoa alone and eldoa with core muscle strengthening to treat pain in patients with pivd: A comparative interventional study. 10(12), 1-9.

STEAM EDUCATION
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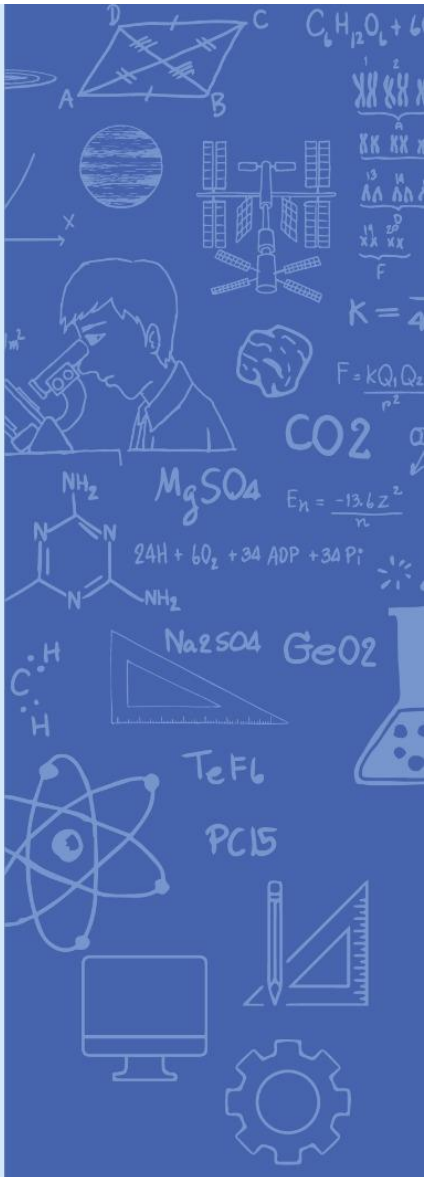

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