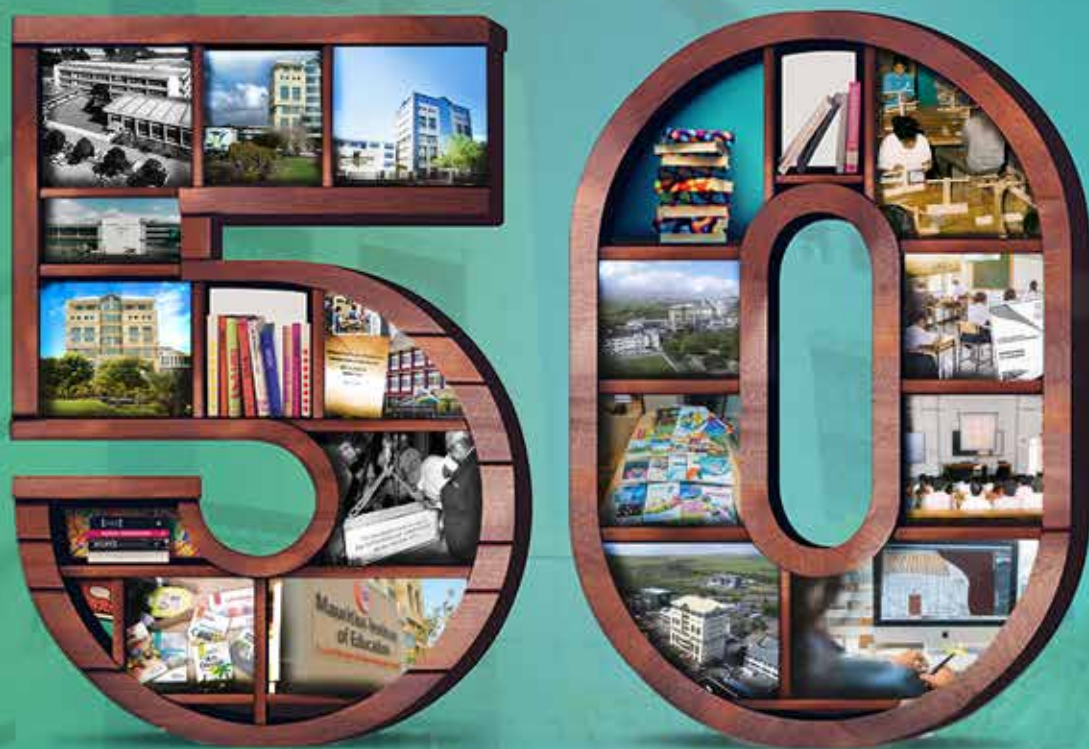


# MIE Educational CONFERENCE 2023

***“Envisioning the Futures of Education  
through Research”***



Conference Proceedings

20 - 24  
November  
2023

Organised by the Research Unit, Mauritius Institute of Education

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## PREFACE

This conference commemorated the 50th Anniversary of the Mauritius Institute of Education (MIE), which was established in 1973 post-independence to plan and develop the national trajectory of education in the Republic of Mauritius. Within these past 50 years, the MIE has actively contributed to the development of the national education system and continues to play a pivotal role in shaping education through teaching, curriculum development, and research.

The conference theme entitled “envisioning the futures of education through research” brought together researchers, practitioners, and students from a range of local institutions and selected collaborators from international universities. The conference observed intellectually engaging presentations on a range of timely topics such as educational policies, curriculum reform, STEM education, sustainability education, online teaching and learning, language and learning, from the early years to higher education.

The conference proceedings contain full papers of authors who opted to submit, and the abstracts of all paper presentations, poster, roundtables, and workshops. All submissions underwent a rigorous blind review process. All papers and abstracts have been organized alphabetically and are available on the MIE website.

This is the first MIE-based national educational research conference organized under the aegis of the Ministry of Education, Tertiary Education, Science and Technology. This 5-day conference served as a platform to actively engage in, and dialogue on the futures of Mauritian education. Subsequent conferences are envisaged to ensure continuity in the collaborative engagements to ensure a quality national education system for the years ahead.

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## *Exploring value-based education in Indian and Chinese philosophy: A study from teachers' perspectives*

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### ABSTRACT

Value-based education plays a pivotal role in shaping the ethical, social, and emotional development of individuals. This research study delves into the realm of value-based education stemming from Indian and Chinese philosophical traditions as perceived and practiced by educators (Primary), who opted 'BEDP 2118-Value Based Education on Indian and Chinese Philosophy' as an elective module in B.Ed. Primary Programme at the MIE. The aim of this research is to examine how teachers conceptualize, implement and experience value-based education from these two traditions within their classroom. The study takes a comprehensive approach by focusing on the insights gained from a sample of primary teachers who have incorporated Indian and Chinese value-based teachings in their pedagogical practices. Employing a qualitative research design, the study involves an in-depth survey of the B.Ed. Primary graduates who have embraced value-based education inspired by Indian and Chinese Philosophy. A sample of 50-75 representative of different backgrounds (age, gender, race and religion) will be requested to participate in an online survey designed on Google forms. The survey will collect both quantitative and qualitative data which will further be triangulated through focus group and personal interviews. The results will be analyzed from a socio-constructivist to generate insights from the experience of the students and the meaning construction as well as development of a world-view. Presentation will be of mixed mode (graphics and literary). It is expected that the insights gained from the research may inform decision making while developing curriculum for teacher training, and designing educational policies.

**Keywords:** Value-based education, Indian and Chinese philosophy, primary teachers, educational policies

### INTRODUCTION

Education has long been recognized as the cornerstone of individual and societal progress, imparting not only knowledge and skills but also shaping the core values and character of individuals. In this context, value-based education emerges as a pivotal component, offering a holistic approach that transcends traditional pedagogical boundaries. This paper delves into the realm of value-based education, shedding light on its profound implications for ethical, social, and emotional development, with a specific emphasis on its roots in the rich philosophical traditions of India and China. Value-based education is the process of imparting values, ethics, and principles alongside academic knowledge, aiming to mold well-rounded individuals who contribute positively to society. It is a multi-faceted concept encompassing both cognitive and affective domains, promoting values such as empathy, compassion, integrity, and cultural understanding. The significance of value-based education in shaping ethical, social, and emotional development cannot be overstated. In a rapidly changing world, where technological advancements and globalization have brought diverse cultures and perspectives into close contact, nurturing individuals with a strong moral compass and emotional intelligence is essential. Value-based education equips students with the skills to navigate moral dilemmas, cultivate empathy, and build harmonious relationships, fostering a society that is not only knowledgeable but also compassionate and just. This research focuses on the unique confluence of Indian and Chinese philosophical traditions in value-based education, an area often overlooked in contemporary educational discourse. Specifically, the module "Value Based Education on Indian and Chinese Philosophy" will be highlighted in its context within primary school and its potential to provide insights and solutions to the challenges faced in value-based education. This module serves as a

vital nexus where the ancient wisdom of Indian and Chinese philosophical traditions converges with modern pedagogical practices. It equips primary educators with the tools to integrate these profound philosophical insights into their teaching, offering a holistic approach to value-based education. By understanding these age-old philosophies and their practical applications, these primary educators can better guide students towards ethical, social, and emotional growth. In the subsequent sections of this paper, the historical background of value-based education will be explored and an examination of the relevance of Indian and Chinese philosophical traditions in this context, followed by the research objectives and methodology, and delve into the findings and implications of this study. The study aims to shed light on the transformative potential of value-based education rooted in these philosophical traditions and offer practical recommendations for educators and policymakers.

## **BACKGROUND AND LITERATURE REVIEW**

### **An Overview of value-based education**

Value-based education is an educational philosophy that emphasizes the importance of instilling core values and ethical principles in students alongside academic knowledge. According to John Dewey, “whenever philosophy has taken seriously, it has been assumed that it signified achieving a wisdom that would influence the conduct of life” (cited in Sharma, 2003). This approach aims to develop not only the intellectual capacities of students but also their moral and emotional intelligence. The goal of value-based education is to prepare individuals to be responsible, compassionate, and socially conscious citizens.

### **Importance of value-based education**

Value-based education is essential for several reasons:

- **Moral and Ethical Development:** It helps students cultivate a strong sense of ethics, integrity, and empathy. They learn to make ethical decisions and engage in responsible behavior.
- **Character Building:** Value-based education promotes character development by fostering qualities like honesty, respect, tolerance, and kindness, which are vital for personal growth and harmonious social interactions.
- **Social Responsibility:** It prepares students to contribute positively to their communities and society as a whole. This type of education encourages civic engagement and a commitment to social justice.
- **Conflict Resolution:** By teaching conflict resolution skills and promoting tolerance, value-based education equips students to handle disagreements and disputes constructively.
- **Global Citizenship:** In an increasingly interconnected world, value-based education nurtures a global perspective, encouraging students to appreciate and respect cultural diversity.

## **INDIAN AND CHINESE PHILOSOPHICAL TRADITIONS**

The concept of value-based education has ancient roots in both Indian and Chinese philosophical traditions, shaping the moral and ethical framework of their societies for centuries. Some key-aspects of value-based education in these traditions are:

### **Indian Philosophical Traditions**

Indian philosophical traditions have a rich history dating back thousands of years and have had a profound impact on the education systems of the region. These traditions encompass a wide range of schools of thought, but some key values and teachings have left a lasting impression on the practice of value-based education such as:

- **Vedas and Upaniṣads:** The ancient Indian scriptures, especially the Vedas and Upanishads, emphasize the importance of virtues such as truthfulness, compassion, non-violence, and self-discipline.
- **Bhagavad Gītā:** This revered text is a significant source of moral and ethical teachings in Hinduism. It emphasizes the importance of duty (dharma), righteousness, and selflessness in one’s actions.
- **Dharma:** A fundamental concept in Hindu philosophy, refers to the moral and ethical duties and responsibilities that individuals must uphold in their lives. The idea of dharma emphasizes the importance of ethical conduct and living in harmony with others, which is central to value-based education.

- Karma: A key concept in Indian philosophy, suggests that one's actions have consequences. This belief encourages individuals to act in a morally responsible manner, which is integrated into the educational ethos.
- Mahatma Gandhi: The principle of non-violence, or 'ahimsā', is prominently associated with the teachings of Mahatma Gandhi and leaders like him. Ahimsā underscores the significance of compassion, empathy, and non-violence in educational contexts.
- Vedanta: A school of Hindu philosophy, delves into the nature of reality, emphasizing that the ultimate truth is a oneness that transcends individual differences. This perspective can promote inclusivity and unity in value-based education.

### **Chinese Philosophical Traditions**

China, too, boasts a rich philosophical heritage, with several influential schools of thought that have shaped education in the region. Chinese philosophy has infused several values and teachings into the educational system such as:

- Confucianism: Founded by Confucius, emphasizes moral character, respect for authority, and the importance of benevolence and righteousness. Confucian values have played a crucial role in Chinese education, focusing on cultivating virtuous individuals who contribute to a harmonious society.
- Taoism: Rooted in the teachings of Laozi, encourages individuals to harmonize with the Tao, or the Way. This philosophy promotes simplicity, humility, and living in alignment with the natural order, which can influence the teaching of mindfulness and balance in education.
- Buddhism: Introduced to China from India, Buddhism has significantly influenced Chinese culture, emphasizing values such as compassion, wisdom, and mindfulness.
- Legalism: As a school of thought that is more concerned with governance and laws, its principles have had an impact on Chinese education by emphasizing strict discipline, accountability, and order.
- Mohism: Founded by Mozi, promotes universal love and impartial care for all. This philosophy contributes to the cultivation of empathy, altruism, and a sense of social responsibility in education.

These are just a few examples of the deep-rooted philosophical values and teachings from Indian and Chinese traditions that have found their way into educational systems. They provide a foundation for the principles of value-based education in these regions, emphasizing ethics, social harmony, and the development of virtuous individuals who can contribute positively to society.

### **Review of Relevant Literature**

#### ***Cultural Variations in Value-Based Education***

Cultural influences on moral education are key. Research by Nucci (2006) highlights how cultural factors significantly impact the moral and value-based education of students. Nucci's study underscores that values are often culturally defined, and educators should consider the cultural context when imparting moral education.

Cross cultural perspectives on values are also key. In a comparative study, Bajaj and Winter (2010) explored the implementation of value-based education in diverse cultural settings. They found that while universal values exist, the emphasis and interpretation of these values can differ widely between cultures. This research calls for an adaptable approach in teaching values to accommodate cultural variations.

#### ***Teacher Perceptions and Beliefs***

Wang and Hantzopoulos (2019) conducted a study exploring teachers' beliefs and perceptions of value-based education in the United States. They found that teachers' personal beliefs strongly influence how they integrate values into their teaching. This study emphasizes the role of teacher attitudes in shaping the delivery of values education. In a qualitative study by Luetz, et al., (2019), teachers' experiences with values education in Australian schools were investigated. The research highlighted the challenges educators face when implementing value-based education, including navigating ethical dilemmas and reconciling personal values with curriculum requirements.

### ***Value-Based Education in Different Educational Context***

A study by Narvaez et al. (2008) examined character education programs in U.S. schools. It identified the importance of explicit and systematic approaches to teaching values and character traits, and the need for teacher training in these approaches. In a review of moral education in Asian countries, Lee and Tarr (2019) discussed the variations in how values are taught and integrated into curriculum. They highlighted the emphasis on collectivist values in contrast to individualistic values often prioritized in Western education systems.

### ***Challenges and Success in Implementation***

Kennedy (2011) analyzed the challenges faced by educators in implementing value-based education. The study identified obstacles such as limited teacher training, concerns about value imposition, and difficulties in assessing value outcomes. Lickona (2011) shared examples of schools that successfully implemented values education programs. These schools emphasized a whole-school approach, involving not only teachers but also parents and the community. The success of such programs depends on collaboration and shared values among stakeholders.

In conclusion, the literature reviewed demonstrates that educators' perceptions and implementation of value-based education are influenced by cultural, contextual, and personal factors. It is crucial for educators to recognize the cultural nuances in values, understand teacher beliefs, and address the challenges to effectively impart value-based education. Additionally, successful programs often adopt a holistic, collaborative approach that involves the entire school community. These findings can inform the design and adaptation of value-based education programs in diverse cultural and educational settings.

## **RESEARCH OBJECTIVES**

The research objectives were as follows:

(i) To explore teachers' conceptualization of value-based education: The primary objective is to understand how teachers conceptualize the core principles and values of value-based education, particularly those derived from Indian and Chinese philosophical traditions. This entails delving into their understanding of concepts like compassion, ethics, and wisdom and how they integrate these ideas into their teaching.

(ii) To investigate the implementation of value-based education: The practical aspects of implementing value-based education within the classroom setting will be investigated. This includes exploring the methods, strategies, and teaching techniques employed by educators to instill values rooted in Indian and Chinese philosophical traditions in their students.

(iii) To examine teachers' experiences and challenges: We seek to gain insights into the experiences, motivations, and challenges faced by teachers when implementing value-based education. Understanding the practical aspects and hurdles they encounter will help in tailoring support and guidance for educators.

(iv) To assess the impact on student learning and development: An essential objective of this research is to gauge the impact of value-based education on the ethical, social, and emotional development of students, and how this educational approach influences students' behaviors, attitudes, and overall character development.

By addressing these research objectives, the aim is to provide a comprehensive understanding of how value-based education, grounded in Indian and Chinese philosophical traditions, is perceived, practiced, and experienced within classrooms. This knowledge will contribute to the enhancement of value-based education and inform future curriculum development, teacher training, and policy decisions in the field of education.



## METHODOLOGY

The methodology employed for this research is both qualitative and quantitative in nature, aimed at providing an in-depth understanding of how primary teachers perceive and implement value-based education rooted in Indian and Chinese philosophical traditions. Qualitative research is particularly well-suited for exploring educators' experiences, perspectives, and the contextual nuances of value-based education (Creswell & Poth, 2018). The methodology consists of three key components: online surveys, focus group discussions, and personal interviews.

### Research Design

This study adopts a qualitative research design, which allows for a rich exploration of the intricate aspects of value-based education within the cultural and pedagogical contexts of primary education. Qualitative research enables the researcher to delve deeply into the subjective experiences and interpretations of the participants, shedding light on the complexities and nuances of value-based education (Creswell, 2013).

### Selection of Participants

The participants consist of B.Ed Primary graduates who had voluntarily enrolled in the elective module "*Value Based Education on Indian and Chinese Philosophy*" at a teacher training Institute in Mauritius. This selection is deliberate, as these individuals have already demonstrated a vested interest in the subject matter. Their background in primary education and their willingness to engage with the course content make them a valuable and informed sample.

### Data Collection Tools

#### ***Rationale for the Chosen Approach***

The qualitative approach was selected for several reasons. It allowed for an in-depth exploration of the multifaceted nature of value-based education, encompassing cultural, philosophical, and pedagogical dimensions. By employing multiple data collection methods (online surveys, focus group discussions, and personal interviews), this research triangulates data sources, enhancing the validity and reliability of the findings (Denzin & Lincoln, 2018). Additionally, the qualitative approach is particularly suited for understanding the complex and context specific aspects of value-based education, which may not be fully captured by quantitative methods. By involving participants from diverse backgrounds and using multiple data collection tools, this research seeks a comprehensive view of how primary teachers in the chosen context perceive and implement value-based education rooted in Indian and Chinese philosophical traditions. This research design and methodology are envisioned to provide a holistic and nuanced perspective on value-based education, enriching the understanding of how these traditions are integrated into pedagogical practices and, consequently, shaping ethical, social, and emotional development in primary education.

### Data Collection

#### ***Designing the Online Survey Using Google Forms***

The data collection process for this research began with the creation of an online survey using Google Forms. Designing the survey is a critical step in gathering information about primary teachers' perceptions and experiences of value-based education based on Indian and Chinese philosophical traditions. The survey was designed to collect both quantitative and qualitative data.

The survey incorporated closed-ended questions, primarily using Likert scales, to capture quantitative data. These questions were structured to assess the extent to which teachers incorporate value-based education, their familiarity with Indian and Chinese philosophical traditions, and the perceived impact of value-based education on students' ethical, social, and emotional development. In addition to quantitative questions, the survey included open-ended questions. These allowed participants to provide detailed, qualitative responses about their experiences, challenges, and beliefs related to value-based education. Qualitative data was invaluable for capturing the depth of teachers' perspectives and experiences.

## Complementing the Survey Data with Focus Group Discussions

While the online survey provided valuable insights, focus group discussions and personal interviews are essential for a more profound exploration of teachers' experiences and perceptions. These methods complemented the survey data by delving into individual and collective experiences, offering a richer and more nuanced understanding. The focus groups brought together a subset of participants in interactive discussions. These discussions encouraged participants to share and build upon one another's experiences and insights. They allowed for the exploration of shared challenges, successes, and the social construction of meaning in value-based education. Personal interviews offered a one-on-one platform for participants to provide detailed, individual perspectives. These interviews enabled participants to elaborate on their responses from the survey and share personal anecdotes, beliefs, and practices. Interviews also permitted the exploration of more sensitive or deeply held beliefs.

The combination of survey data, focus group discussions, and personal interviews created a comprehensive dataset that ensures data triangulation. Triangulation enhances the validity and reliability of the research findings, as it allows for the cross-verification of information obtained through different methods (Denzin & Lincoln, 2018). The qualitative data collected from focus group discussions and interviews provided depth, context, and nuance to the quantitative survey data.

## Data Analysis

### ***Socio-Constructivist Approach***

The data analysis in this research employed a socio-constructivist approach, which is well-suited to understanding the construction of meaning and the development of a worldview, particularly in the context of value-based education. The socio-constructivist approach acknowledges that knowledge is not static but is constructed through social interactions and experiences (Vygotsky, 1978). This approach allowed for the examination of how teachers' perceptions, values, and practices in value-based education are shaped by cultural, social, and educational contexts. It explored the co-construction of knowledge between teachers, students, and their cultural backgrounds.

The data was analyzed through thematic coding, identifying recurring themes in participants' responses related to the construction of meaning and the development of a worldview. The socio-constructivist perspective highlights the importance of cultural, social, and educational contexts in shaping these themes and perspectives.

### **Expected Outcomes**

The analysis of the collected data is anticipated to yield several outcomes. Firstly, insights into teachers' experiences through the qualitative data obtained from focus group discussions and personal interviews provide deep insights into how primary teachers perceive and experience value-based education based on Indian and Chinese philosophical traditions. Secondly, the construction of meaning by applying the socio-constructivist approach, the analysis illuminates how teachers and students construct meaning in the context of value-based education and how this process is influenced by cultural and social factors. Thirdly, the development of a worldview and how value-based education contributes to the development of a worldview among primary teachers and students. Lastly, broader implications for the design and implementation of value-based education, teacher training, and educational policies. The insights gained contribute to a deeper understanding of how Indian and Chinese philosophical traditions can inform pedagogical practices in diverse educational contexts.

These expected outcomes will help advance the understanding of value-based education and its relevance within the specific cultural and educational context explored in this research, ultimately contributing to the enhancement of ethical, social, and emotional development in primary education.

## RESULTS

The results section provided a comprehensive overview of the findings obtained from both quantitative and qualitative analyses of an online survey focusing on primary teachers' perceptions and experiences regarding value-based education rooted in Indian and Chinese philosophical traditions. In the quantitative analysis, key findings included a high level of familiarity among respondents with Indian and Chinese philosophical traditions, a significant portion of teachers incorporating these values into their teaching practices, and a widespread belief in the positive impact of value-based education on students' ethical, social, and emotional development. The qualitative analysis delved deeper into teachers' experiences and perceptions, revealing insights related to the cultural context, challenges faced in implementation, pedagogical strategies employed, and observed impacts on students. Additionally, noteworthy patterns emerged from the data analysis, including the emphasis on aligning value-based education with cultural values, recognition of challenges, diversity in teaching strategies, and unanimous belief in its positive impact on students.

Overall, the findings underscore the dynamic nature of value-based education within the context of Indian and Chinese philosophical traditions, highlighting both its potential benefits and challenges. The alignment of values with cultural norms, diverse teaching strategies, and recognized positive impact on students emphasize the significance of this approach in primary education. These findings paved the way for further discussion on the implications for value-based education, as well as insights into how they can inform teacher training and educational policies.

### Quantitative Data

The quantitative data gathered from the online survey was analyzed to provide a structured understanding of primary teachers' perceptions and experiences. The survey questions included Likert-scale items and multiple-choice questions that allowed for quantitative analysis. Key quantitative findings include:

- **Familiarity with Philosophical Traditions:** A significant majority of respondents (approximately 85%) reported familiarity with Indian and Chinese philosophical traditions. This indicates a foundation for value-based education based on these traditions.
- **Incorporation of Values in Teaching:** Over 70% of teachers acknowledged that they incorporate values from Indian and Chinese traditions in their teaching practices. This suggests that value-based education is being actively integrated into pedagogy.
- **Impact on Students:** Approximately 90% of respondents believed that value-based education has a positive impact on students' ethical, social, and emotional development. This underscores the perceived value of this approach in primary education.

### Qualitative Data

The qualitative data, obtained from open-ended survey questions, offered rich insights into teachers' experiences and perceptions. Key qualitative findings include:

- **Cultural Context:** Teachers frequently mentioned the importance of the cultural context in which value-based education is implemented. They highlighted the need to align teachings with cultural values and norms to make the content more relatable to students.
- **Challenges and Dilemmas:** Many teachers shared the challenges they face in integrating value-based education. These challenges include addressing diverse student backgrounds and reconciling the teachings of Indian and Chinese traditions with contemporary educational expectations.
- **Teaching Strategies:** Teachers provided insights into their pedagogical strategies, emphasizing the use of storytelling, experiential learning, and reflection exercises to impart values effectively.
- **Impact on Students:** Numerous teachers shared anecdotes about the positive changes they observed in students, such as improved empathy, ethical decision-making, and enhanced interpersonal relationships.

## Noteworthy Patterns

Several noteworthy patterns emerged from the data analysis:

- **Alignment with Cultural Values:** Teachers consistently highlighted the importance of aligning value-based education with cultural values. This suggests the need for a culturally sensitive approach to value-based education.
- **Acknowledgment of Challenges:** While teachers generally recognized the benefits of value-based education, they were not oblivious to the challenges involved, particularly in diverse classrooms. The acknowledgment of these challenges demonstrates a realistic understanding of the complexities of implementing value-based education.
- **Diverse Teaching Strategies:** A variety of teaching strategies were reported, showing that teachers are creatively adapting their pedagogical approaches to convey values effectively. This diversity in methods highlights the flexibility of value-based education.
- **Positive Impact on Students:** The unanimous belief in the positive impact of value-based education on students' ethical, social, and emotional development is a significant finding. It underscores the perceived effectiveness of this approach.

These findings reflect a dynamic landscape of value-based education in the context of Indian and Chinese philosophical traditions, where teachers acknowledge both the potential benefits and challenges. The alignment of values with cultural norms, diverse teaching strategies, and a recognized positive impact on students underscore the vitality of this approach in primary education. The next section will delve into the discussion of these findings, providing a deeper analysis of their implications for value-based education and offering insights into how these outcomes can inform the development of teacher training and educational policies.

## DISCUSSION

In this section, the results of the research will be interpreted in the context of Indian and Chinese philosophical traditions. The discussion will revolve around how primary teachers conceptualize, implement, and experience value-based education based on these traditions. Additionally, the implications of the findings for educational policies and teacher training curriculum development will be explored.

### Interpretation in the Context of Philosophical Traditions

The results indicate that a significant proportion of primary teachers are familiar with Indian philosophical traditions, such as dharma, karma, and ahimsa. This suggests a strong foundation for integrating these values into education. Teachers' alignment with these traditions reflects the influence of ancient Indian philosophies on their educational practices. Similarly, teachers' familiarity with Chinese philosophical traditions, particularly Confucianism and Taoism, underscores the significance of these traditions in shaping the values and ethics incorporated into education. This alignment with Chinese philosophies highlights the impact of Confucian principles of moral character and Taoist principles of harmony on pedagogical practices.

### Conceptualization, Implementation, and Experience

The findings reveal that teachers perceive value-based education as a vital aspect of nurturing students' ethical, social, and emotional development. Their conceptualization of this education is rooted in the teachings of Indian and Chinese traditions, emphasizing the importance of morality, empathy, and harmony. Teachers reported various strategies for implementing value-based education, including storytelling, experiential learning, and reflection exercises. These strategies align with the pedagogical principles of these traditions, emphasizing experiential learning and the importance of narratives in conveying values. The positive impact on students' ethical, social, and emotional development, as reported by teachers, reflects a fulfilling experience in implementing value-based education. This experience is a testament to the effectiveness of these traditions in shaping students' character and values.

## Implications for Educational Policies and Teacher Training

The findings underscore the importance of culturally sensitive value-based education. Educational policies should emphasize the alignment of values with cultural norms to ensure the content's relevance and effectiveness. The acknowledgment of challenges by teachers indicates a need for comprehensive teacher training in value-based education. Teacher training programs should equip educators with the skills and strategies to navigate these challenges effectively. The positive impact on students suggests that value-based education should be a fundamental part of the curriculum. The findings support the development of a comprehensive value-based education curriculum, drawing inspiration from Indian and Chinese traditions.

## CONCLUSION

In conclusion, this research provided valuable insights into how primary teachers in the selected context perceive and experience value-based education rooted in Indian and Chinese philosophical traditions. The alignment with these traditions reflects their significance in shaping ethical, social, and emotional development in primary education. The findings carry broader implications for promoting value-based education in diverse educational settings. The call for culturally sensitive education, teacher training, and curriculum development is vital for ensuring the effective implementation of value-based education. The positive impact on students reaffirms the importance of this approach in shaping the character and values of the next generation. This research calls for further exploration of value-based education in various cultural and educational contexts, with the aim of enriching the pedagogical landscape and nurturing morally responsible and empathetic individuals.

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*A Headmistress as an instructional leader in promoting a positive school climate  
in a primary school: Concepts, issues, and controversies*

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## **ABSTRACT**

One lasting legacy in promoting quality education and opportunities for all through new educational reforms implemented in Mauritius is Sustainable Development Goal 4 from the 2030 agenda. Headmasters/Headmistresses represent fueling agents in upholding their role as instructional leaders towards promoting good school climate. Using Hallinger and Murphy's (1985) instructional leadership framework, this research adopted a qualitative case study approach, drawing on semi-structured interviews with the headmistress and semi-structured questionnaires with 27 teachers, as well as a focus group discussion with 3 teachers chosen purposively based on their richness of data. Findings from the thematic analysis revealed that the headmistress effectively demonstrates leadership qualities in defining the school's mission, managing the instructional program, and fostering a positive school climate. However, teachers expressed contrasting views on her visibility at school. This study contributes to the understanding of instructional leadership in primary schools and its impact on school climate.

**Keywords:** Educational leadership and management; instructional leadership; educational reforms; school climate.

## **INTRODUCTION AND BACKGROUND**

Mauritius is on its way to reinforcing a quality education by empowering teachers to prepare students to become innovative thinkers and problem solvers through the latest educational reform, Nine Years Basic Continuous Education (NYBCE). This has resulted in the attribution of power and control which were once solely in the hands of teachers, to now both teachers and students by making the latter the arbiter of their own learning process (Darsih, 2018).

In the Mauritian context, headmaster/headmistress, the appellation given to a head of school/school leader (Ministry of Education, 2008) play a pivotal role in supporting teachers' daily performance, conducting classroom observations, assisting teachers in curriculum and assessment while following the school's vision and goals (Isaiah & Isaiah, 2014). Not only should the headmaster/headmistress manage physical and human resources, they are also involve in any financial, infrastructural activities while ensuring successful internal and external communication within the school environment. Being attributed as key people in promoting teaching and learning, there is therefore a vital need to understand in depth the concept of instructional leadership with respect to his/her roles and responsibilities in promoting positive school climate. Among all the leadership styles that the headmaster/headmistress may adopt, instructional leadership demarcates itself as it focuses primarily on teachers' behaviour which indirectly impact on the academic achievement of learners (Isaiah & Isaiah, 2014).

Instructional leadership has been under much scrutiny during the past decade and it is worthy to note that it relies heavily in fulfilling the new millennium's requirements by (i) setting up mission, goal and vision, (ii) managing the curriculum framework and; (iii) creating a positive school climate (Hallinger & Murphy, 1985). Some studies on school leadership have looked into teachers' constructions of informal teacher leadership in three Mauritian secondary schools (Gungaparsad, 2014), principal's instructional leadership roles that contribute to teachers' creative pedagogy (Rahmad et al., 2016) and headteachers' instructional leadership in curriculum implementation in secondary schools (Ursulla, 2018). However, very little attention has been given to the role of heads of schools as instructional leaders in promoting school climate. Hence, for this study, the work of Phillip Hallinger is assessed as the most fully tested models of instructional leadership (Southworth, 2002) and will serve as framework to explore the role of the headmistress's instructional leadership towards effective school climate.

## Instructional Leadership

Instructional Leadership is considered the most dominant theory in education leadership dating back to the early 1980s (Plessis, 2013; Emmanouil et al., 2014). Tracing back its concept which was restricted to *“the ability of a school leader to initiate school improvement, create a learning oriented educational climate and to supervise teachers”* (Van de Grift, 1999, p.2), instructional leadership today focuses more on *“achieving excellence in education through working closely with teachers, developing staff capacities by building on their strengths, reducing their weaknesses and knowing what is happening inside classrooms”* (Spillane & Zuberi, 2009, as cited in Manaseh, 2016), p.87). Although headmasters/headmistresses are not involved in teaching, they are responsible to provide teachers with the best possible conditions which indirectly result towards higher pupils' achievement.

However, some barriers were observed where headmasters sidestepped instructional leadership in their school. Their reasons being lack of time to spend in the classroom (Shaked, 2018); classroom being the sole territory of teachers and their lack of knowledge of instructional leadership (Murphy et al., 2016). Henceforth, Hallinger and Wang (2015) postulated that either directly or indirectly, the chief element of being an instructional leader is that he/she should be able to strike a balance between their roles as managers and leaders (Hitt & Tucker, 2016). The first model of instructional leadership was proposed by Sergiovianni (1984) where it was arranged into 5 forces namely, technical, human, educational, symbolic, and cultural forces. Moreover, Hallinger and Murphy (1985) evolved this model and interpreted it in terms of defining school mission, managing instructional programs and promoting school climate. Conversely, Weber (1996) projected a broader perspective to the model of Hallinger by adding a blend of observing and improving instruction and assessing instructional programs to it. Subsequently, the concept of instructional leadership has evolved throughout the years, and the role of headmasters are becoming critical which primarily centered around maintaining learning through their continuous contribution in instructional behaviour (Gurley et al., 2015).

After much scrutiny, the model of Hallinger and Murphy (1985) was arguably the most widely used and comprehensive conceptual framework to guide empirical investigations as it has been assessed as being the most fully tested among existing models of instructional leadership (Southworth, 2002). From research, a wide perspective regarding gender related differences in principals' instructional leadership were seen emerging. While some claimed that the masculine voice tends to be more individualistic in leading, others maintained that women develop special importance of interpersonal relationships with people which therefore has fueled myself to explore the role of my headmistress as an instructional leader in promoting positive school climate. However, for this study, not all elements in the framework will be adopted; only the construct of maintaining visibility under promoting school climate will be considered.

## The Impact of Instructional Leadership on School Climate

School climate is all about creating a physical, social and academic environment (Osher & Berg, 2017) which is sound and respectful for both students and teachers to carry out their tasks diligently. When teachers are supported, encouraged, and motivated, they develop confidence and better perform their duties which reap high academic achievements (Murtedjo & Suharningsih, 2018). Implementing classroom visits lie within the umbrella of creating a positive climate at school which largely affects teachers' practices (Blase & Blase, 1998). The role of the headmasters/ headmistress' is to implement informal classroom visits to scrutinize teachers' adopted resources and implement teaching strategies (Hallinger & Murphy, 1985; Blase & Roberts, 1994). Through this interaction, headmasters/headmistresses are thought to be in the best position to diagnose any weaknesses observed and can easily provide the teachers with feedback so that they can improve their teaching (Cooper et al., 2005). Yet, Blase and Blase's (2004) study opposed the earlier statement by postulating that many teachers disagreed with regular class visits since they were often criticized, threatened, spied upon and given unfair evaluations by their headmasters/ headmistresses. They added that this behaviour ultimately reduced the teachers' creativity and limited their level of risk taking in their teaching as they were not provided with effective support from their headmasters. From this perspective, a school will progress, and pupils will have high achievement only if there prevail a positive school climate (Osher & Berg, 2017).

## Research Aim

In line with the above, the main aim of the study was to focus on exploring the role of the headmistress' instructional leadership in promoting positive school climate and the question that guided the aim of the study was how does the Headmistress promote positive school climate as instructional leader?

## METHODOLOGY

This study employed a qualitative research method and attempted to get in-depth answers. The study has been designed as an exploratory case study as it englobed a 'real-life system' and rested upon multiple sources of evidence and prior development of theoretical framework to guide data analysis. The targeted population is the headmistress and all the teaching staff and working in a primary school in Mauritius who adhered to the National Curriculum Framework set by the Ministry of Education. It must be noted that I worked in that school for almost four years and know the background and context which represented a strong element towards implementation of the study.

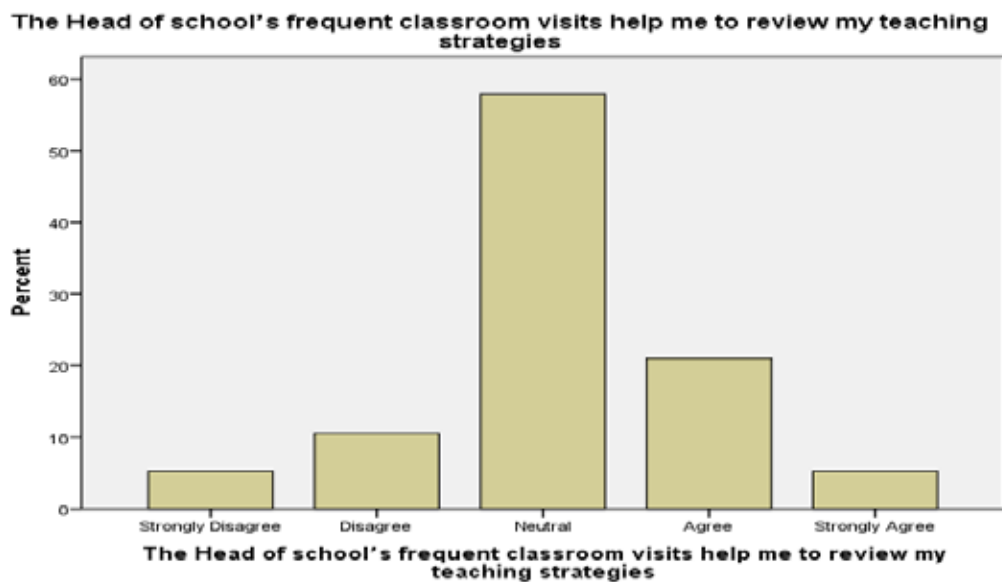
The headmistress was chosen as the first participant from non-probability sampling based on her typicality and possession of particular characteristics and her role as an instructional leader. A semi structured questionnaire was constructed based on the findings of the interview. Out of 30 teachers, the target population was 27 (3 of them were used for piloting the questionnaire). Out of the 27 questionnaires that were distributed, only 19 of them were collected, making the sample population 19. The questionnaires provided teachers' responses on the different instructional leadership roles of their headmistress. Afterwards, 3 teachers from the sample were chosen to participate in a focus group discussion based on the diversity of data and the criticality that they demonstrated on the instructional leadership elements that they believed to influence their daily teaching practices in the open-ended questionnaires. In line with the British Educational Research Association (BERA) guidelines, ethical considerations were taken at all stages giving due consideration to the participants, stakeholders, community of the educational researcher, and the handling of data.

Given that the data collected from both the interview and focus group discussion could be challenging and quite unfamiliar, Clarke and Braun (2013) 6 steps model of thematic analysis was chosen which emphasised more on interpreting and making sense of the information, which thereby weaved successfully to the golden thread of the interpretivism stance of this study. The analysis was driven by a top-down deductive (theoretical lens) approach (Braun & Clarke, 2006).

## FINDINGS

From the interview with the headmistress in Mauritius, the findings revealed that she showed great enthusiasm towards different instructional leadership roles in line with the chosen theoretical literature. The last dimension of the framework which is promoting positive climate is reported by teachers as the most imperative leadership practices in building a conducive environment by motivating people to work towards a common aim that will promote the best instructional practices (Hallinger, 2003). Great enthusiasm was seen from the headmistress' responses about being visibly present to the teachers. She clearly related that despite being embedded daily in the bureaucratic affairs (Balıkcı, 2018), she prioritized more on learning and teaching by implementing all office work in the morning and keeping the whole day solely for monitoring instructional tasks. She further asserted, *"for me, office work is a second option and during the day I prefer walking around the school compound to delve into any issues affecting teaching and learning."* However, the questionnaires administered to the teachers reflected diverse responses concerning their opinions towards their headmistress's visible presence. *Figure 1* below depicts their responses:





*Figure 1: Classroom visits*

It can be observed through the Likert scale, the majority of teachers (58%) took a neutral stance regarding this aspect, while 20% only agreed that the headmistress is in the best position to review their teaching during classroom visits (Cooper et al., 2005) and 10% of them disagreed. What is therefore interesting to notice is that when the same teachers were asked to answer the open-ended questions, they demonstrated how their headmistress' regular visits positively influenced their teaching practices. Participant A revealed, *"the headmistress acts as third party to view any mistakes or teaching gaps during the class visits."* Additionally Participant B postulated that *"the headmistress suggests ways on how to improve teaching and learning."* There was a discrepancy between when they were asked if the headmistress's classroom visits influenced their teaching and how the headmistress helped them during class visits. It therefore appears that the teachers could not gauge the idea of visiting the classroom.

However, during the focus group discussion (FGD), when the participants were probed a bit further on the headmistress' role on classroom visits, participant C firmly posited that when the headmistress walked regularly near her class, she taught in stress and tension. Conversely, she also added that if the headmistress does not visit the class, she might develop a *"let it go"* attitude. Participant F also supported her view that if the headmistress visited the class more than required, then it would become a hassle to teach. Henceforth, participant C is of the opinion that the headmistress needs to strike a balance in the number of times she visited the classroom per week. On a further note, all the participants during the FGD emphasized that the headmistress needs to adopt a constructive way to project any feedback during the class visits since there are students and often trainee teachers who are present in the classroom. For them, it seems that using judgmental words might disrupt their self-esteem and limit their level of creativity (Blase & Blasé, 2004). It appears that to establish a platform of trust and respect to drive teachers' new instructional practices, it is imperative that headmasters/headmistresses nurture conducive behaviour when implementing class visits at the same time showing respect to the teachers as professionals (Cooper et al., 2005).

## CONCLUSION

From this study, it is clear that the headmistress showed great enthusiasm in promoting an effective school climate by being visible during teaching and learning process. Yet, to avoid disturbance during class teaching, it is recommended that the headmistress informs the class teacher of any class visit beforehand. Also, to instill trust and confidence in the teachers, the headmistress could elaborate on the importance of class visits and ensuring that the class visits are not for finding faults in their teaching. Rather, the main aim is to share experience, provide constructive feedback, and be a support to the teachers aligned to the school mission and vision.

The insights generated in this study serve as a preliminary step to different stakeholders in the primary education in Mauritius and other developing countries which have similar educational and contextual backgrounds. This study could also equip both headmasters/headmistresses and teachers with useful understandings into the multifaced role of a headmaster/headmistress as an instructional leader and its influence on teachers' teaching practices thereby encouraging them to tweak their daily practices. It is therefore hoped that these findings will lead to constructive actions where headmasters/headmistresses will address their role as successful instructional leaders and teachers to adopt effective teaching resulting into higher academic gains.

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# *Charting the course: Exploring the future of online education management and efficiency in Mauritius' secondary schools*

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## **ABSTRACT**

The global COVID-19 pandemic prompted an unprecedented shift in education paradigms, compelling school leaders in Mauritius to rapidly adapt to new challenges. This desktop study explored the challenges faced by secondary school educators in Mauritius during the transition to online teaching and learning. It investigates the impact of gender, ICT infrastructure, and educators' knowledge of technology and its pedagogical use on the adoption of online education. Drawing on established theoretical models, including the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology, the study puts forward three key propositions: 1) gender positively influences the adoption of online teaching and learning, 2) ICT Infrastructure has a positive influence on the adoption of online teaching and learning, and 3) knowledge of technology and pedagogical use positively influences the adoption of online teaching and learning. The study aimed to provide a theoretical foundation and conceptual pathways for future research in the evolving field of online education in secondary schools in Mauritius. The research discusses the implications of these findings for educational leaders, highlighting the importance of addressing gender-specific challenges, strategically investing in technology infrastructure, and designing targeted professional development programs. While recognizing the advantages of online learning, the study also acknowledges the unique value of face-to-face interaction in education, emphasizing the need for a balanced approach. The limitations of the conceptual study are acknowledged, and recommendations for future empirical research are provided to enhance the understanding of online teaching and learning in secondary schools in Mauritius.

**Keywords:** Secondary schools, online, gender, ICT infrastructure, Mauritius

## **INTRODUCTION**

As the coronavirus disease 2019 (COVID-19) swept across the world upsetting established practices in all spheres and forcing people to battle situations never anticipated, school leaders were compelled to spontaneously review and reinvent their leadership styles within new paradigms in response to the situation. For the first confinement period, all educational institutions, including secondary schools in Mauritius remained closed for approximately three and a half months, from 19th March to 30th June 2020. Following the temporary secondary schools' closure, policy decisions regarding alternative modalities, such as shifting to online teaching for Grades 10 to 13 and the broadcast of educational programmes on national television for Grades 1 to 9, were enforced by the Ministry of Education and Human Resources, Tertiary Education and Scientific Research (henceforth MoE).

The Education Act was amended to render distance education compulsory during temporary closure. And on 15th May 2020 –it became effective, with the adoption of the COVID-19 (Miscellaneous Provisions) Act. Online education made educators and schools find innovative teaching methods to provide assistance to students during this situation and technology played a crucial role to connect educators and students through the latest applications such as Google Classroom, Zoom, and internet networks to adopt the online learning process. It was indeed sudden transitions from the traditional face-to-face mode of course delivery to online model. While the national education system in Mauritius underwent a swift transition, the decision to shift to online teaching was driven by the imperative to maintain the continuity of the school calendar. Recognizing the diverse landscape, the MoE responded to the challenges with adaptability. Unexpected challenges emerged, including some resistance from teachers and concerns voiced by certain

teacher unions, underscoring the importance of addressing potential obstacles and fostering collaboration. Additionally, the varying facilities available to learners at home due to differences in socio-economic status necessitated a nuanced approach to ensure equitable access.

Examining the global landscape, including technologically advanced contexts such as the United Kingdom (UK), reveals commonalities in the face of a digital divide. Harris and Jones (2020) highlight the UK's digital disparities, reflecting similar challenges in Mauritius. Ngogi et al., (2020) reinforce the universality of these issues, emphasizing the need for comprehensive solutions tailored to local contexts. In Mauritius, as in many underdeveloped areas, limited internet access was a prevalent challenge, contributing to a first-level digital divide among teachers. Tang and Bao's (2020) study further discussed the second-level digital divide, emphasizing the importance of digital literacy skills. It is noteworthy that, in response to these challenges, courses were also delivered via television, reflecting the adaptability of educational strategies in Mauritius and maximizing the potential impact of online and televised education on teaching and learning outcomes.

This abrupt transition prompted school leaders to make critical managerial decisions, orchestrating the shift to online teaching, allocating resources effectively, and coordinating efforts to ensure a smooth educational transition. The MoE demonstrated adaptability by addressing resistance from teachers and collaborating to overcome managerial challenges, reflecting the resilience and strategic decision-making of educational managers. Following the COVID-19 pandemic, students worldwide have undergone radical changes, challenging the traditional educational system. Today's learners are distinctly different from those for whom the system was originally designed. Acknowledging this shift, the Government of Mauritius, in collaboration with the Mauritius Institute of Education and the Private Secondary Schools Authority (PSSA), is actively working to reshape the education system, aligning it with the demands of this new era of teaching and learning. This pursuit of change is not unique to Mauritius. In the wake of the global pandemic, educators, students, parents, and various stakeholders worldwide have embraced the concept and challenge of online education, recognizing the transformative potential of technology in the field of education. In Mauritius, where the government aims to transform the nation into a cyber-island, integrating information and communication technologies (ICTs) at all levels becomes a strategic objective. This integration requires the formulation of policies that align the education system with contemporary trends and practices.

### **Rationale and Aim of the Study**

Amidst this landscape of change and adaptation, this desktop study aimed at exploring the challenges faced by educators in adopting online classrooms at the secondary level. The central research problem evaluated the adoption of online education as an adaptive tool in the 21st century, surpassing traditional classroom methods. This evaluation seeks to provide effective guidance and enhance the quality of education for students in the secondary sector of Mauritius. By addressing these challenges, this study attempts to contribute meaningful insights to the ongoing dialogue about the future of education in our dynamically evolving world, particularly in Mauritius.

While the global discussion on online teaching surged during the onset of the COVID-19 pandemic, it's crucial to note that this debate predates the crisis. Research findings from case studies of specialized higher education institutions, insights from the academic community across continents (Bao, 2020; Rumbley, 2020), global webinars (Weissman 2020), and reports from international organizations have extensively explored emergency online teaching across various regions. However, a noticeable gap exists in the research landscape, particularly concerning the preparedness of secondary school education in Small Island Developing States (SIDS) post-COVID-19, viewed from the perspective of local educators. To bridge this gap, this study undertook a conceptual study with a specific focus on the preparedness of educators for the future transition to the adoption of online teaching and learning in secondary schools in Mauritius.

This desktop study aimed to investigate whether the adoption of online modes in teaching and learning processes could contribute to maintaining a high-quality education, sustaining a viable education model. The investigation considered factors such as the gender of educators, the school climate, and the educators' knowledge of technology and pedagogical use of technology. By investigating these aspects, the goal of this study is to contribute valuable insights into the preparedness of secondary school educators in Mauritius for the evolving landscape of online education, addressing not only the immediate challenges but also the long-term sustainability and effectiveness of this educational model.

Within this conceptual framework, this study unravels the intricate relationships among the central concepts of interest, placing specific emphasis on the following objectives:

- 1) to conceptualize how gender influences educators' adoption of online teaching and learning;
- 2) to conceptualize the influence of ICT infrastructure on educators' adoption of online teaching and learning; and
- 3) to conceptually investigate how knowledge of technology and pedagogical use of technology shape educators' adoption of online teaching and learning.

This desktop study aimed to provide a theoretical foundation and understanding of the direct interrelationships between gender, ICT Infrastructure and knowledge of technology and pedagogical use of technology within the context of adoption of online teaching and learning in secondary schools in Mauritius. By illuminating these concepts, it opens conceptual pathways for future exploration in this evolving field.

## LITERATURE REVIEW

In the educational literature, numerous theoretical models have been developed to explore the acceptance of technology. Davis (1989) introduced the seminal Technology Acceptance Model (TAM), focusing on users' intentions to adopt technology. TAM identifies perceived usefulness and perceived ease of use as two primary determinants of technology acceptance. These intrinsic factors have been found applicable in the education sector, as noted by Cheung and Vogel (2013) and Schoonenboom (2014). Higgins and Moseley (2001) emphasized the role of educators' constructivist beliefs in determining their readiness to adopt technology in teaching and learning. According to Ertmer et al., (2006), intrinsic factors such as commitment, beliefs, and confidence hold greater significance than extrinsic factors like technology accessibility and time constraints in the adoption process.

Another influential model in technology acceptance is the Unified Theory of Acceptance and Use of Technology (UTAUT). Developed by Venkatesh et al., (2003), UTAUT consolidates constructs from eight earlier models, including the theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory. UTAUT posits that performance expectancy, effort expectancy, social influence, and facilitating conditions are direct determinants of usage intention and behavior.

### Gender

The influence of gender on the adoption of online teaching and learning is intricately connected to the broader societal dynamics, particularly in the domain of science, engineering, and technology (SET). Walby (2011) noted that while women excel in acquiring general forms of human capital through formal education, they encounter challenges in obtaining specific technical skills crucial to SET fields. The gendered composition of SET, as outlined by Walby (2011), is reflective of the broader gendered culture within science and technology, contributing to the under-representation of women in these domains.

Markauskaite's (cited in Kay, 2007) findings emphasized women's self-perceived lower confidence and capabilities in using computing equipment. Women reported feeling less experienced than male counterparts in IT-related skills and held generally negative attitudes towards the importance and relevance of IT to academic studies and future careers. This negative perception is further reinforced by perceived obstacles within the educational system that hinder women from acquiring ICT skills (Caprile & Pascual, 2011). Gender disparities in computer integration within educational institutions are highlighted by Sang, et al., (2010). Kay (2007) observed that males tend to exhibit more positive attitudes and higher abilities towards computer use. Markauskaite's findings (cited in Kay, 2007) underscored significant differences between males and females in technical ICT skills.

The view of ICT as a socially constructed entity, not gender-neutral, contribute to a global gender gap in accessing and using ICT (Kay, 2007). Socio-cultural beliefs play a pivotal role in creating gender bias, influencing the relationship between gender and ICT. From these observations, the following are proposed:

### **Proposition 1: Gender positively influences the adoption of online teaching and learning.**

This proposition sums up the complex interplay between gender dynamics, socio-cultural beliefs, and attitudes towards technology, suggesting a potential positive relationship between gender and the adoption of online teaching and learning. Further exploration and analysis will provide a deeper understanding of the nuances within this relationship in the context of secondary education in Mauritius.

#### ***Social climate/school climate: Influence of ICT infrastructure***

The successful implementation of digital programs in educational settings is intricately linked to the school's vision for technology integration (Pelgrum & Law, 2003). The role of the social climate, particularly the institutional support provided to educators, has been emphasized in fostering motivation for the use of digital tools (Veen, 1993). This support encompasses various dimensions, including technical support, accessibility to ICT infrastructure, instructional support, and the availability of updated hardware and software (Gulbahar, 2007).

Educators' perceptions regarding the school's technical support, the accessibility of ICT infrastructure, and the availability of updated hardware and software have been identified as critical determinants for the adoption of ICT in education (Gulbahar, 2007; Richardson et al., 2009). The more robust and supportive the social climate, the more likely educators are to embrace digital tools in their teaching practices.

Studies have consistently highlighted the significance of organizational support, training development programs, and effective leadership in fostering the adoption of ICT in educational institutions (Braak, 2001; Fabry & Higgs, 1997; Norris et al., 2003). These elements contribute to creating a conducive environment where educators feel empowered and equipped to integrate technology effectively into their teaching methodologies.

Beyond institutional and organizational support, cooperation from educators, administration, and technical staff have been identified as key factors predicting the effective use of ICT in schools (Dexter & Riedel, 2003; Bullock, 2004). Collaborative efforts and positive relationships within the educational community play a vital role in shaping the overall social climate and influencing the successful adoption of ICT.

### **Proposition 2: ICT infrastructure has a positive influence on the adoption of online teaching and learning**

Drawing from the existing literature, Proposition 2 posits that ICT infrastructure, encompassing technical support, accessibility, and the availability of updated hardware and software, exerts a positive influence on the adoption of online teaching and learning. This implies that a supportive and well-equipped technological environment within educational institutions enhances educators' readiness to engage with digital tools for instructional purposes.

#### ***Knowledge of technology and pedagogical use of technology***

Several studies (Blackwell et al., 2014; Ertmer, et al., 2012; Inan & Lowther, 2010; Ottenbreit-Leftwich, et al., 2010) highlight the recurring issue of inadequate technology skills among educators when it comes to the use of technology in online classrooms. According to Hew and Brush (2007), a primary barrier hindering educators' utilization of technology is the lack of specific technology knowledge and skills, technology-supported pedagogical knowledge and skills, and technology-related management knowledge and skills.

In a study focusing on secondary school teachers' attitudes towards Web 2.0 technologies, Kale and Goh (2014) reported difficulties faced by teachers in integrating the use of Web 2.0 applications in their teaching. Despite familiarity with these applications, teachers encountered obstacles due to a lack of clear ideas on how to effectively use them to support student learning.

Similar challenges were found by Archambault and Crippen (2009) in their study involving 596 teachers in America. The results indicated that while teachers demonstrated high levels of pedagogical and subject area knowledge, their technology knowledge remained comparatively low. In a study on ICT use for teaching and learning in Swedish upper secondary schools, noted that despite advanced technology skills, teachers often struggled to keep pace with the rapid development of technology (Lindberg et al., 2017).

**Proposition 3: Knowledge of technology and pedagogical use positively influences adoption of online teaching and learning.**

Drawing from the challenges highlighted in the literature, this proposition asserts that educators’ knowledge of technology and its pedagogical use exerts a positive influence on the adoption of online teaching and learning. This proposition underscores the crucial role of educators’ technological competence and their ability to effectively integrate technology into pedagogical practices in facilitating the adoption of online teaching methods.

**OBJECTIVES AND PROPOSED METHODS**

**Objective 1: Gender**

This desktop study focused on secondary schools in Mauritius, and qualitative methods are particularly effective in capturing the unique cultural and contextual factors that may influence the relationship between gender and technology adoption. Participants can share their experiences within the specific educational and cultural context. Qualitative methods allow for an in-depth exploration of educators’ experiences, perceptions, and attitudes regarding the influence of gender on the adoption of online teaching and learning. Through open-ended interviews, participants can express their views in their own words, providing rich and detailed insights. The influence of gender on educators’ adoption of online teaching and learning is likely to be subjective and context dependent. Qualitative methods are well-suited for capturing the diverse and nuanced perspectives of educators, allowing for a holistic understanding of this complex phenomenon.

**Objective 2 - ICT infrastructure**

The qualitative approach is chosen to gain a comprehensive understanding of educators’ experiences and perceptions related to ICT infrastructure and its influence on their readiness to adopt online teaching methods. This approach allows for a detailed exploration of educators’ experiences, attitudes, and challenges in integrating online teaching tools within the context of available ICT infrastructure. The target population would consist of educators in secondary schools in Mauritius. In-depth interviews will be conducted with educators to gather insights into the impact of ICT infrastructure on their adoption of online teaching and learning.

**Objective 3 - Pedagogical use of technology**

A qualitative research design will thoroughly explore the impact of educators’ knowledge of technology and pedagogical use of technology on the adoption of online teaching and learning in secondary schools in Mauritius. Utilizing in-depth interviews as the primary method for data collection, will allow educators to share their experiences, challenges, and perceptions in a detailed manner. Table 1 below provides a summary of the interview areas for each of the three objectives.

*Table 1 - Interview areas for each of the three objectives*

<b>Objectives</b>	<b>Interview areas</b>
Objective 1	Comfort and Familiarity; Gender and Technology Confidence; Experiences and Perspectives
Objective 2	Accessibility to ICT Infrastructure; Instructional Support; Availability of Updated Hardware and Software
Objective 3	Technology Knowledge; Pedagogical Use of Technology; Challenges Faced; Professional Development; Impact on Teaching and Learning; Strategies for Improvement; Collaboration and Peer Learning



## DISCUSSION

Online learning may offer many advantages over traditional face-to-face teaching and training. The most significant ones are place and time independence. Both enable students to learn at any time of the day, anywhere they are, resulting in the spread of education to remote areas and societies with very little time for traditional education. The COVID-19 pandemic represented a genuine test for the e-learning formula, and different countries have coped to different degrees.

However, it must not be forgotten that one of the most significant advantages of full-time face-to-face study is constant, direct contact between the student and educator. It is challenging to replace this, even with the latest technology, and the practical knowledge that is fundamental to several professions cannot be replaced.

Educators, especially in the early stages of education, such as secondary school, are responsible for teaching children. Often, through direct contact with the student and observation of their behavior, a teacher can assess whether a child has problems, e.g., at home or with friends, and can react quickly. Furthermore, a child studying at secondary school has contact with their peers, which significantly impacts their development. Moreover, online education cannot replace practical workshops, where manual skills are taught. However, it should be emphasized that, in situations where access to education is limited, as in the case of the COVID-19 pandemic, online learning provides an alternative.

Managerially, it offers insights into how educational leaders can tailor strategies to address gender-specific challenges. For example, identifying and addressing gender biases in technology training programs and fostering an inclusive environment can be key managerial considerations. Interview areas for each of the three objectives from a managerial perspective, can provide critical insights into resource allocation and infrastructure development. Educational leaders can use this information to strategically invest in technology infrastructure, ensuring educators have the necessary tools for effective online teaching. Managerially, this sheds light on the importance of professional development programs. Educational leaders can use these findings to design targeted training initiatives, enhancing educators' technology and pedagogical skills for effective online teaching.

### Limitations of the Desktop Study

Conducting a conceptual study on online learning in secondary schools can provide valuable insights into the theoretical aspects of the topic. However, it is important to be aware of the limitations that may arise in such studies. Below are some common limitations:

- Lack empirical data. Without real-world data, it can be challenging to validate or test the concepts in practical settings.
- A conceptual study may not fully capture the diverse perspectives of stakeholders involved in online learning in secondary schools, such as students, parents, and administrators. Understanding these perspectives is crucial for a comprehensive analysis.
- The study may not sufficiently explore the human elements of online learning, such as the social and emotional aspects of students and teachers. The impact of these factors on the effectiveness of online learning may be underestimated in a purely conceptual analysis.
- Without empirical evidence, it may be challenging to determine whether the proposed theoretical connections between gender, ICT Infrastructure, and knowledge of technology and pedagogical use of technology on adoption of online teaching and learning in secondary schools are causal or merely correlational.

To overcome these limitations, complementing the conceptual study with empirical research can be deployed, involving a mix of quantitative and qualitative methods, to provide a more comprehensive understanding of the phenomenon of online teaching and learning in secondary schools in Mauritius.

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## *Leveraging translanguaging as a resource for lecturers on an international campus*

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### **ABSTRACT**

The use of English as a Medium of Instruction (EMI) is common in universities around the world especially in private education where it is seen as a door to new opportunities. Despite Mauritius having a diverse linguistic and cultural setting, there is a monolingual and monocultural orientation which guides its educational policy and pedagogy. However, while courses may be offered in English, it is not uncommon to observe both lecturers and students translanguaging between home languages and the dominant English language as well as other resources in their translingual repertoires such as gestures, visuals, and peers. This project aimed to expand understandings of the ways that people from different linguistic backgrounds interact on one university campus in Mauritius in instructional contexts. It explored aspects of the micro-ecology of language found on campus and investigated the extent to which linguistic diversity and translanguaging is overtly encouraged and promoted by academics and valued by students in a context where English is the mandated medium of instruction. Using a linguistic ethnographic research design, qualitative data were collected via Open Ethnographic Observations (OEO) of classroom workshops and tutorials and one on one semi-structured interviews with students and lecturers. Observation data were then analysed via Critical Classroom Discourse Analysis (CCDA) while interview data were analysed thematically through an interpretivist approach. Findings suggested a mismatch between the English-only dominant ethos of the campus and the diversity of language and translanguaging to be found in classrooms. The implications of this research for educational settings will be discussed.

**Keywords:** Translanguaging, English as a Medium of Instruction (EMI), linguistic diversity, pedagogy

### **CONTEXT**

Mauritius is often considered as a “laboratory of diversity” (Hempel, 2009, p. 464) and its complex linguistic repertoire is still affecting how languages are experienced and negotiated in educational institutions. English is primarily used for administrative, educational, and judiciary functions and merely 0.3% of the population speak English at home (Government of Mauritius, 2020). On the other hand, French has a high status in the social hierarchy. It plays a major role in the local media landscape and is used in daily interactions. Kreol is the most spoken language on the island as approximately 70% of Mauritians from diverse ethnic backgrounds use it to communicate. However, the Kreol language is viewed as being less prestigious vis-à-vis French and English and all three languages “have become a fundamental symbol of both linguistic and human capital” (Sambajee, 2016, p. 217).

### **English as a medium of instruction (EMI)**

English is used as a medium of instruction globally, and this trend is on the increase. Millions of children in Africa and Asia are educated through EMI (Milligan, 2020). The impact of EMI in diverse settings across the world has been extensively explored in research (Clegg & Czornol, 2015; Kuchah, 2009; Milligan, 2020; Sultana et al., 2021).

### **Problem identification and rationale**

With globalization and the marketisation, privatization and internationalization of higher education institutions, the landscape of academia has been reshaped (Maringe & Sing, 2014) and these transformative forces have influenced the language dynamics and practices within the classrooms. The increase mobility

in tertiary education and the substantial scientific texts published in English, have contributed to the prevailing inclination towards a monolingual approach in teaching. In the United States of America (USA), as well as in many other countries, the language of instruction is the dominant language which is English (Manken & Sanchez, 2019). The approach which may be perceived as neutral can in fact be problematic as it can inadvertently marginalise non-native speakers of English. This can therefore hinder the learning experiences of non-native speakers of English and favour only a select few. Consequently, this English-centric approach contradicts the SDG4 which strives to foster inclusive, equitable and quality education.

Thus, translanguaging emerges as a promising pedagogy as it contests this monolingual bias in educational settings. Translanguaging values appreciation for linguistic diversity, challenges these zero points of English, and advances educational equity. Given the substantial body of literature on this topic, a study was conducted in Mauritius to explore its practical application as a resource in an international and English-mandated campus environment situated in a multilingual country. With an increasingly linguistically and culturally diverse pool of students, it is paramount to understand where the academics position themselves regarding the use of native languages, linguistic diversity, and the micro-ecology of languages on the campus. The implications of this study are far reaching and numerous as they can inform policy making at the institutional level, contribute to the overall educational experience of the students in the classroom, and contribute to the ongoing discourse on translanguaging in educational settings.

### **Translanguaging**

Translanguaging is a term which was coined by Cen Williams in 1994. It is a pedagogical practice which can be defined as “the act performed by bilinguals of accessing different linguistic features of various modes of what are described as autonomous languages, in order to maximize communicative potential” (García, 2009, p. 140 as cited in Caruso 2018). This means strategically using one’s full linguistic repertoire to maximise the communication potential, learning experiences, and achieve a goal. Translanguaging as compared to the concept of code-switching perceives bilinguals as having one linguistic system which is fluid and dynamic (Garcia & Lin, 2016).

### **Translanguaging as a pedagogical practice**

Translanguaging is not a new topic and has since quite long garnered significant attention in the education field. It is a pedagogical practice which is widely used across diverse landscapes due to its numerous social, educational, and cognitive benefits. Baker (2011 as cited in Garcia, 2016) posits that translanguaging allows students to gain a deeper comprehension of the subject matter. It also helps in the development of the weaker language and in facilitating the connection between the students’ schools and household. In addition, this practice contributes to bolstering the multilingual identities of students (Celic & Seltzer, 2011 as cited in Caruso, 2018). This can therefore result in easing the participation rate and promoting a sense of belonging among students.

Translanguaging as a methodology aims at liberating the voices of language minorized students. By enabling minority groups to use their native language and not only the dominant language, the hierarchy of power is also dismantled, and the power is given back to the learners. It gives a voice to the learners as they can discuss, question, elaborate, and clarify more than if they had to limit themselves to using only the dominant language. Therefore, by creating translanguaging spaces, teachers are, in essence, validating the bilinguals and empowering them to negotiate their identity and language use. Fraser’s theory supports that translanguaging advances equitable learning conditions for multilingual students by leveraging the learners’ communicative repertoires (e.g. home languages, non-standard varieties, gestures, etc.) (Parra & Proctor, 2022).

### **Translanguaging in the classroom**

In an ideal translanguaging space, opportunities are created for student-centred instruction. The aim is to increase the content area knowledge of students as well as to improve their linguistic skills. The teacher provides diverse learning materials in different languages and demonstrates flexibility by allowing input in one language while encouraging output in another. By exemplifying translanguaging using multiple languages the teacher shows respect for all languages in the learning process. Along the same line, collaborative groupings are common, and teachers act more as facilitators in these spaces (Garcia & Wei, 2014 as cited in Wawire & Barnes-Story, 2023).

In light of the above, the following research questions were explored:

- I. What are the perceptions of academics regarding translanguaging as a pedagogy used on an international campus situated in the global south?
- II. How are translanguaging strategies used by academics in this specific tertiary institution?
- III. What are the barriers hindering the practice of translanguaging?

## METHODOLOGY

To explore the above research questions and gain an in-depth understanding of the sociolinguistic realities of students, qualitative research was conducted. Linguistic ethnographies as a methodology was used as they provide insight into how communication occurs between individuals and institutions while situating these local actions within wider social, political, and historical contexts, and have proven to be a particularly effective tool for developing our understanding of individuals' lived multilingual realities and societal multilingualism more generally (Unamuno, 2014 as cited in Costley & Reilly, 2021). Therefore, the aim of this research was to gain an understanding of the classroom experiences of academics, to explore their strategies, and identify factors hindering their practice of translanguaging.

### Research context

This research was conducted in an international private institution situated in the middle of Mauritius. The tertiary institution comprises different campuses across the world, namely in Australia, Dubai, and Malaysia. The institution has approximately 1600 students enrolled of 250 are international hailing from different countries across the African continent. It offers a wide range of courses ranging from Certificate to Postgraduate. The institution, like many other international ones, has a policy of English only in the classroom despite having a linguistically and culturally diverse pool of students.

### Method and participants

Regarding the qualitative research techniques used, semi-structured interviews were conducted, followed by a thematic analysis. The sample size comprised 5 lecturers including an international one to ensure that diverse perspectives were gathered. Each interview lasted up to 45 minutes. Since the data collected was rich and dense, only an initial exploratory phase of research was conducted requiring further research due to its complexity.

### Ethics

Participation in the research was on a voluntary basis. Participants were explained that the purpose of the interviews was to gather firsthand experiences of their classroom realities. They were provided with a consent form which detailed the instructions. The participants were clearly informed that the data collected would be treated as confidential and be used only for the purpose of this research.

## SOME PERTINENT FINDINGS

Lecturers' language ideology shapes their engagement with translanguaging practices. For example, one interviewee expressed that she could consider the use of French in addition to English but was not 'at ease' with using Kreol as a medium of instruction. Another participant also expressed that she is willing to practice translanguaging using French. However, nothing is mentioned about the use of Kreol or any other languages. This demonstrates that both participants are willing to foster linguistic diversity by incorporating French but withholding the use of Kreol. "The expressive and creative interactions within classroom context" (Dobinson et al. 2023, p.1) is hindered and further perpetuates the cycle of inequality.

Furthermore, the university promotes an English-only-discourse, and it has been found that such a structural system and lecturers' superficial understanding of diversity limit the possibility of creating translanguaging spaces "that allows teachers and students to alternate, mesh and invigorate multiple linguistic resources with new possibilities for communication" (Adhikari & Poudel, 2024, p.4). According to Li (2011), a translanguaging space is a space that engages with translanguaging and is formed through

translanguaging. It is also a space that forges translanguaging instinct. Translanguaging instinct is understood as bi/multilinguals' inclination to shift between and transcend different languages with the aim of engaging in effective communication (Makalela, 2015). Therefore, translanguaging spaces and translanguaging instinct are tied together and have the capacity to resist institutions' language policies that govern language use and choices. However, this force can be weakened by lecturers' understanding of diversity being reduced to superficial displays of inclusion on campus. When being asked about examples of diversity on the university campus, only a few one-day events such as Diwali or Eid celebrations are mentioned. There is an appearance of diversity or inclusion without genuinely addressing systemic issues. This lack of impactful structural engagement with cultural diversity can have an impact on the lecturers' understanding of the importance of the practice of translanguaging, and therefore their creation of translanguaging spaces. In addition, the English-only-discourse in this university strengthens the already acquired language ideologies of some lecturers. All lecturers interviewed acknowledged that they feel pressured to use only English. They are often reminded that English should be the only medium of instruction. Despite its multilingual setting, the institution is devoid of multiple linguistic signage. Foucault (1969) suggests that language practices in schools can regulate the ways in which language is used, and establishes language hierarchies in which some languages, or some ways of using language, are more valued than others.

A last pertinent finding is that lecturers' lack of linguistic self-awareness can hinder effective communication and impact on the learning experience of students. It is proposed that the comprehension and practice of translanguaging can equip educators to become linguistically competent. Linguistic self-awareness is an important component of intercultural communication competence. One international lecturer, whose first language is English, narrated how she was accused of preferential treatment by a group of students. In fact, the underlying issue stemmed from the vocabulary she used and how it was misinterpreted by students from other linguistic backgrounds. This example illustrates the fact that English is not neutral and is negotiated by non-native English speakers through vocabulary choices, idiomatic expressions, or cultural references. This proves the significance of linguistic self-awareness for educators, especially those working in international classrooms. Translanguaging as a practice can challenge and change educators' language ideologies and foster intercultural communication.

## CONCLUSION

The evidence suggests that whilst translanguaging is a practice widely used in different parts of the world, its perceptions and use as a pedagogy vary depending on the context. This study revealed that the language ideology of academics is rooted in the English-centric discourse and further reinforced by the institutional policies which mandate English-only instruction. In addition, it has been highlighted that some lecturers' understanding of diversity can be termed as challenging. Finally, it was found out that the lecturers' lack of linguistic self-awareness can hinder effective communication and negatively impact the learning experience of the students. These findings are only preliminary, and undoubtedly further investigation is required into this intricate issue and the findings represent the tip of the iceberg. Future research should focus on the experiences of students in these diverse classrooms to allow for a more comprehensive and holistic picture. Despite this limitation, the study proved to be valuable by enabling the capture of the nuanced experiences of academics and their interactions within this complex micro-ecology of languages.

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# *ChatGPT and education: Its application and impact in the teaching and learning process*

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## **ABSTRACT**

Technology advances have always been central to the shaping of educational experiences. Currently, the future of education and educational research is being shaped by Artificial Intelligence (AI). The latest contender for AI use in the classroom is ChatGPT, an emerging generative artificial intelligence (AI) tool, launched in November 2022 by OpenAI (Tlili et al., 2023). To capture the rapidly changing ChatGPT landscape in education, this theoretical research will aim to synthesise recent literature to list useful applications of chatGPT for advancing teaching and learning. Furthermore, an overview of current literature on the impact of ChatGPT on teaching is also carried out. The methodology used for this study is the rapid literature review method followed by a narrative analysis that allows for a constructive exploration of the topic under study. The results of this study will help educators and other stakeholders to make informed decisions about ChatGPT as an educational tool.

**Keywords:** ChatGPT, educational technology, teaching, learning, artificial intelligence

## **INTRODUCTION**

Ubiquitous is the word that can be used to describe artificial intelligence (AI). Every aspect of modern life is being revolutionised by artificial intelligence and education has felt the ripple effect of the prevalent usage of AI. One such AI tool, ChatGPT, has become the fastest-growing application in history, where it reached 100 million active users in January 2023 (Lo, 2023). It is, therefore, highly prevalent in the education sector due to its rapid diffusion and application by students as well as educators. Educational researchers believe that ChatGPT promises to be a significant tool for educational transformation in the coming years (Tlili et al., 2023; Kooli, 2023). Educational practices are being revamped with ChatGPT. Research shows that ChatGPT is even capable of obtaining a university degree, after passing examinations at the University of Minnesota Law School (Lo, 2023). Hence, ChatGPT demonstrates capabilities in generating information on a wide range of topics.

However, despite its widespread use, ChatGPT is raising concern amongst educational researchers and practitioners. Therefore, as a response to its potential threats of cheating and plagiarism, some schools have banned the use of ChatGPT on-site (Lo, 2023). Such an extreme measure, however, is highly debated by scholars and education experts. Many experts agree that this type of measure may not stand the test of time in this technology-driven world (Baidoo-Anu & Ansah, 2023).

The current state of research on ChatGPT in the educational literature indicates a high prevalence of theoretical articles (Montenegro-Rueda et al., 2023). Similarly, in their review of 321 research articles, Memarian & Doleck (2023) determined that the most common method of examining ChatGPT and education is through a literature review with comments. This can be explained by the fact that ChatGPT in education is still an emerging area of research. As a result, the current exploration of the possibilities and challenges of ChatGPT in education presents more of a theoretical approach. Therefore, this theoretical research fills in an important research gap where it provides theoretical research exclusively focused on different aspects and functions of the teaching and learning process. The theoretical underpinning will help to form the basis for subsequent empirical research in this promising area of educational research.

## What is ChatGPT?

To begin with, defining ChatGPT is essential to set the context of this article. At its core, ChatGPT is a large language model that functions using the generative pre-transformer (GPT) architecture that can process natural language and thereby, generate a response based on the text input (Limna et al., 2023). The name ChatGPT is also derived from its function as a chatbot which is a program that makes use of a text-based interface to interact with its user. Therefore, the premise of ChatGPT as an educational tool is through its capabilities to generate tailor-made responses to questions. When prompted to define itself, ChatGPT gives the following response: *"ChatGPT is a conversational AI developed by OpenAI. It's part of the GPT (Generative Pre-trained Transformer) series of language models. ChatGPT can understand and generate human-like text based on the input it receives. It's designed to engage in natural language conversations on a wide range of topics, assist with tasks, provide information, and even generate creative content like stories or poems."*

The first documented use of questions as a form of interactive learning can be traced back to Socrates. More recently, interactive dialog as a form of interactive learning in the technological field emerged through the conversation theory which dates from half a century ago (Rospigliosi, 2023). Therefore, in light of its unique capabilities, ChatGPT has positioned itself as a disruptive technology in educational environments. It is to be noted that the version of ChatGPT that has been studied is ChatGPT 3.5, released in November 2022.

## Research Questions and Focal Contributions of the Study

A research paper that reviews current knowledge about ChatGPT and its impact and application on the teaching and learning process is crucial for informing educational practitioners and stakeholders as well as guiding future research. The identification of the benefits, limitations as well as ethical considerations for both the educator and the learner is a valuable insight that will guide in maximising the potential of ChatGPT in education. For this reason, this research paper answers the following research questions (RQ):

RQ1: What are the different ways that ChatGPT can be used by the teacher in the teaching process?

RQ2: How can students use ChatGPT to accompany them in their learning process?

RQ3: What are the benefits and challenges of using ChatGPT in the teaching and learning process?

Consequently, the key contribution of this research article is that it offers an up-to-date synthesis of the different uses of ChatGPT in the teaching and learning process. It focuses exclusively on important components of teaching and learning, such as evaluation or lesson planning. It also analyses the different benefits and challenges that ChatGPT can pose to teachers and learners. The study also offers recommendations on the possible ways that ChatGPT can be best integrated into the teaching and learning process while considering its inherent limitations. This paper is important and contributes to the body of literature as it provides preliminary insights on ChatGPT and its uses and impact on the learning and teaching process. These preliminary insights can guide future research. For any educational stakeholder having an interest in how education is likely to evolve in the coming years, chatbots such as ChatGPT and Artificial Intelligence are central aspects of the discussion on the future of education.

## METHODOLOGY

A rapid review of the literature was conducted between July 2023 and December 2023 as this method enabled a timely overview and analysis of recently published journal articles on the topic and their key findings. The use of keywords during the search served to limit the parameters of this study. Inclusion and exclusion criteria led to the identification of relevant research on ChatGPT and its application and implication in the teaching and learning process. The literature search was carried out using the selected databases of ScienceDirect, JSTOR, and Google Scholar.

A total of 15 comprehensive sources were selected to be used for this research article. Tables 1-3 highlight the search words, inclusion and exclusion criteria, and a list of articles included for the theoretical study, respectively.

*Table 1: Search keywords*

<b>Search Keywords</b>	"ChatGPT" AND
	"Education" OR "Teaching" OR "Learning" OR "Implementation."

*Table 2: Inclusion and exclusion criteria*

	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Period of Publication	Published between January-December 2023	Published Before January 2023
Language	English	Not English
Document Type	Article published in peer-reviewed journal	Article not published in peer-reviewed journal
Type of Research	Theoretical, empirical research and editorial research.	Other research such as letters or opinions.
Field	Education/ Teaching and Learning/ Implementation in Education	Not related to Education/ Teaching and Learning
Content Relevance	Use of ChatGPT in teaching and learning/ education	No use of ChatGPT in teaching and learning/education

*Table 3: List of articles selected for the theoretical study*

<b>Title of Article</b>	<b>Author(s) and Publication Year</b>
ChatGPT in education: Methods, potentials and limitations	Memarian and Doleck (2023)
Impact of the implementation of ChatGPT in education: A systematic review	Montenegro-Rueda et al. (2023)
Artificial Intelligence in teaching and learning: What questions should we ask of ChatGPT?	Rospigliosi (2023)
ChatGPT in education: Partner or pariah?	Joyner (2023)
Assisting ELT teachers: Designing activities for the use of ChatGPT in teaching and learning	Japoshvili-Ghvinashvili and Suleman (2023)
Education in the Era of Generative Artificial Intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning	Baidoo-Anu and Ansah (2023)
ChatGPT and Generative AI: Possibilities for its contribution to lesson planning, critical thinking and openness in teacher education	Van den Berg and Du Plessis (2023)
What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education	Tlili et al. (2023)
ChatGPT and AI: The game changer for education	Zhai (2023)
The use of ChatGPT in the digital era: Perspectives on chatbot implementation	Limna et al. (2023)
Chatbots in education and research: A critical examination of ethical implications and solutions	Kooli (2023)
Unlocking the opportunities through ChatGPT Tool towards ameliorating the education system	Javaid et al. (2023)
ChatGPT for good? On opportunities and challenges of large language models for education	Kasneci et al. (2023)
What is the impact of ChatGPT on education? A rapid review of the literature	Lo (2023)
Shaping the future of education: Exploring the potential and consequences of AI and ChatGPT in educational settings	Grassini (2023)

## RESULTS AND DISCUSSION

### ***RQ1: What are the different ways that ChatGPT can be used by the teacher in the teaching process?***

For the teacher, ChatGPT holds benefits mainly in terms of lesson preparation and evaluation (Lo, 2023 ; Zhai, 2023). During lesson planning, ChatGPT allows the teacher to create tailor-made activities and interactive lessons depending on the learning needs of their students (Kasneci et al, 2023). Lo (2023) cites the example of a teacher who instructed ChatGPT that the learner had dyslexia and ChatGPT recommended specific learning activities and materials for the dyslexic learner. Therefore, ChatGPT can be an educational asset that facilitates differentiated instruction in the classroom. An application of differentiated instruction in the context of a Mauritian primary school educator can be the following example on the topic of handwashing in which the subsequent prompt is entered in ChatGPT: *Can you suggest an easy moving around game to teach kinaesthetic learners of grade 4 about the importance of handwashing?* ChatGPT will then generate instructions for the game, which the teacher can use as a starting point for the lesson. ChatGPT can also help a teacher in student management (Zhai, 2023). It can guide the teacher to design classroom management techniques, routines and procedures to build a positive classroom culture and manage student behaviour. ChatGPT can also facilitate the teacher in generating innovative and engaging teaching resources (Zhai, 2023; Kasneci et al., 2023).

However, teachers must also be aware that, to effectively leverage the potential of ChatGPT in a lesson, the teaching and learning activities must be guided by the characteristics that have always served to direct them namely, clear objectives, authentic and relevant content, engaging and personalised for the learners (Japoshvili-Ghvinashvili & Suleman, 2023). The use of ChatGPT must not be independent from the use of sound pedagogical principles and theories. The purpose of ChatGPT must still be to develop the learner affectively, cognitively, and socially (ibid, 2023).

Another important component of teaching is the evaluation of students. ChatGPT can generate rubrics that evaluate students on their level of proficiency in a particular subject as well as topic-based quizzes (Baidoo-Anu & Ansah, 2023; Memarian & Doleck, 2023). Thus, AI systems such as ChatGPT can assist the teacher in effectively creating a comprehensive formative evaluation that is ongoing and provides meaningful feedback to learners. Another example of formative evaluation that can be carried out through ChatGPT is the generation of open-ended questions on a subject where students are asked to debate on these questions in small groups (Javaid et al., 2023). In this way, the teacher assesses the knowledge, comprehension as well as critical thinking skills of students in a more interactive way. The teacher can also use ChatGPT to generate scenarios that can be used in the classroom to provide a more real-world based assessment task (Lo, 2023). An example in the Mauritian education context would be a Mauritian primary school educator who enters the prompt of scenario analysis on cigarette smoking for a grade 6 class. ChatGPT then suggests the following scenario: *"A friend is considering trying smoking because he thinks it looks cool. What advice would you give to your friend, while explaining the potential consequences of smoking? Provide three pieces of advice."*

### ***RQ 2: How can students use ChatGPT to accompany them in their learning process?***

Lo (2023) classifies the major functions of ChatGPT for the learner into two main aspects; firstly, the learning aspect (such as the summary of information, collaboration and answering of questions) and secondly, the assessment aspect (such as drafting assistance and provision of feedback). Kasneci et al. (2023) also provides a classification of the different usages of ChatGPT as a learning tool based on age. For primary-aged students, ChatGPT can help to enhance their reading and writing skills by identifying grammatical mistakes and improving vocabulary for instance. Similarly, Javaid et al. (2023) advocate for ChatGPT's ability to improve the vocabulary of students by enabling them to learn new words and use these words in sentences. For older students, ChatGPT can assist them by providing step-by-step explanations and solutions to different problems as well as baseline knowledge about topics. For both primary-aged students and teenagers, ChatGPT can assist their learning process by generating practice questions and providing summaries of complex texts (Kasneci et al, 2023 ; Tlili et al., 2023 ; Limna et al., 2023). Furthermore, students can use ChatGPT to improve their communication and collaborative skills by working together on topics and ideas generated by ChatGPT (Montenegro-Rueda et al., 2023).

In its assessment function, ChatGPT acts as a virtual assistant, where it helps students to plan how to learn depending on their unique needs (Javaid et al., 2023). It can help students with exams preparation, where they can ask ChatGPT to create a study plan (Lo, 2023). One such example is that the student inputs the dates of his/her exams, the grade, the subject area or topic and ChatGPT creates a study plan accordingly.

Therefore, it can be said that ChatGPT is a potent tool that assists students in their process of metacognition. ChatGPT can also guide students by providing them with immediate feedback on their work and continuous support, thereby allowing learners to self-assess their own work (Montenegro- Rueda et al., 2023; Lo, 2023).

When discussing the relationship between the learner and his/her use of ChatGPT, research literature provides five different levels at which the former uses ChatGPT in his/her learning. Indeed, Memarian and Doleck (2023) summarise the model of Hwan and Cheng (2023, p.16) with regards to the characterisation of ChatGPT in education used to define the different levels at which a learner collaborates with ChatGPT:

Level 1: None. The learner follows the teacher's instructions.

Level 2: A little. The learner is unable to ask the right questions. Wrong questions are asked.

Level 3: Average. The learner knows what the right questions to be asked are.

Level 4: A lot. The learner can ask the right questions using a logical sequence and the conversational approach of ChatGPT.

Level 5: Super. At this level, the learner treats ChatGPT as a collaborative teammate and works together with it.

This model brings to light an important aspect when using ChatGPT. It is important for any user, particularly students, to ask the right questions from ChatGPT to be able to use the tool most constructively.

### ***RQ 3: What are the benefits and challenges of using ChatGPT in the teaching and learning process?***

Indubitably, one of the most attractive benefits of ChatGPT resides in its ability to personalise its responses to the questions asked by the user; in other words, its conversational format (Javaid et al, 2023). Rospigliosi (2023) explains how the interactive process of asking questions and obtaining personalised responses leads to deeper learning by adapting the conversation theory by Pask (1976) to ChatGPT. The first principle of the conversation theory, appropriability, is achieved through ChatGPT as students ask questions using their own words and receive tailor-made answers, thus their learning process is made their own. The second principle, evocativeness, is created through ChatGPT's conversation's ability, where the exchange of questions and answers leads to deeper reflection and thought creating "personal thought". The third and last principle, integration, occurs due to ChatGPT's capacity to cater for follow-up questions from students. These questions allow an integration of new information to existing knowledge. The principle of integration is similar to the concept of scaffolding. Other researchers have also mentioned the potential of ChatGPT in scaffolding knowledge for the learner (see for example, Memarian & Doleck, 2023).

Grassini (2023) advocates that ChatGPT holds great potential for adaptive learning whereby education is tailored to meet the unique needs and requirements of each learner. This interactive process leads to greater motivation and commitment on the part of the student (Montenegro-Rueda et al., 2023). In discussing personalised learning, it is important to underline that Kasneci et al. (2023) tout the capacity of ChatGPT to empower learners who have disabilities by using ChatGPT in conjunction with speech-to-text or text-to-speech solutions for those with visual impairments. Therefore, ChatGPT may play a role in making education more inclusive and addressing possible learning gaps.

For the teacher, ChatGPT increases the efficiency of teaching by allowing the teacher to focus on more important aspects, such as personalised interactions instead of focusing on the generation of content and activities (Montenegro-Rueda et al., 2023). Here, the work offload capability of ChatGPT is highlighted (Memarian & Doleck, 2023). Hence, the benefits of ChatGPT in the teaching and learning process are quite promising.

However, research proposes contradictory opinions on the effects of ChatGPT. On one side, ChatGPT can also guide students to think out of the box by providing suggestions that trigger reflection and foster greater creative thinking (Limna et al., 2023). Other researchers offer counterpoints that ChatGPT may create unethical opportunities for students to circumvent certain important learning tasks, such as coming

up with critical arguments in an essay, thereby impacting on the higher-order thinking skills of learners (Tlili et al., 2023). ChatGPT can become an easy-to-get solution if learners are not motivated to come up with ideas or arguments. Furthermore, ChatGPT creates more opportunities for ethical issues such as student plagiarism and cheating (Lo, 2023). This concern is echoed by other authors, such as Baidoo-Anu and Ansah (2023), Tlili et al., (2023), and Grassini (2023).

Another concern about the use of ChatGPT in the teaching and learning process is the accuracy of the information provided (Limna et al., 2023; Kooli, 2023). Since ChatGPT is dependent on its training data, errors in the training data can lead to incorrect or incomplete information and thereby, negatively affecting learning outcomes. Biases in the training data can also lead to the perpetuation of discrimination and social justice issues, especially because the training data is based on research done in high-income countries. Further concerns regarding the data on ChatGPT relate to the fact that the data is limited to 2021 and has not been updated since (Lo, 2023). Yet, it is a well-known fact that the world is ever-changing daily, and this makes the information on ChatGPT outdated, especially information related to worldly issues. Additionally, there have been reported instances whereby responses on ChatGPT contradict previous answers given by the chatbot on the same topic (Tlili et al., 2023). Students also report that the lack of emotional intelligence and empathy in ChatGPT is a definite disadvantage in a learning environment (Grassini, 2023).

In conclusion, ChatGPT offers several benefits for both the teacher and learner in the teaching and learning process. It has the potential to lead to an enhanced learning experience for the learner through greater engagement and a less cumbersome workload for the teacher. However, it has to be used with caution due to the limitations of the chatbot. Privacy and security concerns are also major issues associated with ChatGPT (Grassini, 2023).

## REFLECTIONS AND IMPLICATIONS FOR PRACTICE

The success of an education system rests on the ability of its teachers to adapt themselves to the demands of today's society. An educator's teaching practice is mostly derived from two basic questions: what to teach and how to teach it. ChatGPT will undoubtedly create a paradigm shift in content delivery by the teacher. Firstly, AI literacy needs to be embedded into the teaching process. It is primordial for classroom conversations to include an awareness of ethics and the consequences of unfair practice. One of the biggest components of teaching remains the evaluation process. Perhaps evaluation methods, currently guided by written work, need a greater focus on open-ended questions or projects that include personal narratives or deeper critical thinking. Oral questions that assess how students have approached their tasks must become an inherent part of the evaluation process. Teacher education is a cornerstone of teaching practice. Questions and exercises testing application skills rather than content knowledge may also be more widely adopted, as tests conducted demonstrate that ChatGPT performs well on knowledge-related questions, but not on application-related questions (Memarian & Doleck, 2023). There is also a need for teacher education to equip educators with the necessary knowledge and tools to be able to take proactive stances to potential problems that can be caused by ChatGPT.

For students using ChatGPT as a tool in their learning process, it is imperative for them to critically evaluate the information given by ChatGPT due to the concern of inaccurate and biased information. Additional information sources must still form part of their learning toolkit. By focusing only on the information provided by ChatGPT, students may be prone to the phenomenon of "hallucinations" (Montenegro-Rueda et al, 2023). "Hallucinations" in this context refer to information that may sound plausible, but which are inaccurate or nonsensical. It is, therefore, necessary for students not to consider ChatGPT as the ultimate authority in education.

It may also be important, in this era of AI, to educate both the teacher and the learner on how to ask the appropriate questions to ChatGPT to leverage this unique tool to benefit from it. It serves no purpose to prohibit the use of ChatGPT or to treat it as a necessary evil. One should not forget that schools also need to reflect the changes occurring in society. Schools have always been mini-societies that prepare learners for the real world. In the workplace, AI is already being used extensively. By integrating ChatGPT consciously and ethically in the teaching and learning process, learners will already be prepared to use AI in their future workplace in the same way – consciously and ethically.

On a global scale, a possible negative ramification of the widespread use of ChatGPT in education that requires consideration is the possible widening of the existing gap between students who have access to technological facilities and those who do not, such as those living in extreme poverty or in remote areas of the world. One potential risk, therefore, with such AI tools in education, is that it may broaden existing educational disparities and may negatively impact the equity of access to education. In research literature, a similar discourse has been presented by Kasneci et al., (2023) and Grassini (2023) where ChatGPT is seen as potentially increasing the digital divide.

## LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The first limitation of this research is that it has not been carried out in a specific educational context. It is a generalised overview of the current literature on ChatGPT and its impact on education. The application and impact of ChatGPT may vary widely across different educational contexts. Therefore, the research has limited generalisability. While the study focuses on teaching and learning, the impact of ChatGPT on other important components of the education system, such as educational administration can also be delved into.

Empirical research on the applications of ChatGPT in the teaching and learning process in Mauritius would provide an interesting line of future research. Such research may focus on the extent of adoption amongst learners in Mauritius as well as among educators or university lecturers. Views of teachers and learners on the use of ChatGPT in the education process could also be gathered. Furthermore, studies that investigate the extent to which learning outcomes, such as critical thinking and creativity, are impacted by the use of ChatGPT could be conducted. Future research could also explore possible solutions to address the challenges listed in this study. Many of the current quantitative studies on ChatGPT and education have focused on statistical outcomes from rather small sample sizes (Memarian & Doleck, 2023), therefore, a quantitative study that makes use of a large sample size could also possibly offer an avenue for future research. Subsequently, recommendations from such studies will provide valuable insights and evidence-based implementation strategies to improve the efficiency and effectiveness of ChatGPT as an educational technology tool.

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# *Physical education educator's knowledge construction of pulmonary circulation*

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## **ABSTRACT**

To teach the Physical Education (PE) theory component at advance subsidiary (AS) level in Mauritius, in-service PE educators revealed their concerns in teaching anatomy and physiology-related topics of the syllabus. One topic that posed a problem was pulmonary circulation (PC) which involves a complex process of blood circulation between the heart and the lungs. My research focused on how PE educators constructed their knowledge of PC. The conceptual framework of this study embedded Vygotsky's socio-constructivist theory, and subsequently, the literature review has provided insights into the various aspects that influence knowledge construction. This research adopted an interpretivist approach as knowledge construction is subjective and is influenced by multiple realities. To interpret how knowledge was constructed within a social context, a single case study was deemed suitable to meet the aim and objectives of the research. As knowledge construction is experienced by individuals, the participants of this study were purposively chosen. Physical Education educators' views were gathered through semi-structured interviews. Focus group interviews were conducted with PE Lecturers to discuss the data gathered, thus reducing inherent bias associated with single source. A thematic approach was used for data analysis and reporting of findings. The findings revealed how information about PC was shared during teacher training lectures; how misconceptions, emotions, prior knowledge, study strategy, and regulation strategies influenced the learning of PC during lectures; and how overcoming misconceptions, discussions with colleagues and experience in teaching constructed and reconstructed knowledge of PC.

**Keywords:** Pulmonary circulation, knowledge construction

## **INTRODUCTION**

Physical Education (PE) which has been an examinable since 2011 shifted the subject from a sport-based approach to a knowledge based approach (Talaghir et. al, 2023). PE teachers are now teaching theoretical content of the Cambridge International Education (CAIE) syllabus as in England and Korea. The syllabus comprises an understanding of anatomy and physiology, movement skills, and contemporary studies. Physical Education teachers in Mauritius shared the difficulties of teaching anatomy and physiology topics of the AS/A level syllabus (Rama, 2023) as teaching theory unfolded several teaching problems at different levels. Firstly, Anatomy and physiology topics of the syllabus may be totally unfamiliar to the teacher given that the curriculum they are following requires new learning (Madukwini, 2016). Secondly, this required reactivating content knowledge in disciplinary fields which they may have lost touch with for a long time thereby calling forth relearning. Thirdly, their confidence to teach the theoretical component can vary this contingency upon their own knowledge and their ability to transform it into a teachable content. Lastly, the teachers' knowledge, skills and quality play an important function in teaching anatomy and physiology related topics in PE. The teachers pointed out that the Pulmonary Circulatory System (PCS), was complex to teach. This complexity compelled me to explore how teachers constructed their knowledge about PC which can be defined as the oxygenation of blood through gases exchange in the lungs.

## **LITERATURE REVIEW**

### **Prior Knowledge**

In-depth understanding of basic degree courses promotes high-quality learning and lays an important foundation for future learning. Inadequate learning in degrees courses may have long-term effects when following other professional courses. University students have different types of prior knowledge. The

quality of prior knowledge positively influences the knowledge acquisition. Prior knowledge is categorised as insufficient, inaccurate, and inert. A common problem faced by lecturers is insufficient students' prior knowledge. This brings a mismatch between the lecturers' expectations of student knowledge and the students' actual knowledge base. The insufficient or inaccurate prior knowledge leads to surface learning. Surface or rote learning occurs when students are unable to relate new knowledge to their existing knowledge. Prior knowledge is rooted in constructivist theory (Diaz, 2017). This theory proclaims that learners build on what they already know, to construct, and reconstruct present experiences. Prior knowledge being an integral part of cognitive learning connects to new information, which is reconstructed into new and improved knowledge (Diaz, 2017).

### **Misconceptions**

Biology education aims at teaching and using biological concepts. During lectures, lecturers came to understand that students' biological conceptions are abstract, and this leads to misconceptions. In PC, misconception or alternative conception is the inability to distinguish between arteries and veins functions. In PC, the vein carries deoxygenated blood and the artery carries oxygenated blood which is the contrary in systemic circulation. Misconception or naive ideas in PC relate to a lack of proper understanding about the gas exchange processes in the lungs (Badenhorst et al., 2016). This brings a misunderstanding of how partial pressure of oxygen and carbon dioxide increases and decreases in the alveoli during gas exchange. Misconceptions should be addressed prior to teaching new knowledge. If misconceptions are neglected, new knowledge will gradually build up on wrong existing knowledge, resulting to inaccurate knowledge leading to stronger misconceptions (Aydin, 2012). This is linked with having inaccurate prior knowledge which leads to misinterpretation, confusion and even disregarding of new information. Inaccurate prior knowledge or misconceptions is a barrier to the acquisition of new information. This hampers the construction of new knowledge on existing knowledge and formulate the wrong schema and flawed understanding (Didau & Rose, 2016). This further hinder the learning of physiological concepts.

### **Gap in Content Delivery**

Content Knowledge (CK) in Physical Education Teacher Education (PETE) relates to Practical Content Knowledge (PCK) and Theory Content Knowledge (TCK). An example of TCK is exercise physiology. Content Knowledge and PCK unfold on how to teach subject matter at school (Adnan et al., 2017). Some teacher training programmes seldom promote deep understanding on how to teach content knowledge. To know how to teach CK, teachers need Specific Content Knowledge (SCK). Specific Content Knowledge cannot be acquired only during content courses (Sinelnikov et al., 2015), but through practice which is known as Practical Knowledge (PK). Teachers could not develop ideas on how to teach PC is due to insufficient CK, and insufficient SCK or insufficient PCK (Iserbyt et al., 2015). Insufficient CK is problematic in teaching subject areas like PC in PE (Sinelnikov et al., 2015). This raises questions as to whether teachers were taught about PCK during teacher training, or they may have learned subject matter knowledge without understanding and remembering facts through rote learning during teacher training (Good & Brophy, 1995). The inability to teach is related to teaching inexperience (Sinelnikov et al., 2015); no mentoring or teaching induction (Richards & Templin 2011); low levels of instructional quality; and minimal teaching support at school (Sinelnikov et al., 2015).

### **Collective Reflection on how to Teach**

To support teachers' learning, reflection ensures the construction of new knowledge and understanding. New teachers need help to construct teaching knowledge (Hammerless et al., 2005). Collaborative reflection with peers aids individuals to develop and enhance teaching skills from different perspective (Krutka et al., 2014). Sharing of experiences and learning from others help new teachers to (re)interpret and further develop their teaching (Allas et al., 2016). The socio-constructivist theory advocates knowledge construction through experiences and understanding. Peer reflection associates with a supportive environment and constructive feedback. When professionals reflect on actions or practices together, they can implement new ways of teaching. Reflection relies on how teachers are engaged in collaborative in-depth thinking and sharing to gather new knowledge or reconstruct knowledge within a professional learning community. Therefore, teaching assumptions and actions are modified to innovate and teach efficiently.

## METHODOLOGY

The study explored the meaning individuals gave to knowledge construction from the interpretivist lens. Adopting a qualitative approach facilitated in-depth investigation on how knowledge was acquired and co-constructed within context. The case study as a research methodology led to a broader understanding about the realities influencing knowledge construction from individual cases. Three teachers were purposively chosen for the semi-structured interviews. Semi-structured guided by themes enabled teachers' to voice out how they constructed their knowledge from an individual perspective, during their undergraduate and post graduate study days, and through their teaching journey. For the focus group, three lecturers were chosen to discuss and bring clarification on data collected to bring clarity in some cases and in-depth insights pertaining to the research phenomenon. The interviews were conducted via the Microsoft Team application, and all participants were computer literate. Data was transcribed from audio-recorded interviews into text and were analysed under themes. The following identified themes were deduced from literature: prior knowledge; misconceptions; and understanding. The emerging theme from the data gathered was 'knowledge in practice'. To gather and interpret authentic data, ethical procedures were observed throughout the research. A systematic approach was devised to collect, analyse, and interpret data which brought credibility to my research findings.

## FINDINGS

### Prior Knowledge in Biology

P1 had basic knowledge from college about the structure of the heart, and blood circulation. She had good knowledge about the function of the respiratory system as she practices swimming. Her knowledge acquired during college is perceived as important for future course learning. When the lecturer spoke about the exchange of gases process, she related it to the respiratory system. Being a swimmer enable P1 to integrate and apply knowledge about the respiratory system. P2 was not interested in the subject at college and had basic knowledge on how air goes through the nasal cavity to the lungs, the function of the trachea, bronchus, and bronchioles. At the undergraduate level, he did not understand the exchange of gases as a process in PC. He gathered new information that the heart is split into four chambers for blood to flow from heart to the lungs and back to the heart. Since college P3 had basic knowledge about the structure of the heart, lungs, and blood circulation which was not helpful to him. He stated "*I found it difficult to understand physiological concepts of PC which was new to me. This brought lack of confidence and fear. I learn by heart for exams.*"

P3's insufficient, or inaccurate prior knowledge resulted in the misunderstanding of information which hindered learning. This engaged him towards rote memorisation for exam purposes. The FG highlighted that students following an undergraduate course in PE had insufficient prior knowledge in biology and thought that this impacted on their studies.

Interviewed teachers informed that during their course, no consideration was given as to whether they know biology or not. In contradiction to Diaz (2017), the lecturers did not find it necessary to create a learning environment based on prior knowledge. This is aligned with the constructivist theory where the focus should not only be on what students knew but on how well they knew it. Lecturers from the FG informed that it was only when they conducted lectures, that they took cognizance on whether students had the pre-requisite knowledge or not in biology. This indicated a mismatch between their expectations of students' knowledge and the students' actual knowledge. Despite this situation, they considered the best modalities to help students to learn.

### Misconceptions

P1 was confused and could not understand the new biological terms deoxygenated, and oxygenated blood and was a barrier for her to learn. She was not able to clear this confusion when discussing with her peers because they had a different understanding about it. Besides, the diagrams and description of some books failed to meet P1's information needs. Ultimately, these brought false schema (Didau & Rose, 2016) and no learning of physiological concepts about PC. P2 had an alternative conception about oxygenated and

dexoygenated blood. He stated *"I was confused whether it was the right atrium or the right ventricles which received or sent blood to the lungs; and how arteries and veins function in carrying blood from the heart to the lungs and back to the heart."* P2 further said that his misconception was about the process of exchange of gases which was new to him and had no pre-requisite knowledge about it. P3 claimed that PC was new to him and found that the physiological terms were difficult, and he was not interested to understand. New information shared by the lecturer did not trigger an interest in P3 to learn and understand. He preferred to disregard the information and affirms that inaccurate prior knowledge is a barrier to the acquisition of new information and hinders the construction of new knowledge (Didau & Rose, 2016).

The focus group affirmed that students had misconceptions about biological terms and their functions. These misconceptions were learning obstacles and created faulty schemas about physiological concepts of PC (Didau and Rose, 2016). Many students like P3, who found new biological or physiological terms complex. This eventually brought a lack of confidence to learn. It is the role of lecturers to boost up students' confidence and facilitate their learning.

When P3 was doing his PGCE, he was concurrently teaching at AS level. He realised that he had several misconceptions about PC. He did not understand the functions of veins and arteries. He had the naïve idea on how oxygen went in the alveoli and carbon dioxide was released. P3's misconceptions are linked to inaccurate prior knowledge that he carried forward since undergraduate level. His misconceptions related to rote learning to pass his exams at undergraduate level. This confirmed that inadequate learning in basic courses impacted on his future learning. However, his misconceptions triggered his interest to understand PC as he had to teach it in class.

### **Understanding**

To understand the functions of arteries and veins, P2 used the Kreol Morisien language and acronyms: *"The word going means 'ale' referring to letter 'A' in arteries which took blood away from the heart. The word coming, means 'vini' referring to letter 'V' in veins which brought blood in the heart."* P2 also used the mother tongue, as a self-regulated strategy to understand blood flow from the heart to the lungs and from the lungs to the heart. To overcome his confusion about the process of deoxygenated to oxygenated blood, P2 created a sentence *"Richard of Britain Loves Red Wine (RBLRW)."* He stated *"the word Richard meant the right side of the heart. Britain was meant for blue colour and deoxygenated blood is of blue colour. Therefore, the right side contains deoxygenated blood. The word Loves represented the left side of the heart. Red wine meant red colour and oxygenated blood is of red colour. Hence, left side contains oxygenated blood."*

To overcome the misconception about exchange of gases P2 referred to how tea was diffused in tea bags. *"I used red and blue coloured arrows to show how deoxygenation and oxygenation of blood simultaneously occurred in the walls of the alveoli."* These personalised and creative strategies enabled P2 to produce a schema representing the concept of PC. Associated with the constructivist theory, P2's self-schemas enabled him to construct and reconstruct information and developed an understanding about PC. The focus group highlighted that it was interesting to note how P2 used acronyms, creativity, and simple drawings. Students who have difficulties in memorising and understanding biological concepts which are considered difficult can adopt the same approach.

The explanation given by the lecturer did not help P3 to clear his misconceptions and confusions at PGCE level. To clear his misconception about veins and arteries, P3 sought the help of a biology teacher. For gas exchange, P3 viewed several YouTube videos which helped him to understand how oxygen went in alveoli and carbon dioxide went out. Lectures in the FG highlighted that the role of the lecturer was to use different approaches to make students learn and understand. It aroused the curiosity and interest from students to learn biology related topics like PC. Another method used by P3 to clear his confusions was mind mapping. He referred to his lecture notes to connect information gathered to create a mind map. The mind map helped him to identify where the confusion was. P3 used mind maps as a self-regulated learning strategy to independently construct and reconstruct understanding.

### **Knowledge in Practice: Confusion and Misconception**

Interviewed teachers' confusion was on how to teach. The curriculum content was new and they did not learn how to teach theory during their PETE. This confirmed that the PETE they followed lack in-depth understanding on how to teach CK. As the interviewed teachers could not teach, it questioned their depth of CK about PC (Sinelnikov et al., 2015), and if they acquired PCK (Iserbyt et al., 2015). However, knowing how to teach cannot be acquired during teacher training only (Sinelnikov et al., 2015), but through practice also known as practical knowledge (PK). As teaching theory in PE is a new content, not knowing how to teach was relevant to the teachers' inexperience (Sinelnikov et al., 2015). Therefore, PETE must enable teachers to gather knowledge on how to teach CK which is also known as knowledge for practice.

### **Content Delivery**

To teach content, P1 and P3 felt confident in using mind mapping, power points, and videos. P3 also pointed out that to better deliver content he reflected on the teaching strategies used in class. He also referred to students' prior knowledge acquired at SC level. P2 informed that to teach he used the acronym RBLRW and developed his own teaching approaches by reading books, doing research on the internet and through his teaching experiences. To teach, the interviewed teachers looked for information from different sources to have an in-depth understanding about PC.

## **DISCUSSION**

To deliver content was a big question mark for interviewed teachers and they unanimously revealed that discussion with fellow teachers of the PE community helped to understand how to teach if they structured their lessons correctly, and what more knowledge was needed to better teach. From this approach, P1 developed the habit of being reflective on her teaching and how to make students understand. P2 was curious to learn more about the other biology related topics of the syllabus. P3 was able to overcome his anxiety and felt more confident to teach the PC component and to tackle other difficult topics of the theory component syllabus. Discussion and learning from peers brought knowledge transformation. Through this process interviewed teachers acquired new knowledge; gathered teaching skills and experience from different perspectives (Krutka et al., 2014); received feedback, and valued the collective understanding (Allas et al., 2016). Knowledge construction through collaborative discussions is embedded in socio-constructivist theory thus supporting an environment of innovative and effective teaching (Tanner, 2012).

## **CONCLUSION**

Teachers' knowledge deficit was embedded with the type of prior knowledge they had since their university study days. These brought forward misconceptions in learning and the individual development of faulty schema about PC. The lecture structure faced more critics than appreciation, it brought individuals to look for their own means to gather better information. Books, the internet, and discussion with friends were useful. This triggered the interest to know and have a better understanding about PC. Prior knowledge, the use of acronyms, books, and peers had a positive influence to overcome misconceptions. Videos, being a reflective practitioner and mind mapping were favoured and sparked an interest to learn, understand, and know. To know how to teach, teachers self-reflect on what they know and what they need more. They were helped in their tasks by the teaching community and used technological aids.

Data revealed that undergraduate courses did not provide learning opportunities on how to teach biology-oriented topics. Suggestions to teach related modules at Tertiary level for CK and PCK are offered to enable pre-service and in-service teachers to learn how to teach biology-related topics in physical education.

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## *Physical Education as an examinable subject: A SWOT analysis at O level in Mauritius*

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### **ABSTRACT**

An analysis of candidates' performance in the Cambridge O Level Physical Education (PE) examination from 2016 to 2022 revealed that more than 50 % of the candidates consistently perform low. This steered an investigation into what context and realities led to influence students' performances in PE at O level. To identify and understand what influence student performances, a SWOT Analysis served both as the theoretical framework. With reference to literature, this framework is widely used in the education sector to inform the process of strategic development and decision-making to remedy situations. The purpose of the study was to use the SWOT analysis approach and adopt an interpretivist lens to have in-depth insights about how individual and social contexts influenced students' performances. PE Educators of Mauritius involved in teaching at O level were the main participants of this study. Data collected from focus group discussions revealed multiple realities which brought a comprehensive understanding about the research phenomenon and justified the purpose of the study. Data was analysed and findings were reported under themes. The findings informed on (a) the incoherence between policy and curriculum implementation (b) how school culture, teaching, learning, assessment, and parental support influence students' performances contextual information, and (c) how PE stakeholders can develop proactive strategies to improve students' performances. The research findings open avenues for PE stakeholders to have a 4-year strategic plan with smart goals and key performance indicators to increase the percentage of students succeeding in their PE examination at O level.

**Keywords:** SWOT Analysis, student performances, physical education

### **INTRODUCTION**

The Mauritius Examination Syndicate (MES) School Certificate (SC) grade distribution per subject statistics from 2016 to 2021 showed that the result for Physical Education (PE) is quite alarming. More than 50 % of students who have taken part in the examinations perform low. Furthermore, the examiner's reports do not give a clear indication of whether the written theory examination nor practical component assessment are key factor for such performances. Ten years have elapsed since the curriculum change occurred in PE at the upper secondary level in Mauritius. The percentage results coupled with the problematic of teaching curriculum change argued by literature brings forward a good opportunity to have a health check about how matters are with regards to CAIE PE at SC level. A committee was set up in December 2022 regrouping the different PE stakeholders of Mauritius. The committee is comprised of staff of the Movement & PE department of the MIE, the Principal PE Organiser, PE Organisers from the Ministry of Education, Tertiary Education, and Science and Technology (MoETEST), and representatives of the MES, and Private Secondary Education Authority (PSEA). At the very outset, the committee agreed to conduct a SWOT analysis to understand the context and realities influencing students' performances in the O Level PE examination.

### **LITERATURE REVIEW**

Apart from business, the SWOT analysis is relevant to the education sector (Benzaghta et al., 2021; Frikri & Putra, 2022) as it helps to understand opportunities, threats, strengths, and weaknesses linked with education. SWOT analysis has been used to analyse students' academic achievements (Ezeudu et. Al, 2015), students' educational performance (Tweheyo & Mugarura, 2020), students' academic performance and skill sets, and quality education (Frikri & Putra, 2022). For the current studied context, the SWOT analysis comprehensively analysed how to maximize strengths and opportunities, but simultaneously minimize weaknesses and threats of O level PE.

The SWOT analysis consists of four components strength, weaknesses, opportunities and threats (Sari, 2017), also known as the SWOT matrix. In the education context, strength is defined as a resource or skill. Strength is defined by the evaluation of performance in terms of examination accreditation, school administration, teacher formation (initial and continuing), and attributes to achieve objectives (Vitan, 2017). Strength are factors that support an Opportunity or overcome a Threat to give you an advantage (Salsby, 2012). Having a fixed source of students is seen as a strength for new curriculum implementation.

Weakness is a limitation in the form of facilities, financial resources, and management capabilities (Mardiyana, et al., 2022). Weaknesses are linked to a lack of material and human resources, performance indicators, the educational system, curriculum, and teacher education (Vitan, 2017). Weakness also lies in insufficient sports facilities, low utilisation of social sports resources, and public sports stadiums (Xiang et al., 2022). Weakness is associated in neglecting importance of school PE, because more emphasis is on intellectual education.

Opportunity in the education sector relates to educational development, and the influence of external conditions to achieve education objectives (Vitan, 2017). In the context of improving school PE in this new era, it is an opportunity to bring forward new measures and respond to new challenges (Xiang et al., 2022). In reference to Xiang et al., (2022), the reform in PE needs to respond to new challenges, improve school sports conditions, and improve the working environment. For PE to leap forward and make great achievements, there is a need to continuously improve and strengthen the policy system; promote individual physical and mental health; and to popularise national fitness (Xiang et al., 2022).

Threats are the external elements that could cause trouble and major unfavorable or uncontrollable situations in the environment. In the educational context, threats may affect the achievement of objectives, or be caused by a lack of funding sources, lack of concrete evidence regarding teachers' activity, and lack of transparency on programmes for continuous training (Vitan, 2017). The threat of PE curriculum resides in the unbalanced development of PE combined with the influence of traditional thoughts in the implementation of the new PE curriculum reform (Xiang et al., 2022).

## **METHODOLOGY**

This research is qualitative in nature through the non-linear SWOT analysis from PE educators' viewpoints. Data was collected through group discussions, group presentations, and plenary sessions (Kousgaard et al., 2010). PE educators were split in groups of 6 to 8 persons to brainstorm and share views. Each group had a facilitator who grounded the discussion and intervened if matters were going off track. This approach enabled PE educators to freely voice their concerns and good practices influencing students' academic performances in O level PE. A total of 101 PE educators from both the private and state secondary schools took part in the SWOT sessions. These educators taught the O level PE syllabus ranging from a minimum of 2 years and a maximum of 12 years of experience. Data was collected under themes depicting the O level PE context in Mauritius. The themes were syllabus aims and objectives; school culture (Bayar et al., 2021); teaching; learning (Lamas, 2015); assessment; and support. To have a comprehensive understanding of the research context, data was further analysed under the SWOT matrix and new themes emerged. These new themes are in form of strategies and recommendations to improve students' performance in O Level PE.

## **DISCUSSION AND FINDINGS**

### **Career Opportunities**

There are different job opportunities associated with Physical Education in the field of leisure, recreation and tourism; education; police physical training instructor; sports officer; physiotherapist; gym instructor; and personal coach. Schools can set a career guidance programme. Schools can have open forums with parents, use posters, fliers, and social media to promote PE and sports. Through these mediums, schools need to continuously deepen parents and students understanding of the new development opportunities associated with the CAIE PE (Xiang et al., 2022). As PE is an academic subject, the Ministry of Education can consider having PE as part of the national scholarship scheme at Grade 13 level in Mauritius. This will add value to the subject and also engage more students in opting for O level PE. Another key aspect associated with job opportunities is the diversification of higher education courses related to PE and Sports in Mauritius (Xiang et al., 2022). At present only the MIE, University of Technology Mauritius (UTM), and



Polytechnic Mauritius, offer courses in teacher education, sports coaching, leisure, recreation, and tourism respectively.

### **Sustain Cambridge O Level PE Standards**

Schools as organisations need to provide quality service to meet the CAIE PE standards. School rectors and managers need to be apprised of the O level PE requirements, standards, and implications. It is important to have proper working sessions, for school leaders to know and understand the teaching and learning syllabus, assessment procedures, safety and security measures. They play a key role in providing proper logistics, resources and technological support to enhance student performances. Schools need strong and knowledgeable leaders to meet the quality standard set by Cambridge in terms of teaching, learning, and assessment. School leaders can significantly influence the quality of teaching, learning, and assessment by improving the working conditions of teachers (Vitan, 2017). Improving the PE school working environment will improve the level of PE (Xiang et al., 2022). To sustain quality standards of PE, there should be a change of mindset, perception, and understanding among school leaders and the school community. To ensure quality results, schools need to establish a proper mechanism to guide parents and students on why to opt for O level PE. They will be aware about the requirements and implications to meet CAIE PE standards and why it is important to have good results in both theory and practical components. Students performing well will get the opportunity to participate in the PE category for the CAIE world award competition. For this to be possible, there is a need to have a fixed source of students and engage them from lower secondary to practice and love sports. In addition to this, PE educators proposed to have a review of the MIE textbooks. They proposed to have two separate textbooks (Xiang et al., 2022). One book will be on game, sports, and skill learning and the other one on theory with basic anatomy, physiology, psychology, and biomechanics topics. Introducing these topics at lower secondary will provide adequate prior knowledge for students to better understand complex topics of the O PE level syllabus.

### **Sport Facilities at School**

The O level PE practical component offers a panoply of sports activities from which students can choose from. Students have a tendency to choose popular sports or sports that they know or perceived as easy. PE Educators need to encourage students to opt for a sport discipline as per existing school sports facilities. The onus is on the PE Educator to give the opportunity to learn these sports as from lower secondary. School leaders need to provide sport facilities that are equivalent to CAIE PE standards. The Ministry and PSEA have to ensure that schools offering O level PE respect quality norms and standards in terms of sports infrastructure, sports equipment and maintenance (Vitan, 2017). This will facilitate and enhance quality teaching, learning and assessment. It has been noted that in most private schools, the sports infrastructure are not maintained properly and there is a lack of equipment (Mardiyana et al., 2022). Therefore, schools need to provide a sufficient budget for the purchase of sports equipment and maintenance of sport infrastructures (Vitan, 2017). For schools which do not have the adequate sport facilities, there a memorandum of understanding between the Ministry of Education, Ministry of Sports and Ministry of Local Government should exist for students to access sports venues within the school vicinity for practice and assessment (Xiang et al., 2022). To reduce disparity between schools having adequate sport facilities and those which do not have, to ensure quality assessment there is a proposal to move from a school based to a centre based assessment. This compromises the development of standardise drills, and game situations. In addition, PE educators can assist each other to provide quality video recording. The MES needs to consider the feasibility and the implications to have assessment centers to meet the CAIE PE coursework standards and ensure quality (Vitan, 2017).

### **Quality Teaching**

To meet the CAIE PE aim and objectives, there should be quality teaching as from lower secondary PE classes (Vitan, 2017). This will also largely depend on PE Educators commitment and work ethic to have produce quality students. Students' examination performance depends on the quality of teaching of PE educators. To ensure quality teaching, the CAIE PE syllabus should be part of the PE teacher education programmes. The programmes should provide the knowledge and skills in pedagogy, assessment, and video recording (Vitan, 2017). The programmes should include pedagogical approaches which are recommended by Cambridge to teach its syllabus, namely, Bloom's taxonomy, flipped learning, inquiry-based learning, and

play based learning. These student-centred approaches will instill a culture towards autonomous learning and critical thinking in students and the PE educator will act as a facilitator (Vitan, 2017). The student-centered approach will enable PE educators to structure lessons and teaching for both highfliers and slow learners. As English literacy is a concern, PE educators need to use various pedagogical approaches to develop students reading and writing skills. They can use role play, group discussion, and presentation to develop students speaking skills. When a student is able to reflect, understand and speak, the latter can write. Knowing and understanding what to write is vital when sitting for a written examination. PE educators need to refer to comments from examiner's reports, marking schemes, and use command words to structure questions and provide written tasks in lessons and for revision purposes, and adopt teaching approaches as per students' learning style and needs.

To share good practices with regards to the teaching of practical and theory components and assessment of CAIE PE, the Ministry and the MIE need to establish a community of practice (Xiang et al., 2022). The community of practice can be in the form of blogs, online meetings, face to face meetings, workshops, and even have academic forums and discussions. This can be coupled with establishing a mentoring mechanism where experienced PE educators will act as mentors to less seasoned or novice educators and assist them in their teaching. To identify mentors, a knowledge data base for PE educators with expertise in games and sports, and theory component topic can be created. Depending on the number of mentors, the mentoring system can function as having one mentor per school or block mentoring for each educational zone. The mentoring system can be over two years rotational basis, giving the opportunity to other experienced PE educators. The mentoring system can be assessed and reviewed through feedback every two years.

### **Professional Development**

Since PE became an examinable subject in 2011, the MES conducted different workshops when there were changes in the O level PE syllabus. The Ministry has done a series of workshops and cascade training with regards to teaching the O level PE syllabus, and video recording. However as per the research findings, workshops have not helped in improving the O level PE results (Vitan, 2017). Only conducting workshops will not help in improving results nor answer current issues pertaining to teaching, learning, and assessment. There is a need to assess existing programmes used to empower in-service PE educators in the teaching, learning, and assessment of the Cambridge O Level PE syllabus. To establish a proper professional development programme, a training need analysis is required. This will give the opportunity to PE educators to voice out their needs and the area they wish to be empowered. The smooth running of a professional development programme requires the collaboration of all PE stakeholders. The professional programme should be in line with the mandates of the different PE stakeholders for them to provide the required assistance. Carrying out continuing education will constantly improve the teaching level of PE educators thus contributing to quality student learning and exam performances (Xiang et al., 2022).

### **Student Readiness**

Student seriousness in studies and assessment might contribute to reducing the percentage of failures in the CAIE PE. Students need to be confident rather than being forced to opt for PE as a subject at O level. Feeling confident in opting for PE will positively impact on teaching, learning, and assessment. In reference to learning, PE educators need to identify student difficulties associated with PE jargon; understanding anatomical and physiological concepts and words; ability to explain and express; command words and examination questions; and reading, writing, and sentence construction. For students to be ready for classroom lessons and instructions, they need to be sent textbook chapters, videos, and do research work in advance. This is linked with flipped learning, and inquiry-based learning. This approach engages students to be autonomous learners. Play based approach can be used to enable students having difficulties learning complex theory topics. The PE educators have to identify and bring forward tasks suitable for highfliers and low achievers. To prepare students for the written theory component examination, PE educators need to engage students in higher order thinking (HOT) tasks. The tasks need to enable students to critically reflect, understand, speak about, and write.

To perform well and meet the CAIE PE practical assessment standards, students need to develop their motor abilities from lower grades. Motor abilities enable skill learning, develop playing game ability, and movement analysis. To be exposed to maximum skill learning and game practice time, school rectors

need to provide students with adequate sports facilities inside or outside the school to meet the O level PE assessment criteria and score good marks (Xiang et al., 2022). To develop student fitness level which contributes to motor development, skill, and game learning, the Ministry needs to consider establishing standardise fitness test inclusive for boys and girls. To stimulate students' interest in learning and practicing games and sports, schools need to establish sports clubs, encourage students to join these clubs, participate in the school sports day, and inter-college sports' competitions (Xiang et al., 2022).

### **Report on Video Recording**

Cambridge sends examiners reports for both theory and practical components through the MES which are then emailed to schools. PE educators are recurrently concerned about the incoherence of examiners report on video recording, and the re-adjustment of marks and grades. Many schools have written to Cambridge via the MES to query about the same but were left unanswered. The incoherence in exam reports and unanswered queries on re-adjustment of marks and grades put the credibility and reputation of Cambridge as an examination body at stake (Vitan, 2017). The re-adjustment of marks and grades may indicate that PE educators' skills and knowledge are inadequate to produce good video recording. Reports on video recording need to be more constructive for PE educators to identify their flaws and where they need to improve. To resolve these issues, the MES needs to establish a proper communication channel and follow-up mechanism with Cambridge to quickly reply to PE educators' queries and better assist them in providing constructive feedback on the video recordings.

### **Video Recording Submission**

Video recordings of practical assessments are saved on CDs or DVDs and sent to Cambridge via the MES. Cambridge moderators found it difficult to open the CDs or DVDs due computer monitor incompatibility. PE educators requested the MES to consider having a secured link to enable fast online uploading of videos and resolve the computer compatibility issue (Mardiyana et al., 2022). The MES has asked Cambridge for videos to be uploaded on the CAIE Direct Link portal. A pilot project has started this year to look at its feasible. At times, PE educators use mobiles phones to record practical assessment, however, the quality of the videos does not meet the CAIE PE standards. Schools need to budget and purchase quality video cameras and laptops with a professional video editing software license. Year in year out there are incoherences with regards to comments and feedback on video recording or drills done to assess student performances. If the video recording is not clear and the assessment drills does not meet CAIE standards, this questions the knowledge and skill of the PE educator in video recording and editing (Vitan, 2017). To have quality videos, PE educators need to refer to the CAIE PE video recording guidelines and constructively consider comments from the Cambridge moderators. To empower PE educators in video recording and editing, a training need analysis must be conducted to know what skills they have and what challenges they face. By knowing the needs of PE educators, it will help the Ministry, MES, and MIE to structure workshops, professional training, and monitor progress on video recording.

## **CONCLUSION**

The SWOT analysis findings brought the PE stakeholders committee to establish a strategic paper for the 2024 - 2027 period. To structure the strategic plan, Sarby's Growth Strategy (2012) was deployed. The Opportunity to existing Strengths were matched, secondly, by adopting the internal development strategies (Opportunity and Weaknesses), we converted Weaknesses into Strengths so they can be matched to Opportunities. We turned SWOT inside out to become TOWS (Sarsby, 2012). To better implement strategies, action points and key performance indicators were developed. This is aligned with the Theory of Change (TOC) which explains how activities are understood to produce a series of results that contribute to achieving the final intended impacts of the different strategies (Rogers, 2014). The aim of the strategic plan is to engage PE stakeholders and support the school community in enhancing Mauritian students' performance in the Cambridge O Level PE (5016) examinations.

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# *Contribution of a performing arts education model for future extrapolation of knowledge of our Mauritian multicultural assets*

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## **ABSTRACT**

This study analyzes the perceptions of a Mauritian performing arts education (dance) model. A quantitative analysis through the questionnaire survey method with 80 trainee teachers, after their three-month training in the model revealed that they are largely in favor of the potential of the program to develop intercultural understanding, connection, growth and sense of responsibility. A qualitative analysis of 9 focus group discussions with directors and specialists of art/performing art and educational institutions who had viewed video extracts of the 3-month training indicated a wide agreement on the potential of this model to help internalize Mauritian multiculturalism/diversity, discuss cultural similarities and differences aesthetically with a healthy attitude, and engage a Mauritian child into intercultural discovery as a must. On the other hand, it is opined that despite invisible communal barriers, inter-communal prejudices and negativities can be reduced. Confusions about the unclear demarcation between religious and cultural aspects may arise. But the key determinant is teacher training in cultural diversity learning and expertise. This study contributes a model of performing arts education (dance) towards an expanding and durable 21<sup>st</sup> century Mauritius as its main target to gear the young minds of the coming generations of Mauritians towards cultivation of self-enrichment and expansion through the medium of intercultural divergence and differentiation.

**Keywords:** Internalization of Mauritian multiculturalism, performing arts education, intercultural discovery, aesthetic perspective, Mauritian multicultural assets

## **INTRODUCTION**

One of the main assets of Mauritius is its multicultural world. Our multicultural asset in Mauritius touches our highest sensibility from which everything departs namely our political system, economy, social, spiritual, and day to day life. Therefore, in the Mauritian educational system, an art/performing art education program which is multicultural becomes an important tool to include as it nourishes, strengthens, and preserves our multicultural backbone. It can be an important component of education at school not only for understanding our Mauritian diversity and multicultural dimensions to build national pride and inter-communal harmony.

## **BACKGROUND**

This paper is an extract of the author's PhD research experimentation of an arts/performing arts education model (2007 – 2013) which took place before the first phase of primary curriculum reform in 2014, where arts/performing arts had been introduced on a trial basis, in the first year of primary schooling during the first term. The focal aim of the PhD research was to analyze some basic principles of an art/performing art education model which can be applied to dance, visual arts, drama & music; and which align with four fundamental needs of 21<sup>st</sup> century Mauritius:

1. the need for a creative economy as chain production is no longer the focus in the Mauritian economy. The first and foremost requirement being innovation and quality; hence the creative aspect of the arts/performing arts education model;
2. the need for the socio-emotional development of the Mauritian child due to an unprecedented rise in Mauritius of the anti-social behavior of the youth through violence, verbal threats against elders, and teachers; hence the socio-emotional aspect of the arts/performing arts education model;
3. the need for development of a valuable skill for the Mauritian students' future working environment such as working amidst conflicting point of views; hence the synthesis aspect of the model; and

4. the need for understanding the Mauritian multicultural diversity where intercultural knowledge and multicultural understanding not only help to harmonize a multicultural society with different religious ideologies, different philosophies of life, but can also later be used for further extrapolation towards understanding the multicultural dimensions of the global marketplace.

This paper focuses only on the Multicultural Diversity aspect of the arts/performing arts education model and the experimentation that had been carried out through a Mauritian multicultural dance/movement program designed by the researcher being a specialist in the dance education field.

## LITERATURE REVIEW

In this 21st century world of globalization, intercultural knowledge is a fundamental tool both at the social and economic level. At the economic level, intercultural knowledge is required to understand diversity in individuals and cultures and can constitute an inspirational pool of ideas to become resourceful agents of growth. At the social level, intercultural knowledge is a healthy way to connect students to our multicultural similarities and differences. Learning about our differences can generate willingness to build on our multicultural assets.

Research studies have shown that with intercultural knowledge the level of prejudices and negativities between communities can considerably be reduced (Iwai, 2002). A study in Brazil pointed out that a multicultural curriculum involving music, movement & drama provides the opportunity of not only learning about our different cultures but more importantly allows discussion of cultural differences. The above study shows that within the classroom context there is bound to be a positive first-hand contact with a healthy concept of differences, and the classroom environment allows for discussion about differences in a healthy way. Another study showed that there can also be a decrease of students' stereotypical attitudes and more cultural awareness, and sensibility can be developed.

At a profound level, the arts in the New Zealand Curriculum (2000) explains that broadening understanding of traditional and contemporary art forms and more importantly to "understand them in relation to their social and cultural settings" (p. 12) enables firstly, to "recognize and understand diversity of individuals within particular cultures" (p. 12) and secondly, to "encourage positive attitudes towards cultural diversity" (p. 12). At the social level, the willingness to compromise with differences must be perceived by Mauritians as an asset.

### Intercultural Knowledge as a Resourceful Agent of Growth and Expansion

At the economic level, an arts education can be a good foundation to develop a deeper understanding of the global marketplace. Van Gogh (Dutch Post-Impressionist artist, 1835 – 1890) affirms that fundamental to an education in the arts is to perceive the truth that there are many ways of seeing the world and interpreting it. Any work of art, be it poem, play, painting, sculpture, dance, music, draws their essence from a particular culture's tales, histories, myths and values and therefore various meanings are created. The student of art learns to view and understand the world from somebody else's perceptions and viewpoint. At an economic level, intercultural knowledge together with multicultural understanding can be extrapolated towards understanding of the global marketplace which is essential in this globalized world.

## METHODOLOGY

The methodology used in this research consisted of both quantitative and qualitative paradigms.

### Modality and Procedures

Since the focal goal of the dance program is to develop a multicultural mind frame and cultivate intercultural understanding, the research carried out an analysis of the perceptions on the Mauritian multicultural components proposed through a model of Mauritian multicultural performing arts education (dance). An initial intercultural discovery of Mauritianism was proposed through the model program which mainly constituted of:

- I. A Chinese dance-expression of a butterfly;
- II. An Indian dance-expression of a butterfly;

- III. Various sega creative dance creative interpretations in the Mauritian and Rodriguan styles (to be worked by learners themselves) on different themes of sugarcane or maize cultivation, fishing, etc.
- IV. Free creative dance-expressive works (to be built by learners) on the theme of unity with a background English song entitled "We Are One".

A training of 15 sessions of three hours each were given to 80 trainee teachers and two prominent aspects are the creativity aspect and the aspect of intercultural learning and understanding. Sessions 2, 3, and 4 dealt with the use of natural/everyday life movements and gestures to illustrate a theme, a situation or characters. This particular creative work was on the theme of sugar cane involving for instance, a description of planting, harvesting, or laborers on the sugar-cane field. A Mauritian sega rhythm set the pace for students to construct their creative pieces with the prominent play of the 'ravanne' (the sega drums) which is typically called 'sega typique' or the traditional sega beats of the 'ravanne'.

Sessions 8, 9, and 10 enabled students to further work their creativity skill through a combination of interpretative gestures/movements and decorative movement patterns. The theme of patriotism/unity was proposed to the students through an English song entitled, "We Are One". The next two sessions, 11 and 12, dealt with the learning of intercultural movements. It introduced to the students and lead them to discover and analyze some differences of movements, gestures, and expressions which characterize ethnic groups or cultures. During these sessions, a two-minute Chinese and Indian sequence of dance movements were taught to the students. Each two-minute dance piece depicted the swirling movements of a butterfly, pertaining to each culture's respective interpretative movement style. This highlighted the experience of differences in the physical outward expression and movement pertaining to two different cultures, versus the similarities in the underlying inner meaning through almost identical sentiments, feelings, emotions, and expressions of joy. A flying butterfly would usually bring the experience of joy, happiness to any human being irrespective of one's ethnic or religious appurtenance.

## Sample

### **Quantitative Method – Questionnaire Survey**

Using the quantitative paradigm, a questionnaire survey initially helped to examine the perceptions of 80 primary school trainee teachers from Rodrigues and Mauritius after a training of 15 sessions of three hours offered by the researcher in the proposed Mauritian multicultural performing arts education model (dance). Thirty-seven students of the Teacher's Diploma for Primary in their second year, and 43 students of the Teachers' Diploma Pre-Vocational were involved in this study. In terms of demographic structure, there were 16 male and 64 female participants. The majority (n=53) were aged less than 30 years old. Twenty-seven were 30 years of age or more. In terms of years of service, 45 had between five to eight years of service and 18 were in the teaching service for more than eight years. The young unemployed trainee teachers who participated in the survey had at least, a previous experience of three to six months of teaching, acquired through practical training in primary schools. Seventeen were yet to be employed as a teacher after the completion of their Teacher's Diploma Certificate. The respondents were largely from middle-class or lower middle-class Indo-Mauritian and Afro-Mauritian families.

### **Qualitative Method - Focus Group Discussion**

The second part constituted of a qualitative approach whereby nine focus group discussions were held after having viewed extracts of videos of the 3-month training of 80 Primary School trainee teachers. Eight members of the higher authorities of arts/educational institutions were comprised of 4 Directors, 1 Head of Department from one managing institution for art/performing art teaching in secondary schools; 2 experts from the field of education and sociology, and the field of language & literature; and a Corporate Social Responsibility (CSR) manager from a private sector company; 6 Lecturers/Senior Lecturers – two in visual arts, 2 in drama, 1 in dance and 2 in music (having Master Degree or PhD in an art field), and 14 secondary school teachers, 7 dance teachers (having Degree and/or Master Degree in dance plus Post Graduate Certificate in Education) and 7 visual art teachers (Master Degree in visual arts); 13 primary school teachers of which 7 were from Roman catholic primary school with above eight years of teaching experience and 6 from government/state primary school with above seven years of teaching experience; 24 senior primary school trainee teachers with 15 to 30 years of teaching experience who participated in the questionnaire-survey.

## Data Collection Tools

The survey questionnaire was designed using insights from the literature review using the component factors of the diversity/multicultural dimension of the program (Iwai, 2006; New Zealand Curriculum, 2000) as follows:

- Factor 1: Mauritian culture [sub-factors: 'intercultural knowledge'; 'connecting students to their Mauritian culture; prejudices and negative attitudes towards communities]; and
- Factor 2: Mauritian pride for the future [sub-factors: maintaining cultural pride; responsibility for the advancement of the Mauritian civilization]

The main objective of the focus group discussions was to gather the views, opinions and experiences from a wide number of mind frames cutting across directors, academicians, lecturers and teachers both in the field of education and arts/performing arts which were also compared with the perspectives of the 80 trainee teachers in the questionnaire survey.

A 25-minute power-point presentation on the component factors of the diversity/multicultural dimensions of the program plus video extracts of the survey-experimentation done with the 80 trainee teachers and a framework of questions were used to trigger the discussions. Each of the focus group discussions was conducted over a duration of approximately one and a half hour to two hours English, French, and Creole leaving the language medium as a spontaneous outlet.

## Limitations

In the quantitative part, the sample which included 80 trainee teachers did not have a balanced number of representatives of the different Mauritian sub-cultures or communities. The majority were Mauritians of Indian origin (Indo-Mauritians) with a greater number of Hindus as compared to fewer Muslims. Mauritians of African or creole origins (Afro-Mauritians) were the second largest in number, and there were no Mauritians of Chinese origin (Sino-Mauritians) or those of French origin (Franco-Mauritians). Although these are minority groups, their perceptions on this Mauritian multicultural performing art education (dance) program would have mattered to a great extent because Mauritius has a small population. The number of women (60) also far exceeded the number of men (16); a more balanced number of participants in terms of gender would have added more realistic results.

## FINDINGS

### Quantitative Analysis of the Questionnaire Survey

Experimentation on 80 Primary school Trainee Teachers						
Perceptions on		% Responses				
		Very Much	Much	Fair / little	Not at all	Missing
<b>Factor 1:</b> <b>Mauritian Culture</b>	• Improve our knowledge of diverse cultures	65.0	25.0	10.1	0.0	0.0
	(a) Intercultural Knowledge					
	• Build understanding of Mauritian multicultural society	63.8	28.8	6.3	0.0	1.3
(b) Connecting students to Mauritian Culture	• Positive social interaction in multicultural Mauritius	63.8	26.3	7.6	0.0	2.5
c) Decrease of Prejudices	• Decrease of prejudices and negative attitudes between communities	46.3	30.0	20.1	1.3	2.6
<b>Factor 2:</b> <b>Mauritianism</b>	• Maintaining Mauritian National Pride for the future	56.3	30.0	3.7	6.3	3.8
	• Help cultivate responsibility for the Advancement of Mauritius	55.0	35.0	10.0	0.0	2.5



### **Factor 1: Mauritian Culture**

*Intercultural knowledge:* To the question focusing on intercultural knowledge and as to whether this type of dance program, especially the ‘intercultural’ part can cater to improve knowledge of the diverse cultures prevalent in Mauritius, 90.0% were agreeable in which 92.6% believed that this type of art-program can help in building ‘*understanding of the diversity*’ within our multicultural set-up. 91.3% and 95% were also of the opinion that the building of ‘*tolerance and appreciation*’ which goes hand in hand with that of ‘*acceptance and respect*’ for this diversity, respectively cater for this program.

*Connecting students to their Mauritian culture:* 89.1% agreed that this type of art-program can help build values like ‘*positive social interaction which connects students to their multicultural Mauritian society*’.

*Decrease of prejudices and negative attitudes between communities:* 76.3% shared the general view that this type of program can ‘*help decrease prejudices and negative attitudes between communities*’.

### **Factor 2: Mauritianism**

*Maintaining cultural pride:* 86.3% believed that the arts can play in building communities and maintaining cultural pride in Mauritius.

*Responsibility for the advancement of a Mauritian Civilization:* 90% responded favorably to the question about whether the study of the arts (like this dance program), if included in the education of school students, could ‘*help cultivate a sense of responsibility for the advancement of a Mauritian civilization*’.

### **Main Points of the Focus Group Discussions**

The focus group discussions revealed a wide agreement to the components of the Mauritian multicultural dimension of the experimented dance program model. But a majority remained attentive to certain less positive perceptions related to attempts, like in this model, to internalize Mauritian multiculturalism/diversity.

*Eight Directors & Members of Higher management of Arts Education & Educational Institutions: Private & Tertiary:* There was a general perception that intercultural discovery which is the main feature of this model, is a must in the upbringing of the Mauritian child. Most believed on the other hand that although invisible, intangible communal barriers may not disappear but at least inter-communal prejudices and negativities could be reduced through such a taught model of arts/performing arts education (dance).

*Six Lecturers/Senior Lecturers:* Most were particularly positive about the content of this model which constitutes also “*un éveil artistique*” (an artistic awakening) for students especially being multicultural. On the other hand, they feared some initial confusions and ill-interpretations about the unclear demarcation between general cultural and religious aspects. The key factor for this type of program is the teacher of right caliber as the latter will have to acquire knowledge and understanding of the Mauritian diversity inclusive of the sub-culture of Mauritius which is a challenge in itself.

*Fourteen Secondary School teachers (Seven dance and visual art teachers):* A majority opined that cultural similarities and differences when perceived and discussed in an aesthetic way, as through this model, in the classroom environment will help shape a positive intercultural mind frame. Most agreed that the key determinant here, is teacher training in cultural diversity learning and the level of expertise required for better cultivation of Mauritianism. Furthermore, they had been wondering where and how to fit it in the tight overloaded academic curriculum.

*Thirty-Seven Primary School Teachers:* This type of arts/performing arts education (dance) model will generate interest, curiosity, discovery and depth-learning. Linking the arts/performing arts curriculum with 21st century themes for e.g. climate change, deforestation or with scientific themes like Newton’s law of action and reaction or even with mathematical concepts/operations like fractions, additions, multiplications can help boost up interest in academic subjects. Furthermore, linking the arts/performing arts curriculum to the content of the academic curriculum itself will be the ideal, in terms of improving on quality education.

Finally, an overall perception of the focus group discussion participants is that teaching this multicultural dance program model in schools will also help set the scene for expansion of the Mauritian multicultural market; this indicates the scope of an important cultural economic outcome.

## CONCLUSION

This study presented evidence that intercultural learning can take place through a performing arts education (dance) model where learning about our Mauritian multicultural assets are primordial both at national and international levels. At the national level, instead of becoming a source of conflict, our differences can transform into an inspirational pool of ideas. Mauritians can dig into elements of their diversity and turn them into resourceful agents of growth.

Developing an understanding of our multicultural diversity brings development of openness and receptivity of the minds of Mauritian citizens on which an innovative/creative culture is highly dependent. Therefore, intercultural knowledge of Mauritianism with an understanding of our diversity can make Mauritian culture a self-promoter for constructive changes. Mauritianism is the result of a sense of responsibility for the future advancement of our country – hence results into growth of Mauritian Pride. At international level, a multicultural art/performing art education (dance) program can help ensure understanding and positivity towards our cultural diversity with a better recognition and awareness of our Mauritian spirit. Learning about each other's culture in an aesthetic way, will bring forward the specificities of the Mauritian diversity of cultures, through their differences and similarities. Therefore, discovering and experiencing a few aspects of the different Mauritian sub-cultures through the arts/performing arts (dance) is essential to the education of the Mauritian student.

Having been participants in the survey after a three-month training in the experimented dance program, the senior trainee teachers pointed out that the proposed arts/performing arts education model builds on consultation, exchanges, and group explorations which constitute to the richness of team-working in the model. But what is more vivid, is the experience of intercultural values in teamwork which are being partly lived before pouring out one's understanding, reflections, and feelings into the creative artwork to be produced by the group. Developing this capacity to comprehend and understand the world from someone else's vantage point is crucial to education because the global challenges ahead of the 21st century rely on global understanding. Eventually, the knowledge and the understanding of the range of cultural dimensions present in the multicultural set-up of Mauritius can be further extrapolated towards knowledge and understanding of the multicultural dimensions of the global context hence the intrinsic power of our Mauritian multicultural assets.

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# *Re-gearing home economics: Factors affecting teacher agency of educators during curriculum change*

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## **ABSTRACT**

Socio-economic transformations are urging the need for an equitable skill development across gender and this gap is now being addressed by the new secondary curriculum framework (2017) through the introduction of Food and Textiles Studies in boys schools in Mauritius. This paper aims to gain insights into the enabling and constraining factors influencing teacher agency of home economics educators while enacting the Food and Textiles curriculum at lower secondary. The ecological model of teacher agency guided the theoretical framework of this research. Data was collected through questionnaires (n=10) and semi structured interviews (n=6). A few key findings which emerged were professional experience of educators, autonomy of teaching, and the projective dimension of educators. The study showed that educators exhibit agency and recognise the possibility of a shift in the way Food and Textiles Study is viewed as a subject but also acknowledges the incoherence between the process and the aim of the implementation.

**Keywords:** Home economics, educational reform, curriculum change, teacher agency

## **INTRODUCTION AND BACKGROUND OF THE STUDY**

In Mauritius, Home Economics (HE) was taught only in girls' state secondary schools. A few private secondary schools did offer the subject to both genders but it was only in 2017 that HE was renamed Food and Textiles studies (FT), and introduced across all secondary schools through the national curriculum framework (NCF), 2017. The teaching of FT thus became mandatory at lower secondary level across genders. This aim aligns with the International Federation for Home economics (IFHE) which positions itself within the arenas of sustainability and the goal of UNESCO (2010) for socio economic transformation. Thus, I believe exploring the teacher agency (TA) of HET educators can give an insight into the enabling and constraining factors of teacher agency during the curriculum change. The terms HE and FT will be used interchangeably within the context of this paper as the latter is the new appellation for the former within the Mauritian context.

### **Rationale of the Study**

Despite the several attempts of scientisation, and the various rhetoric's like holistic education, the teaching of HE has failed to overcome the dominance of power structures, thus prolongating the dominant paradigm of patriarchy. The introduction of FT in boys' school is creating an aperture for imparting lifelong learning skills across genders for youth empowerment and social inclusion thus demarginalising a history which categorises HE as "female domain of knowledge" (Pendergast, 2012, p. 250). I therefore believe that the new NCF has created fertile conditions to relocate the teachings of HE to the core of the curriculum as it allies with new educational trends.

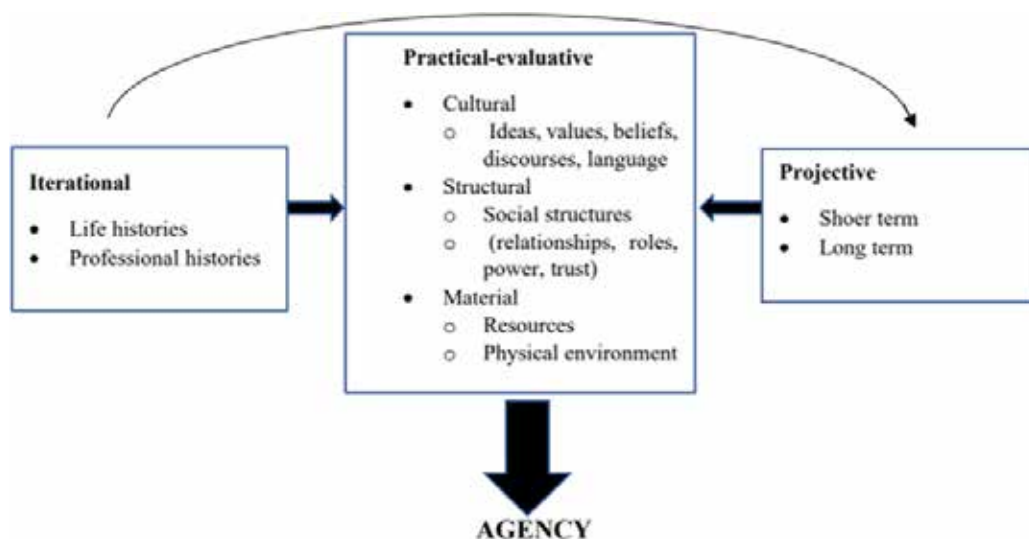
Furthermore, very few research focus is given to the teaching of HE both locally and internationally which creates a gap between the changing roles of man and women within the society, and the process of education. Food and Textiles is moving from traditional classes to one which is multidisciplinary as it teaches critical and evaluative skills in endless scenarios; develops self-reliant skills; and sense of responsibility. In short, it empowers individuals to cope with the changing structure of the society. Therefore, this research is an answer to how educator's manoeuvre with curriculum and school set up to boost the teaching of FT.

### **Objectives**

The objectives of this research were to explore the enabling and constraining factors of teacher agency of home economics educators during curriculum reform. Secondly, it seeks to provide insights about whether the introduction of FT to boys and re will re-gear the perception of FT and demarginalise it as a female domain of knowledge.

## THE FRAMEWORK

The ecological perspective of teacher agency which is an extension of the sociocultural perspective of teacher agency guided this research as it is a more centrist view which overcomes the shortcomings of the latter. It ascribes agency as the interplay of educators with respect to their professional context and their individual capacities rather than an influence of structural and historical conditions. Therefore, educators are positioned as variables capable of transforming conditions rather than embedded as passive carriers within their contextual conditions (Eteläpelto, 2013) hence shaping agency as a temporal process (Priestly & Biesta, 2014). This extension allows the impact of each component to be analysed separately but acknowledges that a neat separation is not possible (Priestly & Biesta, 2014). The ecological model of teacher agency thus emphasises on understanding agency as a temporal relational phenomenon using the three dimensions known as the chordal triad.



*Figure 1: Understanding teacher agency (Priestly & Biesta, 2014, p 190)*

The chordal triad constitutes three temporal dimensions and the engagement of each individual within these dimensions are variable and context embedded. According to Priestly and Biesta (2015), the iterational dimension refers to “how educators might respond to dilemmas and choose to manoeuvre between repertoires” (p. 24) whilst Leijan et al (2020) refer to it as an “accumulated patterns of thoughts and actions from the past” (p. 20). The practical evaluative dimension entails the capacity to make judgements while engaging with contextual conditions whilst the projective dimension encompasses the visualisation and development of short and long term aspiration (Emirbayer & Mische, 1998). The resources available for educators to perform can be perceived as enablers or constraints, therefore creating an aperture for boosting, stagnating, and hindering agency. As a result, Emirbayer and Mische (1998) support that the achievement of agency is a blend of influences that builds upon past experiences and engagement with the present to create a future pattern of action but he cautions against routinisation as social reproduction of past experiences that may be detrimental. Therefore, educators are viewed as potentially able to navigate their repertoire of experiences and re-gear past patterns to develop more expansive orientations (Priestly & Biesta, 2015) resulting in structural elaboration (morphogenesis) rather than structural reproduction (morphostasis).

## METHODOLOGY

My research objective clearly justifies a qualitative approach to enable me to unwind the enabling and constraining factors of teacher agency. Thus, this research had been designed as an exploratory case study as it enabled me to answer my research problem from multiple perspective and build a holistic understanding of the various aspects of teacher agency which influenced my participants. Furthermore, this research follows a critical realist approach. The table below summarises my methodology.

*Table 1: Methodology*

	Research process	
Research design	Qualitative case study	
Research tools	Questionnaires	Semi structured interviews
Participants	HE /FT educators working with boys in Grade 7-9 at state secondary schools	
Sampling	n=10; selected through purposive/convenience sampling	n = 6
Data analysis	thematic analysis	
Research approach	Deductive/Inductive	

### **The Sampling Procedure**

The population target was educators teaching in boys state schools from grade 7 to grade 10. Given that the purpose of the research is 'nested in context' (Cohen et al.,2018), a purposive sampling has been used. Participants from different boys' schools were contacted but I further narrowed down to a convenience sample by selecting some educators who I already knew as they were more at ease and willing to participate. The availability of the participants further accentuated convenience sampling as I had to abide to their time and work schedule, and I had to favour schools which were in the vicinity to my working place. A few other participants also accepted to be part of the study. All my participants were of varying age and experience in secondary teaching as shown by the table below.

*Table 2: Profile of Participants*

	P1 (Bina)	P2(Nina)	P3(Siya)	P4(Riya)	P5(Hyna)	P6(Sika)
Years of experience	18	13	6	1	4	10
School worked	State	State(2) private(11)	State	State	State	State (9) Private(11)
Position held	Educator/HOD	Educator	Educator	Supply teacher	Educator	Educator
Prior teaching experience with boys	Nil	Nil	Nil	Nil	Nil	Boys/Girls

### **The Research Tools**

Data was collected in two phases. Phase one consisted of collecting data from ten (n=10) participants using a questionnaire which consisted of both Likert scales and open-ended questions. The 7-point Likert scale provided a larger spectrum of choices thus enabling my participants to choose a 'close' option rather than a 'nearby' one, therefore getting a closer subjective reality of my participants. The questionnaire also had a section of open-ended questions which allowed an in depth understanding of the study by probing into my participants iterational dimension.

The second phase of the study consisted of a semi-structured interview to formulate an interview guide to collect data. Only six participants (n=6) from phase 1 were interviewed based on their responses from phase one. The guide generated more contextual and in-depth responses and also allowed me to capture body languages of my participants as they expressed their views and opinions. It also unveiled unique practices and voices while further probing on how they are enacting curriculum. The interview was recorded with the consent of my participants and later destroyed.

## FINDINGS AND DISCUSSION

Data was analysed using thematic analysis. Four themes were selected using an inductive approach to the research questions. Three themes namely, personal, behavioural, and environmental factors helped to unveil the enabling and constraining factors of teacher agency. After collection of data and coding, two inductive organising themes from each global theme were chosen. On the other hand, the chordal triad was used as a main theme to analyse the role of teacher agency on the perception of FT under three inductive organising themes from the framework.

### Professional Experience

Professional experience is an interplay of objective and subjective contexts of action which enable educators to accomplish what they see as valued (Nolan,2017; 2018). It is further acknowledged as important while probing into the understandings of teacher agency of educators as they enact their roles in the field of practice and assume positions underpinned by institutional policies, norms, and regulations. But practice is context dependent (Molla & Nolan, 2020) and accrued through socialisation which implies that there is a need for realignment with expectations when context changes. Therefore, educators have to negotiate against constraints of policy and leadership skills of school management to exert influence and make choices in the way they teach (Eteläpelto et al.,2014).

Early career educators are still learning the basics of classroom, student interaction, control, and management and Hargreaves (2005) considers this stage in professional experience to be very flexible, adaptable, and acceptable in dealing with changes. This is clearly depicted by Riya with three years of teaching experience and working in school A. She constantly adapts her teaching styles to make her classes more interesting by showing a greater ease of using technology, more video sessions and outdoor classes to minimise boredom. She adds a young waft to the curriculum with new ideas and cope better with changes. She shared *"I buy materials for fashion classes as they boys finds it a feminine thing to do; therefore, I provide my students with the materials so that I can carry on with my syllabus."*

Comparatively, late career educators have a stronger self, and question changes which makes them more resistant to change (Hargreaves,2005). Bina with 18 years of experience and working in school A makes it obvious when she says

*my colleague did food practical in a room without proper setting nor a laboratory. I won't because of food safety, poisoning, and hygiene issues. I teach the whole curriculum theory wise only; I will teach the practical part only when I have a fully functional laboratory. I never taught like this before, I have to review my whole teaching and I find it difficult.*

Late career educators have the tendency to anticipate more about difficulties and problems which may arise when enacting curriculum under constraints. They are also very reluctant to change their old teaching habits and work with boys. They further claim that it is new educators who should be teaching in boys' school demonstrating how ingrained structural reproduction is, and how educators create a comfort zone within that sphere where learning and evolving becomes secondary to repetition.

Thus, early career educators seem to be tackling the curriculum in a more fluid manner, whereas middle and late career educators act more on the structure and the education system. Practice necessitates "the subjective capacity and the objective possibility" (Wacquant,2013, p. 5) and clearly rejects the process of generative mechanisms. Each school, each classroom, and each student are different, therefore professional experiences are context embedded and needs realignment with new norms and context and this aperture creates a considerable implication for the learning needs of educators. As a result, middle career educators are deemed most appropriate as they strike a good balance of enthusiasm, energy level, and experience as they seem more apt to disrupt the causal mechanism and create new trends in the teaching of FT.

## Autonomy

Teacher autonomy has been identified as a key construct in education (Narayanan et al.,2024) and central to teacher professionalism and essential to being responsive to the complexities of teaching. It refers to the role of an individual, positioned more as an active entity in professional development rather than passive variables. Given the bureaucratic educational system with a primarily top-down approach of reform, autonomy is therefore an important segment of this research as it depicts the nuances in educators' confidence, control, and resilience (Gu & Day, 2011) against challenges. According to Pantić (2015), autonomy is also a powerful construct associated with sense of efficacy and students' outcomes.

The qualitative data provides nuanced findings of the teaching autonomy of participants; they all agreed that they enjoy a certain autonomy in enacting curriculum, and they feel responsible for what they teach. Bina who has always been teaching in a girl's school clearly points out that she needs to revisit her classroom management skills as there is a considerable difference in boys' behaviour as compared to girls in the classroom. On the other end Hyna who has also taught in only girls' schools highlights the need to develop new teaching strategies to maintain a good balance of interest in the class and she further accentuates the need of individual attention during practical classes. Likewise, Nina offered to bulk buy all materials as some boys are very shy to buy sewing materials, as they still view the subject as a girl's domain of knowledge. In addition, parents do not show support as they give the subject minimum importance, which reflects the exam etched foundation of education in Mauritius. This situation clearly depicts the ease of routinisation of Bina and Nina which explains morphostasis as an easier and quicker escape to teaching. Both move on to elaborate on their management skills and teaching strategies which disrupts the reproduction of classroom trends in their teaching, hence portraying the ability to adapt to new patterns in their teaching despite their long years of teaching. But at the same time, Bina refuses to conduct practical in a class while Siya manages to conduct a few practical classes or demonstration classes to keep pace with the curriculum. According to Pantić (2015), these educators show a high level of autonomy and exhibit a powerful positive construct as they act on curriculum for the benefit on students. Furthermore, they show dispositions to experiment new ideas which accentuates commitment to teaching which in turn boost students' motivation and interest in the subject. This corroborates with the ecological model of teacher agency where educators disconnect themselves and position themselves as variables of transforming conditions rather than being passive carriers. In contrast, Bina also deplors the feeling of exclusion and the lack of understanding with management when she has been working in a classroom without electricity for nearly one academic year despite having raised the issue several times. This laissez-faire attitude delineates other factors like school culture and organisational leadership which lead to a certain degree of ease in teaching and trust to improve teacher agency or can impede agentic behaviour of educators, thus impacting on quality of teaching.

## Chordal Triad: Projective Dimension

Central to the projective dimension of the chordal triad are possibilities and scenarios to demonstrate capacity to entail alternative possibilities by extrapolation or through hypothesis of experiences by detaching oneself from morphostasis. Imagining the future and moving beyond oneself to construct changing images about the teaching of Food and Textile Studies and the future of the subject were very much ingrained in participants. They all demonstrated a high level of visualisation both in the short term and long-term projection. Nina clearly portrays an interesting future when she says that probably her students will act differently on the subject when their kids will be doing the subject at school, as they will understand the differences between educational and domestic spaces which students struggle to cross (Bohm, 2022). On the other hand, Riya is very optimistic about the impact of the new curriculum on the perception of FT and foresees a change which has already been triggered but may take a decade or more for more prominent change. Likewise, Hyna highlights that the new curriculum will ripple a morphostasis in the forthcoming generations with a new sense of equality and sharing of household chores irrespective of gender thus disrupting the generational causal mechanism of the low status of FT (Pendergast, 2003).

Another pertinent issue in the projective dimension of teaching is the ingrained top-down and elitism inclination in the Mauritian context of education defying various rhetoric's like holistic education and the infusion of sustainability skills within the embryonic society. Riya highlights that educators have to be part of the drafting and finalising of the curriculum. The process of curriculum reform can also demean educators of agency as they feel frustrated by being responsible to be delivering a 'prepacked curriculum' (Young et al., 2014). In such structures, there is an inherent emphasis on rigid practices to bypass educators as an entity from the equation of reform and framing the role of the teacher as a sort of "fidelity" (Varpanen et al, 2022) to a reform imported from elsewhere. They are thus only considered a bridge to reform omitting educators' beliefs, attitudes, and concerns. The focus is only on adoption of a reform, refocusing it, and putting it into operation disregarding the key idea that irrespective of the level of agency of educators, they are the shaper and the creative agents to the reform.

Furthermore, all participants disagreed that the subject is disadvantaged when only females teach it but paradoxically Siya highlights that a new teacher configuration in the forthcoming year which will result in a new teacher-student configuration. This is indeed one long term vision which can be an attempt to change the gender stereotype thinking of the subject, which aligns with Behrens et al (2017) who claim that gendered labour on a systemic scale is plausible of how gender norms are sustained, thus a possible drawbacks on the way the subject is perceived. Therefore, the inclusion of male educators is favoured to make the subject perceived as normative to masculine expectations.

## CONCLUSION

The findings in this research generated important insights about teacher agency and the teaching of Food and Textile Studies of educators in secondary teachings in the Mauritian context. It encompasses the complexity of how contextual teaching is and how reform acts at different levels in the educational hierarchy in different school contexts and with different educators. The experience of educators is embedded in the present, while the past subsist and the future insist on an imaginative extrapolation. It is therefore a fallacy to belief that educators form a unitary cluster of people who share the same beliefs about education and act in the same way on curriculum reforms.

On the other hand, agency is often linked to explicitly or implicitly with change, it has also been found that educators employ their agency to resist change, as they do not feel part or valued in the process of curriculum reform. Thus, the pivotal axis of change is that educator's matter, not only as a bridge to curriculum reform, but also by being agents who mould and give shape to the reform. As a result, policies should support and enable positive agency of educators to be able to impact the implementation of FT positively.

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*An analytical study of the similarities and differences in Samaprakritik Ragas through the use of appropriate computer software*

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Raags sharing similar nature and having same musical notes but different chalan (melodic flow) are referred to as Samaprakritik Ragas. The proper understanding of Samaprakritik Raags is of utmost importance to the vocalist to be able to sing the Raga in its purest form. This study aimed at visualizing the similarities and differences of two Samaprakritik Raags namely, Raag Asavari and Raag Jaunpuri by using MATLAB and PRAAT software. This research adopted a sequential exploratory design which was carried out in two phases. Initially, it involved qualitative data collection through Interviews of experts in the field. Following the analysis of data, quantitative data collection through experimental design comprised the second phase. Both the qualitative and quantitative data were then interpreted based on my own perceptions, background, and prior understandings. Although, the software gave accurate and reliable results, the data were interpreted subjectively. The results show that although Raag Asavari and Raag Jaunpuri have similar musical notes, there are major differences in the way the notes are treated. This method of visualising similarities and differences in Samaprakritik Raags using computer software can revolutionize the teaching of music in educational institutions. In addition, this can help learners by visualising their improvisation while singing their alaaps during their performance. There is probably more that can be investigated in that field based on graphical melodic representation of musical notes using computer software comparing Samaprakritik Raags.

**Keywords:** Samaprakritik Raags; MATLAB and PRAAT software

*Exploring educators' conception of STEM education*

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The process of integrating science, technology, engineering, and mathematics (STEM) in authentic contexts may be a challenging one. Research has shown that teachers often struggle to make connections across STEM disciplines. Consequently, students learn STEM subjects in an isolated and disjointed manner, missing the connections to crosscutting concepts and to address real-world applications by mobilising knowledge and competencies from more than one single learning area. This ongoing qualitative multiple case study approach aimed to uncover secondary school educators' conceptions of STEM education. A convenient sample of 4 secondary schools (2 state and 2 private) were selected with 6 educators from 6 curriculum areas, namely mathematics, chemistry, physics, biology, computer science, design and technology. Teachers first provided their individual representation of STEM. Jigsaw like group discussions (subject wise and then school wise) were then conducted where the 24 educators discussed their mental representations of STEM. Data were collected as extracts of individual representations, group discussions and their presentations in plenary thereafter. This presentation aims to share the conceptions that emerged from the findings.

**Keywords:** STEM education, teachers' conceptions

## *Implementing the United Nations Sustainable Development Goals in tertiary education institutions in Mauritius: Opportunities and challenges*

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Sustainable development was first identified as an important concept by the 1987 Brundtland Commission Report, describing it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Since then, there has been a concerted approach by governments, the private sector and civil society to implement strategies, policies, tools, targets and laws into national development goals. The 2030 Agenda for Sustainable Development was adopted in 2015 and provided a common blueprint for a global partnership to advance peace and prosperity for “people and the planet” (United Nations, 2015) through 17 distinct goals and 169 targets. The annual SDGs Report 2023 is not promising, as it highlights that “progress on more than 50% of targets of the SDGs is weak and insufficient and on 30% it has stalled or gone into reverse” (UN, 2023). The aim of this research is to develop a framework for integrating the Sustainable Development Goals (SDGs) into the curriculum of Tertiary Education Institutions (TEIs) in Mauritius. The methodology adopted is a review of literature of existing measures to advance SDGs within TEIs in Mauritius. A comparative analysis with that of Scandinavian countries’ TEIs’ implementation of SDGs will be presented, as the latter consistently rank among the best in SDGs Ranking Index (Sachs et. al, 2023) and it will be explained why.

**Keywords:** Education, Sustainable Development Goals, Tertiary Education Institutions

## *Towards a contextual framework for the development of Open Educational Resources (OER) in the Mauritian context*

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Teacher education through, distance and online modalities have significantly evolved over the years in the Republic of Mauritius. Concerted efforts to train educators across the islands have evolved from the writing of distance materials since 1980’s to digital forms and then online mode, further accentuated since Covid 19. Within this evolution phase, Open Educational Resources (OER) and Massive Open and online courses (MOOCs), are also subtly and slowly integrated in education systems as new opportunities for professional development and learning pathways for professionals in education (Wiley, 2018). These are often considered as options for continuous learning which match the professional lives and demands of participants in terms of cost, duration, flexible and personalized learning environments of courses. In Mauritius, recent developments in the field of OER, National OER Policy, (MOETEST, 2022), with Commonwealth of Learning (COL, 2022, 2023) initiated further actions with academics and educators on the same platform in 2023. However, pertinent theoretical issues are yet to be elucidated to align sustainable development of OERs by academics and educators in the years to come. In the light of the above, this presentation aims at developing a critical analysis of the main schools of thoughts guiding OER development in teacher education which include technicist, colonial, and sustainable approaches. Through this theoretical stance, the paper, situates a creative framework and makes the case for the adaptation of existing OER or the development of Open educational practices (OEP) which are contextual and authentic. Elucidation of the above would help policy makers and OER advocates in guarding the pedagogical integrity of OERs while guarding against technological determinism and standardization (Selwyn, 2011; Hargreaves, 2003) in education.

**Keywords:** Online and distance learning, Open Educational Resources, Open Educational Practices, pedagogy in OER

## *Indian education for the future generation*

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The Futures of Education, as championed by UNESCO, fosters the re-imagining of education to adapt to the changing and disruptive circumstances brought forward by a VUCA (volatility, uncertainty, complexity, and ambiguity) world consequently introducing a “new social contract for education.” Popular educational models have faced harsh criticism as being inadequate in equipping learners efficiently with key employability and life skills for today’s fast paced evolving world. This research seeks to examine the extent to which Ancient Indian Education models can be a source of inspiration as to how current and future models of education can be shaped, in times of artificial intelligence and increased self-learning and access to knowledge and existing social challenges. This exploratory study, following the ABCD analysing technique will be mainly carried out through an examination of secondary published literature, with the aim of aligning relevant ancient approaches to more contemporary interdisciplinary approaches to education, in terms of integrating best practices to existing models of education. Education itself can be classified into many categories, each with its specifications and functions, mainly concerned with development of the individual for the latter’s benefit as well as society’s. Ancient Indian education models are known to be values-focused, with a student-centred mentor-mentee approach for personal development as well as a collaborative learning environment, designed to equip students with useful life-skills of those times. It is expected that this study will provide recommendations in terms integrating principles from Ancient Indian Education to strengthen and complement existing models to formulate more adapted strategies for education.

**Keywords:** Education, ancient Indian education, future education, values, skills, personal development

## *Undergraduate legal transnational higher education: Development and evolution from an educator’s perspective*

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Mauritius, in the advent of increasing globalisation, has positioned itself, in the past decade as an educational hub, and is being celebrated as a “success story” in transnational education history. Access to higher education has led to a four-fold increase in student numbers locally. Transnational Education (TNE) can be summarised as “delivery of higher education in countries different from that of the host country of the awarding Higher Education Institution,” which has now transitioned into a “new and permanent reality”(Hussain, 2007). TNE now with a demand surpassing its supply offers various options for undergraduate studies. This research will focus on avenues for undergraduate legal studies mainly the LLB course, from collaborative studies through distance education with local academic partners or independent studies through franchise programmes, international branch campuses and self-study distance education. This research seeks to review the development of Transnational Legal Education (TNLE) which is understood as “important to teaching law within the context of a global political economy and global flow of goods, people, services, and legal concepts” (Darian-Smith, 2021) through a qualitative analysis methodology including a systematic review method of existing literature and sample based case studies of existing institutions in Mauritius. The objectives of the research are to consider the evolution of transnational legal education at an undergraduate level from an educator’s perspective.

**Keywords:** Transnational education, legal education, undergraduate, lecturing

## *The influence of core qualities on the pedagogical practice of novice primary school teachers*

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The main purpose of this study was to gain a deeper understanding of the role of core qualities of how the average novice teacher adapts to the challenges they encounter in their first year. Core qualities defined as fundamental attributes of individuals (Korthagen, 2004) proved useful in helping to understand how novice teachers surmount challenges and survive their first year of practice. The study draws from the lens of positive psychology that character strengths synonymous to core qualities enable individuals to cope with adversity. This phenomenon is less known in the research literature as the more functional aspect of core qualities has received less attention. This research study was located within an interpretivist narrative inquiry design. Three novice teacher participants teaching in various schools were purposively selected for the study. A qualitative research approach was used for the generation of data which included conversational interviews with the participants. Data gathering produced narratives for each participant which were compared. Key findings that emerged from the study revealed that because there is a disjuncture between being prepared in the theories of teaching and the reality of the classroom, novice teachers default to three core qualities namely the humanistic core qualities of empathy and compassion, the professional core qualities of knowledge and planning, and contextual core qualities of regulatory frameworks that forces them to find alternate and more humane approaches to promote teaching and learning.

**Keywords:** Core qualities, novice teachers

## *Exploring value-based education in Indian and Chinese philosophy: A study from teachers' perspectives*

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*Mahatma Gandhi Institute*

Value-based education plays a pivotal role in shaping the ethical, social, and emotional development of individuals. This research study delved into the realm of value-based education stemming from Indian and Chinese philosophical traditions as perceived and practiced by Primary educators who opted for an elective module entitled 'Value Based Education on Indian and Chinese Philosophy' in a B.Ed Primary Programme. The research aims to examine how teachers conceptualize, implement and experience value-based education from these two traditions within their classroom. The study takes a comprehensive approach by focusing on the insights gained from a sample of primary teachers who have incorporated Indian and Chinese value-based teachings in their pedagogical practices. Employing a qualitative research design, the study will involve an in-depth survey of the B.Ed Primary graduates who have embraced value-based education inspired by Indian and Chinese Philosophy. A sample of 50-75 representative of different backgrounds (age, gender, race and religion) will be requested to participate in an online survey designed on Google forms. The survey will collect both quantitative and qualitative data which will be further triangulated through focus group and personal interviews. The results will be analyzed from a socio-constructivist perspective to generate insights from the experience of the students and the meaning construction as well as development of a worldview. This presentation will be of mixed mode (graphics and literary). It is expected that the insights gained from the research may inform decision making while developing curriculum for teacher training and designing educational policies.

**Keywords:** Value-based education, Indian and Chinese philosophy, primary teachers

## *Relationship between poverty, stress, brain development, and brain function in primary school children in Mauritius*

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In Mauritius the primary education system has consistently been characterised by a 25-30% failure rate at the Grade 6 level. Such failure is primarily attributed to socio-economic challenges, including poverty-related stress. This stress often exerts a negative impact on different areas of the brain responsible for learning, memory, and behaviour, thus hampering cognitive functioning. A cross-sectional study was conducted to investigate the relationship between poverty, stress, brain development, and brain function among 200 primary school children in Mauritius aged 7 to 11 years. Participants from both low and middle-high income families underwent salivary cortisol tests, neuropsychological tests and Magnetic Resonance Imaging (MRI) scans. The cortisol tests and MRI Scan were conducted at a recognised clinical laboratory, while the NIH toolbox was used for psychological tests on participants at the school. We analysed data using descriptive statistics and conducted non-parametric between group analyses and correlational analyses. Findings from the study show that there was no significant relationship between (i) socio-economic status (SES) and stress, and (ii) SES and brain development within the sample. However, the study did find significant relationships (i) between income and general intelligence and (ii) between income and language ability. The research also revealed: (i) a significant relationship between cortisol secretion patterns and brain structures that regulate emotions, especially fear, (ii) a strong positive relationship between morning cortisol levels and the volume of the left hippocampus, (iii) an association between stress and neural connectivity, demonstrated by differences in total white matter volumes, and (iv) relationship between stress and executive control. This brain-based education study emphasises the need for policies that address both the executive brain function and poverty-related stress to enhance the prospects of students' academic success and future life achievements.

**Keywords:** Poverty, stress, brain development, brain function, learning

## *Relevance of Contemporary Indian Thinkers in Shaping Future Educational Contexts*

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*Mahatma Gandhi Institute*

This research paper explores the enduring relevance of Gandhi, Aurobindo, Swami Vivekananda, and contemporary Indian thinkers in shaping future educational contexts. It argues that their philosophies offer valuable insights for developing education systems that meet the evolving needs of individuals and societies. These thinkers emphasize holistic development, integrating physical, mental, moral, and spiritual dimensions. This comprehensive approach addresses the complexities of the future. They also emphasize ethical and moral foundations, cultivating values, moral reasoning, and character development. This equips students to navigate ethical challenges and contribute positively to society. Furthermore, they recognize individual uniqueness, fostering self-awareness, self-discipline, and self-realization. Students are empowered to discover their passions, talents, and purpose, leading to personal fulfillment and societal engagement. These thinkers advocate for integrating knowledge with experiential learning, enhancing critical thinking, problem-solving, and creativity. This approach enables students to adapt in a changing world. Additionally, they address inclusion and social justice, advocating equal opportunities and access to education. Education becomes a catalyst for societal transformation and fairness. Moreover, they emphasize sustainable and environmentally conscious education, promoting ecological awareness and a deep connection with nature. This perspective addresses global challenges and fosters responsible stewardship.

The presentation will be based on an extensive review of literature on the aforementioned contemporary thinkers from an educational perspective. An analysis of their educational theories will enable formulation of new methods for teaching ethics and spirituality to children and youth that can be integrated in the National Curriculum.

**Keywords:** Contemporary Indian thinkers, holistic education, ethics, spirituality

## ***A Conceptual Model for the Integration of 21<sup>st</sup> Century Knowledge & Skills in Doctoral Programs***

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Today's researchers are going to contribute to the development of the nation to a great extent. Keeping in view the important role doctoral students play in current research, the substantial role they will play in future research and education, it is highly necessary for doctoral programs to take a closer look at the effectiveness of training practices for producing prepared and successful graduates. Therefore, it is essential to have a better understanding of the experiences doctoral students have in graduate school and how they perceive these experiences contribute to their career preparedness. We conducted the review of available perception studies to bring forth the gap in the perceived preparedness of doctoral students for their future careers and the perceived contribution of experiences they gain during doctoral programs. The results of our very small survey of the perceptions of the doctoral students about their preparedness for future career paths and need for re-envisioning the doctoral program framework are in congruent with available literature. The challenging nature of 21st-century career scenario requires doctoral students to not only be specialized in a single discipline and independent researcher, but also open-minded, critically reflective thinker, creative problem solver and a collaborator. Hence the 21st century doctoral training needs to be updated in order to place greater emphasis on development of key skill sets such as interdisciplinary, critical thinking, and collaboration among the future researchers. This paper makes an attempt to present a conceptual model of doctoral program for this challenging and complex global context.

**Keywords:** Doctoral students, 21<sup>st</sup> century skills, conceptual model, teacher education

## ***Cooperative learning: a relevant instructional model for teacher training?***

*Prof. Guillaume Escalié, Prof Pascal Legrain, and Prof Alain Coupet  
University of Bordeaux*

One of the key questions of physical education teacher educators (PETE) programmes refers to whether future teachers are prepared to build knowledge and skills to feel self-efficacious in teaching physical education (PE). This issue concerns the instructional model of teaching used to help PE pre-service teachers to master both pedagogical knowledge and motor skills. According to this twofold challenge, the direct instruction (DI) is mainly used for pre-service teacher training. Beyond this traditional model, other instructional models as cooperative learning (CL) approach arise in the initial PE teacher education. Nevertheless, there is little information related to the instructor's role. Under the social cognitive perspective, more information is currently expected regarding the strategies the instructor uses to scaffold the mastery of skills for PE pre-service teachers' effective teaching. The purpose of this study was to examine the influence of a scaffolding procedure (CLS design) on PE pre-service teachers' knowledge, skills and self-efficacy in comparison to a CL and a DI experience to discover new physical activities. The results showed that the participants in the three conditions progressed on performance, knowledge for practice, knowledge for teaching, and self-efficacy. Although no difference was found in self-efficacy between the three training conditions over time, significant differences appeared on pedagogical knowledge or/and motor skills with an advantage for the CL and CLS participants, respectively. Although short training sessions dedicated to discovering

new sports stay problematic for teacher professional development, implementing CL pre-service teacher training designs would be a relevant alternative.

**Keywords:** Cooperative learning, direct instruction, physical education teacher education, scaffolding, self-efficacy

### *Co Supporting by research changes in teaching practices and pupils motivation*

*Prof. Guillaume Escalié, Prof Pascal Legrain, and Prof Alain Coupet  
University of Bordeaux*

During their initial training, preservice teachers are not very aware of the different learning environments they are likely to use to organize and ensure in class pedagogical conditions that promote learning and social interactions between students. From a socioconstructivist perspective, this study reports on collaborative research aimed at supporting teachers in a network of schools to build, from a common model, innovative cooperative learning environments based on Jigsaw principles (Aronson & Patnoe, 1991) and to implement them in class. From a methodological point of view, quantitative data aimed at examining the effects of this pedagogical approach on psychosocial dimensions linked to the well-being of pupils were coupled with qualitative data analysing the impact of the implementation of these environments on the teacher activity in class. On the one hand, the results highlight the significant effects of this type of environments on the self-determined motivation of students. On the other hand, they underline the need to consider the implementation of these systems in their dimensions that are both generic and disciplinary. Finally, paths are proposed to optimize the collaborative research approach initiated as well as its impact on pupils acquisitions.

**Keywords:** Cooperative learning environments, interdisciplinarity, pupil motivation and well-being, teaching activity

### *The Future of Interdisciplinary (STEM And IKS) Knowledge in Education*

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We have witnessed many losses of lives due to disasters, poverty, wars, etc. either natural or human-made but we need to act now. Can knowledge be acquired through our cultural experiences, including Indigenous Knowledge Systems (IKS) and formal education in Science, Technology, Engineering and Mathematics (STEM), support us in mitigating and adapting to the current problems we experiencing? The last decade has also witnessed a number of research endeavors and educational efforts in IKS and in STEM from theoretical and empirical studies in addressing issues. The philosophy and epistemology of IKS has been debated vigorously and a common notion of valuable knowledge beneficial in the 21st Century is still being researched and synthesized. STEM education is the envisaged future that will support the way future problems are resolved in the world. Currently schools are taught in silos and there are little connections to solving the current problems such as climatic change, global warming. Together with STEM there is a need to draw upon historical and indigenous knowledge but largely ignored in Westernized education. This paper will draw upon several studies in South Africa and elsewhere including Mauritius of indigenous knowledge and STEM and will illustrate how STEM can be integrated with indigenous knowledge leading to future research in interdisciplinary knowledge in order to solve problems both local and globally. Firstly, the current debates and research between western and indigenous knowledge will be drawn upon and, secondly examples for further research and current implementation into pedagogy will be discussed.

**Keywords:** Interdisciplinary knowledge, western science, STEM, IKS



## *Promoting school climate as an instructional leader in a primary school: Concepts, issues, and controversies*

*Govinden-Chinniah Sandanum, Primary Educator*

One lasting legacy in promoting quality education and opportunities for all is through new educational reforms implemented in Mauritius in line with the Sustainable Development Goal 4 from the 2030 agenda, Headmasters/Headmistresses represent fueling agents in upholding their role as instructional leaders towards promoting good school climate. Using Hallinger and Murphy's (1985) instructional leadership framework, the research adopted a qualitative case study approach, drawing on semi-structured interviews with headmistress and semi-structured questionnaires with 27 teachers, as well as a focus group discussion with 3 teachers chosen purposively based on their richness of data. Findings from the thematic analysis revealed that the headmistress effectively demonstrates leadership qualities in defining the school's mission, managing the instructional program, and fostering a positive school climate. However, teachers expressed contrasting views on their visibility at school. This study contributes to the understanding of instructional leadership in primary schools and its impact on school climate.

**Keywords:** Educational leadership and management, instructional leadership, educational reforms, school climate

## *An exploration of the experiences of English teachers with the use of dialogic talk: An interventionist case study at lower secondary school level*

*Ms Komal Reshma Gungapersand, Mauritius Institute of Education*

Developing fluency in spoken English in Mauritius is a challenge for teachers since English is not the first language of neither teachers nor learners. Researchers have sought to understand the importance of dialogicity in English language teaching. None of them have explored the role of a dialogic talk approach to develop speaking skills at lower secondary school level. An interventionist case-study using a qualitative approach was conducted to investigate the experiences of English teachers in a state secondary school after their initiation into dialogic talk. The participants and the school were selected through a combination of purposive and convenient sampling. A half-day workshop was conducted with English teachers to familiarise them with this approach. This workshop developed awareness about using a dialogic talk approach to develop classroom interactions in English in Grades 7-9 in that school. Data was collected qualitatively through semi-structured classroom observations and semi-structured individual interviews, two weeks after the workshop. One lesson by each of the 5 participants in one of the lower grades was observed. The observations served as basis for the individual semi-structured interview questions. An organised 6-steps thematic qualitative data analysis was conducted manually. The findings reveal the mixed experiences of participants with a dialogic talk approach. The affordances of this approach are multiple whereby teachers explore different kinds of dialogic talk moves to develop speaking skills. However, teachers experienced challenges due to contextual realities. The study recommends a more thorough training to empower teachers to implement and sustain a fully dialogic talk approach to facilitate spoken English.

**Keywords:** Dialogicity, dialogic talk

## *Charting the course: Exploring the future of online education management and efficiency in Mauritius' secondary schools*

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In a rapidly evolving world driven by technological advancements, education systems must adapt to meet the demands of the 21st century. The emergence of the Covid-19 pandemic and post-pandemic further accelerates the need for innovative teaching methods and alternative learning approaches. However, the management effectiveness, quality, and impact of online education have become crucial concerns. This study focuses on evaluating the extent to which online education is successful in the secondary education sector of Mauritius. As a novel teaching and learning method, online education in Mauritius' secondary schools lack comprehensive data on the perceptions of both instructors and learners regarding its effectiveness. This research employs a quantitative-methods approach. The target population for the study comprises local secondary school teachers and pupils in Mauritius. A survey was conducted, and data were collected through the use of structured questionnaires designed specifically for secondary teachers and students. These questionnaires feature questions to capture diverse perspectives. The total sample size for the study consisted of 242 respondents, of which 117 are secondary school students and 128 are secondary school teachers, and probability sampling techniques are used to obtain the data. The Statistical Package for Social Science (SPSS) was used to analyze the collected data. Through this approach, the study sheds light on the efficacy of online education and explores the experiences, challenges, and prospects of online education in terms of delivery and management in the Mauritian education sector. The findings provide valuable insights into the barriers, opportunities, and recommendations for enhancing online education in secondary schools. The survey's conclusion presents a comprehensive analysis, along with suggestions for future research in this field.

**Keywords:** Traditional classroom, online education, teaching methods, learning methods

## *Synchronous online classroom adoption among higher education students during COVID-19 in Mauritius: A qualitative single case study*

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The coronavirus (COVID-19) has compelled higher education institutions to suspend and to transit from face-to-face to online learning. This pandemic has without a doubt exposed several inadequacies in the public tertiary education system. This study aimed at exploring the facilitator and challenges influencing the adoption of e-learning technology during the lockdown. Semi-structured interviews had been conducted with full-time students from the Mauritius Institute of Education (MIE) between March-April 2022. After the data transcription, the collection of data proceeded iteratively using a thematic analysis technique. Seven full-time undergraduate students (5 female, 2 male) were interviewed. Three overarching themes have been applied deductively: (i) facilitators of the adoption of synchronous online classes, (ii) challenges of adoption of synchronous online classes, and (iii) suggestions for improvement during the synchronous online classes. The first theme revolved around Bloom's Taxonomy and Big-Five personality traits model. The dimensions pertaining to these concepts were found to influence the adoption of synchronous online classes. The second theme related to the five challenges, namely academic, physical health, personality, social and technical challenges, facing the full-time students during their synchronous online classes. The final theme provided some suggestions to improve students' e-learning experience. A more holistic approach should be favoured by both tutors and policymakers to determine effectively the learning experience and the technology adoption level of full-time MIE students. The focus should not be only on the learning but psychological factors as well.

**Keywords:** Learning theories, personality traits, synchronous online classes, COVID-19

## *Upon demand: The use of blackout poetry in developing communicative language skills in trainee teachers*

*Mrs. Mangala Jawaheer  
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This qualitative case study focused on how Design Thinking as an andragogical approach reconceptualized the teaching and learning trajectory of Physical Education (P. E.) and Arabic trainee teachers for a Communication and Soft Skills module in a B. Ed programme in Mauritius. Following the five components of design thinking (empathise, define, ideate, prototype, and test), as adult learners, B. Ed trainees were given the opportunity to share which skills they felt they needed to focus more on, and they indicated that they not only wanted to enhance their creativity but also their coherence and cohesion in writing (subwriting skills that they felt were particularly challenging). Several activities were proposed, and the trainees chose blackout poetry. Data collection tools included an open-ended questionnaire and a focus group discussion. Findings via thematic analysis revealed that most participants felt and believed that the blackout activity was effective in developing their creativity. They elaborated how it motivated them in transforming functional texts such as newspaper articles into authentic blackout poems on topics of their choice. They also shared how they enjoyed focusing on the aesthetic representation of their poetic creations. Participants further expressed how such an activity encouraged them to use close reading skills to identify words and phrases that illustrated the ideas and emotions they wanted to convey. Most importantly, trainees highlighted how they spent considerable time in identifying and using connectors to link these in ways that readers could follow. They further elaborated on how they believed this activity had sharpened their understanding of cohesion and coherence and that they were more mindful of these subwriting skills when engaging in functional writing. The findings also accentuated that blackout poetry in the communicative sessions had a ripple effect as the trainees enjoyed reading for appreciation and understanding. This study therefore suggests that there is greater scope for the infusion of literature in Communication Skills modules for teacher training.

**Keywords:** Design thinking, blackout poetry, teacher education, coherence and cohesion

## *The status of autism support and inclusion in Mauritius: An analysis of policies, practices and perceptions*

*Mr. Jaabir Shams Muhammad Jhugroo  
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Autism spectrum disorder (ASD) is a neurodevelopmental condition characterised by challenges in social communication and restricted interests and behaviours. ASD has an estimated global prevalence of 1% (WHO, 2022). In Mauritius, most students with ASD attend specialised schools, though recent government initiatives have sought to promote inclusion. This paper provides a systematic literature review analysing ASD inclusion policies and practices within primary and secondary education in Mauritius. It synthesizes findings from several sources published 2010–2022, retrieved through searches in PsycInfo, ERIC, Scopus, Mendeley and Google Scholar. Documents were analysed using qualitative methods to identify key themes related to ASD prevalence, awareness and stigma, segregated versus integrated school models, teacher preparation, infrastructure, curriculum, assessment, and coordination issues. Results indicate limited public understanding of ASD in Mauritius and persistent stigma. While policy steps have been taken, substantial gaps remain in implementing evidence-based inclusive practices, including inadequate teacher training, resistance from educators, unaccommodating academic structures, and lack of collaboration between government, schools, and advocacy groups. Attitudinal barriers combined with systemic deficits obstruct meaningful inclusion of students with ASD. Recommendations encompass awareness campaigns, teacher professional development, Universal Design for Learning, support personnel, partnerships, and embracing neurodiversity. Realising inclusive education will require efforts across social, educational, and political spheres.

**Keywords:** Autism Spectrum Disorder, Inclusion

## *The Mauritian multilingual education model and its implications for biliteracy development*

*Dr Evelyn Kee Mew Wan Khin  
Mauritius Institute of Education*

This presentation proposes to provide further insights on the relations between multilingualism, multilingual education, and biliteracy development which tend to remain poorly understood, thus making it hard for educators, researchers, and policymakers to make informed decisions on matters that impact children's biliteracy development.

Despite multilingualism being presented as an asset (Grosjean, 1982; Hornberger, 1989; Cook, 1992), recent research has also pointed out educational challenges faced by children (both from countries in the North and in the South hemispheres) who learn literacy in languages other than their home languages when they start schooling (Prosper & Nomlomo, 2016). This is often due to the language-education-policy as well as the multilingual education programme in place. As is the case in other postcolonial contexts, the Mauritian government has opted for a multilingual language-in-education policy that "promotes colonial and international languages but downplays the children's home language as a language of literacy" (Auleear Owodally, 2012, p. 55). Indeed, the child's first exposure to reading usually takes place in his/her second language and third language concurrently, with no basics acquired in his/her first language. This presentation therefore reflects on what makes the 'uniqueness' of the multilingual education model of Mauritius with regards to existing models and discusses how far its particularities may facilitate or hinder children's biliteracy development. This presentation also examines how the Mauritian multilingual education system may inscribe itself in a flexible multilingual education (Weber, 2014) to better cater for children with multilingual repertoires and who grow up with more than one mother tongue.

**Keywords:** Biliteracy, multilingual education, multilingualism, language-in-education policy

## *Evaluating the intellectual and research capital in the Mauritius innovation ecosystem*

*Ms. Beebee Nabiihah Khodabux, Mrs. Sattiyambal Patten-Ramen, and Ms. Madhvee Madhou*

### **Mauritius Research and Innovation Council**

Higher education and research and development (R&D) play crucial roles in innovation. Academia/Industry partnerships and participation of industry in research are recognised as weaknesses in the Mauritian innovation ecosystem amongst other factors. The aim of this study was to explore the determinants of knowledge interactions in terms of research inputs at the nexus of government-industry-higher education. The study also analysed the profiles of research personnel based on academic qualifications and fields of research. Number of researchers, research expenditure by fields and academic qualifications were collected during two National surveys in 2020 and 2021 using the guidelines of the OECD Frascati Manual (2018). The study revealed that National research inputs (human resources and expenditure) were highest in government and higher education. The fields of research with highest research expenditure and research personnel were engineering and technology in both industry and higher education. In industry, 88.77% of R&D expenditure and 84.8% of research personnel were involved in this field; in the higher education sector 25.02% of total R&D and 20.9% of research personnel were in this field. This demonstrates that the focus of research in industry and higher education might differ and need to be aligned for enhanced academia-industry partnerships. The number of doctoral researchers was also significantly higher in the higher education sector (30.56%) and lowest in industry (19.23%). In view of enhancing innovation and academia-industry partnerships, it is recommended that programs be developed to enhance doctoral students' interaction and experience with industry; matching research and doctoral studies with industry needs; and develop strategies to produce industry ready doctorates.

**Keywords:** Higher education, research and development, innovation, academia-industry partnerships, doctoral researchers

## *Investigating the decreasing enrolment rate in Art and Design at upper secondary level in Mauritius*

*Mrs. Nooreen Lallmamode  
Mahatma Gandhi Institute*

Based on the observation of statistics (Performance-by-Subject: 2015 – 2022) from the Mauritius Examination Syndicate's website, there is a decline in the number of students studying Art and Design at the upper secondary level in Mauritius over the last six years. This study aims at investigating the factors contributing to the declining enrolment rates in Art and Design programs at the upper secondary level in Government funded schools (Public and Private schools). It intends to explore the perceptions of students, teachers, and parents on the choice of Art and Design as a subject. Data will be collected using qualitative and quantitative approaches including surveys, questionnaires and focus group discussions to highlight the variables causing this reduction. The data will be objectively analysed, debated, and assessed with the aim of understanding the internal and external factors driving this decline. It is imperative to determine the measures which would encourage students to opt for Art and Design at the Upper secondary level considering the importance of this subject in the holistic development of learners and its contribution to the cultural industries. The recommendations that will be derived from the research outcomes can help to advance the art and design curriculum in Mauritius by suggesting focused initiatives.

**Keywords:** Art and Design, upper secondary level, declining enrolment, government funded schools

## *Leveraging translanguaging practices as a resource on one Mauritian university campus*

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The use of English as a Medium of Instruction (EMI) is common in universities around the world especially in private education where it is seen as a door to new opportunities. Despite Mauritius having a diverse linguistic and cultural setting, there is a monolingual and monocultural orientation which guides its educational policy and pedagogy. However, while courses may be offered in English, it is not uncommon to observe both lecturers and students translanguaging between home languages and the dominant English language as well as other resources in their translanguing repertoires such as gestures, visuals, and peers. The project described here aimed to expand understandings of the way that people from different linguistic backgrounds interact on one university campus in Mauritius especially in instructional contexts. It explored aspects of the micro-ecology of language found on campus and investigated the extent to which linguistic diversity and translanguaging is overtly encouraged and promoted by academics and valued by students in a context where English is the mandated medium of instruction. Using a linguistic ethnographic research design, qualitative data was collected via Open Ethnographic Observations (OEO) of classroom workshops and tutorials and one-to-one semi-structured interviews with students and lecturers. Observation data were then analysed via Critical Classroom Discourse Analysis (CCDA) while interview data were analysed thematically through an interpretivist approach. Findings suggested a mismatch between the English-only dominant ethos of the campus and the diversity of language and translanguaging to be found in classrooms. The implications of this research for educational settings will be discussed in this presentation.

**Keywords:** Translanguaging, English as a Medium of Instruction (EMI), linguistic diversity, pedagogy

## *The impact of educational attainment on the size of the informal sector in Mauritius: A MIMIC approach*

*Mr. Mitch Lebouc<sup>1</sup>, Dr. Vishal C. Jaunky<sup>2</sup>, and Dr. Vani Ramesh<sup>3</sup>*

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The informal sector is constantly growing across Africa and generating around 70 percent of employment in Sub-Saharan Africa and 62 percent in North America. Educational attainments is said to be one of the major determinants of the informal sector. Even though Mauritius has a low incidence of informality, workers involved in such sector are vulnerable to various risks and shocks. As such, measuring the size of the informal sector in Mauritius will serve as an advocacy tool for those workers and support the various policies designed to address the effective transition to formality. In addition to this, the research will also determine whether school enrolment does influence the size of the informal sector in Mauritius. The indirect approach will be used to measure the size of the informal sector in Mauritius, that is the Multiple Indicator Multiple Cause approach (MIMIC). The MIMIC is a component of the structural equation modelling and it has been used for our study to determine the trend of the size. To obtain the figure of the size of the informal sector as a percentage of GDP, the benchmarking process has been undertaken. The results show that primary school enrolment is positive and significant with the informal sector. In addition to this, the variable women business and the law index score scale is also positive and significant. However, the variable inflation is insignificant and is negative. This gives us a MIMIC model of 2-1-2. The usage of other direct and indirect methods for measuring the size of informal sector in Mauritius should be encouraged in order to address more effectively the different problems encountered by the operators in this market.

**Keywords:** Educational attainment, informal sector, MIMIC approach

## *Guaranteeing the futures of education through research by a constitutional right to education*

*Mrs Bhavna Mahadew, Mr. Kavi Nowbutsing, Ms. Leenshya Gunnoo, and Mr. Sharma Geerawo Thakoor  
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The future of education through research is primarily dependent on a right to education as a foundational basis. There is a need for the basic human right to education to be guaranteed by the laws of Mauritius. As matters stand, education is arguably said to be provided as part of the welfare state system. Indeed, free education from the primary level up to the tertiary level is provided by way of political decisions and funded by the welfare system similar to other social facilities. Without undermining the importance of this system, it should be pointed out that no legislation in Mauritius provides for education as a basic human right. The Constitution of Mauritius, the supreme law of the land, is devoid of the right to basic education, thus leaving this fundamental human right without any constitutional guarantee. This paper will argue that envisioning the futures of education through research has to go through a constitutional guarantee of the right to education. The nexus between education as a right and research will be highlighted. A doctrinal legal methodology will be adopted to undertake this research which is primarily premised on the analysis of legal rules and the formulation of doctrines. A comparative case study will also be undertaken with countries which have guaranteed education through research from a human rights-based approach. Recommendations for Mauritian authorities to consider will be accordingly formulated.

**Keywords:** Constitution, right to education, welfare state, right to research.

## *ChatGPT and education: Its application and impact in the teaching and learning process*

*Ms. Mahdiyah Mandary  
Ministry of Education*

Technology advances have always been central to the shaping of educational experiences. Consequently, the future of education and educational research cannot be envisioned without Artificial Intelligence (AI). The latest contender for AI use in the classroom is ChatGPT, an emerging generative artificial intelligence (AI) tool, launched in November 2022 by OpenAI. ChatGPT may be a significant tool for educational transformation in the coming years according to many educational researchers (Tlili et al., 2023 ; Gill et al., 2023). ChatGPT allows personalisation of lessons by considering students' learning styles, learning materials and may help educators to build questions to check understanding. Students benefit from ChatGPT through interactive conversations in a virtual learning environment (Javaid et al., 2023). In this regard, the aim of this paper is to analyse the existing literature to recommend applications of chatGPT to enhance the teaching and learning process. An analysis of the impact of ChatGPT on teaching and learning is also carried out. Ultimately, this research paper contributes to existing knowledge by providing a review of the current research and presenting the newest findings in the literature relating to ChatGPT and education. The implications of this research paper is that teachers, students and any stakeholder having an interest in the educational field in Mauritius will obtain an insight of how chatGPT can be leveraged to improve the efficiency and efficacy of the teaching and learning process.

**Keywords:** ChatGPT, educational technology, teaching and learning, artificial intelligence

## *Globalization and education in the Mauritian education system*

*Dr. Tejwant Mohabeer,  
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Globalization is rapidly influencing educational systems around the world (Arnové and Torres, 2022; Klees, Samoff, & Stromquist, 2012). Like most other postcolonial 'developing' nations, Mauritius entered the global economy three decades ago. A comprehensive analysis of key national Mauritian educational policy documents and the recent Primary (2015) and Secondary (2017) National Curriculum Frameworks (NCF) indicates a presence of globalization and related thematics, however, an analyses indicated that a conceptualization of what globalization is, and how to systemically and pedagogically engage with it in the national education system is missing. The findings of a three-year study exploring how the Mauritian education system is educating about globalization will be shared. An interpretivist paradigm was deployed within a case study methodology (Merriam, 2001; Stake, 2013; Yin, 2014) using methods of document analysis, survey-questionnaires, interviews, focus groups discussions, school/classroom observations, and curriculum/textbook panel observations to access stronger phenomenological insights (Denzin & Lincoln, 2018). All ethical considerations were applied pre/during/post research design, data collection, and data analyses. The novelty of this study and its contribution to knowledge rests in the triangulated findings which reveal that the vast majority of participants do not possess an understanding of globalization hence not factoring in the influences which are directly 'making' and 'shaping' the Mauritian education system.

**Keywords:** Globalization, postcolonial education, curriculum reforms, educational policy

## ***National Curriculum Framework: Is the extended stream a myth or reality towards inclusive education?***

***Mrs. Reema Dawoky Mollye***  
***English Language Educator at Loreto College Rose-Hill***

Education is a powerful tool for youth empowerment and to bring in the social change. The 21st Century skills focus a lot on innovation. The Mauritian secondary education system has recently undergone significant changes through the Nine-Year Continuous Basic Education reform which aims to provide students with an international standard while at the same time ensuring their employability as stated in the new national curriculum framework. Inclusive education has been one of the driving force in this education reform with the former prevocational education being replaced by the extended programme. It has been argued that the shift from prevocational to the extended programme is just a change of name while the profiling of the students has stayed the same. Essential to the success of inclusive education especially in relation to the extended stream is the identification of the students' weaknesses whether internal or external and to propose solutions to address their difficulties. Hence the purpose of this study is to identify some of the common problems experienced by these learners and to provide some recommendations to respond to their educational needs and help them integrate within the school system.

**Keywords:** Inclusive education, Nine Year Schooling, extended stream, educational needs, learning difficulties

## ***Unpacking procedural and conceptual difficulties of grade 13 students in solving problems in genetics crosses***

***Mr. Sheyne Moodelly<sup>1</sup>, Dr. Anwar Rumjaun<sup>2</sup>, and Prof. Michael J. Reiss<sup>3</sup>***

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This study examines the procedural and conceptual difficulties experienced by biology students when solving genetics cross problems related to inheritance. A qualitative case study was used, and data were gathered from grade 13 biology students in Mauritius. Initially, students who engaged in four problem-solving exercises were observed and their work was collected and analysed to elucidate their procedural difficulties. Then, individual semi-structured interviews were undertaken with the students. The results showed that most students found it difficult to connect the various levels at which genetics can be understood (molecular, microscopic, macroscopic, and symbolic). This severely hampered their understanding of genetics and their ability to correctly answer questions to do with genetics crosses. Suggestions are made as to how this might be remedied.

**Keywords:** Genetics, procedural and conceptual difficulties, problem solving

## ***The impact of Artificial Intelligence on the futures of education***

***Mrs. Nuzhat Mooniaruth-Kassim***  
***No Affiliation***

Amid this highly volatile era, characterised by an explosion of scientific knowledge, artificial intelligence (AI) has paved the way for a radical overhaul in the educational field. Cutting-edge research on AI indicates a paradigm shift in the role of educators, learners and leaders in education which will contribute to a new ecosystem of learning. Hence, there is a shared responsibility to seize opportunities. AI provides a myriad of benefits to deliver personalised learning experiences, provide real-time feedback and guidance, and automate tasks such as grading and attendance. Learners with disabilities can learn at their own pace and receive individually tailored support, making education more accessible and inclusive. While AI enables educators to focus on more critical tasks such as mentoring and building relationship with their students, there may be the replacement of humanistic values by a utilitarian or pragmatic perspective. Empirical



findings point out that despite an array of perks in reimagining the futures of education, AI entails possible risks and drawbacks in the education system. Educational leaders and policymakers need to anticipate the consequences of AI on the pedagogical framework and develop a resilient approach in the face of this complex and ambiguous world.

**Keywords:** Artificial intelligence, ecosystem of learning, inclusive, humanistic values, pedagogical framework

## *Representations of slavery in selected primary and secondary school textbooks in Mauritius*

*Mrs. Madvee Jane Moteea- Sewlall  
Curtin Mauritius*

School history textbooks are designed mainly to achieve certain common goals like providing learners with historical knowledge, developing a sense of community, citizenship and patriotism, teaching a certain set of values, fostering peace, harmony and reconciliation between different groups in a community, and creating responsible citizens who value history and heritage. Thus, it is essential to assess textbooks considering their intended objectives and the hidden curriculum which remain latent within them. This research has used mainly the content analysis method to analyse the portrayal of slavery in primary and secondary school textbooks in Mauritius. A sample of 25 textbooks were used in this research, that is, 22 of them from primary school (from the year 1999 to 2018) and 3 of them from secondary school (from the year 2018 to 2020). The context of textbook writing and production in Mauritius has also been documented by interviewing four local experts. The research findings show that the primary school textbooks tend to adopt a colonial-centred, Eurocentric perspective, with stereotypical representations of slavery. The secondary school textbooks offer a more balanced portrayal of the development of Mauritius and encourage the promotion of a common and shared understanding of its history. However, there is still room for improvement in the textbooks with regards to the choice of the historical sources being used, and in terms of the inclusion of subaltern groups such as women, children, and other minorities. This research makes a pioneering attempt in the under-explored area of textbook research in Mauritius.

**Keywords:** Representations of slavery, history school textbooks, history of Mauritius, history education

## *The selves of South African expatriate teachers influencing teacher leadership practices in Gulf schools*

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Scholarship on teacher leadership has grown quite considerably over the past two decades. This notwithstanding, there has been a dearth of studies that explore the connection between teacher identity (the multiple selves of teachers) and teacher leadership practice. In this article, we explore how the personal and professional lived lives of South African expatriate teachers shape their practices of teacher leadership in the Gulf Cooperation Council (GCC) country schools. The GCC is an economic and political union of six oil-rich Middle Eastern countries - Qatar, the Kingdom of Bahrain, Kuwait, the United Arab Emirates (UAE), Oman, and Saudi Arabia. Our study is significant since it makes visible how the selves of teachers can shape teacher leadership practice. We purposively selected six South African expatriate teachers from the GCC countries for study. Drawing on narrative inquiry, we present two narrative vignettes – vignette one illustrating how the personal selves shaped teacher leadership practice and vignette two showing how the professional selves shaped teacher leadership practice. The vignettes were constructed by drawing on field texts generated from narrative interviews and photo-elicitation. The findings elucidate how particular personal identities, such as being a compassionate mother, contribute to being a nurturing teacher leader and how professional identities, such as being a self-directed teacher-learner, influence teacher leadership

practices in respect of teacher development. We conclude that expatriate teacher leaders mobilize their personal and professional lived experiences as assets to influence and strengthen teaching and learning.

**Keywords:** Teacher leadership, narrative vignettes, personal identity, professional identity

### *Digital humanities: The future of mathematic higher education post-COVID-19*

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The development of digital humanities is important, especially given our experiences of online, hybrid, blended, and flipped teaching and learning. Digital humanities involve partnerships between academics and students, bringing together various approaches, critical and reflexive methods and disrupting traditional practices. It connects and analyses digital pedagogy integrated within humanities disciplines. Higher education Institutions globally have adopted digital pedagogy to control the spread of contagious Coronavirus (COVID-19). Therefore, research about integrating digital pedagogy in higher education environments during and post-COVID-19 is important. Mathematics education is located within the humanities. Thus, this research study will add knowledge to the field and be valuable for the future of mathematics higher education post-COVID-19. This presentation focuses on a qualitative study exploring postgraduate students' experiences of digital pedagogy for mathematics education during the COVID-19 pandemic. The participants were mathematics higher education students and practising mathematics teachers. The Community of Inquiry (CoI) theoretical framework model framed this study. Participants were invited to two interactive online workshops using various digital pedagogy during the COVID-19 pandemic. Afterwards, these participants were invited to participate in online interviews focusing on their experiences of digital pedagogy for mathematics in higher education. Thus, the findings of this study revealed participants' experiences of digital humanities during COVID-19. This presentation aims to discuss these findings in detail to exhibit how findings about digital humanities are important and relevant for mathematics higher education. This presentation discusses a progressive way to connect technology and society and reveals implications for the future of mathematics higher education post-COVID-19.

**Keywords:** Community of inquiry, digital humanities, digital pedagogy, mathematics higher education

### *Exploring pre-primary educators' interpretation and enactment of integrated STEM education in the early childhood education (ECE) setting*

*Dr. Fawzia Bibi Narod, Mr. Vickren Narrainsawmy, and Dr. Kavish Moheput  
Mauritius Institute of Education*

There is a global imperative to promote STEM education at all levels (Kelley & Knowles, 2016), starting with Early Childhood Education (ECE). However, the integration of STEM education in ECE remains understudied (Yüceliyigit & Aral, 2017), particularly amongst in-service pre-primary educators in Small Island Developing States (SIDS). The connection between pre-primary educators' interpretation of STEM education and the enactment of an integrated STEM approach in the ECE setting has not been extensively explored. Thus, this study has been conceptualised to explore how pre-primary educators interpret and enact STEM education in the ECE setting in Mauritius. Data was collected through a survey questionnaire administered to 319 pre-primary educators. The quantitative data will be analysed using statistical analysis software, and a thematic approach will be used to delve deeper into the open-ended responses. Findings from the study will provide valuable insights into the opportunities offered for, and possible constraints in the implementation of integrated STEM education in the ECE context, as well as the type of support and training needed for pre-primary educators.

**Keywords:** STEM, STEM education, early childhood education, integrated approach

## *Contribution of Charmaz's constructivist grounded theory to chemistry education: A literature review*

*Mr. Vickren Narrainsawmy<sup>1</sup>, Dr. Fawzia Narod<sup>1</sup>, Mrs. Farheen Abdool<sup>2</sup>, and Mrs. Mega Maunikum<sup>2</sup>*

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Charmaz's constructivist approach to grounded theory (CCAGT) has increased in popularity in recent years (Stough & Lee, 2021). Within the constructivist grounded theory, Charmaz (2006, 2014, 2020) proposes four main criteria for grounded theory studies: credibility, originality, resonance, and usefulness. Stough and Lee (2021) inform that previous grounded theory studies have exhibited methodological inconsistencies and lack descriptive clarity. Yet, the current chemistry education literature lacks an in-depth understanding of how chemistry education researchers have adhered to Charmaz's four main criteria, which aim to address methodological inconsistencies and descriptive cloudiness. To address this gap, this review study has been conceptualised to determine the extent to which chemistry education researchers adhere to the aforementioned criteria when using CCAGT. It is also expected that the current review study will unpack the potential challenges and leverages of CCAGT in chemistry educational research by providing insights into both the theoretical and practical aspects needed for its implementation. For the systematic and transparent nature of the review process, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 approach (Page et al., 2021) is selected as the guiding framework to report on the procedure for identifying, selecting, appraising, and synthesising CCAGT studies published between 2000 and 2023 in highly ranked chemistry educational journals. PRISMA 2020 ensures that all recommended information is captured and consists of a 27-item checklist which is an expanded checklist that details reporting recommendations for each item (Page et al., 2021). Findings from this review will be useful for chemistry education researchers to reflect on their own methodological choices and explore opportunities for improvement, leading to more rigorous and insightful research outcomes.

**Keywords:** Charmaz's constructivist approach to grounded theory, chemistry education, Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020.

## *Assessing gender equality in and through higher education in Mauritius*

*Mr. Bhisum Nowbutsing, Mrs. Bhavna Mahadew, Ms. Leenshya Gunnoo,*

*and Mr. Sharma Geerawo Thakoor*

*University of Technology, Mauritius*

The 2030 UNSDG (United National Sustainable Development Goals) agenda specifically emphasized on SDG 4 which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." Education is sine qua non to achieve societal progress and success. Education as a fundamental human can help forging individual, social and political transformation for the benefit of one and all. According to UNESCO (2019), education is the sole medium through which people of all ages can gain skills and knowledge to continue to adapt to changes that constantly affect all societies, for example technological revolution, climatic declines. In 2019, access to public higher education institutions was made free and this has contributed in increasing the gross tertiary enrollment ratio to around 44% in 2021. This paper aims at investigating student enrolment and performance into public higher education institutions based on gender analysis. It can be argued that aggregated enrolment data may often lead to bias interpretation, especially if gender concentration or segregation is prevalent. Gender concentration in specific faculties would generally contribute to over and/or under supply of professionals which accentuate gender mismatch on the labour market. While the achievements of Mauritius in higher education are significant both in terms of enrolment and outcomes, there is room to scale-up the ambition to establish centres of excellence that empower learners for life, professions, and leadership. The challenges that Mauritius shall be facing shall most certainly require young minds to harness innovation for its economic, social, and political progress.

**Keywords:** Gender equality, higher education enrolment, outcomes, and gender empowerment

## *Exploring Mauritian upper secondary students' conceptions of and approaches to learning biology*

*Dr. Deenesh Patpur*

*Private Secondary Education Authority*

The low enrolment in science subjects, particularly biology, beyond the compulsory Grade 9 level is a matter of concern to the Mauritian authorities, teachers and other stakeholders given that it is a prerequisite to a wide range of university degrees and professional careers. Many studies have tried to explain the low enrolment in biology at secondary and tertiary levels, however, little is known about how conceptions of learning (COL) and approaches to learning (AL) respond to the issue. Conceptions of learning refer to students' or learners' views on their educational experiences and preferred methods of carrying out the learning process. Approaches to learning are the ways that students or learners learn or accomplish their academic assignments. Arguably, the existence of positive COL and AL in learning biology increases learners' chances of achieving the intended learning outcomes and better student performances. This invariably creates positive perceptions of the subject and possibly helps to attract more students to study biology at School Certificate level and consequently at Higher School Certificate level. Therefore, the aim of my study was to explore Mauritian upper secondary school students' COL and AL. The approaches to learning and conceptions of learning theoretical perspectives informed this study. This study adopted a pragmatic approach with the assumption that using a variety of research methods would result in a better grasp of the study problem. An explanatory mixed methods sequential research design was used to first collect quantitative data, and then gather qualitative data to explain the quantitative results. Convenience sampling was employed with respect to the schools where the participants were drawn from. Quantitative data were collected from 497 Grade 11 biology students through survey questionnaires before purposely selecting 16 of them to participate in the face-to-face individual semi-structured interviews. Descriptive statistics were used to analyse the quantitative data, whereas coding, categorisation, pattern recognition, and inference were used to analyse the qualitative data. Analysis of the quantitative and the qualitative data identified COL and AL, much of which resonate with the theoretical framework that guided this study. The study revealed that Mauritian students had mixed conceptions and thus, adopted mixed or hybrid approaches to learning biology. The study also revealed that the students' COL influenced their AL. The findings of this study have significance for curriculum designers, resource people, and secondary school educators who want to improve biology instruction.

**Keywords:** Conceptions of Learning, approaches to Learning, biology, upper secondary school, hybrid approach to learning

## *Understanding the construction of teacher professional identity of a holistic education programme (HEP) teacher*

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In the context of the 2016 Nine Year Continuous Basic Education (NYCBE) reform and the advent of the Holistic Education Programme (HEP) in Mauritius, a new corpus of educators have been trained and mandated to transform the traditional schooling landscape into one that integrates the personal, the social, the creative and expressive development of the learner (MoETESR, 2016). Using narrative inquiry, this small-scale study explains how a HEP educator constructs his Teacher Professional Identity (TPI) within this shift in philosophical and pedagogical paradigm. TPI determines what constitutes being an educator (Assen et al. 2018, Avidor-Ungar, 2016) and is central to the understanding educators make of their roles (Korthagen, 2004). TPI forges the attitudes which educators develop and enact towards policy and reforms. It also determines how they make sense of teaching in school. TPI continues to redefine itself throughout the career of the educator (Ruohotie-Lyhty & Moate, 2016). Through narrative interview, the lived experience of the participant was explored and the generated data was used to form a first level analysis which is presented as a first person narrative. Using the Qualitative Content Analysis approach, the narrative was further analysed to reveal its latent meaning. After an overview of the context of the study and the literature review, and the justification of the employed methodology, this presentation focuses on

the findings of the study which fall under five critical themes. These are the assonance between personal philosophy and the curriculum, the centrality of practice/context, self-efficacy, agency and reflexivity.

**Keywords:** Teacher professional identity (TPI), holistic education programme (HEP) philosophical assonance, practice in context, self-efficacy

### *Student' perception and experience of their primary-secondary school transition and mathematics*

*Dr. Sooryadev Purdasseea*  
*Mauritius Institute of Educaiton*

This paper focuses on 11–12 year old students' perception and experience of their primary-secondary school transition and mathematics. As students transit from primary to secondary school, they are required to extend and transform their mathematical knowledge and skills to meet the requirements of secondary mathematics learning. An earlier study found that some students who excelled in mathematics in their end of primary school examination achieved lower test results than expected by teachers during their first year at secondary school. Teachers reported that these students displayed a loss in motivation and low levels of engagement in mathematics. These findings prompted this current study which aimed to understand, from the students' perspective, their experience and engagement in Mathematics lessons and tasks as they transit to secondary school. Adopting a socio-constructionist approach, this hermeneutic phenomenological study enabled an in-depth exploration of student's perspectives of their experiences relating to their transition to secondary school. A purposive sample was selected to include students obtaining 75% or above in their end of primary education mathematics examination, but who experienced a substantial decline in their in-class test performances in the subject during their first year at secondary school. Data from seven semi-structured group interviews were analysed using a thematic approach. Findings revealed that participants experienced discontinuities in the curriculum and instructional practices, and reduced levels of support concerning mathematics teaching and learning, all of which impacted negatively on their engagement in mathematics.

**Keywords:** Transition, curriculum discontinuity, mathematics, engagement

### *Harnessing artificial intelligence as an equalizer for learners with disabilities in the context of higher education in Mauritius*

*Dr. Neel Raamandarsingh Purmah*  
*Middlesex University, Mauritius*

Despite significant progress in inclusive education, learners with disabilities often face barriers that hinder their educational opportunities and outcomes. Artificial Intelligence (AI) technologies offer promising solutions to address these challenges by providing tailored support and accommodations to meet the diverse needs of learners with disabilities. This presentation will stem out the barriers faced by learners with disabilities in the higher education landscape. It will then explore the potential applications of AI in mitigating these challenges and promoting equal access to quality education. AI-powered tools such as speech recognition, natural language processing and computer vision can enhance communication, assistive learning, and accessibility for learners with disabilities in Mauritius. Furthermore, this study will highlight the importance of ethical considerations and user-centric design in implementing AI solutions. It will emphasize the need for collaboration among policymakers, educators, technologists, and disability rights advocates to ensure that AI technologies are designed and deployed inclusively and responsibly. By harnessing AI as an equalizer, Mauritius can create an inclusive education system that empowers learners with disabilities to overcome barriers and maximize their educational potential. This study will ultimately provide some avenues or further research and investment in AI technologies to advance inclusive education in Mauritius and beyond in view of fostering a more inclusive and equitable society for all learners.

**Keywords:** Artificial intelligence; Learners with Disabilities; Higher Education; Inclusive Education

## *Learning of phonetics: The contribution of Yājñavalkyaśikṣā in language acquisition*

*Mr. Viswanand Puteea  
Mahatma Gandhi Institute*

This research paper investigates the pivotal role of phonetics in language mastery, particularly within the context of Sanskrit. The study delves into the intricate realm of the śikṣā śāstras, a facet of the vedāṅgās that systematically elucidates phonetic learning. Śikṣā, one of the six vedāṅgās, is dedicated to language instruction encompassing phonetics and pronunciation. This exploration encompasses aspects such as sound modulation, vowel quantification, consonant articulation, sound equilibrium, and linkage, encapsulating the essence of Sanskrit phonetics, termed as śikṣā. Sanskrit phonetics emerges as a discipline converging on Sanskrit alphabet constituents, precise enunciation, stress modulation, rhythmic cadence, and principles governing harmonious word amalgamations during the rendition of Vedic mantras. In contemporary linguistics, phonetics is the branch concerned with the production and classification of global speech sonorities. At the heart of this discourse lies the Yājñavalkyaśikṣā, an authoritative Sanskrit phonetics book attributed to Yājñavalkya himself. This treatise is dedicated to the pedagogy of Sanskrit phonetics, laying the foundation for this research. Through meticulous textual analysis and comparative scrutiny across languages such as English and French, this study explored the broader implications of Yājñavalkyaśikṣā's phonetic principles in diverse language learning scenarios. The paper advances a qualitative research approach, emphasizing textual examination and comparative evaluation. By elucidating the scientific scrutiny of phonetics in Yājñavalkyaśikṣā, this study underscores its potential to enrich pedagogical frameworks, particularly within the realm of linguistics. This endeavor not only illuminates the significance of phonetics in Sanskrit but also offers insights into enhancing educational paradigms on a global scale.

**Keywords:** Phonetics, Yājñavalkyaśikṣā, Language Acquisition

## *Physical education educator' knowledge construction of pulmonary circulation*

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Mauritius Institute of Education*

In the context of teaching the Physical Education (PE) theory component at Advance Subsidiary (AS) level in Mauritius, in-service PE educators informed about their concerns in teaching anatomy and physiology-related topics of the syllabus. One topic that posed problem was Pulmonary Circulation (PC). PC is a complex process of blood circulation between the heart and the lungs. The aim of my research focused on how PE educators constructed their knowledge of Pulmonary Circulation (PC). The conceptual framework of this study has been embedded in Vygotsky's definition of socio-constructivist theory, and subsequently, the literature review has provided an insight into the various aspects that influence knowledge construction. The research adopted an interpretivist approach as knowledge construction is subjective and is influenced by multiple realities. To interpret human stories on how knowledge was constructed within a social context, a single case study was convenient to meet the aim and objectives of this research. As knowledge construction is experienced by individuals, the participants of this study were purposively chosen. PE educators' views were gathered through semi-structured interviews. Focus group interviews were conducted with PE lecturers in which the chunks of data gathered were discussed, thus reducing inherent bias associated with single source.

A thematic approach was used for data analysis and reporting of findings. The findings revealed how information about PC was shared during teacher training lectures; how information shared during lecture, misconceptions, emotions, prior knowledge, study strategy, and regulation strategies influence the learning of PC; and how overcoming misconceptions, discussions with colleagues and experience in teaching constructed and reconstructed knowledge of PC.

**Keywords:** Pulmonary circulation teaching, Physical education, knowledge construction

## *Physical Education as an examinable subject: A SWOT analysis at O level in Mauritius*

*Mr. Yudhish Rama<sup>1</sup>, Mr. Raj Rajcoomar<sup>1</sup>, Mr. Ravi Bhurtun<sup>1</sup>, Mr. Aurore Lacroche<sup>1</sup>, and Mrs. Geetanjali Motah<sup>1</sup>*

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An analysis of candidates' performance in the Cambridge O Level Physical Education (PE) examination from 2016 to 2022 revealed low performance of students from Grades 7 to 9 every year. The consistently low performance of candidates, steered an investigation into what context and realities led to influence students' performances in PE at O level. To identify and understand what influence student performances, a SWOT Analysis served as the theoretical framework. With reference to literature, this framework is widely used in the education sector to inform the process of strategic development and decision-making to remedy situations. The purpose of the study was to use the SWOT analysis approach and adopt an interpretivist lens to have in-depth insights about how individual and social contexts influenced students' performances. PE Educators of Mauritius involved in teaching at O level were the main participants of this study. Data was collected from focus group discussions revealed multiple realities which brought a comprehensive understanding about the research phenomenon and justified the purpose of the study. Data was analysed and findings were reported under themes. The findings informed on the incoherence between policy and curriculum implementation; how school culture, teaching, learning, assessment, and parental support influence students' performances contextual information; and how PE stakeholders to develop proactive strategies to improve students' performances. The research findings open avenues for PE stakeholders to have a 4-year strategic plan with smart goals and key performance indicators to increase the percentage of students succeeding in their PE examination at O level.

**Keywords:** SWOT Analysis, student performances, physical education

## *Analysing the use of high-fidelity simulators in undergraduate medical training: systematic review*

*Dr. Urshila Ramah and Mrs. Bibi Sumera Keenoo  
University of Mauritius*

This review examines the benefits and drawbacks of high-fidelity simulators in undergraduate medical training. In the search, 37 eligible articles from databases such as PUBMED, OVID, and LibSearch were found. Among these, 18 were prospective studies, 17 were randomised clinical trials, and 2 were retrospective studies. The studies involved both preclinical and clinical medical students. Out of the 37 articles reviewed, 18 were prospective, 17 were randomised clinical trials, and 2 were retrospective studies. 13 studies had preclinical medical students, and 26 had clinical medical students. The evaluation outcomes included the opinions, performance, or knowledge of students. Fourteen studies looked at students after the high-fidelity sessions, and 15 analysed them before and after the simulation. One study was evaluated after one week, and seven studies after different periods ranging from 3 weeks to 1 year. High-fidelity simulators were used in 18 studies, and 19 compared it with low-fidelity simulators or other teaching methods. All the studies deduced that high-fidelity simulators were a vital tool to enhance the teaching and learning of medical students. The students trained with high-fidelity simulators may require more confidence in their clinical skills. Additionally, for specific objectives, low-fidelity simulators may outperform high-fidelity simulators. Cost-effectiveness is also an essential factor to consider when implementing high-fidelity simulators. The authors emphasised that using high-fidelity simulators in small groups with appropriate equipment and operation staff yielded more benefits. Overall, this highlights the significance of high-fidelity simulators as a valuable adjunct to traditional teaching methods in undergraduate medical education.

**Keywords:** Undergraduate medical training, high fidelity simulation, high fidelity simulators, medical students

## *Contribution of a performing arts education model for future extrapolation of knowledge of our Mauritian multicultural assets*

*Dr. Sheilana Devi Ramdoo  
Mahatma Gandhi Institute*

Intercultural Knowledge to understand diversity in individuals and cultures is a foundation for an inter-communal network to connect in a healthy way to cultural differences and a pool of ideas to become resourceful agents of growth. The aim of the research was to carry out an analysis of perceptions on the Mauritian multicultural components proposed through a model of Mauritian multicultural performing arts education (dance) where learning about our differences can generate willingness to build on our multicultural assets. Since the researcher's expertise is in the dance field, an initial intercultural discovery of Mauritianism was proposed through a model program which mainly constituted of a Chinese dance-expression of a butterfly; an Indian dance expression of a butterfly; various Sega creative dance-interpretations in the Mauritian and Rodrigues; and Free creative dance expressive works on the theme of Unity with a background English song entitled "We Are One". Using the quantitative paradigm, a questionnaire survey initially helped to examine the perceptions of eighty primary school trainee teachers from Rodrigues and Mauritius after a training of 15 sessions of three hours offered by the researcher, in the proposed Mauritian multicultural performing arts education model (dance). The second part constituted a qualitative approach whereby 9 focus group discussions were held with 8 members of the Higher Authorities of arts/educational institutions; 6 specialists of tertiary education in arts/performing arts; 14 secondary school educators of arts/performing arts and 37 primary school teachers after the latter had viewed extracts of videos of the above 3-month training of 80 primary school trainee teachers. The overall findings indicate an inclination to teach multiculturalism and its assets alongside the existing similarity and differences.

**Keywords:** Internalization of Mauritian multiculturalism, performing arts education, intercultural discovery from an aesthetic perspective, Mauritian multicultural assets

## *Contribution of Sanskrit in ethics and value education*

*Ms. Kirthee Devi Ramjattan  
Mahatma Gandhi Institute*

Sanskrit literary texts, including Nīti Literature, Smṛti Literature, Gṛhya Sūtras, and the Bhagavadgītā are replete with ethical values that can contribute to the creation of a more harmonious and equitable world. This paper aims to demonstrate the transformative influence that Sanskrit can have on learners. Specifically, it sheds light on the innovative program, "Bāla-Bodhinī," conducted by the Department of Sanskrit. The course was run during the period of May to June 2022, over 8 sessions aiming at providing Sanskrit instruction to about 100 primary school children. The primary objective of this paper is to assess the multifaceted impact of Sanskrit education on children's character, personality, and intellectual growth. To effectively gauge this influence, a comprehensive approach will be undertaken. A survey will also be administered to the parents of the students enrolled in the Bāla-Bodhinī classes. This survey aims to evaluate the transformation brought about by Sanskrit learning in terms of character development, personality enhancement, and intellectual advancement as perceived by parents. Additionally, targeted interviews will be conducted with a select group of students to obtain qualitative insights into their experiences and perceptions regarding the effects of Sanskrit education. Triangulation will be carried out by comparing performance results. By combining the perspectives gained from parental surveys, student interviews, and academic performance data, a comprehensive view is expected to emerge. Ultimately, this study endeavors to illuminate how Sanskrit education can act as a catalyst in harnessing the innate potential of children. Through educational endeavours like the Bāla-Bodhinī initiative, this research strives to emphasize the importance of integrating teaching and learning of Sanskrit in school curriculum.

**Keywords:** Ethics, values education, teaching and learning of Sanskrit



## *The ethical dilemmas related to assessment practices in an era of artificial intelligence: Collaborative autoethnographic reflections on two teacher educators' experiences in a teacher education context*

*Miss. Bhima Ramkissoon and Miss. Suryakanti Fulena  
Mauritius Institute of Education*

Since its emergence, the opportunities for Artificial Intelligence (AI) in educational assessment have been promising in multiple ways. However, there are serious concerns regarding the use of AI tools in producing sophisticated essays in response to summative assignments, which have implications on the validity and ethics surrounding assessment. This study explores the emerging dilemmas faced by two teacher educators in relation to ethics and reliability in assessment in a context that is influenced by the use of AI without any institutional guidelines. In order to understand this phenomenon, the teacher educators used the collaborative autoethnography methodology with a qualitative epistemology at a teacher education institution of Mauritius. The data collection process will involve the use of narratives based on the personal experiences of each teacher educator over a period of three months that will be thematically analysed, compared and interpreted collaboratively. Findings from this study can potentially inform the management the professional development needs of teacher educators in view of promoting ethical, reliable and consistent assessment practices within the institution. Based on the potential findings, there is also scope for the development of guidelines at institutional level around the practical implications for maximising the positive impact of AI tools on summative assessment while minimising the negative ones.

**Keywords:** AI tools, ethics, reliability, summative assessment

## *Teachers' negotiation of the new turn in language policy and the epistemological shift in language studies: A case study*

*Dr. Nita Rughoonundun-Chellapermal  
Mauritius Institute of Education, Former Associate Professor*

This paper will report on a qualitative case study of around one hundred primary school teacher-participants who have engaged in planning a series of lessons to teach a topic of a content subject while focusing on language strategies as a central teaching approach. These lessons were prepared in the context of an MIE in-service BA in Education course which looked at teaching and learning in our multilingual classrooms. These are characterized by the presence of a vernacular language only recently equipped with an official writing system, and officially regarded only as a support language in the general curriculum. The corpus for the study comes from a language assignment which aimed at giving the participants the opportunity of engaging in reflective practice regarding the challenges of a curriculum that chooses English as medium of instruction as well as the language of textbooks and examinations at all levels of schooling even though it is a foreign language for the pupils. The study provides insights into teachers' languaging strategies when provided with theoretical insights into multilingualism and allowed a greater sense of agency in their practice.

**Keywords:** Teacher education, multilingualism, translanguaging epistemic access

## *Insights into physical and virtual laboratory learning experiences in Biology: A comparative study*

*Dr. Rumjaun Anwar and Dr. Atchia Shakeel*

Practical work plays a pivotal role in the learning and teaching of biology at secondary education level. Yet students' engagement in practical work often remains scarce due to limited access to physical school laboratories, lack of well-equipped facilities, and weak supervisory skills of teachers. Studies have shown that virtual lab experiments can provide a viable alternative to ensure that all students have opportunities to engage in hands-on learning experiences regardless of their location or institutional resources. This

comparative study therefore seeks to unveil students' experiences in physical and virtual laboratory-based practical work in biology at secondary level. A multiple case study within a qualitative interpretivist paradigm was adopted where Grade 12 students of seven schools were selected using a systematic sampling procedure based on gender, academic level, and location criteria. Qualitative data were collected by observing students' engagement in both physical and virtual lab practical and through focus group discussions. The theoretical frame borrowed from Ney et al. (2009) was used to frame the questions and observation checklist. The preliminary findings of one case involving 12 students will be shared in this presentation.

**Keywords:** Practical work, physical lab, virtual lab, students' experience, case study, learning and teaching biology

### *Introducing peer coaching as an approach to support mathematics teachers' understanding of practice in the context of curriculum and educational policy reforms*

*Ms. Usha Devi Saneechur  
Secondary Educator*

A small-scale qualitative research was undertaken with the aim to understand how peer coaching can facilitate a deepening understanding of mathematics teachers' practice in the context of curriculum and educational policy reforms within collaborative action research. Two mathematics teachers and I (the researcher) participated in four peer coaching sessions through coaching dialogue focusing on individual practical insights from teaching in the context of the educational reforms. Peer coaching sessions involved different approaches to the collaborative work of peer coaching. The findings generated two themes and respective subthemes namely: teaching as a chain (adapting to changes and bridging the gap from earlier grades) and peer coaching as hope and challenge (benefits for students versus teaching for performance and value of sharing). Furthermore, it was found that peer coaching supported teachers to engage in a personal situated enquiry to develop a critical collaborative inquiry during peer coaching sessions as collaborative action research cycles. Transformation in teachers' thinking was recognising how coaching dialogue with experienced or less experienced teachers could support them during educational change. As a practical implication, peer coaching can support mathematics teachers to understand and improve their practice in the context of educational policy reforms in a trusting relationship.

**Keywords:** Coaching dialogue, collaborative work of peer coaching, peer coaching, collaborative action research, mathematics educators

### *Factors affecting teacher agency of home economics educators during the introduction of food and textile studies in boys schools*

*Mrs. Manesha Devi Sobnach-Chuttoo  
Secondary Educators*

The recent introduction of Food and Textiles Studies in boys state schools, disrupt the morphostasis of the teachings of home economics (HE) bounded within the spheres of a patriarchal framework and dualisms. Current trends are therefore recognising the urge of an equitable skill development which supports sustainable education across gender. This study therefore aimed to explore how HE educators endorse practice and engage in policy during a climate of curriculum change. This research is guided by the ecological model of teacher agency where data was collected through questionnaires (n=10) and semi structured interviews(n=6). Thematic analysis was used to analyse data under three themes and various deductive themes which enabled a nuanced spectrum of the factors affecting teaching agency of HE educators. The key findings indicate the inclusion of male educators to improve teacher identity and subject recognition within the school. The lack of facilities and resources to teach were attributed a highly exam driven system, an ingrained top-down approach to reforms and a highly bureaucratic leadership

style which still prioritize subjects which are catalyst to good career. Moreover, experienced educators tend to be more embedded as passive carriers in structural web which decreases their autonomy and restricts their transformative freedom whereas young educators tend to be more agentic to constantly adjust to new situations. This research therefore sheds light on issues which need to be addressed by policy makers to enhance agentic commitment towards teaching.

**Keywords:** Home economics, teacher agency, curriculum change, case study

### *Exploring authentic learning experiences of pre-service teachers at a teacher education institution in Mauritius*

*Miss Divyashali Sowdagur  
Mauritius Institute of Education*

Teacher education around the world is struggling to bridge the theory-practice gap (Korthagen 2007, McGarr, O'Grady & Guilfoyle 2017). The reason being that many teacher education programmes still adopt the traditional 'application-of-theory model' (Korthagen 2011, p.34) and do not prepare teachers adequately to face the challenges of their context. Consequently, novice teachers experience a reality shock as they join their workplace. According to research, a similar situation prevails in our local context. One of the ways of bridging the theory-practice gap is to provide authentic learning opportunities to pre-service teachers (Herrington 2005). This study, therefore, seeks to explore pre-service teachers' experience of authentic learning in a local teacher education institution. A set of authentic lessons will be prepared and implemented by the researcher. Data sources will include a focus group interview that aims at gathering the views of pre-service teachers on their experience of authentic lessons and field notes taken by the researcher during the implementation of the lessons. The expected findings will be in relation to (i) an evaluation of the learning gains of pre-service teachers and (ii) an analysis of authentic tasks in bridging the theory-practice divide. In line with Korthagen, Loughran and Russell (2006), this research aims to fill in a gap in the literature by giving voice to pre-service teachers on the effectiveness of their training in bridging the theory-practice divide.

**Keywords:** Teacher education, theory-practice gap

### *Navigating between the three compasses: Work, child, and child's education*

*Mrs. Jyotsanah Thanoos, Dr. Pritee Auckloo, and Dr. Sharone Ramasawmy  
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Research shows that working mothers, fathers and guardians struggle to make space for family and quality time amidst exigencies and challenges of their respective work cultures (Swap 1993). Covid-19 has further complicated matters for parents who have either lost their job or who have to work harder to maintain financial stability in the family. Differential or longer working hours, amidst economic concerns and societal tensions are the often the outcomes of work-based challenges which in turn affect children's growth and scholastic outcomes (Obermeier et al, 2022). In recognition of this concern, and to support working parents in Mauritius, the National Budget, this year made room for an unprecedented measure to cater for care giving centres within the workplace where the number of employees are in huge numbers (Budget speech, 2023). This calls for further academic reflection and forces the examination of models of parental involvement for working parents. This paper, therefore, builds on the achievement of MIE in the field of parental education since 2021 and examines theoretical models of parental involvement to be adopted for working parents who have to struggle to make a work-life balance a reality (Swap, 1993, Durisic & Bunijevac, 2017). This critical analysis includes examination of the determinants and barriers to parental involvement which affect children's well-being. It also helps to situate a framework for action based on a partnership model for education, thus making the case for work healthy and family healthy environments.

**Keywords:** Work-life balance, parental involvement, partnership model

## *Exploring the narratives of trainee teachers on children's experiences with fear in lower primary school context*

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The present paper extrapolates from a sociological study and explores how young children (aged 6-8 years old) experience fear due growing up in an unstable environment which include their homes, communities, peer groups, in-school, and after-school encounters, and in the wider society among others. The concept of fear in this study therefore refers to the response to actual and realistic dangers and is directly related to the danger the child senses as ever present whether predictable or unpredictable. Children's fearfulness is apparent in what they say, their overall behaviour, their physical responses, and their emotional state. When falling into the category of being 'at risk', these children are usually labelled as being underachievers by their teachers. In consequence, such experiences affect their academic involvement and school activities as they perform in early school life. A narrative analysis of trainee teachers of primary in Mauritius and in South Africa accounts for the visibility of fear among their learners and its consequences on the day-to-day interactions of those children at school. Their engagement in academic activities is observed and explicated by teacher-participants. The study posits a critical perspective and uses Bronfenbrenner's bio-ecological model to analyse the primary data sets which constitutes of conversations, interviews, narratives and pictures among others. Findings suggest the urgency of teacher-training programme to sensitize primary school teachers on how to deal with 'at risk' children.

**Keywords:** Fear, ecological model, narratives, children at risk, conversation

### *Examining the role of ChatGPT in advancing SDGs through education innovation*

*Miss Chitisha Gunnoo*

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This research aims to examine the role of ChatGPT, a cutting-edge language model, in advancing the Sustainable Development Goals (SDGs) through education innovation. The SDGs, adopted by the United Nations in 2015, provide a comprehensive framework for addressing global challenges, including poverty, inequality, and climate change. Education plays a crucial role in achieving these goals by equipping individuals with the knowledge and skills needed to contribute to sustainable development. ChatGPT, powered by artificial intelligence and natural language processing, offers exciting opportunities for transforming education. By simulating human-like conversations, ChatGPT can facilitate personalized and interactive learning experiences, promote critical thinking, and enhance problem-solving abilities. This research will employ a mixed-methods approach including surveys, interviews, and case studies, to explore the potential benefits and challenges associated with integrating ChatGPT in educational settings. It will explore how ChatGPT can foster inclusivity (SDG 3), promote access to quality education (SDG 4), and address educational disparities across diverse populations (SDG 11). The findings of this study will contribute to the existing literature on the integration of artificial intelligence in education and its alignment with the SDGs. The research outcomes will inform policymakers, educators, and stakeholders on the effective implementation of ChatGPT as an innovative tool for advancing sustainable development through education, while seeking to accelerate progress towards the SDGs, fostering a more inclusive and equitable future.

**Keywords:** SDGs (Sustainable Development Goals), education innovation, artificial intelligence in education

### Round Table Discussions Abstracts

### *The representation and interpretation of gender-based issues in curriculum textbooks of primary*

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The discourse with respect to gender and gender-based violence have their significance in education. Right from the kindergarten, children are socialized as masculine and feminine usually through the working mechanisms of hidden curriculum and as they move to elementary schooling this gender endorsement is reinforced by texts (visual and written) and their teachers' enactment in the classroom and different school spaces such as the playgrounds, school library, interactions with pupils inside and outside schools among others. The forum, constituting of academics who are well versed with gender and curriculum development, offers scholarly accounts on the ways in which the process of curriculum development may carry forward gender bias, stereotyping and gender-based violence, which may eventually impede or enable the learning experiences of boys and girls at an early age at school. In the discussion, the panelists foreground their outlook on the matter based on their professional experiences and reflect on the enabling/disabling factors and actors in curriculum development as well as posit on the need to infuse gender mainstreaming in both curriculum writing and in teaching and learning practices in context.

**Keywords:** Curriculum textbook writing, Gender bias, Gender-Based Violence, Stereotyping.

## *Le spleen des chercheurs subalternes: Provocative insights into research perceptions and experiences among MIE academics*

*Dr. Shameem Oozeerally, Dr. Kee Mew Wan Khin Evelyn, Dr. Rajendra Korlapu-Bungaree, Ms. Suryakanti Anu Fulena, Ms. Joann Davenia Permall, Mrs. Mangala Jawaheer, and Mrs. Shalini Ramasawmy  
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Within an increasingly prevalent discourse of perceived deficit, inadequacy, apathy, inaction, in the maelstrom of hardly dissimulated assertions of not doing or being enough, this roundtable discussion aims to bring forth an honest and unbridled discussion on the research experiences of the subaltern: those who have less of a voice, not much of visibility, and are often at the receiving end of this perceived discourse. This activity is also fundamentally different from the 'clinically clean' academic discourse as it is woven around a mixture of satire and actual research findings based on a MIE-funded project: Building a (micro) research culture through an informal community of practice: a case study. It replicates the conditions of the Research Club which is the object of the study to provide participants with experiential insights into the approach adopted. One of the core objectives of this roundtable is to offer a counter-discourse to the apparent scission between different vertical vantage points of the institution, where perceptions and representations intermingle with a particular construction of reality, in the Foucauldian sense. What are the experiences of those subalterns in terms of research? How do they navigate their identities and institutional demands where the race towards an apparently chimeric goal of "quality and excellence" is very much engaged? Perhaps more importantly, what would be the pathways for the humans involved in these dilemmas to feel comfortable with engaging with research at grassroots level? While the focus on "capacity building" and not-so-modest celebratory events is tempting, does it not (un)subtly cast a veil on the struggles of those who are supposed to be working towards achieving research strategic goals, within a multi-layered set of challenges, ranging from a hegemonic view of research to actual "workload" related issues? What would a genuine, human, caring, honest approach to building research capacity look like? Are we taking research too seriously and concomitantly atrophying it? This roundtable discussion does not have any answer to these questions. However, it does, at least aim to be the Windex to our mirrors and help us develop a certain sense of reflexive and introspective capacity so that we, as individuals, can start reflecting on how to take small steps in creating a safe, secure, and fertile research environment.

**Keywords:** Research culture, identity, hegemonic perspectives of research, experientiation

## *La haute crétinisation à l'ère de l'intelligence artificielle : inquiétudes et interrogations dans le domaine de l'enseignement et de la recherche*

*Dr. Shameem Oozeerally<sup>1</sup>, Dr. Evelyn Kee Mew Wan Khin<sup>1</sup>, Dr. Rajendra Korlapu-Bungaree<sup>1</sup>,  
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Si Edgar Morin affirme, non sans une dose de provocation, que « l'université produit la haute crétinisation », l'avènement de l'intelligence artificielle, catalysé par l'essor récent de Chat GPT, sème les graines d'une interrogation profonde quant au rapport que l'on entretient avec la connaissance, tant sur le plan de la production que celui de la réception. En effet, la mise en ligne de Chat GPT, par la compagnie Open AI, a créé des vagues dans le monde. Pour la première fois depuis des années, l'IA est dotée, de manière presque brutale, de capacités communicationnelles qui se rapprochent de celles de l'humain. La presse ainsi que les réseaux sociaux en parlent en boucle, avec un foisonnement de spéculations quant à l'avenir socio-professionnel et éducatif de l'homo sapiens. Le monde universitaire, du chercheur à l'étudiant, en fait amplement usage et les événements dépassent souvent la capacité de réaction des acteurs qui y sont impliqués. La redondance, voire l'obsolescence programmée du cerveau-en-formation et l'inutilité grandissante de la mémoire sont des idées qui semblent de moins en moins distanciées d'une réalité envisageable. En plein milieu d'inquiétudes et d'interrogations autour du potentiel de l'IA d'éroder petit à petit ce qui relève de

l'humain, du secteur professionnel à celui de la pensée (critique), qu'en est-il du secteur éducatif ? Devrait-on se préparer à une guerre face à cet outil, ou devrait-on l'accueillir à bras ouverts ? Pourtant, cette ruée vers l'IA semble être symptomatique d'un ensemble de défis qui ne sont pas nécessairement nouveaux. Par exemple, les maisons d'édition ainsi que les acteurs impliqués dans l'enseignement supérieur, y compris dans l'industrie des logiciels de détection de plagiat, s'empressent de trouver des solutions de colmatage surtout face à des pratiques qui se rapprochent de « l'academic misconduct ». Or, un regard macroscopique révèle que le « contract cheating », une forme de sous-traitance des travaux universitaires, est une pratique bien établie, connectée à un business manifestement lucratif. Dans ce cas, l'IA diversifie simplement l'offre dans un marché divers. Il faudrait donc s'engager dans une réflexion de fond, qui impliquerait sans doute un retour à la manière dont le rapport avec le savoir est construit, ainsi que la dimension téléologique qui y est associée. Cette table-ronde propose donc de réunir quelques participants autour d'une discussion franche des aspects pratiques, pragmatiques et éthiques relatives à l'utilisation de l'IA dans le domaine de la recherche et de l'enseignement dans le secteur universitaire.

**Keywords:** Intelligence artificielle, recherche, formation, enseignement

### *Brushing the canvas of tomorrow: The future of Art and Design education at secondary level in Mauritius*

*Dr. Vick Kumar Shibdoyal<sup>1</sup> and Representatives of MGI, ADI, MES and Ministry of Education*

#### *1. Mauritius Institute of Education*

The round table discussion aims to address the pressing issues surrounding the teaching and learning of Art and Design at secondary level in Mauritius. In recent years, the subject has encountered a decline in popularity, evident from the decreasing number of students opting for Art and Design at both 'O' and 'A' levels. Consequently, this downturn has had a direct impact on the enrolment of students pursuing a BEd (Hons) in Art and Design at the Mauritius Institute of Education (MIE), thereby raising concerns about the subject's future in the nation's educational landscape. Stakeholders from the Mauritius Institute of Education (MIE), Mauritius Examination Syndicate (MES), Ministry of Education (MOE), School of Fine Arts (MGI), and Art and Design Institute (ADI) will share their experiences, insights, and observations, allowing for a comprehensive understanding of the root causes behind the declining interest in Art and Design. This forum will encompass a wide range of topics, such as curriculum relevance, perceptions of the subject, availability of resources and facilities and any other pressing concerns contributing to this phenomenon. It will elicit a collaborative action plan to explore strategies, and foreground sustainable solutions to rekindle interest in Art and Design.

#### Guiding questions

- What is the status of the teaching Art and Design in Mauritius?
- What are the factors/possible impediments contributing to the decrease in Art and Design at the secondary level in Mauritius?
- What are the steps forward to rekindle interest in Art and Design at the secondary level in Mauritius?

**Keywords:** Art and Design, declining interest, rekindling interest.

## *Unlocking the power of predictive modelling*

*Dr. Khemduth Singh Angateeah*

This interactive workshop on multiple linear regression (MLR) delves into the world of predictive analytics. MLR has several valuable applications in educational research. It allows researchers to examine the relationships between multiple independent variables and a dependent variable, helping them to understand the factors that influence educational outcomes. This workshop aims to provide participants with a comprehensive understanding of multiple linear regression, its theoretical foundations, practical application, and interpretation of results. Designed for researchers, analysts, and professionals seeking to enhance their analytical skills, this workshop offers a hands-on learning experience that equips attendees with the knowledge and tools to confidently employ multiple linear regression techniques in their work. This workshop will focus on:

- Understanding the theoretical foundations of multiple linear regression and its applications;
- How to gather, prepare, and explore data for regression analysis;
- Interpret regression coefficients and assess predictor variable significance;
- Address common challenges like multicollinearity and model validation; and
- Utilize statistical software for practical implementation.

**Keywords:** multiple regression analysis

## *Engaging in writing and reviewing abstracts for conferences and peer-reviewed journals*

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and Ms. Komal Reshma Gungapersand  
Mauritius Institute of Education*

The ability to write an abstract is the first step that a scholar takes in the domain of publications in peer-reviewed journals. The process of venturing into research publication is daunting for both budding and seasoned academics who may find the writing and submission of an abstract to be challenging, or who are often discouraged to persevere once they have received poor reviews on their abstract submission. This interactive workshop aims to empower participants in building their confidence and expertise in writing abstracts through a series of activities. These activities will allow participants to identify key components which help distinguish weak abstracts from strong abstracts. They will also have hands-on experience in devising, comparing and peer-reviewing abstracts during the workshop. Moreover, the workshop will provide insights into tailoring abstracts for specific conference themes and submission guidelines, as well as addressing common pitfalls and challenges faced in abstract writing and reviewing. Participants will leave with a comprehensive toolkit to create compelling abstracts when disseminating their research.

**Keywords:** Abstract writing, peer-reviewing abstracts, research communication and dissemination



## *Writing and publishing an academic paper/chapter*

*Dr. Tejwant Mohabeer and Dr. Ajay Ramful*

*Mauritius Institute of Education*

Publishing within the context of higher education is an imperative component not only for researchers to gain deeper understandings of their specialization but to ensure the findings of their research is disseminated both within and outside the scope of academia. It is therefore imperative to understand the academic publication process in its entirety (from conception to final print) and the conventions associated with publishing an academic paper/chapter. This presentation provides a comprehensive understanding of what to publish; where to publish; and how to publish. More specifically, we explain the types of academic publications, selecting an idea/topic for publication, and how to engage in the process of publishing from the selection of a journal to the final process of engaging with the editor. Understanding the entirety of the process is important as authors often believe that a submission equates entitlement to a publication. This is not the case as the process of publishing is rigorous and multi-layered involving a number academicians at various stages. We walk you through the writing process of how to effectively structure an academic paper, how to engage with reviewer feedback, and the procedures involved, followed by engagement with the Editor – all of which is a process that takes substantial time. It is expected that that this comprehensive workshop will provide an understanding of the processes involved in publishing an academic paper/ chapter through concrete examples and exemplars.

## *Using structured academic controversy to navigate controversial issues constructively: A hands-on minds-on approach*

*Dr. Brinda Oogarah-Pratap*

*Mauritius Institute of Education*

It is widely recognized that school leavers, university graduates and teachers should be capable of navigating and dealing with ill-defined problems or controversial issues in a constructive manner and as critical thinkers. Yet, research shows that many learners lack the skills and critical awareness to make informed decisions about controversial issues and explore these issues from diverse perspectives. Moreover, some teachers, including those in higher education, feel uncomfortable or are ill-prepared to deal with controversial issues. Structured Academic Controversy (SAC) is one effective strategy to provide learners and teachers the opportunity to address controversial issues from multiple perspectives in a scaffolded manner in academic settings. This strategy has the potential to foster critical awareness and intellectual inquiry. It can also help in building empathy, developing a more positive attitude towards conflict and towards working with individuals from diverse backgrounds. To be effective, consideration ought to be given to the building of an open and trusting classroom climate amongst a number of other factors. The aim of the workshop is to engage participants with the design and implementation of the strategy through a hands-on minds-on approach to better prepare them to tackle controversial issues as teachers and as learners. The workshop will draw on my own research-based experiences with the use of Structured Academic Controversy and relevant extant literature to provide opportunities to participants to explore and reflect on the potential benefits and challenges of the strategy alongside the key pedagogical considerations.

**Keywords:** Structured academic controversy, critical thinkers, design, implementation

*Innovative and sustainable pedagogies for children-at-risk  
in primary school contexts: Workshop for primary school practitioners*

*Dr. Meda Thondee, Mr. Vicken Narainsamy, Mr. Nagamootoo Pillay Jagambrum,  
Mr. Shailendra Ramsaha, Dr. Sooryadev Purdasseea, and Dr. Vick Kumar Shibdoyal  
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The workshop provides a snapshot of some innovative and sustainable pedagogical practices which may be optimized in primary classroom contexts while teaching pupils termed as children-at-risk. Drawing from their Israeli experiences and professional practices, three MIE academics unpack the usefulness of innovative and sustainable pedagogical practices which include the infusion of socio-emotional learning (SEL) and Origami in literacy and numeracy classes. An exemplar of SEL and Origami will be proposed to participants followed by a reflective activity on the effectiveness of each tool in outreaching pupils falling in the category of being at-risk. Socio-emotional learning refers to the abilities to coordinate between cognitive, emotional and behavioural processes in order to encourage optimal development, enable achievement of goals, and be successful in a variety of relationships and cultural environments. Origami, the Japanese art of paper folding, is successful in helping pupils pass their geometry tests while learning in a mindful classroom environment. Practitioners, namely support teachers and holistic educators, as well as teacher educators evolving in the primary school context are the main target group.

**Keywords:** Origami, SEL, children-at-risk, innovative and sustainable pedagogies, primary school context



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