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Editorial

“The Man who does not read has no advantage over the man who cannot read.” - (Mark Twain, Writer and Humourist)

The Journal of Inter-Discourse Academia (JIDA), AUCA publication, is published biennially, with two issues in June and December, though an early publication date is possible. The Journal started early in 2014 but was interrupted because of circumstances beyond our control.

Although every effort will be made to include articles accepted for publication in the next issue, JIDA reserves the right to postpone publication if necessary. JIDA also reserves the right to refuse any article.

The editorial board represents a diverse team from different academic fields: education, languages, marketing, human sciences. Each member was selected based on academic exposure and experience, research and publication.

JIDA aims to provide interdisciplinary discussions locally and internationally on views and issues that affect our workplace and our society.

It is the author’s responsibility to ensure that an article submitted to the journal conforms to the editorial and academic requirements. Manuscripts not properly edited will be returned to the author.

The Chief Editor

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The Interconnectedness of Realities in Edo Ontology: Projecting Sacred Symbols as a Possibility of Sustainable Eco-justice

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Abstract

*Nature, a living organism, ranks higher than man in the hierarchy of beings since it is a deity which man revered and it serves as a mediator between man and the Supreme Being. This unique hierarchy and novel understanding of eco-spirituality could be harnessed as a veritable tool for ecological justice from the perspective of the Edo people. This is so because, the sacredness and symbolism of some natural phenomenon such as mountains, trees, rivers, animals and occurrences such as floods, earthquakes, thunders and spiritism portends not only the interconnectedness of realities in Edo culture but a clarion call for natural justice in the ecosystem. This justice, it is argued, when attained could herald in sustainable ecosystem for future generation. Contrary to the various theories of eco-justice such as anthropocentrism, sentientism, biocentrism, ecocentrism, union of beings, eco-bio-communitarianism, etc. this paper submits that Edo eco-thought is conversational. To establish and make this point fly, this paper adopts the method of hermeneutics and assumes that the plethora of natural forces in Edo ontology could serve as an alternative solution to ecological crisis and sustainable ecosystem. Although, this paper focuses on the Edo notion of eco-spirituality, it is assumed and we are convinced that our assumptions and conclusions are also valid, at least, to a large extent with regard to African culture generally.**

Keywords: nature, edo ontology, eco-spirituality, spiritism, environmental justice, future generation, deities, culture, anthropocentrism, conversationalism

Introduction

There have been several theorizing as to the protection of our ecological system. This is traceable to some scholars believed that our activities as humans are responsible for some environmental challenges bedeviling the earth today. Environmental challenges such as pollution, desertification, depletion of ozone layer, global warming, deforestation, extinction of species, erosion, garbage threat, overpopulation, acid precipitation, flooding, land degradation and others (Airoboman and Obinyan, 2019:139; Airoboman, 2019:96) has generated questions, discussions and conversations on the possibility of having a sustainable ecosystem for the present crop of human generation if not for future generation. These challenges, some authors have argued, is traceable to human centered value and human responsiveness or interactionism with nature or the environment and its objects.

It is arguable that since time immemorial man's view of nature has always been mechanistic and hence, exploitative. Whether nature is subjugated to people or otherwise can be answered in man's attitude towards the natural. The attempt to proffer solution to the question; how should man relate with nature and its properties brings to question if man's interaction with nature has been humane enough to project justice in the ecosystem? To paraphrase this question and in all fairness, how can we improve positively human relationship with nature? Although there have been several theories as to the protection of the

ecosystem or attainment of eco-justice, such theories includes John Passmore’s anthropocentrism, Peter Singer’s sentientism, Paul Taylor’s biocentrism, Aldo Leopold’s ecocentrism, and the family of views taken together as radical ecology (such as deep ecology, social ecology, ecological feminism and environmental pragmatism). These theories however failed to address the interconnectedness or relationship that exists among realities in the hierarchy of beings. Worst still, none of the theories and theorists even painstakingly addressed the sacredness of some realities in Edo ontology to see whether same could be harnessed or projected for the advocacy of eco-justice. Like, Airoboman correctly asked “why do humans attempt to resolve environmental problems”? (Airoboman, 2019:107). This eco-justice we are convinced will guaranteed sustainable environment for future generation if we owe them that responsibility. Thus, this study shows the interconnectedness of realities in Edo ontology and aimed to project the sacredness of some of these realities as a possible and alternative solution to the crisis in the ecosystem.

Theories of Ecological Rights

The biblical injunction which gives man dominion over the earth has been blamed as subjugating nature over people (Airoboman and Obinyan, 2019:141). The sympathizers of Judeo-Christian heritage of Western society and the scientific cum industrial revolution of antiquity believed that nature should be controlled given its threat to humans. Thus, this view does not only state that humans are separate from nature but that humans are above or superior to it and have the responsibility to control, subjugate and bend the environment in accordance with human needs. (Sanchez, 1993:209; Altman and Chemers, 1980:18). Thus, when we speak of “conquering the wilderness” or of “climbing Mount Everest” as “a giant step for mankind” we tend to show Western view of nature as being subordinate to man. Irwin Altman and Martin Chemers correctly noted that a capstone thought that crystallizes the point highlighted above appears in Genesis 1:28 where man was commanded to increase his kind, conquer the earth, and have dominion over all living things (1980:19). Perhaps, God expected man, after leaving the Garden of Eden, to separate himself from and above animals and other things in nature and that people were placed on earth to regulate it and to bring other to the earth.

Later on science and technology assisted man in further conquering nature. With the rapid productions of vehicles and machines the separatist rope between man and nature was further tightened. Today, man is expected:

To control temperature, to cure illness, to raise food efficiently, to be able to kill animals and people in large numbers, to explore outer space, to build bridges over seemingly uncrossable rivers, to construct dams and massive irrigation systems, to settle “uninhabitable” land, and to mine the earth’s resources all attested to the superiority and uniqueness of people. (1980:20)

The Judeo-Christian believe in the beginning of history, end to life and life after death on the one hand and the western method of learning things on the other helped in separating man from nature. Perhaps, these two factors: a linear view of the universe and the scientific philosophy of experimentation, according to Altman and Chemers, contributed immensely to the above articulation.

It is also a common view among some cultures that people are intrinsic part of nature in the same way as animals, trees and flowers, thunder and lightning. This philosophy is predominant in Indian thought systems. For them, all things in nature are sacred and are not to be exploited by people (Altman and

Chemers, 1980:21). Hence, people are not the center of a natural universe that revolves around them, but that people are part of nature and must blend with it and be responsive for their actions. There are also societies where people are subjugated to nature. Natural events such as floods in Agenebode, earthquakes in Los Angeles, farmers in dust-bowls regions and south Pacific islanders exposed to hurricanes and tidal waves has caused the feeling of fatalism, of fear and resentment, and of submissiveness to an all-powerful and all-dominating nature.

Form the above views, it can be said that in the beginning nature was more powerful than man and man in turn reverence and revere nature. However, man began to confront nature by means of science and technology and nature was forced to surrender to the technological ingenuity of man. Nature, became dominated, exploited and stripped of its resources to the benefit of man. When judge from a Judeo-Christian perspective, man was task to rule over nature but other religions might not necessarily aver the same position, it is noteworthy to state here that religion supported the exploitation and degradation of nature. Hence, it is within religion or eco-spirituality that eco-justice shall be sought. But before then it will not be out of place to evaluate some of the theories of eco-justice.

Anthropocentrism vs. Sentientism

Anthropocentrists have argued for a human centered universe at the expense of non-human realities. From the time of Aristotle who believed that “nature has made everything for man” (Airoboman 2019:98) to John Passmore’s believe that anthropocentrism can resolve every ethical issues concerning our environment, scholars have come to argue that there is a radical anthropocentrism and moderate anthropocentrism. While the views of the two strands of thought may be different to the extent of the degree to which they believe that humans are morally considerable in their own right. Contrary to this view is a wide range of thought which holds that nature and its inhabitants should be accorded some rights. This view found it’s eminent in the works of scholars such as Peter Singer. In an attempt to safeguard animals for future generation and to protect these animals from passing into extinction, philosophers have argued that animals should be accorded some rights. In his work, *Animal Liberation*, Peter Singer, for example argued that human treatment of non human animals is morally objectionable. He argued that we should be forced to make radical changes in our diet, the farming method we use (Singer, 1975:17). His position is that animals are sentient beings and as such they should be accorded some rights and to treat animals as inferior simply because they do not belong to the human species is to be involved in a form of racism which Singer called *speciesism*.

Biocentrism vs. Ecocentrism

Biocentrism lends voice to all life forms. It is a life centered theory which holds that every organism has an intrinsic value and strives to achieve this *ends*. (Airoboman, 2019: 100) Paul Taylor, a proponent of biocentrism noted that since all life is sacred, to be moral is to engage in an act that promotes life and to do otherwise is to be immoral. (Taylor, 1998). Taylor’s argument is a derivation of Ross prima facie ethical duty. For him since wild living things have intrinsic value, we have a moral prima facie duty to preserve them as ends in themselves. On the contrary ecocentrism proposes a responsiveness to nature as a whole. Airoboman articulated this position well when he noted that ecocentrism “argues for the evaluation of human actions on the basis of how well they promote ecological welfare.” (Airoboman, 2019:102). This school of thought aims to safeguard the entire ecosystem from human destruction and exploitative interaction.

Radical Ecology vs Environmental Pragmatism

Let us ask, are individuals really responsible for ecological dilapidation or can they be used as a tool for prosperity of nature. In other words, are the theories considered above genuine philosophical stance or mere extension of anthropocentric arguments? Radical ecologists subscribe to the later position that “a broader philosophical perspective which requires a fundamental change in both our attitude to and understanding of reality is needed” (Airoboman, 2019:104). There are different positions in this philosophical disposition. The various positions include deep ecology, social ecology and ecofeminism. Ecofeminists, for example, argues that women are victims of environmental distorting and that women are the major caretakers of victims of environmental crisis and as such the responses of women aimed at both preventing and solving environmental problems such as

designing solar cookers and greenhouses, transforming farming methods that damaged the environment, challenging loggers, analyzing economic policies that fail to measure environmental protection (or housework) as “productive,” protesting war and the military-industrial complex.(Adams, 1993:1)

Perhaps, Carol Adams sees ecofeminism as a definition of these global activisms and analyses. For her ecofeminism identifies the twin dominations of women and the rest of nature. Thus, to the issues of sexism, racism, classism, and heterosexism that concern feminists, ecofeminist add naturism – the oppression of the rest of nature. (Adams, 1993:1). One major theme which remains resilience in ecofeminism is relationship and mutuality. And this theme is considered as more viable ethical framework than autonomy for transforming structures that are environmentally destructive. (Adams, 1993:1). An ecofeminist would argue that the sort of logic of domination used to justify the domination of humans by gender, racial, or ethnic, or class status is also used to justify the domination of nature, hence the insistence on eliminating a logic of domination. (Adams, 1993:2) On the other hand we have environmental pragmatics reaction against the theoretical nature of ethical theories and how it hinders policy making. This orientation argues against theoretical analyses which lack pragmatic relevance.

Eco-Spirituality vs Mechanistic view of Nature

The mechanistic view of nature is such that nature is seen as a physical matter which can be engineered to satisfy man’s needs and pleasures. This view sees nature as a physical entity devour of consciousness and feelings and such can be used to satisfy man’s wants. It is pertinent to state here that the mechanistic view of nature is exploitative. To be exploitative is to take undue advantage of something; mechanistic view of nature takes undue advantage of nature. On the other hand is the view that the mother earth is a spiritual entity and should be revere and accorded some respect.

Eko Asmanto et al. crystallizes that our interrelationship between ecology and religion is clearly observed and interested by many religious observers, even if our interaction with nature is clearly constrained and directed by such foundational ethical precepts as mercy, moderation and gratitude, which when systematically understood and applied, result in ecological spirituality. But ethical rules refer ultimately to human nature, and therefore ecological spirituality is rooted in religio-ethical precepts.

From this deep-level perspective, they argued that environmental crisis as a fundamental crisis of spiritual crisis of modern man, is less a resource-problem than an attitude problem. They further explored eco-spirituality approach toward preserving and enhancing ecological health and sustainable environment by considering some pertinent aspect of Islamic socio-intellectual history and their relevance for re-articulating and reapplying authentic Green Islamic Business and environmental ethic values in today's world. (Eko Asmanto et al., 2016)

Ned Hettinger's article reiterates the urgency of safeguarding our eco-system especially given his statement that "this is a remarkable time on planet earth" (1995:81) he attempted to spiritualize environmental concerns and to ecologize religion. For him

Eco-spirituality is not atheistic in the sense of anti-religious, for it locates religious and spiritual significance in the earth. It has a strongly anti-humanistic bent, not in the sense that it is anti-human, but .in its steadfast opposition to the anthropocentrism that sees humans as of ultimate significance and that thinks human life has meaning apart from its context as one expression of the earth's creative energies. It is not Judeo-Christian because it does not speak of a transcendent ground to the religious significance of this world (Hettinger, 1995:81).

Hettinger's eco-spirituality is a thoroughly immanent conception of the holy since he held that salvation is to be found in an altered understanding of and relationship to this earth, not in getting in touch with or finding a way to attain something beyond this world. His point is naturalistic in the sense that it accepts that nature is all that is. But the nature it accepts is a sacred and precious nature. His paper critically evaluates traditional Judeo-Christian attitudes toward the earth and humans' place on it and then develops a defence via eco-spirituality as a response (Hettinger, 1995:81).

For Peter Phan Judeo-Christian tradition can be charge with the current ecological crisis. Christianity, according to him, contributed to the destruction of the environment, especially through its injunction to dominate nature in order to satisfy the needs of humanity.

One of the basic articles of the Judeo-Christian faith is the belief that the course of history is not cyclical, bound up in an eternal meaningless return of all things to their former state. On the contrary, history is oriented toward a divinely appointed goal, and is therefore constituted not by a meaningless repetition of events but by a beginning and an end, a past and a future, the present being the time in which the divine plan is providentially enacted by humans with their free choices. The beginning is described in terms of God's creative act, and the end as the fulfilment of God's plan, the symbol of which is the kingdom of God (Phan, 1995:98).

In a more recent work, Emmanuel Orok Duke studies the movement "From Christian spirituality to eco-friendliness" and for him spirituality connotes praxis informed by religious or faith convictions. This, he believes he can transform the individual and society at large. Christian spirituality as he sees the matter is centered on how a person's relationship with the God of Jesus Christ informs and directs one's approach to existence and engagement with the world. Furthermore, he sees the concerns of the ecosystem as humanity and its relationship with it is invariably influenced by faith or religious informed praxis. He argued that the reality of climate change is convincing many people that humankind's common homeland

needs to be treated with care and respect if created beings are to have a congenial habitat now and in the future. He further avers that Christian spirituality can contribute to eco-friendly behavior through reformation of the behavior of people and emboldening their goodwill as regards the responsibility of all towards the care of the earth. Finally, his work proffers scriptural, self-control, and sacramental approaches as a threefold model of eco-spirituality to the earth. This, he believe, should be seen as a contribution towards stemming the tide of ecological assaults on creation. (Duke, 2020: 34)

The contributors of *Ecofeminism and the Sacred* wrestled with looking for earth-based spiritualities as alternatives to dominant theologies. For them, ecofeminism is not an escapist theory but an attempt to see environmental actions as deeply related to our idea of the sacred. Thus, one salient feature of this anthology is to demonstrates how environmental exploitation, unbridled consumerism, military spending, apocalypse, exploitation of animals, pollution of the Ganges and other environmental issues are precisely the concerns of ecofeminist spiritualities. (Adams, 1993:4). Thus, we are not surprise when contributors speak from within a specific religious framework such as Buddhism, Judaism, Christianity, Native American Tribal cultures, post-Christian or Goddess Spirituality but none have engaged the African unique understanding of eco-spirituality as a an alternative solution to the environmental crisis and see how the use of same can guarantee sustainable eco-justice for future generation. In what follows, we attempt to articulate an African understanding of eco-spirituality and use same for achieving eco-justice.

Edo Ontology

Ontology is the theory of existence or *being*. In Edo worldview nature ‘exist.’ This simple assertion needs clarification. First, let us start for the hierarchy of beings. Bolaji Idowu, Ikenga Metuh and John Mbiti have correctly expressed this hierarchy in pyramid to show that just as the top of the pyramid is slim the beings that exist at that level is fewer and more powerful than those that exist at the bottom which is wider. However they failed to see the place of nature in this pyramid of life as they all continue to place man above nature.

At the top of this pyramid of life in Edo ontology is the ‘supreme being,’ Osanobua, this being created the world and all there *is*. Closely followed are deities who are ministers of Osanobua. These ministers are in charge of different portfolios and are considered as intermediaries between God and man. Immediately after the deities we have spirits, this class of beings are so many that we have nature spirits, *enikaro* and living dead. Nature spirits are forces that exist in nature, they animate natural objects. *Enikaro* are ancestors, the spirits of man or *omwan* who died at a ripe age and have been given a befitting burial. Living dead are recently dead people that are yet to be given befitting burial by their children especially the first son. Next in the hierarchy of being is nature. Nature and its inhabitant existed long before the birth of man. Even the Bible made it clear that man was created on the sixth day after He has created every other beings and man was made out of nature - dust. This nature and its inhabitants in Edo understanding are in interconnected to one another. The earth herself is feminine. The inhabitants of the earth are revered and they sometimes are used by the deities in form of nature spirits to assist man. Immediately, after nature is man, the view that God kept man at the center of creation is alien to the Edo person because *omwan* is at the world extreme corner from where he communicates with nature. *Omwan* or personhood in Edo ontology is a complex entity. *Omwan* is unique in Edo ontology because overtime he had developed his communication skills with other beings so much so that a casual observer would think that everything revolves around him.

In Edo, spirits animate matter not as in the form of cause and effect rather as a magnet draws an iron to itself or as a lover moves its object of love so also material objects move and are possessed by an immaterial force. The Edo worldview and ontology identifies being with force, and although Tempels is the forerunner of this thinking, it finds its preeminence in Alexis Kagame's linguistic articulation. For Kagame there are four categories of forces. These categories as it were always have *ntu* which is force as its suffix. The four categories are *Bantu*, *Kuntu*, *Bintu* and *Kintu*. The fourth category talks about things as force. These forces animate this category bringing life and living into it. However, the distinction between abiotic and biotic organisms in the ecosystem as we have in Western discourse is absent here in Kagame's description as both the biotic and abiotic aspects of ecosystem are considered as living organisms.

In Edo, there are two basic realities, the spiritual and the physical. Nothing happens haphazardly in Edo. The notion of causation and forces which is plethora in phenomenon in Edo goes to show that events are connected to their causes. Perhaps, the natural world and the spiritual world co-exist in a single space and it is only a spiritual passage that separates both hence the natural world is connected asymmetrically to the spiritual world. Some symbols in Edo are epiphany of the interconnectedness of these two realities. Such symbols include, palm fronds, trees, mountains, forests, snakes, fishes, rivers etc. Thus, these symbols show the watertight belief in eco-spirituality in Edo worldview. Indeed, Edos are notoriously religious and this religiosity is sometimes translated to spirituality and it is manifest in their veneration and sacred understanding of these symbols. Thus, this Edo ecological belief is not exploitative as we have in Western mechanistic view of nature.

The epiphany of forces in Edo spirituality can be seen in the relationship that exist between Africans and nature. For example, Kofi Awoonor romanticizes African spirituality in his poem *The Cathedral* where he sees the African deity as a tree which stretches its branches to save his children from obstacles of life. Sad enough, this proverbial tree was cut down by surveyors and in its place was erected "a huge senseless cathedral of doom." Thus, Edo idea of deities is such that they could animate objects. These deities are sometimes represented by rivers, mountains, trees etc. It is very imperative to state at this juncture that there are trees in Africa which is believed to have a spiritual force. Sometimes, these trees are difficult to fell even when attempts are made to fell them blood are spilt out to show that they are not just trees but a spiritual force.

Thus, beings are connected to each other in Edo ontology and this interconnectedness of realities in Edo culture is fully demonstrated in the existence of sacred symbols in Edo worldview. Furthermore, the problem of eco-injustice such as the treatment of animals, rivers and natural phenomenon in general goes to show a lacuna in the several solutions proffered to resolve this problem. Given that they have failed in providing a paradigm for ecological justice can we then use eco-spirituality as a basis for avoiding ecological disaster and project sustainable environment? Perhaps, Edo eco-spirituality is hinged on the ontological commitment of the people. Their ontological commitment is in turn hinged on the linguistic dispositions. Thus the Edo eco-spirituality is traceable to their linguistic behaviour.

Interconnectedness of Realities and the Sacredness of Beings in Edo Ontology

Given the existence of different realities in Edo ontology, this section examines the interconnectedness of beings in Edo ontology. According to Felix Airoboman, the dualistic distinction between object and

subject which is prevalent in Western environmental ethical theories is absent in the African categorization and view of nature (Airoboman, 2019:107). Thus, African thinkers have attempted to proffered solutions to environmental degradations. Godfrey Tangwa, for instance, advocated for recognition and acceptance of interdependence and peaceful coexistence among earth, plants, animals, and humans (Airoboman, 2004:388). Tangwa preferred to call his position “eco-bio-communitarianism” because he argues that human beings do not have undue advantage over these creatures mainly because they are superior, instead, he contends, that our attitude towards nature should be one of respectful coexistence, conciliation and containment. The communitarian flavour of African eco-spirituality, according to him, is hinged on the negation of the Western individualism and anthropocentrism. (Airoboman, 2019:110). Tangwa’s discussion falls within the traditional metaphysical outlook of the Nso people.

Another African discourse on eco-spirituality is outlined in the writings of Kelvin Behrens. Behrens avers that African thought is essentially anti-anthropocentric. He argues that beings in nature are interrelated in Africa and non-human natural objects are morally considerable. Airoboman captures this point correctly when he noted that:

African environmental ethics would regard all living beings, some inanimate entities such as rivers, rocks, mountains, forests, ocean currents, winds, and even the atmosphere, as morally considerable because all entities have life-force, though in gradations, and they play systematically important roles in the flourishing of other aspects of nature (Airoboman, 2019:109).

The above thinking that all entities have life-force matches squarely with Felix Airoboman’s understanding of the union of beings. In his discussion of Esan ontology, Airoboman suggests that “since a workable ethical theory of the environment would require the appreciation of the environment not merely instrumentally, but as part and parcel of the entire, single whole, with its independent and inherent values, the Esan conception of reality presents a framework for theorizing on environmental ethics. In Esan ontology, Airoboman sees no subject-object dichotomy, instead, he argued, “there is an inferable union among the different beings occupying different realms of existence” (Airoboman, 2019:110). He further contends that the metaphysical beliefs in structure of beings, animation, totemism, conception of time, gyratory existence, reincarnation, independent energy, moral reciprocity among beings in the Esan ontology is an indication of the union among beings. This union of beings which is informed by the Esan ontology does not border on equality, supremacy or the degree of importance of the different parts of nature but recognizes the specific functions the parts have to play to ensure the prosperity of one another and the whole of nature (Airoboman, 2019:110) Thus, Airoboman submits that the indigenous Esan has always considered the non-human environment as part and parcel of his moral community. Airoboman depicts this standpoint as complementary environmentalism.

The Edo eco-spiritualism can be best regarded as conversational eco-spirituality. This is so because the earth is mute we question her in vain we need a God that speaks to the human race. The Supreme Being in Edo ontology speaks with creatures. This mutual conversation shows the relatedness between man and nature. Rivers, mountains, trees, rocks, winds communicates with man and one another and as such are living organism. Together they make a complete whole of the Edo ontology and as such they should be morally considerable especially given that they can even react when defiled. The over-rising of rivers in some communities thereby leading to flooding is sometimes a reaction of the nature to man’s inhumane treatment of natural objects.

The conversational understanding of nature in Edo ontology has two elements: mutuality and interactivity. The interactive aspect can be seen in the preparation of herbal tea by the philosophical priest. The priest speaks to nature, questioning and demanding answers. Nature, in turn responds to their questions. In all fairness the Edo man can speak to the mountains, trees, rivers, floods etc. in his conversation with nature, the Edo man believes that nature is part of the community in an integral whole. Ontologically, the Edo man believes that things do not just exist in the community, they do for the life and growth of the community. Like we said above, the community also exist and the community is the sum total of the people, animals, trees, forests, mountains etc. that can be found there.

Vitalism or vital force is a pointer to the interconnectedness of realities in Edo ontology. This connectivity of forces and nature is also manifested in the use of symbols for rituals in Africa. Commenting on the place of sacred symbols in Africa, Bonachristus Umeogu highlighted the role of symbols in communication. For him, there always comes a time when one runs out of words and symbols step in where words have failed. He further held that civilization has changed many aspects of people's culture, beliefs and actions.

Dukor makes a glaring distinction between symbols and signs. For him "symbols could pass as sign but not all signs are symbols". His work explains the Zan-gbeto cult vis-à-vis the cosmology of Ogu people. he argued that the language and the set-up of this rich traditional heritage has some unique features as distinct from so many others like Egungun (Yoruba), the Eyo (Yoruba), Muo (masquerade cult in Igbo land) and Cargo cult, Azande, and so on, and affirms that there are some fundamental affinities in their thought process. Consequently, although his study concentrates on Zan-gbeto tradition. From this findings, Dukor is convinced that his assumptions and conclusions are also valid, at least, to a large extent with regard to African Culture generally.

Symbols such as fishes are important to the people of Okowhuo of Edo state. The Okowhuo River which is believe to be female in gender is a mother of children and sees the fishes in the river as its children. Thus, it forbids the killing of the fishes. Anyone who fails to adhere to this rule of not killing fishes in the river will die a mysteriously. The river in turn blesses the people of Okowhuo and gives them protection against their enemies.

In some parts of Nigeria, the people refrain from calling the python a snake, they refused to kill these particular brand of snakes on the ground that their ancestors worship it evil calamity has befallen some deviant. Events and happenings in Africa are interconnected. Nothing happens haphazardly in Africa. Indeed the notion of cause and effect is manifest in African understanding of Beings, nature and events. Finally, it should be said that in Edo ontology, it is possible for words (incantations) to bring nature to life.

The Edo eco-thought can be tagged "eco-bio-conversational attitude." This theoretical name may not fully capture Edo perspective on ecological thought since the notion of conversation gives the impression of two separate substances. In Edo ontology there is no clear cut distinction between man and nature, it is an integrative reality in which as a result of vital force they are all interconnected. Thus, this Edo eco-thought can guarantee eco-justice given man's conversational attitude with nature. Nature should be moral considerable as the other who reacts and is affected by man's exploitative mechanistic attitude. If nature is morally considerable and seen as the other in which one embraces the other to understand then that justice is guaranteed in the ecosystem as nature will no longer be exploited. The sacredness of nature

and its habitants in Edo ontology does not allow man to destroy nature but rather it points to spirituality of nature, the connection of man to nature, the implication of exploiting nature, and the need to converse with nature so as to ensure mutual dialogue and understanding.

Conclusion

Beyond African spiritual pragmatism, critics might ask how we can convince the world that nature is not a mute and static reality that is at the disposal of man. The spiritual dimension of Edo eco-thought does not allow man to exploit nature. Julius Berger can be remember for dialoguing with some river goddesses before constructing bridges across the rivers. In short, there are rivers, mountains, trees etc that cannot be destroyed without first dialoguing with the forces that exist in nature. This Edo eco-thought should be further researched into and harnessed as an alternative perspective to the contradictories eco theories in Western environmental philosophy.

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Morphophonological Aspects of Deverbatives and Peculiarities of Loanwords in Kinyarwanda

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Abstract

A nominal deverbative is word or a component of a word that is derived from a verb. Nouns derived from verbs, also linguistically called deverbatives, embed extensive morphophonological aspects in the life of the language of any nation. Thus, they have caught the researcher's attention based on various aspects they offer to a wide range of research because of the scientific curiosity researchers have as to know why most nouns derive from verbs, where they come from, who created them, and when and how they were formed so. In other words, the research is carried within spatial and temporal scope. Morphophonology is the study of forms and phonemes in languages while syntax is the study of the structure of a language.

This paper aims at studying how deverbatives present high linguistic quality necessary to understand, explain, and preserve a people's culture and language for a given period of time. The method used to research on this topic is descriptive and it is based on the materials observed from various sources collected from verbs, common, and proper nouns. Therefore, this study focuses on the aspects observed in specific loanwords, i.e. nouns denoting things, ideas, and persons where the Rwandan territory has extended during the precolonial, colonial, postcolonial periods, and post genocide period.

Keywords: deverbatives, morphophonology, derivation, nouns, verbs, noun class

Introduction

Kinyarwanda is primarily the language spoken in Rwanda, which is a land-locked country on the African continent, 26,338 sq km in size, and with a population of 13,249,033 as of November 2022. Rwanda is thus the most populated country in Africa with a population density of 525 people per sq km. The country is often given the title "Land of a Thousand Hills", simply because of its fertile and hilly terrain. With an average altitude of 1,600 m above sea level, the country enjoys a temperate climate.

Kinyarwanda is not only spoken in Rwanda, though. It is widely spoken across politically agreed upon borders in neighbouring countries, such as the eastern DR Congo, northern Kivu (Rutshuru, Masisi, and southern Kivu (Uvira, Fizi, Mwenga, Kalemi). In addition, it has spread across to west Uganda (Bufumbira, Gisoro) and north-west (farther to Lake Albert, Rwicanzige, killer of locusts) and east Tanzania (Karagwe). This is because the former Kingdom of Rwanda spread over today's Rwanda officially recognized territory. In Burundi, the neighbour to the south, it is mutually intelligible with Kirundi, in a similar way Flemish is intelligible to the Dutch-speaking inhabitants of the Netherlands.

Kinyarwanda, like many other languages in contact, has both common and proper names of Bantu origins. These include foreign proper names (loanwords) borrowed from other languages in contact to meet the needs of the daily life vocabulary and activity, and mark specific historical and cultural paradigm shift. In this study, it is to be observed that in filling the lexical gap, Kinyarwanda borrowed foreign words extensively, not only out of need for foreign words, but also for prestige.

The variety of nouns derived from verbs in Kinyarwanda trigger an interest in research in order to find out why this has happened, when, and how it happened. Therefore, researchers should carefully study these morphological elements that have undergone big changes.

The data were collected from various sources, including publications, conversations, newspapers, Bible literature, school text books, commercial posters, hoardings, oral traditions, just to name a few.

Religion derived verbal category represents a wide range of borrowed words from Christianity as well as Islam. Most of loanwords have as their primary source, languages such as Latin, Greek, Hebrew or Arabic. They came into Kinyarwanda via French, English, and Kiswahili. Catholic and Protestant missionaries arrived in Rwanda in the 1900s, especially from Europe and later on from the USA. Each religion used the vocabulary which fits its creed, background, and its way of interpreting the Bible, or else the Quran. Loanwords of this category may help us to understand how, when, and why these missionaries or Muslims came to Rwanda.

Loanwords in this area include proper nouns denoting persons and places. Most borrowed personal proper names (especially given names) come from the Jewish and Christian traditions. They unveil that both Christianity and Islam have heavily influenced the Rwandan culture. People bore foreign personal names because they were forced to take them or because they felt proud of them. It was just a matter of snobbery, prestige, or conformity. Most Rwandans from the two creeds thought that bearing these foreign names would make them look more modern, spiritual, civilized, and cultured. Most of these names came from the Middle East and Europe. They were primarily borrowed from Christian proper names in French. Proper names denoting places were introduced in Kinyarwanda during the colonial period.

Problem statement

The main focus in this study is to research the complexity of the nature of nouns derived from verbs in Kinyarwanda. The main question to answer is why so many nouns derive from verbs and not vice versa? Verbs, nouns, adjectives, pronouns, and locatives are consistently allocated to the noun class system in Kinyarwanda. The latter has also accommodated foreign words, loanwords, or borrowings and have been allocated to different domains of the Rwandan's daily life and adapted to the morphophonology which fits the nominal class system of Kinyarwanda.

Besides nouns of Kinyarwanda origin, the language has extensively borrowed foreign verbs out of need of lexicon. Where loanwords have been borrowed because of prestige there exist doublets. Some specific areas have absorbed more French and English words to cope with the reality of culture contact. The distribution of deverbatives in Kinyarwanda observes the noun class system. Thus, they have been allocated to nominal classes which range from 1-16. Interestingly enough, some noun classes have been more hospitable than others. Names denoting persons have been allocated to classes 1 and 2 while those denoting places are allocated to classes 16, 17, and 18.

A great number of French and English loanwords exist in Kinyarwanda and this clearly indicates the real need to supplement the Kinyarwanda lexicon. Some areas are very likely to absorb more loanwords than others. For example, the area of technology and communication counts more foreign words than any other area. Why are there so many loanwords available in the area of technology and not in agriculture and livestock?

Other scholarly researchers in sociolinguistics have contributed to the study of the language contact between Kinyarwanda and French. Most research studies have been conducted in French so far. However, the current study will also address the contact between Kinyarwanda and English, and unlike the previous publications, this work is written in English in the aim of expanding the scope of readers and researchers in the area of language contact.

Since a loanword results from languages in culture contact, the study of the historical and social background of that sociolinguistic phenomenon is very essential. The study should take into account the source word and its copy in the borrowing language or recipient language. The original word may be modified to such extent that it is almost or completely unidentifiable. The work shall be limited to the morphological and semantic aspects of loanwords.

Aim of study

This study aims to research key areas which have hosted deverbatives and find out why and how these words fit in the Kinyarwanda noun class system. It will present the coexistence of foreign words with local words, their sociolinguistic and cultural impact.

Although there is no interview envisaged, throughout the research participant observation was used for the collection of data. The researcher made use of some written documents and oral conversations. Thus, the database includes verbs and nouns collected from various written and oral sources such as books, newspapers, plays, Bible literature, reports, school text books, commercial posters, signs, hoardings, and conversations. Some loanwords were picked from every day conversation among different groups of people (siblings, students, passengers, colleagues, etc.) in contact with the researcher, regardless of whether they were literate or illiterate.

Literature Review

Sources of Loanwords in Kinyarwanda

Since the beginning of the nineteenth century, Rwandans have been in contact with other people speaking foreign languages, especially Kiswahili, French, and English. The contact with Arabized Africans and other people from Kiswahili speaking communities of East African was based on commercial and economic interests. With regard to French, the contact was rather political. It articulated on the relationship between the master (Belgian) and the servant (Rwandan), the colonizer and the colonized, the ruler and the ruled.

As for English, the contact is more complex than in the previous cases. It is often said that the importance of a language depends on the position of the people who speak it hold in the international arenas. English has now become an international language because of the British and the Americans. It is the language of commerce, science, and technology. Thus, the contact with English speaking people is more general and broader than Kiswahili and French. The proliferation of English words in today's life of the Rwandan is the result of the background of some repatriated Rwandans and a multinational community speaking and using English.

Rwandans have borrowed new words from foreign languages because Kinyarwanda lacked technical and scientific terms. Thus, they had to cope with the new realities they were confronted with and incorporated them in their daily life. In order to identify which source language they were borrowed from, a comprehensive dictionary would be necessary. Unfortunately, there has not been one. Of course, it is not an easy task, unless one is familiar with the history of languages. Although, Le Page (1992) says that "You can never tell where a word comes from, it is often possible to know where it does come from, if diligently studied and analyzed."

A somewhat contradicting view comes from Kashoki (1999, p.1):

Words have one of three origins: they are inherited from an ancestral language, they are the product of internal innovation or they are loanwords, the product of external innovation. Thus, in English "we" is inherited, to "interface" is an internal innovation, and "mutton" is a loanword from French.

Taken the word, “interface”, the above statement contradicts Le Page because the compound word itself, though an internal innovation, comes from two Latin words, “inter”= between, in, and “*facere*”= do, make. The English word “We” and a similar word in German “*Wir*” both come from the same word. After all, both German and English are Germanic languages.

In her comments on how English loanwords came into Norwegian, Stene (1945, pp. 5-7) explains that:

A word that makes a sudden appearance in written sources and then perhaps undergoes a series of changes, may be supposed to be borrowed, and it is justifiable to look for a source from which it can have been taken. [...] Most foreign words make their way into the language through print. When they are first introduced, they are in the orthographic garb of the language of origin. Gradually they may grow to conform to the spelling habits of the language of adoption.

Stene’s point of view holds for Kinyarwanda, especially when we consider old and new loanwords. On one hand, the oldest loanwords have been fully integrated. That is why one must study the source very carefully on a historical perspective and use a comprehensive dictionary. This is the case for the words such as *iparadizo* (paradise), *umubatizo* (baptism), *umupagani* (pagan), *urupapuro* (paper), etc. These words came from other languages and passed into French before being adopted by Kinyarwanda. The meaning of these old loanwords may be deviated, restricted, or extended. On the other hand, the latest loanwords such as *internet*, *video*, *fanta*, *mobile*, *e-mail*, *fax*, *express*, *taxi*, *kiosque*, *camera*, *télécommande*, *magnéto*, *camera*, *antenne*, *prise*, *cassette*, *album*, etc, for which the spelling is still the same (or almost the same) as the source word, the meaning has not yet been diluted. However, sooner or later, these loanwords will have to adapt morphologically, phonologically, and semantically, in order to fit the Kinyarwanda language system of noun class. For example, it is possible to find verbs from these latest loanwords which have started to adapt to the morphology, the spelling, and the phonology of Kinyarwanda:

Examples:

gufagisa: to fax

gukilika: to click

gusona (from the French verb *sonner*): to ring

kuburansha (from the French verb *brancher*): to plug

kuvibura (from the French verb *vibrer*): to vibrate

kwemelinga (from the latest English verb: to e-mail): to send an e-mail

kwiyabusanta (from the French verb: *s’absenter*): to be absent

There has been a linguistic trend among some “Africanists”, such as Allison De Forges and André Coupez, supporting the view that Kinyarwanda was originally the allegedly “Bantu tongue of the Abahutu”. This theory is believed to have contributed to sectarianism among the Rwandans. Such a language ideology culminated into the 1994 genocide against the Tutsi, during which period, hate speech did not cease, but rather was aggravated by a genocide-owned radio station, *RTL* (*Radio Télévision Libre des Mille Collines*), and a private local newspaper, *Kangura* (Wake Up).

Some historians and linguists believe that Tutsis came from Ethiopia, the former Empire of Abyssinia, and that they were speaking Cushitic¹, sometimes referred to as Nilotic or Hamitic. Cham or

¹ The word “Cushitic” comes from Cush, son of Ham, son of Noah (Genesis) 10:1 Now these [are] the generations of the sons of Noah, Shem, Ham, and Japheth: and unto them were sons born after the flood. [...] 10:6 And the sons of Ham; Cush, and Mizraim, and Phut, and Canaan. 10:7 And the sons of Cush; Seba, and Havilah, and Sabtah, and Raamah, and Sabtechah: and the sons of Raamah; Sheba, and Dedan. 10:8 And Cush begat Nimrod: he began to be a mighty one in the earth. (King’s James Version). Jeremiah, uses Ethiopian for Cushitic to refer to the black skin of people from the Upper Nile region. Jeremiah 13:23 “Can the Ethiopian change his skin?” The term ‘Cush’ was originally applied to an unrelated country and civilisation: Moroë.

Ham (Noah's son) was Cush's father. These scholars put forward the idea according to which these third occupants of the land came to Rwanda conquering the country through a peaceful strategy; exchanging dairy and agriculture products, and clientship. The supposedly second occupants of the country, the Hutus, are believed to be farmers who came from the South or Southeast region of Africa, speaking a Bantu language. The Twas, a pygmy-like tribe, are believed to be the aborigines of Central Africa.

In her book, *Defeat is the Only Bad News: Rwanda under Musinga*, De Forges, A.(1972, p.2) says that Tutsis, a "presumably Cushitic speaking people", came to Rwanda in the twelfth or thirteenth century conquering the land of the aborigines. She explains it in the following terms:

Yuhi Musinga was the twenty-fourth chief of Rwanda, a central African state which had been created by two different peoples, the Abahutu and the Abatutsi. The Abahutu, who were Bantu-speakers, arrived in Rwanda during the first millennium probably from the South or Southeast. They lived primarily from agriculture, although they may also have raised some livestock. The Abatutsi, presumably a Cushitic-speaking people, entered Rwanda from the Northeast during the twelfth or thirteenth century. They depended on herds of cattle for their livelihood. As the Abahutu and the Abatutsi appropriated the land for their own use, they forced most of the original inhabitants of the region, the Abatwa, a pygmy-like people to retreat to the most inaccessible mountain regions (De Forges, 1972, p.2).

De Forges (1972, pp.3-4) assumes that Tutsis spoke a different language from that of Hutus, which is a "Bantu speaking people", and that they arrived from another region of Africa, supposedly Ethiopia. It is very doubtful that within seven hundred years only, a language of the conquering people would have almost completely been blotted out. This supposition is the root of the very first based ethnic sectarian ideology and socio-linguistic division in Rwanda. According to De Forges, the contact between the two groups of people was peaceful. As a result of this contact, the domination was done by the strategies of the minority, the Abatutsi. She assumes that political alliances, exchange of products, and marriage contracts are some of the factors which made the fusion possible.

The Abatutsi lived interspersed with the Abahutu, pasturing their herds in areas unsuitable for crops, and exchanging the milk and skins of their cattle for agricultural produce. The Abatutsi were also organized into kin groups, but apparently, did not recognize any sacred authority like that of the Abahinza or Abami [...]. With the increasing competition Abatutsi and Abahutu rulers arranged political alliances, often in the form of marriage contracts, and the two formerly distinct peoples began to draw together. In this process the numerically fewer Abatutsi gave up all but a few words of their original language and adopted the Bantu tongue of the Abahutu.

Nominal derivation

According to Bybee (1985, p.33), "it is often observed that derivational morphemes occur closer to the root to which they attach than inflectional morphemes do."

Nominal derivation can be studied on the basis of morphophonology, since both morphology and phonology rules are involved in the formation of derived forms. Derivation deals with inflectional affixes. In Kinyarwanda most words are formed by affixing, generally by adding a suffix to the stem. Gasana (1981, p.215) points out that suffixation is the most productive mechanism in all derivation:

La dérivation suffixale est de tous les mécanismes de dérivation le plus productif. Elle est essentiellement verbale. Mais elle contribue également à la formation des nominaux.

Examples:

gu-sek-esh-a, "to make laugh", comes from *gu-sek-a*, "to laugh".

u-mu-remyi, "a Creator", comes from *kurema*, "to create", "to make".

u-bu-re-bu-re, "length", "height", comes from the adjectival stem *-re* meaning

“ tall”, “long”.

Syntax and Morphophonology

Kinyarwanda pronunciation is mostly based on Grammar and morphology of the words. However, derivation is the part of morphology which deals with the structure of the stems. In Kinyarwanda a lot of nouns are derived forms. They are generally formed by affixing, i.e. by prefixing or suffixing morphemes to the stems. These are denominatives, deverbatives, and deadjectives.

Denominatives:

They are generally nouns formed from other nouns and fall into 5 categories:

- abstractives are formed by replacing nominal prefixes of some nominals by the nominal prefix – **bu-** added to the stem: *u-bu-ro*, millet; *u-bu-cucu*, stupidity; *u-bu-twari*, courage
- augmentatives or pejoratives which express the idea of depreciation: *i-gi-twe*, big head; *u-ru-da*, big belly; *i-bi-toke*, big fingers
- diminutives express an idea of contempt: *a-ka-gi*, very little egg; *-a-ka-boko*, very little arm.
- singulatives denote single objects: *urubuto*, one seed; *uruvi*, one white hair
- collectives denote collective objects: *u-bu-shyo*, cattle; *i-m-baga*, crowd

Deverbatives

Many nouns are derived from verbs thanks to derivational suffixes or extensions (meaningful) and formal suffixes. There are 7 types of derivational suffixes. Their formation obeys phonological rules.

1. –ir-: a suffix which expresses application (to do something for someone), e.g. *ku-bik-ir-a*, to keep something for someone; –**ir-** occurs after **k** and **r**.
2. –an-: a suffix which expresses reciprocity, e.g. *gu-sur-an-a*, to visit each other
3. –esh-/ish-: –esh- occurs after a stem containing **e**, e.g. *gu-sek-esh-a*, to make laugh; –ish- occurs elsewhere.
4. –ik-: a suffix which expresses ability, can, easy to do, e.g. *gu-shuk-ik-a*, to be deceivable
5. –u-: a suffix which expresses the passive, e.g. *gu-kubit-u-a/gukubitwa*, to be beaten
6. –ur-/or-: a suffix which expresses a reverse action, e.g. *gu-king-ur-a*, to open, as opposed to *gu-king-a*, to close; *ku-rog-or-a*, to give someone an antidote, –**or-** occurs after a root containing **o** because of vocalic homophony.
7. –gur-: a suffix which expresses repetition, e.g. *gu-hind-agur-a*, to change many

Particular ideas expressed by deverbatives:

1. instrument, place, action: nouns ending in -o:
u-mu-kubuz-o, “broom”, comes from the verb *gu-kubur-a*, “to sweep”.
u-mu-pfundikiz-o, “lid”, comes from *gu-pfund-ik-ir-a*, “to cover”.
u-bu-tur-o, “tomb”, comes from *gu-tur-a*, “to dwell”.
i-hurir-o, “meeting place”, comes from *gu-hur-a*, “to meet”.
u-mu-hig-o, “prey”, comes from *gu-hig-a*, “to hunt”.
u-mu-sor-o, “tax”, comes from *gu-sor-a*, “to pay a tax”.
2. state, condition: nouns ending in -e or -u
u-bu-ken-e, “poverty”, comes from *gu-ken-a*, “to become poor”.
u-bu-konj-e, “coldness, comes from *gu-konj-a*, “to get cold”.
u-mu-tuk-u, “redness”, comes from *gu-tuk-ur-a*, “to get red”.
u-ru-pf-u, “death”, comes from *gu-pf-a*, “to die”.
3. manner: nouns ending in -re

u-bu-re-re, “education”, comes from *ku-rer-a*, “to educate”.

i-mi-ifati-re, “attitude”, comes from *ku-ifat-a*, “to behave”.

4. agent: nouns ending in -i

u-mu-saz-i, “mad person”, comes from *gu-sar-a*, “to become mad”.

u-mu-genz-i, “traveller”, comes from *ku-gend-a*, “to go”.

There are five phonological rules which govern deverbatives that express agent:

1. Nominal stems ending in **byi, myi, nnyi** are derived from verbal roots ending in /β/, /m/, /n/

u-mu-robyi, “fisherman”, is derived from *ku-rob-a*, “to fish”.

u-mu-remyi, “Creator”, is derived from *ku-rem-a*, “to create”.

u-mu-byinnyi, “dancer”, is derived from *ku-byin-a*, “to dance”.

2. Nominal stems ending in **zi, nzi** are derived from verbal roots ending in /g/, /ng/, /d/, /r/

u-mu-rezi, “accuser”, is derived from *ku-reg-a*, “to accuse”.

u-mu-hinzi, “farmer”, is derived from *gu-hing-a*, “to plough”.

u-mu-dozi, “tailor”, is derived from *ku-dod-a*, “to make a dress”, “to sew”.

u-mu-orozi, “cattle keeper”, is derived from *ko-ror-a*, “to breed”, “to raise”.

3. Nominal stems ending in **tsi** are derived from verbal roots ending in /k/

u-mu-tegetsi, “administrator”, is derived from *gu-tegek-a*, “to govern”.

u-mu-tetsi, “cook”, is derived from *gu-tek-a*, “to cook”.

4. Nominal stems ending in **si** are derived from verbal roots ending in /t/

u-mu-irasi, “boastful person”, is derived from *ku-i-rat-a*, “to boast”.

u-mu-tasi, “spy”, is derived from *gu-tat-a*, “to spy”.

5. Nominal stems ending in **shi, -ji** are derived from verbal roots ending in /s/

u-mu-rashi, “shooter” is derived from *ku-ras-a*, “to shoot”.

u-mu-baji, “carpenter”, is derived from *ku-baz-a*, “to plane”.

Newly independent formed deverbatives

New idiom	Root	French Verb	English
<i>icyizere</i>	-izer-	<i>croire</i>	credibility
<i>imikorere</i>	-kor-	<i>travailler</i>	working policy
<i>imiturire</i>	-tur-	<i>habiter</i>	shelter
<i>imiyoborere</i>	-yobor-	<i>diriger</i>	administration
<i>imyifatire</i>	-fat-	<i>se tenir</i>	attitude
<i>uburambe</i>	-ramb-	<i>durer</i>	work seniority
<i>ubushakashatsi</i>	-shak-	<i>chercher</i>	research
<i>umuyoboke</i>	-bok-	<i>suivre</i>	follower, member
<i>umwirondoro</i>	-rondor-	<i>détailler</i>	identification
<i>urusengero</i>	-seng-	<i>prier</i>	church

Morphological aspects of loanwords

The morphological adaptation of loanwords is generally operated in one of the four ways: addition, deletion, derivation, and reduplication. Loanwords take Kinyarwanda morphological features when they are allocated to noun classes.

Addition

In general, a loanword adds an augment and an affix (usually by prefixing or/and suffixing) to the stem of a word. This is the most frequent method of integration. Although a loanword may be integrated into the borrowing language, it does not always find full acceptance in the host language system. Thus, it can preserve or lose original segments and create new ones. This is the case observed in loanwords having the nominal prefix -ma- of class 6 or za attested in plural nouns of class 10. The morpheme za- is usually an adjectival or pronominal prefix. The nominal prefixes **-ma-** and **za** are good cases to illustrate the

addition process in loanword adaptation in Kinyarwanda. The two morphemes are used alternatively, but with fully assimilated loanwords, -ma- (always preceded by an augment, -a) tends to predominate over za (no augment before it).

The following sentences consider one agreement from the native words of class 10 and class 6.

I-nka za-njye za-rishije: “My cows have grazed”.

A-ma-tama ma-nini a-maze ku-byimb-uk-a: “Big cheeks are no longer swollen”.

The agreement in two loanwords (*avoka/ivoka*: avocado; *bisi*: bus) in the same noun class introduces an alternative morpheme. Thus, two options are observed:

1a. *Za voka zireze*: “Avocados are ripe”.

1b. *A-ma-voka areze*: “Avocados are ripe”.

2a. *Za bisi zatinze*: “Buses have delayed”.

2b. *A-ma-bisi yatinze*: “Buses have delayed”.

The word *ivoka*, “an avocado”, will be *amavoka* or *za voka* in plural. The plural word *za voka* has no augment, which should normally be *i-*, if class markers of noun class 10 are taken into account. This shows that some loanwords have ambivalent forms when they haven’t yet been fully adopted by the nominal class system.

However, the plural forms below show that some loanwords have found full acceptance in the host language:

Kinyarwanda	French	English
<i>a-ba-voka</i>	<i>avocats</i>	lawyers
<i>a-ba-biligi</i>	<i>belges</i>	Belgians
<i>a-ba-faransa</i>	<i>français</i> (people)	French
<i>a-ma-foto</i>	<i>photos</i>	photos/pictures
<i>gu-foto-ra</i>	<i>photocopier</i>	photocopy
<i>gu-foto-ra</i>	<i>photographier</i>	take a picture
<i>gu-sabota</i>	<i>saboter</i>	to botch
<i>i-foto</i>	<i>photo</i>	photo/picture
<i>i-gi-faransa</i>	<i>français</i> (language)	French
<i>i-m-papuro</i>	<i>papiers</i>	papers
<i>ku-defiriza</i>	<i>défriser</i>	straighten (hair)
<i>ku-depoza</i>	<i>deposer</i>	deposit/ hand out
<i>u-mu-avoka</i>	<i>avocat</i>	lawyer
<i>u-mu-biligi</i>	<i>belge</i>	Belgian
<i>u-mu-faransa</i>	<i>français</i> (people)	French
<i>u-ru-papuro</i>	<i>papier</i>	paper

Deletion

One element of the source word is omitted to simplify the spelling or the pronunciation, especially when the original form is hard to pronounce or to write to fit the host language system.

Kinyarwanda	French	English
<i>gu-fotora</i>	<i>photocopier, photographier</i>	photocopy/take a picture
<i>u-mu-fana</i>	<i>fanatique</i>	fanatic
<i>ruwiri</i>	<i>l’huile</i>	cooking oil
<i>Leta</i>	<i>l’Etat</i>	the State
<i>isinya</i>	<i>signature</i>	signature
<i>ku-iy-aranja</i>	<i>s’arranger</i>	to manage
<i>Loni</i>	<i>l’ONU</i>	The UN

Loanwords which have not been fully adopted are written and pronounced with or without initial nominal morphemes: augment or nominal prefix. However, in the long run they will definitely take a stand and get one. This explains the fact that loanwords are still searching for adoption in the nominal class of the host language before being totally integrated.

In the section above, there has been deletion of the apostrophe and the elided article (*article élidé l'*) has resulted in the formation of the segments *ru, le, lo*, in *ruwiri, leta, loni*, respectively. The article and the apostrophe have been merged.

The structure of a loanword does not often conform to the original Kinyarwanda. Some omit the augment, while others keep it, or simply use it alternatively.

Some loanwords omit the augment:

Kinyarwanda	French	English
<i>ruswa</i>	<i>reçois</i>	bribe, corruption
<i>sinyatire</i>	<i>signature</i>	signature

Derivation

According to Hockett (1958, p.417), derivation is the part of morphology which “deals with the structure of the stems”.

Some verbal loanwords are formed by derivational suffixes (verbal extensions). These are to be distinguished from formal suffixes which have no meaning in themselves. Verbal extensions whereby derivational suffixes are added to the verbal root help to form many other verbs. In Kinyarwanda, there are 7 types of derivational suffixes, which help in the formation of verbs. Integrated verbal loanwords have accepted this process of derivation. To form a verb, you need a nominal prefix showing the infinitive *gu-* or *ku-*, followed by a verbal root beginning by a consonant. Thus, the structure will be: Nominal Prefix + Verbal Root + (Extensions) + Final Vowel.

For example the verbal loanword *gu-fotor-a* originates from the French *photographier*, “to take a picture/photograph”, or *photocopier*, “to make a photocopy”. Verbal loanwords accept the process of derivation by adding a suffix to the verbal root.

1. *-ir/-er-*: a suffix indicating application (to do something for somebody), for example, *gu-fotor-era*, “to take a photograph for somebody”/ “photocopy for somebody”
2. *-an-*: a suffix indicating reciprocity, for example, *gu-fotor-an-a*, “to take a picture each other”.
3. *-ish/-esh-*: causative suffix (to have something done by somebody else, to cause to do, to make somebody do something), for example, *gu-fotor-esh-a*: “to have a document photocopied”, “to have a photograph taken”.
4. *-ik/-ek-*: a suffix expressing ability: to be able to, for example, *gu-fotor-ek-a*, “easy/able to be photographed or photocopied”.
4. *-u-*: a suffix indicating the passive voice, for example, *gu-fotor-w-a*, “to be taken a photograph”.
5. *-ur-*: a suffix indicating a reversive action, for example, *gu-pakur-ur-a*, “to unload”.
6. *-agur-*: a suffix indicating a repetitive action, for example, *gu-siny-agur-a*, “to sign several times”.

The way derivation operates in Kinyarwanda nominal morphology is entirely based on affixing (prefixing and suffixing).

Scalise (1986:11) states that “words can be found that have undergone derivation and then compounding, but not compounding then derivation” [...] and that deletion operation can eliminate only

a dummy element, or a formative explicitly mentioned in the structure index (for examples, *you* in imperatives), or the designated representative of a category [...]

Reduplication

The stem or the part of the loanword is repeated in the same way Kinyarwanda adjectival or nominal stems are reduplicated, for example, in the word *ki-re-ki-re*, “a tall thing”; *u-ru-ntu-ru-ntu*, “human intrigue”. The stem is reduplicated to show the action of signing a document several times, respectively.

Nurse and Philippson (2003, p.88) explain that “in all kinds of non-verbal words, reduplication is particularly frequent with monosyllabic stems, which indicates a rhythmic preference for polysyllabic stems. Semantically, reduplication often appears to indicate smallness and/or repetition or intention.” With verbal loanwords, some morphemes are reduplicated. For example, the repetitive action *gu-sinya-sinya-a*, “to sign several times”, comes from the loanword *gu-sinya-a*, *signer*, meaning “to sign”. The newly borrowed verb *gu-kilik-a*, “to click”, is often reduplicated to show the repetitive action of clicking several times on a computer, *gu-kilika-kilika*, in a way which may lead to defective functioning.

Morphological changes of French loanwords

Most French loanwords have undergone deep morphological changes in Kinyarwanda. This explains their seniority or the chronology of these loans. The common nominal structure of a Kinyarwanda word is: augment-nominal prefix-stem. The verb and other parts of speech do not have any augment. The infinitive has a nominal prefix, a root, a suffix (optional), and a final vowel (always -a). Most loanwords comply with this structure. Here are just a few examples below to indicate some morphological changes. The adaptation from the lending language to the borrowing one is a long process. It does not happen haphazardly. It makes its way in the daily conversation, the media, and the print.

Conclusion

This paper has allowed us to explore many aspects of deverbatives. Some areas of life accommodate more loanwords than others, especially for the realities which did not exist in the borrowing language, and that there is a great need of borrowing a foreign word or concept. In Kinyarwanda, the areas of influence of technology, religion, science, education, commerce, banking, and taxation have retained more foreign elements than any other areas. However, although Rwandans had a strong traditional religion, they have adopted more words from Christianity and Islam, simply because both creeds had a great influence on the Rwandan culture, education, civilization, and politics.

The degree of phonological sieve of the DL (Donor Language) speaker determines how the loanword is going to be adapted in the BL (Beneficiary Language). People do not perceive the sounds in the same way. After having acquired sounds of a given language system, the brain is very likely to assimilate foreign sounds to those it has already acquired. Thus, the sounds from the donor language will be changed according to the degree of perception of the learner, e.g. boy /bɔɪ/ changes to *umuboyi* /umuɓɔji/, lift /lɪt/ changes to *irifuti* /irifuti/, shirt /ʃə:t/ to *ishati* /iʃati/, etc. As a matter of fact, perception strongly triggers changes in loanword adaptation. Many loanword changes in both spelling and pronunciation take place during perception, although there may be some other factors conditioning the adaptation.

Loanwords from a donor language closer to the language system of the borrowing language or having the same family as BL adapt more easily than those from a more distant system. This is the case for Spanish loanwords in French and vice-versa, or Kiswahili and Urunyankore loanwords in Kinyarwanda. They do not change as much as other languages would do. Morphology, syntax, phonology, orthography, and semantics are interrelated in a loanword study. However, syntax seems to be less affected than other language areas. It is quite understandable that people

borrow words and sounds and not necessarily the sentence structure. Words and their meanings, letters, sounds, and suprasegments from a donor language adapt to the sentence structure of the beneficiary language. The most borrowed parts of speech are nouns and verbs, especially because all the languages of the world have at least the two parts of speech. In addition to being the most important elements in a language, they express more concrete realities than adjectives, articles, pronouns, adverbs, prepositions, conjunctions, and interjections.

This work does not pretend to have exhausted all the aspects of loanword adaptation in Kinyarwanda. It is rather a door for other linguists in order to research on this area of sociolinguistics in a broader perspective and come up with more theories. We hope the theories and findings in our work will serve for further linguistic studies, especially the areas which have hosted loanwords and the complexity of loanwords resulting from French/English deceptive cognates.

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The Impact of School Discipline on Student Academic Performance in Rwanda. A Case of Kicukiro District Secondary Schools

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Abstract

The study was titled 'The Impact of School Discipline on Students' Academic Performance' in Rwanda. Kicukiro District Secondary Schools were taken as a case study to achieve the objective. The problem was that there has been a consistency in performance in Rwanda where the best performing schools continue to do well whereas the worst performing schools also continue with the trend. Research also showed stern disciplinary measures taken by the high performing schools and on the other hand the least performers have more liberal disciplinary approaches. It was therefore hypothesized in this study that there is no significant relationship between school discipline and students' academic performance. The study used descriptive research design and regression analysis was used to test the nature of relationship between variables. Primary data in this study were collected from 166 participants using the questionnaire as the main data collection tool and analyzed using statistical package for social sciences software (SPSS) version 23.0. Based on the results tested, the hypothesis demonstrated that model summary shows the adjusted R² of 0.070 where ANOVA shows F-test of 13.956 and p-value of 0.000 which is less than the significance level of 0.05. From the findings, the study concluded that school discipline has an impact on students' academic performance. Decent school discipline leads to student learning and performance on a high rate while poor discipline in students leads to low learning and performance. Based on the findings and conclusions, the study suggested that all concerned parties at the school and district level should enforce high discipline in their respective schools.

Key Words: academic performance, discipline, school, students.

Introduction

Globally, student performance is often assessed by exams or continuous assessment tests, but there is no universal understanding of how best to assess or what aspects are the most useful declarative knowledge (such as facts) or for procedural knowledge (such as skills). In addition, the jury is still out on whether individual factors can successfully forecast academic performance, and factors such as environment, motivation, test anxiety, and emotional needs to be considered when developing models of academic performance. Nowadays, most of schools receive funds basing on performance of learners. High academic performance is mostly observed in schools which receive more money while poor performance is mostly observed in schools which receive little money (Aken, 2011)

In Japan, parenting is a term used to describe how parents affect students' learning by changing students' knowledge, attitudes, and parenting behavior at school. It depends on the parents' social and economic situation. The most educated parents have a good attitude towards learning. In addition, recent research suggests that the quality of parent-child relationships will play an important role in the development of positive learning in adolescents, which in turn will have an impact on their learning and performance (Kira, 2014).

In South Africa, a well-organized school curriculum has improved the quality of schooling, increasing the number of schoolchildren, investing in higher education, and reducing the number of dropouts and depression. In addition, positive development has been observed in young people participating in extraordinary activities. High schools have been linked to better performance academically, especially among youths in urban areas.

In Kenya, while various researchers show a relationship between strong school discipline and academic performance, the discipline practices in this relationship are not clear. In addition, many distinct factors affect the relationship between students' academic achievement, their discipline and the school environment (Mahoney et al., 2005). These changes include but not limited to: mental health, identity development, positive relationships, behaviours and community involvement (Mahoney et al., 2005). Other studies on youth have suggested that it is important to have support for social welfare and development. Through this, academic success can be achieved through post-school activities (Eccles & Templeton, 2002).

When it comes to student performance, another group of variables that we need to consider include: community and family structure, personality traits, and program context (Mahoney et al., 2005). For instance, socioeconomic has been found to have a significant effect on how many students participate in extraordinary courses (Covay & Carbonaro, 2010). In addition, peer relationships and support for extra-curricular activities often affect the way people behave in schools (Eccles & Templeton, 2002). With all these changes in mind, it is vital to have a clear understanding of how the learning outcomes can be viewed negatively and positively.

Recently, Rwandan scholars have written extensively about indiscipline among students and its impact on their learning and performance in schools. Discipline in the classroom is a key factor in academic excellence. On the other hand, the lack of discipline often leads to many academic complications like a lack of vision and purpose, mismanagement of time, irregularity in attendance and punishment. It also plays an important role in achieving student responsibilities as well as educators. Hakizimana (2015) advised cooperative learning for performance to be achieved amongst the learners.

Discipline aids in achieving expectation, goals, and responsibility among students. Proper discipline forms a positive perception about the school and prepares learners for their future. Good discipline among learners eliminates disruptive behavior at school. As the learner grows to adulthood, the execution of effective school discipline is key to their academic and social journey. Therefore, by definition, discipline is the ability to perform reasonable instructions to achieve the right standards of conduct. It is the abstract trait in a person which is connected to and manifested by his ability to execute instructions well during the right period of time and in the right circumstances, with or without supervision. (Hakizimana, 2015).

Statement of the Problem

The survey from the results of 2016 national Educational Yearbook shows that, for 5 years consecutively, from 2012 to 2016, there is a dominance of the same secondary schools from the same districts listed among the top 10 positions (MINEDUC, 2016).

On the other hand, an increasing number of secondary school head teachers and teachers are reporting a wide range of potentially disruptive behaviors in the classrooms and around the schools (Mukamusana, 2017). Many students are seen loitering in town streets, villages, and other places in their uniforms during class time, an indication of disrespect to school rules and regulations. All these cases are

specifically from poorly performing schools. This has therefore created a big concern about the learners' lack of concentration on their academic work and attainment of high scores in the national level examinations (Mukamusana, 2017).

Research Questions

What is the impact of school discipline on students' academic performance in Kicukiro District?

Objectives of Study

The objective of this study was to find out the impact of school discipline on students' academic performance in Rwanda.

Hypotheses

There is no significant relationship between school discipline and students' academic performance among Secondary colleges in Kicukiro district

Literature Review

Conceptual Review

The impact of school discipline on students' academic performance

Discipline influences learning by creating an environment that is free to share time in a variety of activities, improving planning through observation and maintaining a daily routine, changing the structure of the learners and strengthening, helping to set good examples and positive role for good score. Things like stress, the environment, enthusiasm, and emotions require attention when planning a model for learners' performance. Numerous studies show that there is a relationship between discipline among students and their performance in school, with increase in discipline levels, there is increase in performance.

While instructional institutions have a responsibility to uphold the guidelines or standards of conduct governing student behavior, parents are also involved in the integration. Aspects such as clothing, hair, and basics start at home. Parents, caregivers, and school administrators, are the two pillars that play a major role in student development. Unless discipline is addressed from an early age, access to quality education and the full impact of students will continue to be a challenge. So, if students in all level have discipline, it is very possible to get the knowledge and skills they need easily because they are basic and manageable.

According to Roos et al. (2021), though they have a lot of work to do, parents have to create time to spend with their children to talk about a range of issues, for example their discipline. There is also a need to enhance leadership and mentorship in schools, to help students reap values. A child or younger man or woman with strong social and religious conduct has a larger danger of excelling in school. The fundamental discipline is to practice, the learner should cultivate via putting requirements and knowing the place he or she can attain in the midst of many obstacles. At the height of COVID-19, the place education is shifted domestic due to the fact colleges are closed and controls are in the hands of parents, willpower will play a primary position in continuing education.

Good school discipline plays a key role in achieving goals and objectives. Many high schools experience poor discipline among students. This lack of discipline has had an impact on student learning and performance. As pointed out by Wood, Nicholson and Findley (2005) effective discipline helps in improving learners conduct. The performance of the class will be good if the students are highly disciplined. Together with this, direction to the side of the learner as well as the caregivers will be easier. Gawe, Vakalisa and Jacobs (2001), emphasize cooperative learning as a solution. If the school lacks a practical discipline, the achievements of the school will not be pleasing. Discipline also plays an important role in finding responsibilities in students as well as educators. The ability of the teacher to exercise effective discipline as suggested by Dunham (2004) is essential. Good discipline will always result to good image of the school and also would prepare the learners for the future. Good discipline at school will also do away with the disruptive behaviour in the schools.

One of the major keys for the learner in his journey to adulthood is implementation of effective discipline at school. Many are times when parents have no choice apart from having their children enrol in a school with poor discipline which often leads to poor school performances. In a school where good academic achievement is valued, then effective discipline is a key factor. The effective discipline in school and in the classroom will often result to effective teaching and learning yielding to positive academic achievements.

Sonn (2009) emphasizes that schools with poor discipline are difficult to manage and many times this will result in unmotivated and demoralized educators and learners. As a result, we get poor academic performance. This is because indiscipline has negative results such as high failure rates. In contrary to that, effective discipline yields to good academic achievement because self-discipline will always promote the learner and remain focused on his goal which he or she has to achieve.

Visser (2009) points out what impact the partnership between parents and educators has in upholding effective discipline. When descent discipline is enforced at the school level and the parent is also aware of it and applies the same at home, is the right formula for better academic achievement for learners because what is practiced at school is reciprocated at home. There is little difference between the home environment and the school.

In maintaining quality education, misbehaviour in schools is an area of major concern. Cohen (2011), expresses that the increasing occurrence of disruptive behaviour is a challenge for everyone, and it must be addressed with all available resources before it jeopardizes educational goals. As a result, a study of the recurrent problem of discipline, however restricted, is of tremendous value and a useful cornerstone of learning and academic performance.

According to Sonn (2012), Self-discipline or discipline refers to a grasp of what is right and wrong. If there is a lack of discipline in the classroom setting or in a learning scenario, the anticipated outcomes of teachers and learners may not be accomplished. Even learners, who come to class with learning objectives in mind, want their colleagues to be well-behaved and demonstrate behaviour that does not disrupt their own or their classmates' learning. They should adhere to Asmal's view (1998) that discipline is actually a form of 'moral compulsion' to which one must adhere. Learners must therefore practice self-discipline; without which it would be quite difficult for them to engage in any "valued activity."

It is critical to discipline children in order to establish a secure learning environment. Discipline necessitates knowledge, talent, sensitivity, and self-assurance; like any art, it is learned via training and experience, and it gets easier with practice. Many people confuse classroom management with discipline; discipline is one aspect of classroom management, while classroom management is a broad word.

Discipline can also be beneficial to both the person and the classroom environment. Utilizing disciplinary measures can be used as an opportunity to reflect on and learn about consequences, promote group values, and encourage appropriate classroom behavior. Understanding and tolerance of various disciplinary approaches can be improved by acknowledging the diversity of values among societies. Instead of out-of-class consequences like detention, suspension, or expulsion, encouraging constructive correction of dubious behavior inside the classroom dynamic can foster learning and discourage future misbehavior. Learning to accept responsibility for one's negative behavior can also help with social emotional learning. (Fontana et. al., 2012).

By Freire's and Amado's (2009), findings of their study, "The Effect of School Discipline Management on Academic Performance in Canada," there is a link between school ethos (essentially the school's underlying beliefs) and students' behaviour and attitudes toward school, as stated in the following conclusions. There is a link between a cohesive school ethos and more appropriate behaviours and attitudes in students; there is a link between a proactive and preventive disciplinary environment and less frequent occurrence of undisciplined behaviour; and there is a link between inconsistent disciplinary action and disciplinary action based on punishment and control and more frequent occurrence of undisciplined behaviour in students.

The role of school rules and regulations on students' academic performance

In an ideal world, schools would establish rules and laws to control the diverse lives of pupils, including dos and don'ts. (Okumbe, 2010). Regulations, on the other hand, are legally binding mandates that are meant to promote order and efficiency in a company. Lupton and Jones (2012), tried to argue that effective schools exhibit sound inclusive policies such as emphasizing school norms and regulations, collaborative leadership, and excellent practice. As a result, the school rules and regulations specify the desired level of conduct expected from both instructors and students. Nevertheless, these researchers made no mention of the impact of school rules and regulations on student achievement, highlighting the need of doing this research.

As pointed out by Awang (2013) among the strategies established to maintain good behaviour among students in schools is school rules and regulations. This means obedience to school staff, orderliness, good behaviour and self-control (Awang, 2013). Some categories of schools especially secondary schools, prospectuses which show some expectations are given to students (Adams, 2013). What students should do or not do are outlined in school rules and regulations. Nevertheless, this assumption in many high schools, learners violate these regulations and extensive practices such as running away from school, drinking alcohol, participating in frequent protests and closing schools and stopping students have a negative impact on student performance.

Chaplain (2003) argues that the guidelines of the schools are mainly rules relating to teacher-student and student. Principles of school conduct can enhance or improve the quality of learning. It can reduce the use of harsh penalties or measures to combat student misconduct. Therefore, the Board of Directors of each school must outline its own code of conduct. The ethical goal should be to maintain a 'well-rounded and purposeful school'. Ethical principles must establish ethical principles, promote self-control and constructive learning, and are based on respect and tolerance. Implemented or enforced behaviors can contribute to better school performance.

In order to improve good discipline, the misconduct must be reduced in schools in order to create a learning environment. Emenike & Lekpa (2020) contends that the rules and repercussions of violating them must be properly stated to parents, students, and instructors. Once the rules are in place, compliance

and compliance with school regulations in a fair and lasting manner, as well as giving a means for children to hear their side of the story, will raise parents' and parents' knowledge about justice. Disciplinary procedures must also encompass a variety of infraction categories, depending on the health or severity of the offense.

In Gaustad (1992), a study on research undertaken in 600 secondary schools that discovered that confusing or unjust regulations were not sufficiently enforced, which was linked to bad school discipline. Gaustad, (1992) argues that although “good behavior is needed, it is not enough for development to increase”. Gaustad (1992) goes on to say that practical school strategies should seek to encourage behavior that is responsible for giving all students a school experience and discouraging misbehaviour. These are the students; however, despite the fact that schools are trying their best to make education more accessible to them, they still love school.

Studies have shown that students, who do not like school, do poorly in school, have less work goals, and are more susceptible to disturbance. Therefore, researchers believe that social participation in school activities can help students behave better in school. Cotton (2011) requires that failing students be assisted through the correctional program, which would also provide better attitudes towards school activities if the aforementioned learners begin to show signs of progress. The good behavior of teachers in their careers also plays a significant role in the attitudes of students at school.

It was discovered by Gaustad (1992) that staff commitment to the development and maintenance of proper student conduct as significant learning criteria is a critical component of preventative discipline. According to Gaustad (1992), A well-behaved school also has the construction of a social standard or norm that is distinguished by personalized attention for children. Making the curriculum enjoyable for students so that they would want to come to school to study while also being well prepared and trained demonstrates that the teachers are interested in what they say and respect them as experts. Charlton and David (2011) believe that student misconduct may be a clear and unambiguous response to a schedule that includes non-profit or non-profit courses and materials, and / or that they are presented in an unsatisfactory manner and prevents their involvement.

Bumbarger (2010) concluded that training teachers to manage classrooms effectively can increase discipline, reduce unnecessary delays and prevent erosion from negative effects of suspension and dismissal. In a study conducted by Kiggudu (2009), on the influence of effective management of school rules and regulations on learners’ performance in Uganda, a case study of private high schools in Busiro country, Wakiso district, indicated that the schools involved in the study had designed school rules and regulations but some of them need some modifications and there is no consistence in their implementation. This has led to their violation, aggression and strikes by students. The study also found that students broke those rules and regulations even if they specify what school members should do and what they should not do. Moreover, findings show that students had a certain kind of indiscipline such as drinking alcohol, escaping from schools and participating in frequent strikes.

Theoretical Review

This study employed Skinner’s theory on learning. The Skinnerian model is behavioural in nature. It takes its starting point from the fact that behaviour that is rewarded tends to be repeated, while behaviour that receives no rewards tends to be eliminated. In maintaining discipline one generally rewards good behaviour and punishes bad behaviour (Black, and Stanley, (Eds) cited from Phillips 1998).

The study also employed the theory of planned behavior by Icek. According to Icek Ajzen (1985), if people consider behaviors that are presented as positive (attitudes), and if they think that other important people want them to behave (ethical principles), this results in less motivation (motivations) and that is what is most likely to be done. The reverse is also true. The broader relationship between perceptions and the principles governing behavioral intentions, and then behavioral attitudes, in this theory have been confirmed in many studies.

Methodology

The research was quantitative in nature and it was a multiple regression study. The five-scale structured questionnaire was developed and administered to 166 respondents consisting of 91 students and 75 teachers from three selected secondary schools in Kicukiro district. All the questionnaire were retrieved and analyzed to give empirical evidences of the study. The study adopted simple random technique of sampling. Inferential statistics were also employed to help in the analysis of the impact of school discipline on students' academic performance. They also produced empirical results that formed the basis for decision model.

X = Independent Variable: school discipline (SD)

Y = Dependent variables: Academic performance (AP)

$Y = f(x)$

Where $f(x) = (x_1 = \text{School rules and regulations (SRR)}, x_2 = \text{Constraints faced in implementing school discipline (CISD)}, x_3 = \text{Strategies taken in school discipline management (SSDM)})$;

While the $f(y) = (y_1 = \text{National Examinations Results (NER)}, y_2 = \text{Position/National ranking (PNR)}, y_3 = \text{Students' marks average/aggregates (SMA)})$;

$NER = f(SRR, CISD, SSDM) f_1$

$PNR = f(SRR, CISD, SSDM) f_2$

$SMA = f(SRR, CISD, SSDM) f_3$

Based on these functions the following multiple regression models were established, (where $\epsilon =$ error term):

$NER = \beta_0 + \beta_1 SRR + \beta_2 CISD + \beta_3 SSDM + \epsilon$, Model 1

$PNR = \beta_0 + \beta_1 SRR + \beta_2 CISD + \beta_3 SSDM + \epsilon$, Model 2

$SMA = \beta_0 + \beta_1 SRR + \beta_2 CISD + \beta_3 SSDM + \epsilon$, Model 3

Findings

The data gathered on school discipline (adherence to school rules and regulations and acceptable student conduct) and student academic performance (National examination results, position/national ranking and students' average marks/aggregates) were created by summing responses of all items for each of the variables. The results of the regression are presented as follows

The impact of school discipline on students' academic performance

Table 1: The impact of school discipline on students' academic performance

Statement	Mean	Comment	Std. D	Comment
The school discipline helps students to increase their knowledge	4.26	Strong/high	.76	Homogeneity
students attitude and general behavior towards academic matters have improved because of the school discipline	4.01	Strong/high	1.06	Heterogeneity
The school discipline has helped students to improve their grades	4.27	Strong/high	.76	Homogeneity
The school discipline has helped students to improve their time management skills	4.08	Strong/high	.99	Homogeneity
The school discipline encourages students to make research beyond the knowledge they receive in classrooms	4.24	Strong/high	.77	Homogeneity
Overall mean	4.17	Strong/high		

Source: Primary Data, 2021

As far as the effect of school discipline on learners' academic achievement is concerned, findings in table 14 show the biggest number of research participants assented that good discipline helps students to increase their knowledge as indicated by a mean of 4.26 which is also expressed as strong mean. The standard deviation of 0.76 on this item indicates a similar perception by the respondents on this item. Findings in the table also showed that a big number of research participants reported that students' attitude and general behavior towards academic matters have improved because of the school discipline, as shown by strong mean of 4.01 but diverse perception/heterogeneous perception due to 1.06 of standard deviation.

Moreover, the strong mean of 4.27 shows that majority of respondents reported that the school discipline has helped students to improve their grades. The standard deviation of 0.76 which is under one indicates a similar/homogeneous perception by the respondents on this item. The results in the table also indicated a strong mean of 4.08 on the item that school discipline has helped students to improve their time management skills. The standard deviation of 0.99 on this item indicates a similar/homogeneous perception by the respondents on this item.

Finally, the strong mean of 4.24 stipulates that a large number of study participants acceded that school discipline encourages students to make research beyond the knowledge they receive in classroom. The standard deviation of 0.77 which is under one indicates a similar/homogeneous perception by the respondents on this item. The average mean of 4.17 which is also interpreted as strong mean show that a big number of research participants acceded that school discipline significantly impact on learners' academic achievement. Schools should encourage discipline among students in order to keep good

performance. Positive discipline should be encourage among students and discourage bad behaviour among students in order to promote students’ academic performance. These results are in sync with the findings of Wood, Nicholson and Findley (2005) who stated that students’ good behaviours are developed when the school has good discipline. Learners’ academic achievement will be good when the school has effective discipline. Good academic achievement is a result of effective discipline whereas high failure rates among students are attributed to indiscipline among students.

Aspects of school rules and regulations that influence students’ performance

Table 1: Aspects of school rules and regulations

Statement	Mean	Comment	Std. D	Comment
Integrating school rules and regulation with school policy	4.15	Strong/high	.96	Homogeneity
Having clear school rules and regulations	3.94	Strong/high	1.20	Heterogeneity
School has good leadership style	4.17	Strong/high	.82	Homogeneity
Punishment is fair and consistence	4.13	Strong/high	.89	Homogeneity
Students are present at school on the opening day	4.24	Strong/high	.65	Homogeneity
Teachers share a copy of school rules and regulations with teachers	4.01	Strong/high	1.14	Heterogeneity
Teachers are very strict in giving permission to the students	4.15	Strong/high	.77	Homogeneity
Students actively participate in school and class activities.	4.30	Strong/high	.68	Homogeneity
Students always put on the school uniform	4.29	Strong/high	.60	Homogeneity
Overall mean	4.15	Strong/high		

Source: Primary Data, 2021

Findings in the Table 13 illustrate the views of participants on the influence of school rules and regulations on the academic performance of students. The strong mean of 4.15 on the item that school integrate school rules and regulations with the school policy, indicate the biggest number of participants acceded about this item. The standard deviation of 0.96 which is under one indicates the similar/homogeneous perception by the respondents on this item. The strong mean of 3.94 also indicated that a great portion of research participants acceded that schools have clear rules and regulations. The standard deviation of 1.20 indicates a diverse/heterogeneous perception by the respondents on this item.

The findings on the item that school has good leadership style indicated a strong mean of 4.17 showing that a great portion of respondents acceded about this item. The standard deviation of 0.82 indicates a similar/homogeneous perception by the respondents on this item. The strong mean of 4.13 also suggested that the biggest number of research participants assented that punishment is fair and consistence.

The standard deviation of 0.89 which is under one indicates a similar/homogeneous perception by the respondents on this sub-construct.

The results on the sub-construct that students are present at school on the opening day showed a strong mean of 4.24 indicating that a large number of respondents acceded about this sub-construct. The standard deviation of 0.65 which is under one indicates similar/homogeneous perceptions by the respondents on this sub-construct. The strong mean of 4.01 also indicated that the biggest number of research participants assented that teachers share a copy of school rules and regulations with teachers. The standard deviation of 1.14 which is greater than one indicates a diverse/heterogeneous perception by the respondents on this sub-construct.

Furthermore, results indicated that teachers were very strict in giving permission to the students as evidenced by the biggest number of respondents on the strong mean of 4.15. The standard deviation of 0.77 on this item indicates a similar/homogeneous perception by the respondents on this item. The findings also showed a strong mean of 4.30 and 4.29 on the items that students actively participate in school and class activities and always put on school uniform. Respondents had similar/homogeneous perceptions on these items as evidenced by the standard deviation of 0.68 and 0.60.

The average mean of 4.15 in the above table which is also interpreted as strong mean indicates that the biggest number of research participants agreed about the items used to measure the aspects of school rules and regulations have a significant effect on academic performance. In learning institutions where these aspects are neglected academic achievement of students tends to be low. Respect of school rules and regulations by students is an important factor to the improvement of academic performance. Lack of school rules and regulations in schools can be a factor contributing to poor academic performance. Schools rules and regulation also help in keeping students' discipline hence effective teaching and learning hence in turn improvement in academic performance. From the findings, school head teachers are urged to set clear rules and regulations and be communicated to students. These results are in line with that of Kigudu (2009) who found that one of the strategies to instil good behaviour among students is to enforce school rules and regulations. Students should avoid any kind of indiscipline such as taking alcoholic drinks, smoking that affect their academic performance.

Test of Hypothesis

This part shows the results found on hypothesis one which stated that there is no significant relationship existing between school discipline and students' performance in selected secondary schools in Kicukiro District.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.274 ^a	.075	.070	.30694

a. Predictors: (Constant), Discipline

In order to test the nature of relationship between variables, a regression analysis was done and the results showed that the R-square of 0.075 meaning that school discipline affect at about 7.5% students'

performance. This left 92.5% of differences in students' performance being influenced by other factors that were not identified here. Therefore, from the view of the respondents in sampled schools in Kicukiro District, school discipline only influences about 7.5% variation in students' performance.

Table 3: Analysis of Variance (ANOVA^a)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.315	1	1.315	13.956	.000 ^b
	Residual	16.204	172	.094		
	Total	17.519	173			

a. Dependent Variable: Students' Performance

b. Predictors: (Constant), Discipline

ANOVA results show that school discipline significantly affect students' performance. Results show that school discipline can affect students' performance in selected schools with $F(1,172) = 13.956$ at P-value of 0.000 which is less than 0.05(5 percent).

Table 4: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.780	.136		27.890	.000
	Discipline	-.125	.033	-.274	-3.736	.000

a. Dependent Variable: Students' Performance

Basing on the results above; the formula for regression equation is $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots$. Thus $Y =$ learners' performance, $\beta_0 =$ constant; $\beta_1 =$ coefficient and $X =$ independent variable. Consequently, school discipline affect the learners' performance $Y = 3.780 + (-0.125 X_1)$ (school discipline). The results revealed that if learners' performance was no affected the school discipline, subsequently their performance would still be influence at 3.780. In contrast, when the explanatory variable has been at zero, a unit shift in school discipline would lead to -0.125 shift in the scores of learners' performance. This illustrates that respondents in sampled schools in Kicukiro District hold that apart from other factors that influence learners' performance school discipline is also inclusive.

Summary of the Findings

The study is entitled “The Impact of School Discipline on student performance in Rwanda. The case of secondary schools in Kicukiro District has been addressed by the following objective: to find out the impact of school discipline on student academic performance in Kicukiro District,

The findings revealed that there are a number of discipline aspects that have a positive impact on students’ performance as indicated by the biggest number of research participants on the mean of 4.00 which is interpreted as strong mean. Those aspect include; students’ punctuality, respect of school property, regular attendance of all classes, avoiding smoking and drinking at school and avoiding fighting on school grounds. The results of the study also showed that there are many factors related to school rules that can have a significant impact on student learning and hence performance; harmonize school rules and regulations with school policies, have clear rules and regulations, have a system of school administration, fair punishment and consistence, ensure that students get to school on a daily basis, ensure that students have a copy of the school rules and regulations, which oppress students misconduct and ensure that students wear school uniforms and ensure that students do all classes and school activities.

Results also indicated that there was a correlation between the implementation of school rules and student learning guidelines, as confirmed by a big number of respondents at strong mean of 4.17. This means that when the rules and regulations of the school are properly implemented the students' learning improves while the poor implementation of the school guidelines has a negative impact on the students' learning.

Conclusion

From the findings, it was concluded that school discipline has a significant impact on student learning and hence performance. Proper school discipline leads to student harmonious learning and improved performance while poor discipline among students leads to poor learning and poor academic performance. Second, it has been concluded that there is a link between the implementation of the rules and regulations of the school and performance of students. Enforcement the rules and regulation of the schools promotes student learning and student performance.

Recommendations

Based on the research done, some recommendations were written to relevant people. Firstly, head teachers together with teachers should ensure high discipline in their schools because research has shown that school discipline has a significant impact on student learning and performance.

Second, this research has suggested that schools should have clear rules and regulations and share them with students because research has shown that rules and regulations have a positive impact on student learning and performance.

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Intrinsic and Extrinsic Motivation Factors and Primary Teachers' Performance In Selected Public Primary Schools of Gasabo District

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Abstract

This study was entitled “Intrinsic and extrinsic motivation factors and primary teachers’ performance in selected public primary schools of Gasabo district”. The specific objectives were to determine the relationship between intrinsic and extrinsic motivation strategies and achieving teaching objectives in selected public primary schools, to examine the contribution of intrinsic and extrinsic motivation strategies on the methodology approach in selected public primary schools, to examine the relationship between intrinsic and extrinsic motivation strategies and level of students’ performance in selected public primary schools, to investigate the relationship between intrinsic and extrinsic motivation strategies and teacher performance in selected public primary schools and to investigate the impact of intrinsic and extrinsic motivation strategies on students’ academic performance in selected public primary schools. The researchers used a descriptive design by describing people who take part in the study and their perception on the study variables. For this particular study, the population was 300 teachers and 17 head teachers of the selected public primary schools in Gasabo district that are fully funded by the government. The findings of the study were presented and interpreted basing on the objectives of the study and directed by the research questions. The results of multiple regression models showed that there is positive and significant effect of intrinsic and extrinsic motivation factors on primary teachers’ performance in selected public primary schools of Gasabo district. As a recommendation, the selected primary schools were asked to improve remuneration of the teachers and to create performance measuring tools as a basis for recognition.

Keywords: intrinsic and extrinsic motivation, teacher, performance, factors, strategies

Word counts: 252

Introduction

Intrinsic and extrinsic motivation is an internal process that makes a person move towards a goal (Azmi, 2010). Raising the Intrinsic and extrinsic motivation and status of teachers as well as retaining high-quality teachers is therefore vital to improving education. Intrinsic and extrinsic motivation refers to the resolution of achieving a goal, marked by goal directed behavior and it implies that the individual is trying hard to perpetrate a certain task. Keeping this significant importance of Intrinsic and extrinsic motivation in priority and several schools have made several efforts to attract and retain right teachers in right place but result is not found as expected (Fisher & Baird, 2016).

Many government schools seem fail to get motivated teachers towards their assigned job even-though various incentives have been explored and provided to the teachers as compare to prior.

Globally, teachers’ Intrinsic and extrinsic motivation is the key to teaching and learning outcomes. Teacher Intrinsic and extrinsic motivation has become an important element on students’ performance (Usman, 2016). They were interested in how employees should work hard as to enhance productivity in their institution. He gave a lot of attention to the workers team spirit so that they enjoy their duties and consequently achieve the output of the organization through the use of optimum conditions for success. Well-motivated teachers are encouraged and fulfill their tasks proficiently, efficiently and effectively. Hence, school leaders ought to look for the most sensible ways to interest teachers in the higher motivated job performance (Aguinis, 2019).

In Mexico, 60% of teachers are held in high esteem owing to their performance. Supplemented to those public commendations and acknowledgement make teachers respected by the society because of their good work (Hibbard, 2016). That enhances their performance. In Nigeria teachers are motivated and accorded maximum respect by the government. The government believes that all what affects teachers affects the future of the nation, so if a teacher teaches perfectly well, the quality of the nation grows stronger. Hence, teachers are highly remunerated; working conditions in terms of work load and class size, instructional materials, teacher accommodation and cafeteria services are set to stimulate teacher's performance (Ifejiofor & Nwankwo, 2015).

In Sub-Sahara teachers earn low income, it leads them to job displeasure, as result they are not actively engaged. The inescapable outcome is that the education systems will always suffer from a crisis of teacher Intrinsic and extrinsic motivation (Kunnari, Ilomäki, & Toom, 2018). For Ethiopia, institutional problems undermining teachers' Intrinsic and extrinsic motivation include frequent changes without teachers' involvement, prejudiced promotions and irrational deployment, poor relationship between teachers and school directors and inadequate support from regional education authorities (Sanghi, 2016).

In public schools of Tanzania, teachers claim not to be motivated with their teaching job. They work under poor conditions where there is no clear policies and guidelines for teachers, overcrowded classes, teachers' accommodation is a problem, irregular pedagogical trainings, no recognition at all, low salaries, to name but a few (Musengo, 2016).

In Kenya, Wanjala (2012), conducting research in Vihiga Sub-country and found out that when teachers are well prepared and raise their capacity and Intrinsic and extrinsic motivation which lead to be held accountable for perennial insufficient academic success, they increase their performance in their teaching and learning process (Wanjala, 2012).

In Rwanda, the concept of motivating teachers was not valued before 1994 genocide as compared to the period after 1994. After that period, the new government task ahead was to reconstruct the nation, based upon education system which had been broken down. Today, teachers in primary schools in Rwanda receive basic pay and they also acquire other Intrinsic and extrinsic motivational benefits such as incentives, bonuses and over time allowances (MINEDUC, 2015).

The government has come up with incentives to make sure that teacher's welfare improves progressively such as loans given by Umwalimu SACCO, Girinka Mwalimu/one cow per teacher program where three hundred cows have been given to teachers every year. Not only that, through the Rwandan Ministry of Education, the Government of Rwanda put in practice the promotion of teachers each period of three years where their salary increases at 10%, while each year, teachers who performed higher than 70% of their performance get over 3% and 5% of their salaries (REB, 2019).

Despite all the efforts to improve teachers' welfare in the country as a whole and Gasabo District in particular, it is alleged that teachers, in boarding primary schools, are dissatisfied which needs to be investigated as to establish the real causes of the problem. Gasabo is a district in Rwanda with three statuses of primary schools i.e. public, government aided and private schools. Teachers in these schools are paid monthly (Gasabo district, 2017). Others receive bonuses and allowances for more efforts rendered in the service.

Teachers are also entitled to non-monetary Intrinsic and extrinsic motivations like promotion, recognition and accommodation. Although Gasabo district boarding primary schools provide financial Intrinsic and extrinsic motivations to teachers in terms of basic pay, bonuses, class teachers and heads of department allowances, and non-financial Intrinsic and extrinsic motivations such as promotion, transport and communication fees and accommodation there is a continuous decline in the performance of teachers in these schools as evidenced in poor performance of ordinary and advanced level students in national exams, increased rate of absenteeism and late reporting at the work place, to name but a few (Gasabo district, 2017). Therefore, this study assessed the influence of Intrinsic and extrinsic motivation factors on primary teacher's performance in selected public primary schools.

Literature

Intrinsic and extrinsic motivation in the forms of intrinsic and extrinsic energies human to act with inner drive to do something which cause persevere. The provision of incentive to stimulate an action and the process of motive of an individual to carry out a task is term as Intrinsic and extrinsic motivation. An activity of an individual which comes from the person desire, wish, personal interest and performance is considered as an Intrinsic and extrinsic motivation (Sanghi, 2016). Extrinsic Intrinsic and extrinsic motivation allows a person to work in return of rewards or to avoid punishment.

The Intrinsic and extrinsic motivation is posited to have more effect on individual compared to extrinsic Intrinsic and extrinsic motivation. Intrinsic and extrinsic motivation expresses an activity of people who engaged on task on own sake without expecting any incentive in their act. Extrinsic Intrinsic and extrinsic motivation is also compulsory to enhance the interest in an activity in order to develop interest. The tangible rewards and other form of incentives motivate an individual extrinsically. Professionally, teachers need to teach in a focus and discipline school environment (Usman, 2016).

In government schools' teachers are very old but course change every year. No proper trainings are conducted to update the knowledge of the teacher, still having low qualification and use the typical style to teach the students. Mostly teachers know little or nothing about the new concepts included in the new curriculum. Teachers were dominant in classrooms but they used to read out a chapter from a textbook and students simply listened to them. Teachers are considered as the main pills of our educational system. The personal and professional development of teachers puts direct impact on student achievement. Teachers were dominant in classrooms but they used to read out a chapter from a textbook and students simply listened to them. Under qualified teachers are appointed who cannot effectively manage the process of teaching and learning in schools effectively which is reflect in poor performances of students and dissatisfaction among parents regarding the performance of government schools. This is especially worrying because poor instruction and ineffective teaching reduces the demand for education which in turn reduces the pool of qualified teachers (Wiley, 2016).

In performance evaluation, the current job success of the teacher analyzes through predetermined criteria and feedback is given to the teachers. The purpose of teacher performance evaluation is to measure the success level of the methods and practices of the teacher with measurement tools and to give feedback to the teacher. In the literature, it was seen that the perceptions of the primary and primary school administrators and inspectors about the degree of performance of primary and primary school administrators were quite different from each other (Bhardwaj, 2015).

Theoretical Framework

The theory that guided this study is Herzberg theory. It was chosen because it identified some factors as employee satisfiers and employee dissatisfies. Herzberg assumed that job satisfaction and job dissatisfaction do not depend on a single continuum. The theory indicated that job satisfaction and job dissatisfaction are separate entities, and that the factors which affect job satisfaction are different from the factors which affect job dissatisfaction.

Empirical Review

In his work, Asamoah addressed the link between self-efficacy and Intrinsic and extrinsic motivation through both the cognitive evaluation theory and the social learning theory. Asamoah stated that cognitive evolution theorists believe Intrinsic and extrinsic motivation is innate while social learning theorists believe Intrinsic and extrinsic motivation grows from fulfilling internal ideals, as well as efficacious external influences. Intrinsic and extrinsic motivation researchers assert that self-efficacy is a personal resource that can advance teachers' engagement (Asamoah, 2015).

Research indicates that there are various factors which assist in teacher Intrinsic and extrinsic motivation, to include compensation, work environment, performance and evaluation system, and professional development and training. Teacher compensation should align with qualifications and experience. Additionally, teachers should have minimized workloads, and the learning environment should be one of respect. The performance and evaluation system should recognize the efforts of teacher achievements and accomplishments. Lastly, professional development and training should provide opportunities for teachers to broaden their knowledge base and maximize their chances for career development (Shapiro, 2015).

Methodology

The researchers used descriptive and correlation research designs. Descriptive research is a study designed to depict the participants in an accurate way. More simply put, descriptive research is all about describing people who take part in the study and their perception on the study variables. Through the descriptive research design, the researcher collected and analyzed data from the teachers of public primary schools of Gasabo District. Correlation research design was used because shows the researcher measured the relationship between the variables of the study. The target population for a survey is the entire set of units for which the survey data are to be used to make inferences. For this particular study, the population was 300 teachers and 17 headteachers of public primary schools in Gasabo district that are fully funded by the government.

Findings and Discussion

Table 5

Model Summary One

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.849 ^a	.721	.717	1.76385

a. Predictors: (Constant), PT, RT, TG, RG

b. Dependent variable: Achievement of teaching objectives

From this table 1, the results indicated that the adjusted R^2 is 0.717 representing 71.7% indicating that the Intrinsic and extrinsic motivation components contribute to the achievement of teaching objectives in Primary schools in Gasabo district while 0.283 representing 28.3% of achievement of teaching objectives in these organizations comes from other variables that are not included in the model 1.

Table 6

ANOVA One

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2507.955	4	626.989	201.528	.000 ^b
	Residual	970.688	312	3.111		
	Total	3478.644	316			

a. Dependent Variable: AFE

b. Predictors: (Constant), PT, RT, TG, RG

From ANOVA table 2, the F-test is 201.528 and is significant at 0.05 therefore it means that all Intrinsic and extrinsic motivation variables jointly have positive and significant effect achievement of teaching objectives in Primary schools in Gasabo district.

Table 7

Coefficients of Independent Variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.306	1.232		1.060	.290
1 RT	-.038	.049	-.024	-.763	.446
TG	.047	.054	.037	.865	.388
RG	.311	.048	.330	6.474	.000
PT	.592	.061	.538	9.779	.000

a. Dependent Variable: AT

From the coefficient table 3 indicate that remuneration has a negative and insignificant on Achievement of teaching objectives in Primary schools in Gasabo district ($\beta_1 = -0.024$, $t = -0.763$, $sig. = 0.446$).

Training has no significant impact on Achievement of teaching objectives in Primary schools in Gasabo district ($\beta_2 = 0.037$, $t = 0.865$, $sig. = 0.388$). Recognition has positive and significant on Achievement of teaching objectives in Primary schools in Gasabo district ($\beta_3 = 0.303$, $t = 6.474$, $sig. = 0.000$). This indicates that 1% change in recognition leads to 0.303% in Achievement of teaching objectives in Primary schools in Gasabo district branch.

Promotion has positive and significant on Achievement of teaching objectives in Primary schools in Gasabo district ($\beta_3 = 0.538$, $t = 9.779$, $sig. = 0.000$). This indicates that 1% change in promotion leads to 0.538% in Achievement of teaching objectives in Primary schools in Gasabo district.

Discussion of Findings: The results of this hypothesis are in line with findings in the study of Ifejiolor & Nwankwo (2015) who indicated that Intrinsic and extrinsic motivation factors like salary, support for personal well-being and family life, the nature of the work and pressure were the most significant factors influencing the employee's achievement of teaching objectives.

Test of Hypothesis Two

This section shows the results from the data collected that helps in answering and testing null hypothesis two.

H02: There is no significant contribution of Intrinsic and extrinsic motivation strategies (Remuneration, training, recognition, promotion and favorable workplace environment) to the methodology approach in selected public primary schools.

Table 8

Model Summary Two

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.827 ^a	.684	.680	1.64760

a. Predictors: (Constant), PT, RT, TG, RG

b. Dependent variable: Methodology approach

Table 4 above shows that the results indicated that the adjusted R² is 0.680 representing 68.0% indicate that the Intrinsic and extrinsic motivation components contribute to the methodology approach of Primary schools in Gasabo district, while 0.32 representing 32.0% of methodology approach in Primary schools in Gasabo district comes from other variables that are not included in the model two.

Table 9

ANOVA for Model Two

Model	Sum of Squares	df	Mean Square	F	Sig.
2 Regression	1831.579	4	457.895	168.679	.000 ^b
Residual	846.951	312	2.715		
Total	2678.530	316			

a. Dependent Variable: MA

b. Predictors: (Constant), PT, RT, TG, RG

From ANOVA for model two, the F-test is 168.679 and is significant at 0.05 therefore it means that all Intrinsic and extrinsic motivation components variables jointly have positive and significant effect on methodology approach of Primary schools in Gasabo district. The researcher cannot accept H₀₂ which states that Intrinsic and extrinsic motivation do not significantly related to methodology approach. The researcher concluded that at 5% of significance level, we reject the null hypothesis.

Table 10

Coefficient for Model Two

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.242	1.150		-.210	.834
3 RT	-.046	.046	-.033	-.996	.320
TG	.103	.050	.093	2.037	.042
RG	.195	.045	.237	4.358	.000
PT	.542	.057	.561	9.578	.000

a. Dependent Variable: CON

From coefficient for model two, it indicates that pay has positive and insignificant on methodology approach of Primary schools in Gasabo district ($\beta_1 = 0.033$, $t = 0.996$, $sig. = 0.320$).

Training has positive and significant impact on methodology approach of Primary schools in Gasabo district ($\beta_2 = 0.093$, $t = 2.037$, $sig. = 0.042$). This indicates that 1% increase in training will lead to 0.093% change in methodology approach of Primary schools in Gasabo district.

Recognition has positive and significant on methodology approach of Primary schools in Gasabo district branch ($\beta_3 = 0.237$, $t = 4.358$, $sig. = 0.000$). This indicates that 1% increase in recognition will lead to 0.237% change in methodology approach of Primary schools in Gasabo district.

Promotion has positive and significant on methodology approach of Primary schools in Gasabo district ($\beta_4 = 0.561$, $t = 9.578$, $sig. = 0.000$). This indicates that 1% increase in promotion will lead to 0.561% change in methodology approach of Primary schools in Gasabo district.

Discussion of findings

The results of this hypothesis are in agreement with the study of Usman (2016) based on their findings a positive and significant relationship was revealed between employee benefits and methodology approach. This finding is in line with the earlier findings of (SoonYew, 2008) which suggested that when teachers received more benefits, their organization commitment tend to be higher,

Test of Hypothesis Three

This section shows the results from the data collected that helps in answering and testing null hypothesis two.

H03: There is no significant relationship between Intrinsic and extrinsic motivation strategies (Remuneration, training, recognition, promotion and favorable workplace environment) and level of students' performance in selected public primary schools.

Table 11

Model Summary Three

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.790 ^a	.623	.619	1.73854

a. Predictors: (Constant), PT, RT, TG, RG

Table 7 shows that the results indicated that the adjusted R^2 is 0.619 representing 61.9% indicating that the Intrinsic and extrinsic motivation components contribute to the Level of students' Performance of Primary schools in Gasabo district, while 0.489 representing 48.9% of Level of students' Performance in Primary schools in Gasabo district comes from other variables that are not included in the model three.

Table 12

ANOVA for Model Three

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	1560.619	4	390.155	129.082	.000 ^b
	Residual	943.027	312	3.023		

Total	2503.647	316			
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a. Dependent Variable: LP

b. Predictors: (Constant), PT, RT, TG, RG

From ANOVA table for model three, the F-test is 129.082 and is significant at 0.05 therefore it means that all Intrinsic and extrinsic motivation components variables jointly have positive and significant effect on Level of students' Performance of Primary schools in Gasabo district. The researcher cannot accept H_03 which states that Intrinsic and extrinsic motivation components do not significantly affect Level of students' Performance in Primary schools in Gasabo district. The researcher concluded that at 5% of significance level, we reject the null.

Table 13

Coefficient for Model Three

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.175	1.214		-.144	.885
3 RT	.008	.049	.006	.164	.870
TG	.132	.053	.124	2.484	.014
RG	.179	.047	.224	3.779	.000
PT	.471	.060	.505	7.895	.000

a. Dependent Variable: NOR

From coefficient for model three, it indicates that pay has no significant effect on Level of students' Performance of Primary schools in Gasabo district ($\beta_1 = 0.006$, $t = 0.164$, $sig. = 0.870$).

Training has positive and significant on Level of students' Performance of Primary schools in Gasabo district ($\beta_2 = 0.124$, $t = 2.484$, $sig. = 0.014$). This indicates that 1% increase in Training will lead to 0.124% change in Level of students' Performance of Primary schools in Gasabo district.

Recognition has positive and significant on Level of students' Performance of Primary schools in Gasabo district ($\beta_3 = 0.224$, $t = 3.779$, $sig. = 0.000$). This indicates that 1% increase in recognition will lead to 0.224% change in Level of students' Performance of Primary schools in Gasabo district.

Promotion have positive and significant on Level of students' Performance of Primary schools in Gasabo district ($\beta_3 = 0.505$, $t = 7.895$, $sig. = 0.000$). This indicates that 1% increase in promotion will lead to 0.505% change in Level of students' Performance of Primary schools in Gasabo district.

Discussion of findings

This model is in agreement with Faisal, Husam, Faiz & Sanghi (2016) who emphasized in their findings that employee Intrinsic and extrinsic motivation has significant impact on normative commitment, and found that Level of students' Performance depend on employee Intrinsic and extrinsic motivation, it means that if the employee Intrinsic and extrinsic motivation is increasing the normative commitment may also increase as they noticed from the analysis that the workers' attitude and perception of the Intrinsic and extrinsic motivational

factors varies, however majority of them believe that “good wages” and “gratitude for a job well done” play a key role in motivating by feelings of obligation to stay within organization.

Test of Hypothesis Four

This section shows the results from the data collected that helps in answering and testing null hypothesis two.

H04: There is no significant relationship between Intrinsic and extrinsic motivation strategies (School Rules and Regulation Compliance, Training, Recognition and Promotion) and teacher performance in selected public primary schools.

Table 14

Model Summary Four

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.856 ^a	.733	.729	4.52099

a. Predictors: (Constant), PT, RT, TG, RG

Table 10 shows that the results indicated that the adjusted R² is 0.729 representing 72.9% indicating that the Intrinsic and extrinsic motivation components contribute to the teacher’s performance of Primary schools in Gasabo district, while 0.271 representing 27.1% of teacher’s performance in Primary schools in Gasabo district comes from other variables that are not included in the model four.

Table 15

ANOVA for Model Four

Model	Sum of Squares	df	Mean Square	F	Sig.
4 Regression	17491.813	4	4372.953	213.948	.000 ^b
Residual	6377.070	312	20.439		
Total	23868.883	316			

a. Dependent Variable: Teacher’s performance

b. Predictors: (Constant), PT, RT, TG, RG

From ANOVA table for model four, the F-test is 213.943 and is significant at 0.05 therefore it means that all Intrinsic and extrinsic motivation components variables jointly have positive and significant effect on teacher’s performance of Primary schools in Gasabo district. The researcher cannot accept H₀₄. The researcher concluded that at 5% of significance level, we reject the null.

Table 16*Coefficient for Model Four*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.889	3.157		.282	.778
4 RT	-.075	.126	.018	-.598	.000
TG	.282	.139	.086	2.035	.043
RG	.685	.123	.278	5.567	.000
PT	1.605	.155	.557	10.342	.000

a. Dependent Variable: Teacher's performance

From coefficient for model four, it indicates that pay has positive and significant on achievement of teaching objectives of Primary schools in Gasabo district ($\beta_1 = 0.018$, $t = 0.598$, $sig. = 0.551$). change in pay leads to a 0.018% in teacher's performance.

Training will lead to 0.086% change in teacher's performance of Primary schools in Gasabo district. ($\beta_2 = 0.086$, $t = 2.035$, $sig. = 0.043$). This indicates that 1% increase in training will lead to 0.086% change in training of Primary schools in Gasabo district.

Recognition has positive and significant on teacher's performance of Primary schools in Gasabo district ($\beta_3 = 0.278$, $t = 5.567$, $sig. = 0.000$). This indicates that 1% increase in recognition will lead to 0.278% change in teacher's performance of Primary schools in Gasabo district.

Promotion have positive and significant on teacher's performance of Primary schools in Gasabo district ($\beta_4 = 0.557$, $t = 10.342$, $sig. = 0.000$). This indicates that 1% increase in recognition will lead to 0.557% change in teacher's performance of Primary schools in Gasabo district.

Discussion of findings

The results in hypothesis four are in line with the study of Heathcote (2015) found that employment opportunity, job training, recognition, and incentives have positive and significant effect on teacher's performance in public and private sector in Pakistan.

Conclusion and Recommendation

Although it was realized that intrinsic and extrinsic motivation's strategies contribute to teacher's performance, some improvements are needed as summarized below: primary schools in Gasabo are recommended to improve the remuneration they give out to teachers since the research showed that it is not fair compared to their capacity and performance as indicated by a tend to weak mean of 2.47 and primary schools in Gasabo are recommended to create performance measuring methods that are a basis for recognition , since the result indicated that the respondents disagreed with the statement basing on tend to weak of 2.80 and the respondents were not having the same understanding shown by the standard deviation of 1.03 which is heterogeneous.

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Effect of eLearning Adoption on Learning Outcomes in High Learning Institutions in Rwanda: A Case of University of Lay Adventist of Kigali (UNILAK)

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Abstract

This study investigated the effect of ELearning adoption on the learning outcomes in High Learning Institutions (HLI) in Rwanda. The choice of this topic was inspired by the constant affirmation that e-learning in Rwanda is still critical. Researchers assume that there is no significant effect of E-Learning Adoption on Learning Outcomes in High Learning Institutions in Rwanda. The eLearning adoption were assessed through ICT infrastructure, accessibility, Learning Content, ELearning Affordability and user guidelines. The study adopted descriptive analysis and questionnaire was used as instrument for data collection. Respondents on eLearning adoption were students and lecturers. While questions of learning outcomes were all answered by lecturers alone. Mean and standard deviations were used to assess the perception of respondents on indicators of eLearning adoption while Regression analysis was also adopted to statistically analyze the effect of eLearning adoption on learning outcomes. The findings indicated that the Adjusted $R^2 = .858$ representing 85.8%; F -test = 25.133 and P -value is less than 5% all indicated that there is a positive and significant contribution of eLearning adoption on HLI Learning Outcomes in Rwanda. The study concluded that eLearning adoption variables are predictors of learning outcomes. It recommends to future study to be conducted to determine the factors that influence 14.2% of eLearning outcomes since this rate was from other variables that are not included in this study. Researchers recommend also to other researchers to conduct the same study where questions of learning outcomes will be answered by students.

Key Words: elearning adoption, learning outcomes

Introduction

ELearning adoption is taking effect to the eLearning outcomes, the online learning was still considered as the only and best possible solution to the problem of access to quality higher education in Sub-Saharan Africa (Asunka, 2008). However, Higher Learning Institutions still have problems of performance in terms of learning outcomes. It is clear that the full potential of technologies in the delivery of education in HLI and distance learning in particular has not been fully exploited (Kassimu, 2014).

In Rwanda, schools were closed immediately after the country recorded its first case of covid-19 (The New Times, 2020). Primary and secondary schools closed completely while Higher Learning Institutions resumed teaching activities via online. The choice of this topic was inspired by the constant affirmation that e-learning in Rwanda is still critical. The objective of this study was to assess the effect of eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) on learning outcomes in selected private HLI in Rwanda.. Researchers assume that “There is no significant effect of eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) on learning outcomes in HLI in Rwanda.

Literature

ICT supports education in schools, provides non- formal education for out-of-school children and adults and supports pre-service distance education (Swati, 2010) (Ghavifekr, & Rosdy, 2015). Basheer and Ibrahim (2011) express that E-learning has continuously played a vital contribution to the progress of academic staff and students, and the improvement in the quality of teaching method and learning management system which have resulted in increasing popularity of education in different educational institutions and organizations (Basheer & Alnawas, 2011). ELearning has also enabled learners to access the system at any time and at any place as long as there is internet connection.

According to Brandley, eLearning Management System makes the lesson more interesting, easier, and more fun for teachers and students (Bradley, 2020). They also recommend that teachers and students should be provided with greater computer access and professional support. ELearning enables students at higher educational levels to obtain their education in parallel with pursuing their personal goals and maintaining their own careers, without a need to attend classes and be subjected to a rigid schedule (Kimani & Nzuki, 2015).

This study tested the achievement goal theory in the sense that it highlights that it is commonly used to understand the student's performance. It is defined that an achievement goal involves a program of cognitive processes that have cognitive, affective and behavioral consequences (Lai, 2017). Thus this theory suggests that students' motivation and achievement related behaviors can be easily understood by the purpose and the reasons they adopted while they are engaged in the learning activities (Anderman, & Patrick, 2012).

Traditionally, classroom teaching or face to face is an effective method to achieve the goal, however in the modern era, the internet-based teaching is also of the effective tools to deliver lectures, and web-based applications are becoming modern classrooms (Ram , Singh, & Aggarwal, 2021)

Methodology

The study adopted descriptive survey research design. The study used primary data that were collected by using adopted structured 5 Linkert scale questionnaire in order to get the perceptions of the respondents on eLearning adoption and learning outcomes. The population of this study was 199 students and lecturers of UNILAK from Masters of Business Administration (MBA) and Masters of Environmental and Development studies (MEDS). Researcher used universal sampling ethnics where all expected population were given questionnaire but 127 respondents answered and returned the questionnaire. Data was processed through mean, standard deviation and multiple linear regression.

An item with a mean between 1 to 1.99; 2 to 2.99; 3 to 3 to 3.99 and 4 to 5 were considered as weak; tend to weak; tend to strong and strong respectively. A standard deviation with a value less than 0.5 showed same perception of respondents around the mean (homogeneity). Whereas a standard deviation with a value greater than 0.5 showed different perception of respondents around the mean (heterogeneity). The model specifications of multiple linear regression was as follows:

The following operationalization of variables was adopted:

X= eLearning Adoption (independent variable) (eLA)

Y= f(x₁,x₂,x₃,x₄, x₅)

x₁: ICT Infrastructure (IcI)

x₂: Internet Accessibility (IA)

x₃: Content (Co)

x₄: ELearning Affordability (eAf)

x₅: User Guidelines (UG)

Y: Learning Outcomes (LO)

LO = f(IcI, IA, Co, eAf, UG) functional relationship between variables

Based on this operationalization of variables, the following econometric model was developed.

$$LO = \beta_0 + \beta_1 IcI + \beta_2 IA + \beta_3 Co + \beta_4 eAf + \beta_5 UG + \mu \quad \text{Model 1}$$

Where β_0 is the intercept for model 1, β_1 - β_4 are coefficient of explanatory variables, using primary.

Findings and Discussion

Perception of Respondents on ICT Infrastructure

ICT Infrastructure, accessibility, contents, affordability and user guidelines were assessed using mean and standard deviation (SD) to find out the level of perception of respondents.

Table 1
Perceptions of Respondents on ICT Infrastructure

ICT Infrastructure	Mean	Std. Deviation
Having adequate ICT infrastructures for eLearning adoption	3.63	0.92
Having a conducive environment for eLearning	3.75	0.9
Having updated facilities for eLearning platform	3.76	0.92
Having relevant equipment to utilize eLearning system	3.9	0.97
Overall	3.76	

Source: Primary data, 2022

Having adequate ICT infrastructures for eLearning adoption, having a conducive environment for eLearning, having updated facilities for eLearning platform and having relevant equipment to utilize eLearning system are all tending to strong with a mean ranging from 3.6 to 3.9. But this tendency to strong is heterogeneously perceived by despondence. Thus, respondents have different perceptions around that mean.

Perceptions of Respondents on Accessibility

Accessibility is one of the sub variables of eLearning adoption and it was assessed using a mean and standard deviation to find out the perception of the respondents whether accessibility plays a significant role in the HLI performance.

Table 2
Perceptions of Respondents on Accessibility

Accessibility	Mean	Std. Deviation
Having accessible ELearning system	3.88	0.84
Having user name and password for eLearning platform	4.14	1.1
Being able to enroll myself through eLearning platform	3.96	0.99
Accessing easily eLearning system anytime	3.81	1.02
Accessing easily eLearning system from anywhere	3.84	0.96
Overall	3.93	

Source: Primary data, 2022

Having accessible e-Learning system, being able to enroll myself through eLearning platform, accessing easily eLearning system anytime and accessing easily eLearning system from anywhere are all tending to strong with a mean ranging from 3.81 to 3.96. But this tendency to strong is heterogeneously perceived by despondence. Therefore, respondents have different perceptions around that mean. While having user name and password for eLearning platform is strongly perceived by respondents. Respondents also have different perceptions around that mean.

Perception of Respondents on Content

Content is also a sub-variables of eLearning adoption and it is assessed by using mean and standard deviation to find out the perception of the respondents whether content plays a significant role in the HLI performance.

Table 3
Perceptions of Respondents on Content

Content	Mean	Std. Deviation
Having adequate content of eLearning system.	3.6	0.95
Availability of courses' materials on online platform	3.54	1.03
Availability of assessments' results on online platform	3.55	1.16
Regular communications via online platform	3.41	1.18
Overall	3.53	

Source: Primary data, 2022

Having adequate content of eLearning system, availability of courses' materials on online platform, availability of assessments' results on online platform and regular communications via online platform are all tending to strong with a mean ranging from 3.41 to 3.6. But this tendency to strong is heterogeneously perceived by despondence. Thus, respondents have different perceptions around that mean.

Perceptions of Respondents on ELearning Affordability

ELearning Affordability is also one of the sub variables of eLearning adoption, it was evaluated using mean and standard deviation to figure out the perception of the respondents whether eLearning affordability plays significant role in the eLearning adoption.

Table 4
Perceptions of Respondents on ELearning Affordability

ELearning Affordability	Mean	Std. Deviation
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Affordability of e-Learning infrastructures	3.56	0.97
Affordability of e-Learning skills	3.64	0.91
Affordability of conducive e-Learning Environment	3.55	0.95
Having enough connectivity at University	3.3	1.12
Having enough network at home	3.78	1.09
Overall	3.57	

Source: Primary data, 2022

The above table 4 shows that ELearning infrastructures are generally affordable with a mean of 3.6 and SD 0.97. Whereas for skills for eLearning, the respondents showed that skills is generally affordable by a mean of 3.6 and standard deviation of 0.91. The study in table 4 also showed that conducive environment for eLearning is affordable by a mean of 3.5 and standard deviation of 0.95. Furthermore, it has showed that the university has a network with enough connectivity which links the users to the eLearning platform by a mean of 3.3 and standard deviation of 1.12. Lastly, table 4 showed that there is enough connectivity network at users' homes with a mean of 3.8 and standard deviation of 1.09. The overall mean of 3.6 implies that ELearning system is general affordable in UNILAK.

Perception of Respondents on User Guidelines

User guidelines is also one of the sub variables of eLearning adoption, it was evaluated using mean and standard deviation to find out the perception of respondents whether user guidelines play a significant role in eLearning adoption.

Table 5
Perceptions of Respondents on User Guidelines

User Guidelines	Mean	Std. Deviation
Having eLearning system with built-in facility	3.56	0.97
Importance of eLearning user guidelines to users	3.77	0.95
Ease availability of eLearning guidelines	3.71	0.94
Having eLearning support whenever it is needed	3.85	0.97
Overall	3.72	

Source: Primary data 2022

Having eLearning system with built-in facility, importance of eLearning user guidelines to users, ease availability of eLearning guidelines and having eLearning support whenever it is needed are all tending to strong with a mean ranging from 3.56 to 3.85. But this tendency to strong is heterogeneously perceived by respondents as it is indicated by their standard deviation which are greater than 0.5. Thus, respondents have different perceptions around that mean.

Perceptions of Respondents on Learning Outcomes

Learning Outcomes is one of the sub variables of HLI performance and it was evaluated using mean and standard deviation to find out the perception of respondents whether learning outcomes play a significant role in the HLI performance.

Table 6
Perceptions of Respondents on Learning Outcomes

Learning Outcomes	Mean	Std. Deviation
Regular academic performance of learners	4	0
Achievement of cognitive knowledge through eLearning.	3.96	0.37
Improved quality of work through eLearning method	4.04	0.21
Achievement of expected communication skills via eLearning	4	0.3
Overall	4	

Source: Primary data, 2022

Regular academic performance of learners, improved quality of work through eLearning method and Achievement of expected communication skills via eLearning were all strongly perceived by respondents while Achievement of cognitive knowledge through eLearning tends to be strong. But perception of respondents are scattered far away from their means. Thus, respondents have different perceptions around these means.

Test of Hypothesis

The objective of this study was to assess the effect of eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) on learning outcomes in selected private HLI in Rwanda.. Researchers assume that “There is no significant effect of eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) on learning outcomes in HLI in Rwanda.

Table7:
Model Summary Between eLearning adoption on learning outcomes in HLI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.945 ^a	.893	.858	.29208

a. Predictors: (Constant), User Guidelines, ICT Infrastructure, Content, eLearning Affordability, Accessibility

Source: Primary data, 2022

From the results of the analysis in table 7, the results showed that eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) contributed to 85.8% of the variation in eLearning outcomes as it is explained by adjusted R² of 0.858. It shows that the model is a good predictor, while 14.2% of eLearning outcomes come from other variables that are not included in the model.

Table 8:
ANOVA between eLearning Adoption and Learning Outcomes

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.720	5	2.144	25.133	.000 ^b
Residual	1.289	15	.085		
Total	12.000	20			

a. Dependents Variables: Learning Outcomes

b. *Predictors: (Constant), User Guidelines, ICT Infrastructure, Content, eLearning Affordability, Accessibility.*

Source: Primary data 2022

The results from the ANOVA indicated that jointly eLearning adoption variables have positive and significant effect on the learning outcomes. This is indicated by F-test= 25.133 which is positive and p-value of 0.000 which is less than 5%.

Table 8 above presents that the level of significance was 0.000 which implies that the regression model was good in predicting the relationship between eLearning adoption and learning outcomes. F-statistics is 25.133 meaning that the model was statistically significant.

Therefore, based on this, we cannot accept H_0 1 which says that “saying that there is no significant effect of eLearning adoption (ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines) on learning outcomes in HLI was rejected at all level of significance.

Table 9:
Coefficients between ELearning Adoption and Learning Outcomes

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	15.219	2.119		7.181	.000
ICT Infrastructure	.116	.044	.266	2.644	.018
Accessibility	.016	.057	.035	.287	.778
Content	.169	.047	.357	3.548	.003
eLearning Affordability	-.207	.048	-.524	-4.277	.001
User Guidelines	-.003	.079	-.005	-.042	.967

a. *Dependent Variable: Learning_Outcomes*
Source: Primary data, 2022

From the results of table 3, the model 1 is represented as follows:

$$LO = \beta_0 + \beta_1 IcI + \beta_2 IA + \beta_3 Co + \beta_4 eAf + \beta_5 UG + \mu \quad \text{Model 1}$$

$$\text{Learning Outcomes} = 15.219 + .266 IcI + .035 IA + .357 Co + -.524 eAf + -.005 UG + 2.119$$

The dependent variable is Learning Outcomes and the explanatory variables are ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines at significant at 5%.

The results in table 9 show that coefficients of ICT infrastructure, internet accessibility, content, eLearning affordability, user guidelines affect positively learning outcomes. The regression coefficients from table 9 indicate that by considering all factors ICT infrastructure, internet accessibility, content, eLearning affordability and user guidelines constant at zero learning outcomes will be 15.219, which means that learning outcome is influenced by eLearning adoption.

Table 9 indicates that at a significant level of 5%, the ICT infrastructure has positive and significant effect on learning outcomes ($\beta_1 = .266$; $t = 2.644$, sig. = .018). This indicates a change of 1 unit in ICT infrastructure causes a change of 0.266 units in learning outcomes.

Results of table 3 indicate also that internet accessibility, does not statistically affect learning outcomes ($\beta_2 = .035$; $t = 0.287$, sig. = .778). The findings also show that at 5% significant content has positive and significant effect on learning outcomes in UNILAK ($\beta_3 = .357$; $t = 3.548$, sig. = .003). This indicates a change of 1 unit in content leads to .357 unit change in learning outcomes.

The results in table 9 indicate that eLearning affordability is with a negative but significant effect on learning outcomes at 5% level of significance at UNILAK ($\beta_4 = -.524$; $t = -4.277$, sig. = .001). It indicates that a change of 1 unit in eLearning affordability provides change of .524 in learning outcomes.

The findings in table 3 indicate that user guidelines does not, statistically, affect learning outcomes all level of significance ($\beta_5 = -.005$; $t = -.042$, sig. = .976).

The above interpretation from table 3 goes in accordance with Abooki and Kirigha from Kenya, in their study on eLearning strategies adopted at the university and the results showed that eLearning positively impacted students' academic performance, and therefore we reject the null hypothesis one (Abooki & Kirigha, 2014).

Conclusion and Recommendations

The study concluded that eLearning adoption variables are predictors of learning outcomes. It recommends to future study to be conducted to determine the factors that influence 14.2% of eLearning outcomes since this rate was from other variables that are not included in this study. Researchers recommend also to other researchers to conduct the same study where questions of learning outcomes will be answered by students. This was a quantitative study. Researcher recommend to other researchers to conduct the same study, but qualitatively.

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Internal Control and Return on Asset of Saving and Credit Cooperatives in Rwanda: Evidence from Selected Saccos in Kayonza District

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Abstract

The study assessed internal control and return on assets of savings and credit cooperatives (SACCOS) in Rwanda with evidence from selected SACCOS of Kayonza District. Umurenge SACCO particularly in Kayonza district is facing the issues of poor financial performance. The broad objective of this study was to assess the effect of internal control on financial performance of saving and credit cooperatives in Rwanda. The researchers assume that there is no significant effect of internal control on financial performance of saving and credit cooperatives in Rwanda. This study used descriptive survey research design. The total population of the study is 64 employees from 12 UMURENGE SACCOS in Kayonza. These are accountants and managers of UMURENGE SACCOS in Kayonza district. The researcher used universal sampling techniques and give questionnaire to 64 respondents. The researcher used universal sampling techniques and give questionnaire to 64 respondents, but 30 respondents returned the questionnaire. Data were processed into Mean and standard deviation in assessing levels of perception of respondents on indicators of independent variable (preventive control, detective control and corrective control) and dependent variable (return on assets). Multiple linear regression was used to assess the significance effect of internal control on financial performance of saving and credit cooperatives. The financial data analysed indicated that their return on assets are still below the required standard of 15% and 20% performance in period of 2019-2021 and data also shows financial loss. The statistical results revealed that the adjusted coefficient of determination (Adjusted R square) was 0.615. This implies that the predictors of internal control affect 61.5% on the financial performance of saving and credit cooperatives in Rwanda, while .385 representing 38.5% of financial performance of saving and credit cooperatives in Rwanda comes from other variables that are not included in the model.

Key Words: *internal control and financial performance, saving and credit cooperatives*

Introduction

Internal control is the whole system of controls, financial and otherwise, established by the management, in order to carry on the business of the enterprise in an orderly and efficient manner ensure adherence to management policy, safeguard the assets and secure as far possible, the completeness and accuracy of its record. Effectiveness of internal control on financial performance should be considered most important in every microfinance institution because the task of internal controls is to prevent and detect fraud in the firm. Internal controls are put in place to ensure safe custody of all assets; to avoid misuse or misappropriation of the firm's assets and to detect and safeguard against probable frauds. The findings of the Treba (2015) in the United States (USA) confirmed that the absence of internal controls or the presence of weak internal controls is the primary cause of many cases of fraudulent company financial reporting. The widespread global corporate accounting scandals in recent years inform this study. Notable cases include Enron and WorldCom in the USA, Parmalat in Europe and Chuo Aoyama in Asia.

In Nigeria, the managing director and chief financial officer of Cadbury Nigeria were dismissed in 2016 for inflating the profits of the SACCO for some years before the company's foreign partner acquired controlling interest. These scandals emphasize the need to evaluate, scrutinize, and formulate systems of checks and balances to guide corporate executives in decision-making. These executives are legally and morally obliged to produce honest, reliable, accurate and informative corporate financial

performance periodically (Hayes, 2015). Preparing reliable financial information is a key responsibility of the management of every public company. The ability to effectively manage the institution's business requires access to timely and accurate information. Moreover, investors must be able to place confidence in SACCO's financial performance if the institution wants to raise capital in the public securities markets (Reid & Ashelby, 2014).

The National Bank of Rwanda is mandated to regulate and supervise Microfinance institutions. Microfinance institutions include Savings and Credit Cooperatives (SACCOs) and some limited companies that operate microfinance activities. The supervision is conducted through three main activities: licensing of MFIs, off-site surveillance and on-site inspection of MFIs thus licensed. The activity of supervising Microfinance Institutions (MFIs) by the National Bank of Rwanda is based on the Law n° 55/2007 of 30/11/2007 governing the Central Bank of Rwanda, the Law n° 40/2008 of 26/08/2008 establishing the organization of microfinance activities and its implementing Regulation n°02/2009 of 27/05/2009 (BNR, 2018).

Statement of the Problem

RCA (2020), report that Umurenge SACCO in Kayonza district facing the issues of poor financial performance raised by non-performing loans and these had a deteriorating trend in the health of its loan portfolio. This non-performing loan brings a decrease on the institution's financial performance. The financial data indicated that their return on assets are still below the required standard of 15% and 20% performance in period of 2019-2021 and data also shows financial loss for instance, Gahini SACCO in 2019 and in 2020. The data also shows that the ROE was fluctuated and diminished from 2019-2021. Therefore, all the above cited events or situations have necessitated the researcher to investigate the effect of internal control on financial performance of saving and credit cooperatives in Rwanda.

Objective of the Study

This study has answered to the following research question: To what extent to which internal control (preventive control, detective control, and corrective control) affect financial performance of selected SACCO in Kayonza district? The objective of this study was to assess the effect of internal control (preventive control, detective control, and corrective control) on financial performance of selected SACCO in Kayonza district. This study has tested the following null hypothesis: H₀1: There is no significant effect of internal control (preventive control, detective control, and corrective control) on financial performance of selected SACCO in Kayonza district.

Literature review

This study has reviewed relevant empirics that support that internal control and its effect on financial performance of saving and credit cooperatives. Ndamenu (2011) carried out a research on internal control and its contributions to organizational efficiency and effectiveness: A case study of Ecobank Ghana Limited. The findings confirmed the assertion of the Treadway commission of the committee of sponsoring organizations (COSO), that it is management responsibility to set up the internal control components and that the internal auditor's effect is to evaluate the effectiveness or otherwise of the system. The study concluded that the effectiveness and efficiency of the internal controls rest on the internal audit unit, and need to be institutionalized in any organization and within its branches.

Ayagre, Appiah-Gyamereh, and Joseph (2014) researched the effectiveness of internal control components of banks: The case of Ghanaian banks. This study evaluated the control environment and monitoring activities components of internal control system of Ghanaian Banks using COSO's principles and attributes of assessing the effectiveness of internal control system. The study found out that, strong controls exist in the control environment and monitoring activities components of the internal control components of banks in Ghana. The study recommended that boards of banks in Ghana should not be complacent about the findings but should work hard to ensure continuous ongoing and separate internal control monitoring to ascertain that controls really exist and are functioning properly.

Hayali (2012) studied the importance of internal control system in the banking sector: Evidence from Turkey. In this study, the importance of internal control system was expressed, also its impacts to the banking system analyzed. The research showed that the internal control activities of the banks are adapted to the international standards in Turkey and effective control procedures existed in the banking system. In addition, efficient internal control mechanisms have great impact on the strong and stable outlook of Turkish banking sector. Kamau (2014) showed a research on special effects of internal control on financial performance in an organization. In his research he examined and was sought to find the connection among internal controls and financial performance in an organization of Uganda. Internal controls were looked at from the perspective of control environment, internal audit and control activities whereas financial performance focused on net profit margin, return on equity and reporting as the measures of financial performance. The Researcher set out to establish the causes of persistent poor financial performance from the perspective of internal controls. The study established a significant relationship between internal control and financial performance.

Uwingabiye (2019) states her research was about the study assessed the internal control and financial performance in public institution in Rwanda. The general objective of the study was to find out whether internal control plays any effect in financial performance in public institution. The study used both primary and secondary data. Statistical Package for Social Sciences (SPSS) was used to analyse data. The study used descriptive research; the target population of respondent was employees in institution studied whereas the sample size was 30 employees. The findings discovered that there are effect of control environment on the financial performance of public institution, from regression analysis, a unit increase in control environment could result to increase in financial performance by 0.482. Risk assessment was found to have a positive significant effect on the financial performance of public institution. From regression analysis, a unit increase could result to increase in risk assessment in financial performance by 0.001.

This study tested the stewardship theory and the study was based on the stewardship theory and was developed by Donaldson and Davis (1993) and this theory takes managers as collectivists, dependable, pro-organizational, with behaviors which are associated with the interests of the principal. The theory indicates that managers will act in the organization's best interest even if there are no controls in place. Managers are seen as good care takers who attentively work to enable the organization achieve higher profits and share holder's value. However, this theory ignores the fact that, sometimes managers have diverging interests from those of the organizations they manage and are likely to work towards their interests at the of their organizations. According to Rita (2016), it is also important to provide alternative theories that may try to challenge the chosen theory by taking into account the limitations of the chosen theory. In the alternative theory, managers are seen as agents and are willing to work in the best interest of the principal.

Methodology

This study adopted descriptive survey design. The total population of the study is 64 employees from 12 UMURENGE SACCOs in Kayonza. These are accountants and managers of UMURENGE SACCOs in Kayonza district. The researcher used universal sampling techniques and give questionnaire to 64 respondents,. The researcher used universal sampling techniques and give questionnaire to 64 respondents, but 30 respondents returned the questionnaire. Data were processed into Mean and standard deviation in assessing levels of perception of respondents on indicators of independent variable (preventive control, detective control and corrective control) and dependent variable (return on assets). Multiple linear regression was used to assess the significance effect of internal control on financial performance of saving and credit cooperatives.

An item with a mean between 1 to 1.99; 2 to 2.99; 3 to 3 to 3.99 and 4 to 5 were considered as very weak; week; strong and very respectively. A standard deviation with a value less than 0.5 showed same perception of respondents around the mean (homogeneity). Whereas a standard deviation with a value greater than 0.5 showed different perception of respondents around the mean (heterogeneity). The model specifications of multiple linear regression was as follows:

Model specification

X = Independent Variable

Y = Dependent variable

$Y = f(x)$

Where

X = (X₁= Preventive control (PVC), X₂= Detective control (DTC), Corrective control (CRC), while the Y= (y₁= return on assets (ROA)).

ROA =f (PVC, DTC, CRC)

Therefore, based on the specification of variables, the following models have been specified in relationship with the research hypotheses and used to test hypotheses based on primary data:

ROA= $\beta_0 + \beta_1 \text{ PVC} + \beta_2 \text{ DTC} + \beta_3 \text{ CRC} + \varepsilon$ Model

Where β_0 is the intercept for each model (1-3), $\beta_1 - \beta_3$ are coefficients of explanatory variables, using primary data and ε = error term.

Findings and Discussion

Perceptions of Respondents on Preventive Control

Table 1 displays the evaluation of the perceptions of the respondents on preventive control as key factor of internal control in SACCO Umucyo Rukara, Gahini SACCO, Twifatanye SACCO Rwinkwavu, Kabarondo SACCO, and Ruramira SACCO.

Table 1.
Perception of Respondent on Preventive Control

Statements	Mean	SD
This SACCO separate well incompatible duties in order to prevent fraud and errors.	4.70	0.47

Actions and transactions of this SACCO get regularly approval from different officials in order to be done.	3.97	0.67
Access control such as computer passwords are regularly set and well known by accountable staff.	4.73	0.45
Finance and Accountants staff have regularly individual passwords for their individual electronic work.	3.70	0.60
Locks on doors, safe for cash/checks and other physical controls over assets are well set, where it is necessary.	4.67	0.55
This SACCOs has regularly adequate documentation in order to prevent fraud and errors.	4.43	0.86
This SACCO checks and balances built-in to avoid or minimize entering incorrect information.	4.10	0.61
This SACCO makes proactive controls that help to prevent losses.	4.37	0.76
Overall Mean	4.33	

Source: primary data (2022)

From Table 1, the results indicate that respondents strongly agreed with similar perceptions that this SACCO separate well incompatible duties in order to prevent fraud and errors (Mean=4.70, SD=0.47), the respondents tend to strongly agreed with different perceptions that actions and transactions of this SACCO get regularly approval from different officials in order to be done (Mean=3.97, SD=0.67), respondents strongly agreed with similar perceptions that access control such as computer passwords are regularly set and well known by accountable staff (Mean=4.73, SD= 0.45).

The respondents also agreed that Finance and Accountants staff have regularly individual passwords for their individual electronic work (3.70, SD=0.60), respondents strongly agreed with dissimilar perceptions locks on doors, safe for cash/checks and other physical controls over assets are well set, where it is necessary (Mean 4.67, SD=0.55), this SACCOs has regularly adequate documentation in order to prevent fraud and errors (Mean=4.43, SD=0.86). The results also show that this SACCO checks and balances built-in to avoid or minimize entering incorrect information (Mean= 4.10, SD=0.61). This SACCO makes proactive controls that help to prevent losses (Mean= 4.37, SD=0.76).

In general, all statements assessed on preventive control was scored with the aggregate mean of 4.33, this implies that SACCO Umucyo Rukara, Gahini SACCO, Twifatanye SACCO Rwinkwavu, Kabarondo SACCO, and Ruramira SACCO perform preventive control.

Perceptions of the Respondents on Detective Control

In this study, the respondents were asked to give their opinion on detective control in SACCO Umucyo Rukara, Gahini SACCO, Twifatanye SACCO Rwinkwavu, Kabarondo SACCO, and Ruramira SACCO.

Table 2.

Perceptions of Respondents on Detective Control

Statements	Mean	SD
This SACCO identifies undesirable occurrences after the fact.	4.20	.61
This SACCO makes regularly and well monthly bank reconciliation in order to detect fraud and errors.	4.66	.47
There is a regular review of SACCO performance (such as a budget-to-actual comparison) in order to detect any unexpected differences.	4.70	.53

Physical inventories (such as a cash or inventory count) are regularly done in order to detect errors and fraud.	4.10	.92
Regular supervisory review of account activity, reports, and reconciliations are well performed in order to detect errors or fraud.	4.47	.50
This SACCO uses different strategy to find errors or problems after the transaction has occurred.	4.33	.48
This SACCO identifies missing assets.	4.53	.57
This SACCO has regularly, a well internal audit work.	2.33	1.18
Overall Mean	4.17	

Source: primary data (2022)

From Table 2 above, the results indicate that respondents strongly agreed with different perceptions that this SACCO identifies undesirable occurrences after the fact (Mean=4.20, SD=0.66), the respondents tend to strongly agreed with common perceptions that this SACCO makes regularly and well monthly bank reconciliation in order to detect fraud and errors (Mean=4.66, SD=0.47), respondents strongly agreed with different answers that there is a regular review of SACCO performance (such as a budget-to-actual comparison) in order to detect any unexpected differences (Mean=4.70, SD= 0.53).

The respondents also agreed that physical inventories (such as a cash or inventory count) is regularly done in order to detect errors and fraud (4.10, SD=0.92), respondents strongly agreed with dissimilar perceptions regular supervisory review of account activity, reports, and reconciliations are well performed in order to detect errors or fraud (Mean 4.47, SD=0.50), this SACCO uses different strategy to find errors or problems after the transaction has occurred (Mean=4.33, SD=0.48). This SACCO identifies missing assets (Mean= 4.53, SD=0.57). This SACCO makes proactive controls that help to prevent losses (Mean= 4.37, SD=0.76). However, the results indicate that respondents disagreed that this SACCO has regularly, a well internal audit work (Mean=2.33, SD=1.18).

In general, all statements assessed on detective control was scored with the aggregate mean of 4.17, this implies that SACCO Umucyo Rukara, Gahini SACCO, Twifatanye SACCO Rwinkwavu, Kabarondo SACCO, and Ruramira SACCO perform detective control.

Perceptions of Respondents on Corrective Control

This section concerns the evaluation of the perceptions of respondents on corrective control. Referring to table 11, it contains the results on corrective control as follow.

Table 3.
Perceptions of Respondents on Corrective Control

Statements	Mean	SD
This SACCO has “quality improvement team” composed by competent people that can address ongoing problems and correct the processes.	2.63	1.07
This SACCO physically tracks assets to reveal well-hidden discrepancies in order address ongoing problems and correct the processes.	4.30	0.65
This SACCO regularly teaches employee to make corrections of irregularities of financial statements.	4.57	0.50
This SACCO implement well audit recommendations.	4.70	0.47
Overall Mean	4.05	

Source: primary data (2022)

From Table 3, the results indicate that respondents disagreed this SACCO has “quality improvement team” composed by competent people that can address ongoing problems and correct the processes (Mean=2.63, SD=1.07) but they were strongly agreed that this SACCO physically tracks assets to reveal well-hidden discrepancies in order address ongoing problems and correct the processes (Mean=4.30, SD=.65). The results also indicate that this SACCO regularly teaches employee to make corrections of irregularities of financial statements (Mean=4.57, SD=.50).

At the same time, results indicate that respondents strongly agreed with similar opinions that this SACCO implement well audit recommendations (Mean=4.70, SD=0.47). Generally, all items assessed on corrective control have scored the overall mean of 4.05, which in the overall indicates that the respondents strongly agreed that internal control perform in SACCO Umucyo Rukara, Gahini SACCO, Twifatanye SACCO Rwinkwavu, Kabarondo SACCO, and Ruramira SACCO did corrective control.

Perceptions of Respondents on return on assets

The respondents were asked to give their views on return on assets and the results are given in the table 4.

Table 4:
Perception of Respondents on return on assets

Statements	Mean	SD
The SACCO’s ROA has been increasing steadily for the past three years.	2.63	0.66
The asset base of the SACCO has been increasing steadily for the past three years.	3.93	0.69
This SACCO generates returns from its assets without being affected by management financing decision.	4.6	0.49
Overall Mean	3.72	

Source: Primary Data (2022)

Table 4 indicates the respondents disagreed that the SACCO’s ROA has been increasing steadily for the past three years and was scored at (M=2.63; SD=0.66) meaning that respondents share different opinions on this statement. For the following statement, shows that the respondents strongly agreed that the asset base of the SACCO has been increasing steadily for the past three years (M=3.93; SD=0.69) and this standard deviation implies that the respondents share dissimilar understandings on this statement.

For the following statement, shows that the respondents strongly agreed that this SACCO generates returns from its assets without being affected by management financing decision (M=4.60; SD=0.49) and this standard deviation implies that the respondents share similar understandings on this statement. In general, all statements assessed on return on assets were scored of aggregate mean of 3.72 indicating that the respondents appreciate the ROA of SACCO.

Test of Hypothesis

H₀1: There is no significant effect of internal control (preventive control, detective control, corrective control) on financial performance of saving and credit cooperatives in Rwanda.

Table 5.
Model Summary Between Internal Control and Financial Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.800 ^a	.640	.615	.30732

a. Predictors: (Constant), preventive control, detective control, and corrective control

The results from table 1 show that the adjusted coefficient of determination (Adjusted R square) was 0.615. This implies that the predictors of internal control affect 61.5% on the financial performance of saving and credit cooperatives in Rwanda, while .385 representing 38.5% of financial performance of saving and credit cooperatives in Rwanda comes from other variables that are not included in the model.

Table 6.
ANOVA^a Between Internal Control and Financial Performance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14.276	3	2.379	25.193	.000 ^b
Residual	8.028	26	.094		
Total	22.304	29			

a. Dependent Variable: financial performance

b. Predictors: (Constant), preventive control, detective control, and corrective control

The F-test is 25.193 and is significant at .000 therefore it means that all internal control variables jointly have positive and significant effect on financial performance of saving and credit cooperatives in Rwanda at 5% of significance level. Therefore we rejected H_0 .

Table 7.
Coefficients^a Between Internal Control and Financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
5 (Constant)	1.021	.922		1.022	.000
Preventive control	1.012	.034	.028	1.350	.007
Detective control	.495	.041	.793	12.062	.000
Corrective control	.054	.089	.083	.610	.005

a. Dependent Variable: financial performance

The results from table 7 indicate that preventive control has positive and significant effect on financial performance of saving and credit cooperatives in Rwanda ($\beta_1 = .028$; $t = 1.350$, sig. = .007). This indicates that 1 unit change in preventive control increase to 0.028 unit change in financial performance of saving and credit cooperatives in Rwanda.

From the Table 3 the researcher found that detective control has positive and significant effect on financial performance of saving and credit cooperatives in Rwanda ($\beta_2=.793$; $t= 12.062$, sig. = .000). The table 3 indicate that corrective control has positive and significant effect on financial performance of saving and credit cooperatives in Rwanda ($\beta_3=.083$; $t= .610$, sig. = .005). This indicates that 1 unit change in corrective control decrease to .083 unit change in financial performance of saving and credit cooperatives in Rwanda. Based on these results, the model is represented as follows:

$$FP= \beta_0+\beta_1 PVC +\beta_2 DTC + \beta_3 CRC + \varepsilon \text{ Model 1}$$

$$FP=1.021+.028PVC +.793 DTC +.083CRC + .922$$

Conclusions and recommendations

The study sought in which way internal control (preventive control, detective control, and corrective control) significantly affect financial performance of selected SACCO in Kayonza district. Therefore, it can be concluded that internal control (preventive control, detective control, and corrective control) significantly to a great extent affect financial performance of selected SACCO in Kayonza district. The study revealed that 38.5% of financial performance of saving and credit cooperatives in Rwanda comes from other variables that are not included in the internal control (preventive control, detective control, and corrective control), therefore the researcher recommends future researchers to study others variables of internal control not included in the variables of this study so as to further showing the relationship between internal control and financial performance in SACCO.

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Management Functions and Agri-Business Cooperative Profitability in Rwanda: Case Studies: Selected Agriculture Cooperatives of Kamonyi District

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Abstract

This study assessed the management functions and Agri-Business Cooperative Performance in Rwanda. Case studies were Selected Agriculture Cooperatives of Kamonyi District. The issue was that many cooperatives in Rwanda struggle to stay operational. It was assumed that indicators of management functions jointly (planning, organizing, coordinating and directing and controlling) do not affect significantly either increase of profitability. The study was conducted quantitatively. It used descriptive survey research design. Population of the study were all members (2856 members) of selected cooperatives (COARIFIKA, Impabaruta and Indatwa). The study used probabilistic method with simple random sampling technics, in selecting reliable sample to answer the questionnaire. The researcher retrieved 309 questionnaire. Data was processed through mean and standard deviations that was used in assessing the level of management functions and cooperative performance. Hypothesis were tested by using multiple linear regression. Findings shows show different critical performances of cooperative managers such as poor stimulation of cooperative members to higher levels of work and better quality of work. Based on the F-test which is 38.575 and significant at .000, management functions indicators jointly have positive and significant effect on increase of profitability. Therefore, there is a significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on Increase of Profitability.

Key Words: *management function, cooperative performance*

Introduction

In today's turbulent business environment, uncertainty and the inability to predict the future makes it extremely challenging and requires the development of new competencies. International Cooperatives Alliance (2005) defines a cooperative as "a voluntary association of people united voluntarily to meet economic, social, and cultural needs and aspirations through jointly-owned and democratically-controlled enterprises". A cooperative is a business that is owned and controlled by the people who use it and whose benefits are shared by them (USDA, 2002).

Management function helps to direct an organization's resources for improved efficiency and the achievement of goals. Effective leaders provide clarity of purpose, motivate and guide the organization to realize its mission. Management an important driving force in any organization (Dimitrios, Sakas, & Vlachos, 2013) because it acts as a positive contributor to their success. The field of management studies has a tendency of concentrating on the traits of specific leaders rather than the collective management of the entire organization. However, a number of modern-day models have led to the development of management competencies, including strategic management, transformational management, authentic management, and servant management. Yukl (2013) states that these models explain the extent to which leaders can influence their followers through various principles of effective management. The history of cooperatives was started during the industrial revolution and this paved the way for the expansion of cooperatives societies in the world.

In East Africa, business cooperatives, Government use of co-operatives as vehicles of development can sabotage efforts by cooperative organizers. In Rwanda, Tanzania, and Uganda, as in much of Africa, historical examples of declining co-operative success were, in part, tied to governmental control, where the goals of co-operatives reflected the social, economic, or political agendas of the government as opposed to member-specific needs. Prior to global economic reform in the 1990s, co-operatives largely functioned as semipublic and bureaucratic enterprises (Allen, 2013).

The recognition of cooperatives as crucial means for poverty alleviation and, therefore, African development has been widely acknowledged. It is for this reason that cooperatives have been promoted in virtually all African countries since the colonial period. This has witnessed a significant growth of the cooperative movement (Raewf, 2021).

The late 19th and early 20th centuries were also the time when basic education spread, thus facilitating the spread of ideas, accounting skills and other prerequisites for formal organization. Despite the fact that the activities of early cooperative associations often were complicated by narrow legal restrictions, adversely affecting member recruitment (Mukarugwiza, 2010)

In Rwanda, the economy is based on agriculture which contributes 45 per cent of the country's export revenue, and over 70 per cent of the population is engaged in the agricultural production GoR, (2010). Modern agriculture emphasizes two dimensions of time and space. Time relates to increasing crop intensification in a situation where there are no constraints for inputs while space relates to increase in area for cultivation which also increases productivity (Panda 2010: 6). According to EICV3, 84.9 % of Gatsibo population both men and women basically depend on agriculture whom, at least 80% use traditional agriculture practices and constrained by inaccessibility of credit to small scale farmers, weak agricultural value chains and thus limit the production and value addition potentialities of crops and livestock products yet the majority of farmers are grouped in various agricultural cooperatives (NISR, 2012).

Statement of the Problem

With a membership of over three million people, Rwanda's cooperative movement is a strong vehicle for development and economic empowerment especially among the disadvantaged groups like women, youth and PWDs. However, many cooperatives struggle to stay operational given the above challenges, according to Dr Augustin Katarwa, the chairperson of the National Cooperative Confederation Rwanda (NCCR). Katarwa said these challenges require urgent interventions to ensure that "coops are run professionally". "In addition, those who head cooperatives should be honest, and promote good governance and accountability practices that ensure transparency and good management," he said (Times, 2018).

According to new times (2018) .A number of farmer agri-business cooperatives in Rwanda are facing huge challenges including mismanagement and other governance issues such as fraud and misuse of property, as well as a lack of sustainable markets and the ability to operate efficiently. Rwanda has experienced a large number of cooperative failures in rural areas. Many farmer cooperatives in Rwanda face huge challenges including mismanagement and other governance issues like fraud and misuse of property as well as lack of sustainable markets and capacity to operate efficiently, Rwanda has experienced a large number of cooperatives failures in rural areas .In addition, some of the members side-sell produce, affecting the performance and cash flow of the cooperatives in the country (New Times, 2018). This study seeks to investigate the effect of Management Functions on Cooperatives performance in Rwanda with case study of COARIFIKA, Impabaruta and Indatwa located in Kamonyi District.

Objectives and hypothesis of the Study

The main objective of the study is to analyze the effect of management functions on cooperative Performance in Rwanda. Specifically the objective is to examine effect of management functions ((planning, organizing, co-coordinating and directing and controlling) on profitability in Rwanda agri-business cooperatives. The researcher assumes that there is no significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on increase of profitability in Rwanda agri business coope.

Literature Review

Management is an important driving force in any organization because it acts as a positive contributor to their success. The field of management studies has a tendency of concentrating on the traits of specific leaders rather than the collective management of the entire organization. However, a number of modern-day models have led to the development of management competencies, including strategic management, transformational management, authentic management, and servant management (Dimitrios, 2013).

Planning

A leader is expected to perform creative function of laying out plan and policies to persuade the subordinates to work with zeal and confidence (Creswell, 2017). Planning help agriculture management to have path and monitor for reaching goals good planning depends upon a strategy, and creative strategy formulation requires integration and synthesis. Learning how to think out of the box and envisioning possibilities that do not currently exist is perhaps the most important element of a center's planning process. Planning involves gathering information external and internal to the organization. Information relevant to soft planning may include facts, data, opinion, beliefs, and myth. It may encompass technical or market trends, outcomes, competitive intelligence, or political events. It provides the intellectual grist that undergirds other planning activities (AgriTV, 2014).

Planning helps an organization chart a course for the achievement of its goals. The process begins with reviewing the current operations of the organization and identifying what needs to be improved operationally in the upcoming year. From there, planning involves envisioning the results the organization wants to achieve, and determining the steps necessary to arrive at the intended destination success, whether that is measured in financial terms, or goals that include being the highest-rated organization in customer satisfaction (Barton, 2019).

Organizing

The second function of a leader is to create and shape the organization on scientific lines by assigning roles appropriate to individual abilities with the view to make its various components to operate sensitively towards the achievement of enterprise goals (Garnevska, 2011).

Globally, cooperatives have organized themselves in one of three types of membership structures: centralized, federated, and a combination of centralized and federated. There is no right or wrong structure. A centralized structure is one in which members are individuals. This model works well when members are in close geographical proximity to the cooperative, and has the advantage of communication about the cooperative's purpose and ability to operate as a

true democratic form of governance system. Directors are elected from the membership based on geographical districts or chosen at large. Some wholesaling cooperatives have centralized their structure entirely by merging some or all individual cooperative members into one cooperative. In federated cooperatives, each member is a cooperative. Directors are chosen from among the members of the cooperative, can include managers, farmers, or consumers, and often reflect proportional voting based on business volume (Boland, 2021).

Co-ordination

Coordination is the function management which ensures that different departments and groups work in sync. Therefore, there is unity of action among the employees, groups, and departments. It also brings harmony in carrying out the different tasks and activities to achieve the organization's objectives efficiently. Coordination is an important aspect of any group effort. When an individual is working, there is no need for coordination. Therefore, we can say that the coordination function is an orderly arrangement of efforts providing unity of action in pursuance of a common goal. In an organization, all the departments must operate a part of a cohesive unit to optimize performance. Coordination implies synchronization of various efforts of different departments to reduce conflict. Multiple departments usually perform the work for which an organization exists. Therefore, synchronization between them is essential. Lacking coordination, departments might work in different directions or at different timings, creating chaos (Cook, 2015).

Directing and Controlling

It is the primary function of a leader to guide and direct his group and motivate people to do their best in the achievement of desired goals, he should build up confidence and zeal in the work group (Garnevska, 2011). Controlling involves ensuring that performance does not deviate from standards. Controlling consists of three steps, which include (1) establishing performance standards, (2) comparing actual performance against standards, and (3) taking corrective action when necessary. Performance standards are often stated in monetary terms such as revenue, costs, or profits but may also be stated in other terms, such as units produced, number of defective products, or levels of quality or customer service. The measurement of performance can be done in several ways, depending on the performance standards, including financial statements, sales reports, production results, customer satisfaction, and formal performance appraisals. Managers at all levels engage in the managerial function of controlling to some degree (Adams, 2017)

Increase of Profitability

The principle number one means that any one ready to comply with responsibilities and obligations of membership is welcome to join the cooperative without any form of discrimination (Arcas-Lario, 2014). Cooperatives are voluntary organizations, open to all people able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination (Njagi, 2014).

The relationship between management theory and practice could not have been better captured by Inyang (2008). He surmised that "Management theory, introduced by Peter Drucker

Management theories developed in the 1900s, aimed at encouraging interpersonal relationships in the workplace. One such theory that encouraged a collaborative environment is the human relations approach. According to this theory, business owners needed to give their employees more power in making decisions (Lawal, 2012).

Using his extensive experience as a consultant at the companies like IBM, General Motors, and Procter & Gamble, Drucker wrote 1954's *The Practice of Management*, where he presented a holistic approach to operating an organization and introduced a discipline of business management the first in business history. He believed that a successful manager needs to understand subjects like psychology, science, and religion, and be guided by ethical and moral principles. Drucker encouraged creative rather than bureaucratic management and insisted that managers should, above all else, be leaders. Rather than setting strict hours and discouraging innovation, he opted for a more flexible, collaborative approach. At the core of Drucker's management theory lie the concepts of decentralization, knowledge work (in fact, he coined the term "knowledge worker"), management by objectives (MBO), and the SMART goal method (Dimitrios, 2013). Management theory is very important because it helps existing management of cooperative for improving management and it works towards achievement of goals and reach the result expected, this is why this theory was selected to be linked with this research.

Methodology

This research used descriptive Survey Research design. Under this research design the procedure of quantitative information was gathered through questionnaires. Population of the study 2856 members of three cooperatives which are: Indatwa, COARIFIKA and Impabaruta of Kamonyi District. By using simple random sampling the researcher gave questionnaire to 339 (Coop members). The respondents were given questionnaire built on four-point scale ranging from 1 to 4 (strongly disagree, disagree, agree, and strongly agree). The distributed questionnaire gathered all information as per its content, with aim to find out whether there is any effect of management functions on cooperative performance. Adapted questionnaire in English and Kinyarwanda was distributed to the respondents for the achievement of the study objective. 309 members responded to the answered the questionnaire. Means 91% was retrieved. Data was collected within the first 2 weeks of September 2022.

After collecting all necessary data through questionnaires distributed to the respondents, the researchers treated all gathered data presented in the form of tables and figures. Descriptive statistics such as means and standard deviations were used to describe the level of perception of respondents of all independent variable indicators and indicator of dependent variable, while inferential Statistics will be used to test Hypotheses of this Study (multiple regression). An item which had a mean between 1.00 and 1.99 was considered as a weak mean. An item which had a mean between 2.00 to 2.99 was considered as a moderate mean. An item which had a mean between 3.00 to 4.00 was considered as a strong mean. A standard deviation less or equal to 0.5 indicated the same perception of respondents around the mean. While a standard deviation greater or equal to 0.5 indicated different perception of respondents around the mean.

$X = \text{Management Function (MF)}$

$X = f(X_1, X_2, X_3, X_4, X_5)$ where

X1= Planning (PNG)
 X2= Organizing (ORG)
 X3=Coordinating (CDT)
 X4= Directing (DIR)
 X5= Controlling (CON) determinate.

Multiple Regression model

and Y= Dependent variable

Y= Increase to (IP)

Y= f(X₁, X₂, X₃, X₄, X₅)

Y= Increase of Profitability (IP)

Based on these variables, the following functional relationship is developed to guide econometric models that will be used in testing the Hypotheses.

Y=f(X)

IP=f(PLG,ORG,CDT,DIR,CON)Function

Model Evaluation

There was test of multicollinearity, normality and test of auto correlation to see if the results are not biased before inference is made.

IP= β₀+ β₁PLG+ β₂ORG+ β₃CDT+ β₄DIR+ β₅CON+ μ Model

Perceptions of Respondents on Management Functions

This section presents the respondents perception on management functions within their cooperatives. The variable analyzed under this section are, planning, organizing, co-coordinating, directing and controlling. 309 respondents were respondents on each variable.

Perceptions of Respondents on Planning

Respondents were asked to indicate their perception on planning within their cooperatives and through responding questionnaires, findings below in the table 13, were presented as follow:

Table 1:

Perceptions of Respondents on Planning

Items Assessed	Mean	Stand. Dev (δ)
Capacity of managers to regularly analyze well the current situation of the cooperative.	2.94	0.54
Capacity of managers in anticipating the future.	2.89	0.76
Capacity of managers to is regularly to determine well the organizational objectives.	3.06	0.73
Capacity of managers to decide well necessary alternative strategies to be prioritized.	3.06	0.64
Overall mean of planning	2.99	

Source: Primary data (2022)

Respondents, took time to respond each question for this variable, 4 questions were responded. Each item was indicated mean and variance.

Findings shows that the capacity of Cooperative management to regularly analyze the current situation of the cooperative is perceived by respondents with a moderate mean (2.94) with heterogeneity of respondents around that mean (0.54). Capacity of managers in anticipating the future was moderately perceived by respondents with a mean of 2.89 but with different perception around that mean as is indicated by a standard deviation of 0.76. Capacity of managers to is regularly to determine well the organizational objectives and Capacity of managers to decide well necessary alternative strategies to be prioritized were both perceived by a strong mean of 3.06 by with heterogeneity of perceptions around that mean (0.73 and 0.64 respectively).

The overall mean for planning within agri-business cooperative results 2.99 which is moderate mean. This mean that this that planning within cooperatives is not performed well. The implication is that when there is no good planning, expected results cannot be reached also. Thus members of the cooperative will not experience good results from what they are doing.

Perceptions of Respondents on Organizing

Respondents were asked to indicate their respondents on organizing as second management function within their respective cooperatives. Table 14 present results from respondents on organizing.

Table 2: Perception of Respondents on Organizing

Items Assessed	Mean	Stand. Dev (δ)
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Having always organized activities.	2.83	0.79
Having managers and staff who knows well theirs task.	3.17	0.62
Having management staff that implement well his task.	2.99	0.41
Delegating well power and authority to staff according to their position.	3.06	0.73
Having article of association which is already written well and known by all cooperative members.	2.83	1.05
Implementing regularly and well article of association.	2.60	1.04
Preparing and submitting reports and communicate to the appropriate staff according to cooperative structure.	3.06	0.73
Overall mean of organizing	2.93	

Source: Primary data (2022)

Table 2 represent findings on organizing which is second management function. Respondents range each item compose this variable. Having always organized activities was perceived with a moderate mean 2.83 with different dispersion of perception of respondents around that mean as evidenced by a standard deviation of 0.79. Having management staff that implement well his task, is viewed by respondents as week (2.99) and this weakness is confirmed by a standard deviation (0.41) that shows homogeneity of perception of respondents around that mean.

Having article of association which is already written well and known by all cooperative members was also perceived with a moderate mean 2.83 with different dispersion of perception of respondents around that mean as evidenced by a standard deviation of 1.05. Implementing regularly and well article of association was also perceived with a moderate mean 2.60 with different dispersion of perception of respondents around that mean as evidenced by a standard deviation of 1.04. Therefore these are obviously weaknesses cooperative have, thus there is a need of taking an action.

Having managers and staff who knows well theirs task, delegating well power and authority to staff according to their position, preparing and submitting reports and communicate to the appropriate staff according to cooperative structure, are all strongly perceived by respondents (members of cooperatives) but this strength still it is little almost to fall into moderate perception (3,17; 306, 306 respectively). This strength is not also recognized by all members since standards deviation of all these three items show a different dispersion of perception of respondents around the mean (0.62; 0.73; 0.73 respectively)

The overall mean of organizing function result a moderate mean (2.93). This indicate or show the weakness in organizing of cooperative operations and planning. As recommendation, management for cooperatives should know that no performance or no production, no growth can be reached without organizing activities of a cooperative.

Perceptions of respondents on coordinating

Respondents were indicate their perception on how coordinating as management function implemented within their cooperatives. Table 14 summarizes findings from respondents.

Table 17: Perception for Respondent on coordinating

Items Assessed	Mean	Stand. Dev (δ)
Having cooperative leaders who are regularly good communicators.	3.02	0.81
Having cooperative leaders who are regularly approachable, friendly and good listener.	3.13	0.74
Collecting regularly and well ideas of members and use them for solving cooperative problems.	3	0.91
Setting well and monitoring the target of small groups of cooperative members by cooperative leaders.	2.65	0.77
Having cooperative members who are regularly and significantly involved in different activities of cooperative.	3.15	0.59
Overall mean of Coordinating	2.99	

Source: Primary data, 2022

Table 3 represent findings on coordinating, 5 items were responded by respondents where each item shows it mean and variance.

Setting well and monitoring the target of small groups of cooperative members by cooperative leaders is the only item that was moderately perceived by respondents (cooperative members) with a mean of 2.65 and standard deviation of 0.77 which means that all respondents have different dispersion around that mean. Other Items such as having cooperative leaders who are regularly good communicators, having cooperative leaders who are regularly approachable, friendly and good listener, collecting regularly and well ideas of members and use them for solving cooperative problems and having cooperative members who are regularly and significantly involved in different activities of cooperative were all strongly perceived by respondents with a mean between 3.00 and 3.15. This shows that the strength of those items is really little since they are almost near moderate perception. All standard deviations shows different dispersion of perceptions of respondents around all those means.

The overall mean is 2.99, which mean that there is weakness in coordination within cooperatives. Recommendation is that coordination is much needed because without coordination no performance will be happened, resource will not be oriented to reach production.

Perceptions of respondents on directing

Respondents indicate their perception on directing. 309 respondents were participated to respond on this management function questions. Table 15 present findings and it interpretation.

Table 4:

Perceptions of respondents on directing

Items Assessed	Mean	Stand. Dev (δ)
Having cooperative leaders that stimulate cooperative members to higher levels of work and better quality.	2.79	0.54
Having cooperative leaders who motivate enough all members of the cooperative to remain members and work hard.	3.14	0.70
Having managers of cooperative that clarify and synthesize various ideas in an effort to tie together the work of the members.	3.04	0.65
Having manager who orient well members towards achievement of cooperative goals.	3.05	0.58
Having cooperative managers that offers information, viewpoints and suggestions well about the cooperative problem or tasks to cooperative members.	2.95	0.91
Overall mean of Directing	2.99	

Source: Primary data, 2022

Table 4 present findings and it interpretation, each item for variable was responded by all 309 responded.

The items that assessed having cooperative leaders that stimulate cooperative members to higher levels of work and better quality and having cooperative managers that offers information, viewpoints and uggestions well about the cooperative problem or tasks to cooperative members were all viewed by respondents with a moderate mean (2.79 and 2.92 respectively) which means all these two element are not performed well by cooperative managers. But, their standard

deviation (0.54 and 0.91 respectively) shows a dispersion of perception or respondents around those means.

Having cooperative leaders who motivate enough all members of the cooperative to remain members and work hard, having managers of cooperative that clarify and synthesize various ideas in an effort to tie together the work of the members, having manager who orient well members towards achievement of cooperative goals well all strongly perceived by members of cooperatives. But this perceived strength is little since it is very near moderate perception (means are 3.14; 3.04; 3.05 respectively) and standard deviation confirms the different views of respondents around those mean (standard deviations are: 0.70; 0.65 and 0.58).

The overall mean results 2.99, interpreted as moderate mean. This indicate that respondents are not fully satisfied by the way cooperatives are directed. As recommendation cooperative management need to direct cooperative activities well enough.

Perceptions of respondents on controlling

Respondents indicate their perception on directing. 309 respondents were participated to respond on this management function questions. Table 16 present findings and it interpretations.

Table 5:

Perceptions of respondents on control

Items Assessed	Mean	Stand. Dev (δ)
Ability of cooperative managers in determining necessary area to be controlled.	2.95	0.76
Ability of cooperative managers of establishing guidelines for controls.	2.76	0.55
Measuring well level of performance during controls.	2.94	0.80
Recognizing well positive performances during controls	2.71	0.66
Taking well necessary corrective actions on where deviations are found	2.77	0.65
Adjusting well standards or measures of performance when it is necessary.	2.59	0.60
Overall Mean of Controlling	2.79	

Source: Primary data, 2022

All items assed under controlling (Ability of cooperative managers in determining necessary area to be controlled, ability of cooperative managers of establishing guidelines for controls, measuring well level of performance during controls, recognizing well positive

performances during controls, taking well necessary corrective actions on where deviations are found and Adjusting well standards or measures of performance when it is necessary) were all moderately perceived by all respondents with a mean ranging from 2.59 to 2.95. This means that cooperatives have no enough controls though standard deviation of every item assessed shows different dispersion of perceptions around those means. The overall mean of controlling is 2.79. This, is supposed to be a daily exercise which could help in monitoring how all planned activities are implemented.

Perceptions of respondents on increase of profitability

This variable was analyzed by 339 respondents where each question was indicated its mean and variance. Table 6 summarized findings and interpretation of increase of profitability.

Table 6:

Perceptions of respondents on increase profitability

Items Assessed	Mean	Stand. Dev (δ)
Keeping sells increase.	3.30	0.67
Number of cooperative members keeps increasing.	2.83	0.86
Amount of expenses versus sells keeps decreasing.	2.41	0.91
Being proud of the profitability of this cooperative.	3.00	0.49
Overall mean of profitability	2.89	

Source: Primary data, 2022

Table 6 present findings and its interpretation on how due to management functions are implemented within cooperatives, it result on increase of revenue, four questions were analyzed and interpreted, mean and variance for each question was presented in table 6.

In assessing if number of cooperative members keeps increasing and if amount of expenses versus sells keeps decreasing, respondents viewed those items moderately. This means that number of cooperative members do not increase enough and amount of expenses versus sells keeps not decreasing enough. Standard deviations of these items show that members of cooperatives do not have a common view on these means. Other items assessed (Keeping sells increase and being proud of the profitability of the cooperative) were all strongly perceived by respondents with a mean of 3.30 and 3.00 respectively. Even if these means shows the strength but increase of profitability seems not satisfying members, since these means are to near the moderate perception. The standard deviation on keeping sells increase is .067, which shows different views of perception of respondents around this mean while the standard deviation of being proud of the profitability of the cooperative is 0.49 which confirms that respondents have

the same views of perception of around its mean. Overall mean is 2.89, interpreted as moderate mean. The administration of the cooperative should be urged to run it better, as this will help cooperative members generate more income for their households.

Test of Null Hypotheses

The objective was to examine effect of management functions ((planning, organizing, co-coordinating and directing and controlling) on Planning in Rwanda agri business cooperatives. The researcher assumed that there is no significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on planning in Rwanda agri business cooperative”

Table 7:

Model Summary between Management Function and Increase of Profitability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.624 ^a	.389	.379	.37078	1.535

a. Predictors: (Constant), Controlling, Coordinating, Planning, Organizing, Directing

b. Dependent Variable: Profitability

Source: Primary Data, 2022

In Table 7, the results indicates that adjusted R² is 0.379, which represent 37.9% of the effect of management functions on increase of profitability. 0.621, which represent 62.1% are other effect that Increase of Profitability receives from other variables that are not included in the model

Table 8:

ANOVA analysis Between Management Function and Increase of Profitability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.516	5	5.303	38.575	.000 ^b
	Residual	41.655	303	.137		
	Total	68.172	308			

a. Dependent Variable: Profitability

b. Predictors: (Constant), Controlling, Coordinating, Planning, Organizing, Directing

Sources: Primary data, 2022

In assessing significant effect between Management Function and Increase of Profitability, F-test (38.575) is significant at .000. Thus, management functions indicators jointly (planning, organizing, coordinating and directing and controlling) have positive and significant effect on increase of profitability in Rwanda Cooperatives. Therefore, H₀₁ which stated that there is no significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on Increase of Profitability in Rwanda agri-business cooperative is not accepted. Therefore, there is a significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on Increase of Profitability in Rwanda agri-business cooperative.

Table 18:

Coefficients of each indicator of Management Function and Profitability

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.053	.156		13.165	.000
	Planning	.275	.064	.320	4.307	.000
	Organizing	.618	.074	.835	8.335	.000
	Coordinating	-.194	.070	-.212	-2.760	.006
	Directing	-.137	.093	-.152	-1.482	.139
	Controlling	-.288	.080	-.303	-3.578	.000

a. Dependent Variable: Increase of Profitability

Source: Primary Data 2022

From Table 23, holding the various components consistent, planning in cooperatives in Rwanda is measured by proficient and powerful usage of management functions. The consequences of the various regression models show that there is a positive connection between management functions and planning in cooperatives in Rwanda. This implies that a single unit increases the results of independent variables (planning, organizing, coordinating, directing and controlling) at 0.320 and 0.835 respectively. Coordinating has a negative beta coefficient of -0.212, which indicates that one unit increases in coordinating will cause to decrease planning in cooperatives by -0.212 unit and the other indicators remaining constant, directing has also a negative beta coefficient of -0.152, which indicates that one unit increases in directing will cause to decrease planning in cooperatives by -0.152 unit and the other indicators remaining constant. Finally controlling has also a negative beta coefficient of -303, which

indicates that one unit increases in controlling will cause to decrease planning in cooperatives by -303 unit and the other indicators remaining constant.

The consequence of the examination demonstrates that control environment, risk assessment, control activities, information & communication influence sustainability & growth **in agri-business cooperatives** Rwanda positively. The following regression equation was obtained:

$$IP = \beta_0 + \beta_1 PLG + \beta_2 ORG + \beta_3 CDT + \beta_4 DIR + \beta_5 CON + \mu \text{ Model 1}$$

$$IP = 2.053 + .320 PLG + .835 ORG - .212 CDT - .152 DIR - .303 CON + .156$$

Conclusion

The F-test (38.575) is significant at .000. Therefore there is a significant effect of management functions (planning, organizing, co-coordinating and directing and controlling) on Increase of Profitability in Rwanda Agri-Business Cooperative

Recommendations

Based on the aforementioned findings of the study, the following recommendations were made to management of cooperatives:

Recommendations to Funders and managers of cooperatives

1. It was found out that cooperative managers have little capacity of analyzing well the current situation of the cooperative and anticipate well the future. Thus, funders and managers of cooperatives should act and see how capacity of managers of analyzing well the current situation of the cooperative can be increased and then anticipate the future.
2. It was found out that cooperative managers have little capacity of organizing well activities of cooperatives and management staff do not implement well his task. Thus, funders and managers of cooperatives should act and see how they can have enough capacity of organizing well their activities and each one perform his own task well and at time.
3. Cooperatives do not have a well-known article of association and its implementation does not satisfy members. Managers of cooperatives should prepare well their cooperative article of association and explain well its contents to all members either in the regular general assembly or other meeting. And every article of association should be well implemented.
4. Cooperative leaders do not stimulate cooperative members to higher levels of work and better quality of work. And targets of small groups of cooperative members are not well monitored by leaders. Thus cooperative managers should motivate their members to higher levels of work and better quality of work and monitor well their targets of their small groups. Training are also needed to teach cooperative managers how to motivate members towards better quality of work.
5. It was found out that cooperative managers do not offer well information and viewpoints to cooperative members. Thus, cooperative managers should communicate well and enough information and viewpoints of problems and challenges that cooperatives are facing daily to cooperative members
6. Cooperative managers do not have enough ability of determining necessary area to be controlled, of establishing guidelines for controls, of measuring level of performance during controls, of recognizing positive performances during controls, of taking well necessary corrective actions on

where deviations are found and adjusting well standards or measures of performance when it is necessary. Thus, funders and managers of cooperatives should act and see how capacity of managers in determining necessary area to be controlled, in establishing guidelines for controls, in measuring level of performance during controls, in recognizing positive performances during controls, in taking well necessary corrective actions on where deviations are found and in adjusting well standards or measures of performance when it is necessary can be obtained.

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Contribution of Entrepreneurial Tendencies on Project Yield Quantity in Selected Agricultural Projects in Rwanda

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Abstract

The study aimed at assessing entrepreneurial tendencies and project yield quantity in Rwanda. A descriptive research design and questionnaire was used as instrument for data collection. For analysis, the regression model was used to analyze the contribution of entrepreneurial tendencies on project yield quantity. The results indicated that the adjusted R² is 0.713 representing 71.3% indicating that the entrepreneurial tendencies components contribute to Project Yield Quantity, while 0.297 representing 29.7% of Project Yield Quantity comes from other variables that are not included in the model one, according to the ANOVA results, the F-test is 38.902 has a p-value = 0.000. This implies that all Entrepreneurial tendency variables jointly have positive and significant effect on Project Yield Quantity. The researcher recommended the management of selected agricultural projects to carefully take calculated risks and not be afraid to take risks in general.

Key words: entrepreneurship, tendency, project, yield, quantity

Word count: 146

Introduction

Realization of entrepreneurship which has a significant share in social change and prosperity by conscious, educated and qualified individuals will increase the likelihood of success. For this reason, today the need for entrepreneurs who can see and evaluate opportunities, produce effective solutions to problems and have many characteristics such as active, researcher, decisive and effective communicator are increasing rapidly. Agricultural projects in Rwanda face various performance problems such as insufficient harvests production, financial losses, failure to reach the market and deterioration of the agricultural products due to ineffective storage facilities (RAB, 2020). This brings the need to assess the cause of these challenges, where criticisms have revolved around the process such as delays in implementation and delivery of projects and irregularities in assigning roles and responsibilities in the program implementation, among others which affect around 70% of agricultural projects in Rwanda. These have been expressed in the media reports, and various observations (Uwase, 2019).

The objective of the study is to evaluate the effect of entrepreneurial tendencies (self-confidence, innovation, risk taking, Uncertainty tolerance) on Project Yield Quantity in selected agricultural projects in Kicukiro District, Kigali City Rwanda.

Literature

This study has reviewed relevant empirics that support the topic. A study by Munene (2008) on the impact of entrepreneurship on performance of micro, small and medium enterprises in Nakuru County, investigated the nature and content of entrepreneurship trainings offered by Kenya Institute of Business Training and Joint loans. The study found out that the trainers focused on management of working capital, record keeping, and marketing. The study however, recommended inclusion to the content of training, risk

management, business expansion strategies and management of loan delinquency and default. These components are part of business management skills and it is clear that the curriculum used was not comprehensive. Despite this, the study used a small response rate of 37 SMEs operators. The study was also limited in scope to Nakuru County and programs offered by Kenya Institute of Business Training and Joint loans. This calls for further investigation on the content of trainings offered by other organizations on entrepreneurship training.

Similarly, a study by Nyachome (2012) examined the factors influencing Market Share Growth of entrepreneurship training programmes in Kenya. The study concluded that the choice of the training method is very significant to the Market Share Growth of entrepreneurship training. The study established that learner centered instructional designs such as discussion methods were preferred by the trainees. Particularly, incorporation of learner's business experiences and knowledge was important during learning. However, the trainers mostly used lecture method during training. This calls for further research on the area of methods of training.

In a study by Petrin (2012), on entrepreneurial tendencies on project performance he states that to accelerate economic development in a country, it is necessary to build up the critical mass of generation entrepreneur. According to Okenwa (2015) echoes that an entrepreneur is an individual who is willing and able to take business risk with the aims and objectives of maximizing profits. He added that an entrepreneur is a dreamer or visionary who translates a dream or vision into a mission that he would use both his mental and physical facilities and other endowments to achieve. Alaeze (2015) in a study on the importance of entrepreneurs' development states that entrepreneur's plan to create and unlock values by bringing together the various resources such as human resources, capital, and technology to start a process and make a product or offer a service.

A motivated entrepreneur can only establish a business organization as a result of decision making, without decision in life, nothing can be done. According to Njoku and Nwosu (2010), they state that: "Decision making involves commitments, which determines the success of an organization, decision making is a process by which a choice is made. Decision making involves taking the past, present and future, into consideration here, past refers to the period during which the problem arose, information was accumulated and the need for a decision was perceived. In the present, alternatives are identified and the choice made. Decision will now be implemented and reviewed in the future.

This study tested the shareholder theory. This theory was propounded by Milton Friedman and it posits that it is the responsibility of managers to generate profits from the capital invested. This theory shows that managers are hired by the owners of the business known as shareholders in order to run the business on their behalf and provide returns of their capital. This contract obligates managers to morally and legally serve owners' interests (Brandt & Konstantinos, 2016).

Methodology

This study adopted survey design. This, is based on the fact that it was only focused on primary data where a questionnaire was used to collect respondents' perceptions on entrepreneurial tendencies and Project performance in Rwanda. The population of this study was composed of 62 Employees working in different agricultural projects in Kicukiro District, Kigali Rwanda. These are Maize Growing project in Kagese, Horticulture Center of excellence and Farming in green houses project. The following operationalization of variables was adopted:

X=Entrepreneurial tendencies system

$X = f(x_1, x_2, x_3, x_4)$ where
 $x_1 =$ Self-confidence (SC)
 $x_2 =$ Innovation (IN)
 $x_3 =$ Risk taking (RT)
 $x_4 =$ Uncertainty tolerance (UT)
 $Y_1 =$ Project Yield Quantity (TR)

TR = f(sc, in, rt, ut) functional relationship between variables. Based on this operationalization of variables, the following econometric model was developed:

$$TR = \beta_0 + \beta_1 SC + \beta_2 IN + \beta_3 RT + \beta_4 UT + \mu \quad \text{Model}$$

Where β_0 is the intercept for model 1, $\beta_1 - \beta_4$ are coefficients of explanatory variables, using primary data and $\mu =$ error term.

1. Findings and Discussion

The data collected from the field were presented in this section as follows:

Table 19.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856 ^a	.732	.713	.99232

a. Predictors: (Constant), Uncertainty tolerance, Self-confidence, Risk taking, innovation

The results indicated that the adjusted R^2 is 0.713 representing 71.3% indicating that the entrepreneurial tendencies components contribute to the Project Yield Quantity, while 0.297 representing 29.7% of Project Yield Quantity comes from other variables that are not included in the model one.

Table 20.*ANOVA for Model One*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	153.227	4	38.307	38.902	.000 ^b
	Residual	56.128	57	.985		
	Total	209.355	61			

a. Dependent Variable: Project Yield Quantity

b. Predictors: (Constant), Uncertainty tolerance, Self-confidence, Risk-taking, innovation

From ANOVA Table, the F-test is 38.902 has a p-value = 0.000. This imply that all Entrepreneurial tendencies components variables jointly have positive and significant effect on Project Yield Quantity. Therefore, null hypothesis which states that there is no significant effect of entrepreneurial tendencies components on Project Yield Quantity is not accepted at all levels of significance.

Table 21.*Coefficient for Model One*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.201	1.468		1.499	.139
Self confidence	-.037	.101	.030	.362	.719
Innovation	.511	.126	.521	4.055	.000
Risk taking	.404	.107	.294	3.773	.000
Uncertainty tolerance	.217	.122	.207	1.784	.080

a. Dependent Variable: Project Yield Quantity

From coefficient table, self-confidence has no significant effect on Project Yield Quantity ($\beta_3 = 0.030$, $t = 0.362$, $sig. = 0.719$). This indicates that 1-unit change in self-confidence will lead to 0.030-unit change in Project Yield Quantity. From coefficient table, innovation has positive and significant effect on Market Share Growth ($\beta_3 = 0.521$, $t = 4.055$, $sig. = 0.000$). This indicates that 1-unit change in innovation will lead to 0.521-unit change in Project Yield Quantity.

Risk taking has a negative and significant effect on Project Yield Quantity ($\beta_3 = 0.294$, $t = 3.773$, $sig. = 0.000$). This indicates that 1-unit change in Risk taking will lead to 0.294 unit change in Project Yield Quantity. Uncertainty tolerance has a no significant effect on Project Yield Quantity ($\beta_3 = 0.207$, $t = 1.784$, $sig. = 0.080$). This indicates that 1-unit change in uncertainty will lead to 0.521-unit change in Project Yield Quantity.

Discussion: The results of this hypothesis are in line with findings in the study of Munene (2008) on the impact of entrepreneurship on timely performance of micro, small and medium enterprises in Nakuru County. This is supported by the theory of execution which was also introduced by Johnston and Brennan

(2015), they indicated that there are two types of critique against the dispatching theory of project management. In this theory it is indicated that risks should be well managed before the execution stage.

Conclusion and recommendation

Based on the findings, this study concludes that entrepreneurial tendencies have positive contribution to project yield quantity at a rate of 71.3%. The researcher recommended the management of selected agricultural projects to take calculated risks and not be afraid to take risks all together as risks are unavoidable, rather they can be mitigated.

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Contribution of Enterprise Risk Management (ERM) on Achievement of Performance Contract in Public Enterprises in Rwanda

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Abstract

This study investigated the contribution of enterprise risk management on achievement of performance contract in public enterprises in Rwanda. This particular research is considered to be descriptive research whereby the questionnaire was distributed to collect data from selected respondents in Energy Development Corporation Ltd and Water and Sanitation Corporation. Regression analysis was also adopted to statistically analyze the contribution of enterprise risk management on achievement of performance contract in public enterprises. The results indicated that shows that the adjusted R square was 0.722. This implies that the predictors of enterprise risk management affect 72.2% on the performance contracts in government business enterprises in Rwanda. According to the ANOVA Table, The F-test is 190.678 and P-Value= .000 therefore it means that all enterprise risk management variables jointly have positive and significant effect on performance contracts in government business enterprises in Rwanda at all level of significance. The study concluded that organization culture components are predictors of accountability and transparency of employees. The study recommends that public enterprises need more emphasis on ERM practices in order to reduce their deficiencies

Key Words: Contribution, Contract, Enterprise, Performance, Public, Risk, Management,

Word Count: 177

Introduction

The key importance of effective management of risk is to help enterprises achieve their objectives, while complying with legal, regulatory, and societal expectations, and enables them to better respond and adapt to surprises and environment disruptions. Managing risk is a fundamental concern in today's dynamic global environment. In recent years, however, a paradigm shift has occurred regarding the way to view risk management. Instead of looking at risk management from a silo-based perspective, the trend is to take a holistic view of risk management.

Rwandan government enterprises face performance problems such as failure to achieve the predicted goals at hundred percent, poor evaluation of implementation, ineffective risk management and a long process of reporting and interpreting and the correction of errors (Albu, 2019). Both EDCL and WASAC have met various performance problems starting in the period when they were combined under one umbrella of Electrogaz. According to OAG reports from 2016 to 2021 these performance problems included poor financial system that has been in use since the establishment of WASAC, lack of handover of finance and financial books from former EWASA to WASAC and difficulties in using new financial system called 'Oracle' (OAG, 2020).

Specifically, the study evaluated the effect of enterprise risk management (internal environment, objective setting, event identification, risk assessment, risk response and information and communication) on achievement of performance contract in selected government business enterprises. This research verified the following null hypothesis: **H₀**: There is no significant effect of enterprise risk management (internal environment, objective setting, event identification, risk assessment, risk response and information and communication) on achievement of performance contract in selected public institutions.

Review of Literature

Enterprise Risk Management

Enterprise risk management (ERM) in business includes the methods and processes used by organizations to manage risks and seize opportunities related to the achievement of their objectives. ERM provides a framework for risk management, which typically involves identifying particular events or circumstances relevant to the organization's objectives (threats and opportunities), assessing them in terms of likelihood and magnitude of impact, determining a response strategy, and monitoring process. By identifying and proactively addressing risks and opportunities, business enterprises protect and create value for their stakeholders, including owners, employees, customers, regulators, and society overall (Rezaee & Zabihollah, 2012).

ERM can also be described as a risk-based approach to managing an enterprise, integrating concepts of risk management, the Sarbanes–Oxley Act, data protection and strategic planning. ERM is evolving to address the needs of various stakeholders, who want to understand the broad spectrum of risks facing complex organizations to ensure they are appropriately managed. Regulators and debt rating agencies have increased their scrutiny on the risk management processes of companies (COSO, 2011)

In addition to information technology audit, enterprise risk management mentors play an important role in evaluating the risk-management processes of an organization and advocating their continued improvement. However, to preserve its organizational independence and objective judgment, Enterprise risk management professional standards indicate the function should not take any direct responsibility for making risk management decisions for the enterprise or managing the risk-management function (Black, 2015).

Enterprise risk management mentors typically perform an annual risk assessment of the enterprise, to develop a plan of audit engagements for the upcoming year. This plan is updated at various frequencies in practice. This typically involves review of the various risk assessments performed by the enterprise, consideration of prior audits, and interviews with a variety of senior management. It is designed for identifying audit projects, not to identify, prioritize, and manage risks directly for the enterprise (Kevin, 2019).

The risk management processes of corporations worldwide are under increasing regulatory and private scrutiny. Risk is an essential part of any business. Properly managed, it drives growth and opportunity. Executives struggle with business pressures that may be partly or completely beyond their immediate control, such as distressed financial markets; mergers, acquisitions and restructurings; disruptive technology change; geopolitical instabilities; and the rising price of energy (Rezaee & Zabihollah, 2012).

Enterprise risk management is the measures an organization takes to protect life and property. Ranging from physical security and access controls to rules of conduct and procedure, enterprise risk management does not guarantee elimination of the risk of errors or financial risk. The main goal of enterprise risk management systems is to reduce the risk to an acceptable level. This benchmark often is referred to as a reasonable assurance or expectation that business transactions are reported accurately and honestly. A secondary goal of enterprise risk management is to have methods in place to detect inaccuracy or financial risk that has occurred (Chris, 2012).

Enterprise risk management is a system designed, introduced and maintained by the company's management and top-level executives, to provide a substantial degree of assurance in achieving business objectives, while complying with the policies and laws, safeguarding the assets, maintaining efficiency and effectiveness in regular operations and reliability of financial statements. Enterprise risk management is like a process affected by an organization's structure, work and authority flows, people and management information systems, designed to help the organization accomplish specific goals or objectives (AICPA, 2013).

Achievement of Performance Contract

Performance contract refers to goals and objectives an institution is targeting to achieve. According to Charma (2013), a performance contract is a management tool which ensures accountability for results by public officials and measures the degree to which they achieve targeted results. Rwanda's Performance contracts are contracts between the President of republic of Rwanda (H.E Paul Kagame) and government agencies detailing what the respective institution sets itself as targets on a number of governance, justice, economic, and social indicators.

The stated objective of the contracts is to improve the speed and quality of execution of government programs, thus making public agencies more effective. It is a means of planning to accelerate the progress towards economic development and poverty reduction. Performance contracts have a strong focus on results which makes it an invaluable tool in the planning, accountability, monitoring and evaluation processes (Govinda, 2016).

Whatever model of reform that is chosen for reforming public utilities, it has been found that these reforms can be made more effective if there is a performance contract in place between the utility and the government or regulator with incentives to meet and outperform that plan. This performance plan may be included in an informal Performance Contract, Contract Plan or a more formal, legally binding intergovernmental loan or grant agreement (Kennedy, 2014).

One of the most effective ways of doing this is with a performance agreement. This defines accountability for specific personal and organizational goals. It defines the individual's expectations. It establishes and agrees results-oriented goals that are aligned with the overall objective you want to achieve. And it concludes with the individual's formal, signed commitment to the agreement (Tania, 2014).

When establishing performance expectations, the overall objective is to come to an agreement that supports your organization's strategy. For individual performance goals, the objective is real, measurable improvement so that the person is in a position to help move the company forward. Performance agreements must clearly state agreed-upon objectives and how these were measured. Document these things to help you avoid future disagreements about exactly what you expected the person to accomplish (Tania, 2014).

Without an agreement founded on the organization's objectives, you may have to rely on defending your directives with. This will probably do nothing to build trust and respect with the person whose performance you're trying to improve. However, with formal agreements in place, managing and leading your staff can become more objective, and simpler. Performance agreements are a great addition to a performance management system. They enhance accountability for both workers and managers, and they establish clear expectations that staff can use to take responsibility for their own performance. That's really what good performance is all about providing people with the understanding they need to do a good job and achieve the results that are expected of them. By identifying this information and setting up a contract, you can create a system for success (Greene, 2014).

Theoretical Framework

The theory that guided this study is legitimacy theory and stakeholders' theory which describes the relationship between two parties: owner as a principal and management as an agent. Owner delegates the authority to manage the firm into an agent. Therefore, the agent (management) manages the company's

operation. On the other hand, the owner expects that they will get a return from firm operation. Stakeholders' theory was used because the enterprises should work to satisfy the stakeholders interests. This particular research is considered to be descriptive research whereby the questionnaire was distributed to collect data from selected respondents in Energy Development Corporation Ltd and Water and Sanitation Corporation. The population of this study was 776 respondents from selected WASAC employees and 320 employees from EDCL Head office. Data were collected using a valid and reliable questionnaire. Regression analysis was adopted to give empirical meanings to this study. This was done by considering the effect of all explanatory variables on each dependent variable.

X=Enterprise risk management (ERM)

X= f (x1, x2, x3, x4, x5) where

x1= Internal environment (IEN)

x2= Objective setting (OBS)

x3= Event Identification (EVI)

x4= Risk Assessment (RIA)

x5= Risk Response (RIR)

x6= Information and communication (IC)

Y=Achievement of performance contract (APC)

Thus, the following function was set APC=f (IEN, OBS, EVI, RIA, RIR, IC) and gave this econometric model: $APC = \beta_0 + \beta_1 IEN + \beta_2 OBS + \beta_3 EVI + \beta_4 RIA + \beta_5 RIR + \beta_6 IC + \mu$ model 1.

Findings and Discussion

This section shows the results from the data collected that helps in testing the null hypothesis stating that (H₀) There is no significant effect of enterprise risk management (internal environment, objective setting, event identification, risk assessment, risk response and information and communication) on achievement of performance contract in selected government business enterprises.

Table 1

Model Summary Between Enterprise risk management and Performance contracts

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852 ^a	.725	.722	.64886

a. Predictors: (Constant), Information technology, Risk assesment, Risk response, Internal environment, Objective setting, Event Identification

The result from table 1 shows that the coefficient of determination (R square) was 0.725 and the adjusted coefficient of determination (Adjusted R square) was 0.722. This implies that the predictors of enterprise risk management affect 72.2% on the performance contracts in government business enterprises in Rwanda, while .278 representing 27.8% of performance contracts of government business enterprises in Rwanda comes from other variables that are not included in the model 1.

Table 2

ANOVA^a between Enterprise risk management and Performance contracts

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	481.677	6	80.279	190.678	.000 ^b

Residual	182.303	364	.421
Total	663.980	370	

a. Dependent Variable: Achievement of performance contract

b. Predictors: (Constant), Information technology, Risk assesment, Risk response, Internal environment, Objective setting, Event Identification

The F-test is 190.678 and P-Value= .000 therefore it means that all enterprise risk management variables jointly have positive and significant effect on performance contracts in government business enterprises in Rwanda at all level of significance. Therefore, the hypothesis (Ho1) of no significance effect of enterprise risk management on performance contracts on government business enterprises at all levels of significance is rejected.

Table 3

Coefficients^a between Enterprise risk management and Performance contracts

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	4.053	1.098		3.693	.000
Internal environment	.249	.048	.185	5.213	.000
Objective setting	-.254	.050	.220	5.084	.000
Event Identification	1.041	.068	.676	15.226	.000
Risk assesment	.163	.033	.197	4.920	.000
Risk response	.568	.053	.294	10.677	.000
Information technology	.353	.050	.180	7.004	.000

a. Dependent Variable: Performance contract

The researcher found that each coefficient of enterprise risk management separately is statistically affect the performance contracts in government business enterprises in Rwanda because P-values of all indictors are less than the 0.05 level of significance. The results from table Indicate that internal environment has positive effect on performance contracts in government business enterprises in Rwanda ($\beta_1 = .185$; $t = 5.213$, $sig. = .000$). This indicates that 1-unit change apply the same to rest in internal environment leads to 0.185 unit change in performance contracts of government business enterprises in Rwanda.

Objective setting has significant effect on performance contracts in government business enterprises in Rwanda ($\beta_2 = .220$; $t = 5.084$, sig. = .000). This indicates that 1% change in objective setting leads to 0.220% in performance contracts in government business enterprises in Rwanda.

The results also indicate that event identification has positive effect on performance contracts in government business enterprises in Rwanda ($\beta_3 = .676$; $t = 15.226$, sig. = .000). This indicates that 1% change in event identification leads to 0.676% in performance contracts in government business enterprises in Rwanda.

Risk assessment has significant effect on performance contracts in government business enterprises in Rwanda ($\beta_4 = .197$; $t = 4.920$, sig. = .000). This indicates that 1% change in Risk assessment leads to 0.197% in performance contracts in government business enterprises in Rwanda. The results also indicate that risk response has positive effect on performance contracts in government business enterprises in Rwanda ($\beta_5 = .294$; $t = 10.677$, sig. = .000). This indicates that 1% change in Risk assessment leads to 0.294% in performance contracts in government business enterprises in Rwanda.

The results also indicate that information technology has positive effect on performance contracts in government business enterprises in Rwanda ($\beta_6 = .180$; $t = 7.004$, sig. = .000). This indicates that 1% change in information technology leads to 0.180% in performance contracts in government business enterprises in Rwanda.

Discussion

Alshatti (2015) assessed effect of enterprise risk management on Jordan government business enterprises performance contracts in financial perspective. From this study, it was resolved that management of enterprise risk indicators has a significant effect on performance contracts. The findings of this study indicated that enterprise risk management components have positive effect to the performance contracts in government business enterprises.

Conclusion and Recommendation

In conclusion, the researcher managed to evaluate the effect of Enterprise risk management on achievement of performance contracts in selected government business enterprises, where the regression analysis indicated that enterprise risk management affects the performance contracts in government business enterprises by 72.2%. The study recommends that public enterprises need more emphasis on ERM practices in order to reduce their deficiencies.

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Communicating by Light: Nature Indicates God's Love is Tangibly Revealed

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Abstract

Light from sunlight travels to and through the retina of the eyes; then via a circuitous route through mRGC's light reaches the Pineal Gland, where the Power of those Light/Photons is exponentially increased into an Infrared LASER beam function. This is made possible through a unique Creation mechanism.

By photonics, there is Transmission of (a) Energy and (b) Data - To All living things in Nature with mathematical PRECISION and ORDER, based on unchanging and non-changeable TIMING by innate universal Seven-day Rhythms (SDRs).

In addition, by using these infallible and ubiquitous seven-day rhythms (SDRs) the Creator God is also pinpointing Saturday as being the Seventh Day Sabbath in Nature, due to the unique physiological characteristics seen happening in all living things on that Seventh Day of the seven-day week. (Saturday). The physical evidence recognized on this Seventh day as Special in Nature is perfectly synchronous with ideas from Scripture about the Special Seventh-day.

That is, basic evidence of Creation (particularly Chronobiological) is consistent with what Scripture teaches about the Time of Origins and the Timing when Health conditions were optimal at Creation.

These, therefore, serve to highlight and confirm the validity of the known Scriptural View of 24-hour based Seventh Day of the Seven Day Week (known as Saturday). This is recognized globally as the True Sabbath.

Significantly, this "Special" 7th Day revealed in Nature also provides an almost "tangible expression" in Nature to indicate which day is the Seventh-Day of the Week: The Day which represents God's SIGN or SEAL of His Government and Law of Love as it is recorded in Fourth Commandment of Exodus 20:8-11. KJV. It can be posited that "Science and the Bible are in perfect agreement".

Key words: light, communication, seven-day rhythms (sdrs), aluminum, pineal gland, Sabbath, infrared laser.

Introduction

God's Love is generally accepted by Faith in God's Word, the Bible. But other Bible-based teachings may strengthen that Faith.

This paper discusses certain recently-published Science of Chronobiology findings which could boost some "Doubter's" Faith in the Truths of the Bible. One example of boosting Faith could be analogous to the "Doubting Thomas" experience of physically touching the resurrected Jesus Christ as in John, Chapter 20 of the Bible. Thomas' confirmation of Jesus' identity is analogous to today's potential sceptical doubters who could be convinced of the Creator God's Identity if they could be shown recently-published Chronobiology data, which support the concept of Creation. The purpose of this essay is to review the data and develop salient arguments for a new vision.

Research Questions

(1). Could the Doubters and Sceptics of this present world be encouraged to believe in the existence of a Creator God whose main attribute is Love? (1 John 4:8. KJV).

(2). When Chronobiology findings which have recently been discovered in Nature, are presented in support of Biblical Beliefs concerning the Origin of Life on Earth, would the “doubting Thomas” then believe in the Creator?

(3). If there is a Creator wouldn't He organize a Nature-based system to establish and maintain the required communications with His Creatures?

(4). Won't He have in place some universally found “Common Thread” in the physiology of Living organisms to establish interconnectivity like a “proverbial telephone System” for Communications? After all, if He is a God who is intrinsically LOVE (1 John 4:8 KJV). He must be able to have that Love shared amongst His Creation.

(5). Does Chronobiology Science reveal any systems in Nature akin to the above possibilities? If so, what are the obvious candidates for maintaining such a system?

Literature Review

Chronobiology Evidence in Support

The most likely of Nature's systems which could enable communications would be the 24-hourly-controlled Seven-day rhythms (SDRs) which are ubiquitously found in all living tissues. These SDRs were previously known as Circaseptan Rhythms (Cornelissen 2005) [9] (Greenaway GK) [9] [15] [16].

These SDRs function as sophisticated inter-connecting time-anchored communication systems. The God of Nature reveals His Love in many ways, such as in exquisite colours and enchanting smells of beautiful flowers, in the mind-calming chirping sounds of forest birds, or the dutiful obedience of one's loving pet dog or pet cat as he gently massages one's ankles at the dinner table. God thus shows His Love physically through the Living entities of Nature.

It is worthy of note that the Common Factor in every example is the “Common Thread” of SDRs, which shows the authenticity of Creation. This idea is analogous to the astute Banker who always checks bank notes for a “Common. Silver Thread” to verify whether bank notes are genuine or counterfeit. The Creation versus Evolution Debate can be distinguished similarly.

Hypotheses are based on: (1) Chronobiology Data, (2) Mathematics, (3) Scriptures.

Chronobiology

The recent scientific discipline of Chronobiology is replete with evidence showing the universal presence of above described seven-day rhythms (SDRs) in Life (Greenaway, 2022)

It is being proposed that this Time-based ubiquitous presence of seven-day rhythms (SDRs) acts as the “Common Thread” which are present in all living systems in Nature. These SDRs are the Factors that determine precise Timing and Order in Nature.

Mathematical Calculations

The following proposal is based on published chronobiology findings showing that Circaseptans (Cornelissen 2005) or seven-day rhythms (SDRs) both result from and lead to a healthy life, i.e. the medical and scientific premises quoted in (Cornelissen 2005) are to be regarded as potential “Axioms” statements. Following the Deductive and Inductive reasoning in Tables I & II, one would be led to the conclusion that seven-day rhythms (SDRs) were induced by optimally healthy conditions. The latter statement is considered a “theorem” These “Theorems” or known SDRs will therefore lead back to the “unknown” which are regarded as Axiomatic” statements. This process of “Reverse Mathematics” is also known as Axiomatization. In this way, strict or precise order in physiological development had been indicated mathematically.

Mathematical calculations by “Reverse Mathematics” strategies can help to determine what was possible in physiological circumstances at the time of Earth’s Origins.

The following three explanations (quoted from Google-website) are relevant and self-explanatory. When the Axioms and Theorems would clearly show that if calculations suggest Precise Order and lack of randomness in the REVERSE situation of the Physiology process, then similarities in the FORWARD. The process is clearly indicated, that is:-

Order Backwards Shows Order Forwards

Moreover, the Time of Origins using SDRs and the Mathematics as explained can be fairly accurately deduced.

From a quick look at Tables 1 & 2 on pages 17-18 of ‘ The Origin, Establishment and Purposes of Weekly Rhythms’ (Greenaway, 2021), would be easy to determine what are the axioms and the theorems represented in the Deductive and Inductive Arguments.

However, the main point is “Single stimulus or “New Physiology” conditions give rise (Circaseptans) to SDRs in chronobiology science and this is analogous to God pronouncing Blessings in Creation week (Genesis. 2:1-3, NKJV). His Spoken Words created the FIRST incidence of “New birth or New Physiology”.

Therefore the main intention is to correlate well-known medical and chronobiology data with our biblical doctrines.

The Three Google quotations are:-

1). Reverse mathematics is a program in mathematical logic that seeks to determine which axioms are required to prove theorems of mathematics. Its defining method can briefly be described as "going backwards from the theorems to the axioms", in contrast to the ordinary mathematical practice of deriving theorems from axioms. It can be conceptualized as sculpting out necessary conditions from sufficient ones.”

2). In mathematics, **axiomatization** is the process of taking a body of knowledge and working backwards towards its axioms. It is the formulation of a system of statements (i.e. axioms) that relate to several primitive terms — so that a consistent body of propositions may be derived deductively from these statements. Thereafter, the proof of any proposition should be, in principle, traceable back to these axioms.”

3). In mathematics, a theorem is a statement that has been proved, or can be proved.[a][2][3] The *proof* of a theorem is a logical argument that uses the inference rules of a deductive system to establish that the theorem is a logical consequence of the axioms and previously proved theorems.”

Methodology

A method to estimate the time of origin of life and to differentiate between two schools of thought about origins, namely, the Creationist Worldview of 6000 years from the 5-8 billion years according to evolutionary theory.

This section will be summarized in bullet points to reduce the amount of explanatory text, which can be accessed elsewhere (See references).

Advantages of Using Seven-Day Rhythms (SDRS)

- The Time of Origin of Life as recorded in Scripture is now supported by Chronobiology and Mathematics
- For pinpointing and confirming by evidence from the new Science of Chronobiology, which day of the seven-day week is the Sabbath?
- For explaining many other previously enigmatic phenomena.

Laying Foundational Premises

- To understand the ideas presented, it must be emphasized the basis for discussion is the acceptance of evidence from Scripture that Health conditions in all living matter at Creation were perfect.
- Secondly, recent Chronobiology evidence supporting Bible doctrines must be posed as the second premise for discussion.
- Thirdly, it must be understood that New Birth Type conditions as noted in Chronobiology are comparable with New Birth Healthy conditions which must have existed at Creation as recorded In Genesis 2: 2&3 KJV.
- Fourthly, our premise is also that health conditions were optimal until the end of Genesis, Chapter 2.
- Fifthly, we posit that conditions of tissue health must have been flawed or negatively impacted after the insult of sin on Nature in Genesis, Chapter 3.
- Consequently, for our discussion, we can only use the Chronobiology research evidence which would correspond to a “perfectly healthy period” soon after Creation and definitely BEFORE the Genesis, Chapter 3 period and afterwards.

Findings

1. Seven-day Rhythms (SDRs) are mathematically precise in Timing & Never changing. (RELIABLE)
2. They are Innate and Universal or ubiquitous having their presence based in every living thing in Nature
3. They (SDRs) can regulate TIME with rhythmical Precision and with control strict Order in Nature.
4. SDRs are Present in animals, plants, humans, and insects and rhythm occurs even in the light from Sun and in Geomagnetism
5. SDRs can even affect the issues of the World which is made up of “Time Space and Matter”. After the intrusion of Sin in Genesis 3, the last two namely Space and Matter probably changed, but TIME measured as SDRs have remained constant. Therefore SDRs are the most reliable index or yardstick for measuring Time.
6. The SDRs highlight the Seventh day as being especially significant just as the Bible does.
7. The scientific facts of Nature agree with the Bible’s evidence on cycles of the seventh day
8. The SDRs are the only Time measuring index which has remained unchanged all along and can therefore be applied to periods before Sin. (Gen. 1 & 2) and after sin entered (Gen. 3).
9. We can easily extrapolate from the known “New Birth” Health conditions now to the possible “New Birth” health conditions at the Time of Creation.
10. Since “new birth” health conditions at Creation were PERFECT and gave rise to SDRs, then it is very likely the optimal “new birth” health conditions today (even during the sinful period after Genesis three), will cause SDRs.
11. The “new birth” Health & Healing conditions near Creation week would undoubtedly be similar to the “new birth” health conditions today when Chronobiologists observed and described the three “New Birth” Physiological conditions which gave rise to SDRs. The “Single Stimulus” is the scientific term given to each of these three “new birth” health conditions mentioned above.
12. The “new birth” or health conditions which stimulate SDRs today, are arguably just like those health conditions which would have existed at the first instance of New Birth type conditions at Creation Time.
13. At Creation Week, the “new Birth” conditions obviously would have been healthy enough to produce SDRs.
14. We can therefore make a reliable conclusion that Scriptural Evidence and Chronobiology Findings agree that SDRs came from New Birth conditions.
15. Additionally, by using SDRs which are ubiquitous in Nature, and which are mathematically precise and never-changing in their Rhythmicity or Timing, we can by “Reverse Mathematics”, calculate when the Time of Origin of Life on Earth was.
16. The Time when perfectly healthy conditions existed at the beginning, can be confirmed by the use of Deductive/Inductive Logical arguments. In this case, having established the validity of SDRs creation, we can by Induction, Infer that SDRs originated during times of optimal health conditions. Naturally, this period was consistent with the Time of all Beginnings (that is at Creation).
17. The Time when physiological conditions on earth were optimally healthy can also be mathematically calculated. In this case, by the strategy of “Reverse Mathematics” or the process of Axiomatization, in which the SDRs represent stated Theorems and working backwards, we can make the axiomatic statement that optimally healthy conditions existed at a particular time. This time would arguably be equivalent to the biblically recorded Time for the Origin of Life on Earth, as recorded in Genesis. [At Creation Week]. Ref Gen 2: 2 & 3 KJV.

18. Also, the use of mathematically accurate SDR Timing of Origin of Life, has the added advantage of being much more accurate than the present C14-based Timing methods, the reliability of which is questioned by some scientists.
19. Apart from the above uses of SDRs and chronobiological evidence for measuring TIME, the SALIENT IDEA or message gained from this “powerful phenomenon” is the pinpointing or identification of the Seventh Day (Saturday) as being very SPECIAL in physiological happenings in Nature, thus Confirming Scriptural teachings on Sabbath
20. Moreover, this Special Day (Saturday) having a 24-hour length from sunset to sunset as on Chronological evidence (for example Ref Vollrath 1975) also helps to CONFIRM what God says about the length of day etc.
21. Finally, putting all the above together would show that there is an ALL-POWERFUL Creator God of Love, Who is literally “bending over backwards” (as we say locally) to show His Love TANGIBLY in Nature to strength the “Weak Faith” in the “Doubting Thomas’s” out there in UMPTEEN Walks of Life. Jesus GENUINELY Loves All of them too although they are not currently “members of the choir”. But from drunkards to prostitutes, from peasant farmers in the East to Rich Well-dressed folk in the West, Jesus reveals His Love and waits expectantly for Love Responses from many whose hearts belong to Him as He is their Creator, but they were NEVER TOLD in a CONCRETE way, which would have confirmed the ABSTRACT appreciation or belief that He is the Creator God of Love of Whom the Bible speaks.

Ideas for further discussion

- How would the knowledge of confirmation of the biblical seventh-day Sabbath (Saturday) by evidence in Nature impact sceptics, Sunday keepers, and non-believers who were previously given insufficient or deceitful information?
- By stressing that Sabbath is about the SIGN or SEAL of God and Government of LOVE, perhaps we can place important relevant texts like. Genesis 2:2&3, Exodus 20:8-11, Revelation 14; 6-12, with emphasis placed on the fact that Creator Jesus is “leaning over backwards” as a Final stressing of reasons why he might reverence for omnipotence and worshipped as creator. Jesus is literally giving a final display of all things as promised in John 16:13. Lastly Revelation 18:1-5 as its relevance can be discussed as being perhaps timely.
- There is much more than can be addressed in this email. There are umpteen “tributaries of ideas for discussion” trickling into the Vast “Ocean of Knowledge” out there nowadays. Consider details found in pure science, astrophysics, Chronobiology and Theology. We can all tap into each other’s knowledge and share the information which has as a “Common Thread” the obvious “Lively fingerprint-type” Sevens as God’s Sabbatic Stamp revealing His Presence whether Actual or Virtual. By integrating all this knowledge with worldwide expertise which 3ABN and Associated Entities are organizing experts, we can then show the “Big Picture of God’s LOVE and of LIFE itself.

There is enough “Fodder” for Global Discussions:

Further spiritual implications now need to be discussed:

1. The “New Growth/physiological conditions before Sin (Gen. 1 & 2) were presumably comparable to the present-day conditions of “New Birth Physiology” which (as the Minnesota chronobiologists

observed) have led to Circaseptans (SDRs) in neonatal pulse & heart rates. (Ref. Cornelissen and links below)

2. If Seven-day Rhythms (SDRs) could be induced TODAY, (e.g. during neonatal periods) when physiological conditions are presumptively akin to those conditions at Creation Time, (as Genesis 1 & 2), then we can employ a program in Mathematical Logic called “Reverse Mathematics” specifically Axiomatization (Google) in which Axioms are derived from theorems based on present-day knowledge. (*Ref. Tables 1 & 2 on pages 17-18 of ‘ The Origin, Establishment and Purposes of Weekly Rhythms’ - Dr. Kenneth G. Greenaway, Amazon Publishers. (See Appendix 3).* The Precise Time for Earth’s Origins can thereby be retrospectively calculated - mathematically Precise (cf suspect/controversial C14 dating).

3. Such precise Timing for Origins that Christians, as Students of the Bible, had always accepted only by Faith would probably be acceptable to sceptics as a viable explanation for Origins of Life. Some scientists and ‘honest’ sceptics who did not accept biblical evidence might now be encouraged to believe the Bible; if only because it is now supported by corroborative evidence from Living Organisms in Nature offering further reasonable scientific/Chronological and mathematical Data, i.e. both Chronobiology and the Bible support the Truth of Saturday, the Seventh Day each week as being of “SPECIAL” significance.

4. The acceptance of the SDRs systems anchored in Nature, and of the Biblical Origin of SDRs and the Seven-day Week, of Genesis 2:2&3 KJV, might all help to break down resistant walls of prejudice about Origins. The acceptance of the Seventh-Day Sabbath of Exodus 20:8-11. KJV would follow naturally.

It is believed that this plus the acceptance of the Three Angels Messages of Rev 14, would then contribute to a deeper Love-Relationship with their Creator God of LOVE,

5. Finally the Seventh Day Sabbath (Saturday) is pinpointed by SDR studies in Nature and already accepted as being Special, by Faith in the Bible, serves as an infallible “Time-marker”. Therefore the SDR Time measurement system (even if might not be Precise in the assessment of Time of Origins), is infinitely more Accurate than results based on the controversial C14 dating methods.

God’s Strategic Plan for Establishing Communications

As previously mentioned, the Creator-God of Love had to design a Plan based on Nature’s physical characteristics to establish and maintain communication with his creatures.

The Plan included the Creation of an Infrared LASER Beam Function within the Pineal Gland in the middle of the brain. The details of this creation are quite involved and cannot be explained in this paper. Reference is made to the stepwise process whereby God used unique histochemical properties to create the (LASER). Light Amplification by Stimulation of Emitted Radiation (Greenaway, 2022).

Conclusion

In conclusion, it would be seen from this above article along with other references that our Creator-God known as Jesus, spared no effort in revealing His Love to Humanity from a physical perspective to support what Scripture already said about Him.

Everyone regardless of weakness or strength of Faith could confess and declare with confidence.....

Jesus is **“MY LORD AND MY GOD.”**

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