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**Implementation of Ancestral Land Law in  
Basilan, Sulu and Tawi-Tawi and Its Implication  
to Socio-Economic Development: A Critical Discourse Analysis in Sequential-  
Explanatory Mixed-Methods Design**

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**Abstract**

In the Philippines, the Indigenous People's Right Act popularly "known as R.A. 8371" is promulgated and implemented designed to correct centuries of oppression and marginalization of the Indigenous people/community. The research endeavor has come up with an objective assessment on the extent or effectiveness of the implementation of ancestral land law (R.A. 8371) in BASULTA as follows: The result/findings of the study reveal that based on the combined contribution of age, gender, educational attainment and length of service, significantly influence their perception on the level of effectiveness of R.A. 8371 implementation of the program. The age is considered as significant predictor when taken singly. Hence, the younger the respondent the higher is his level of effectiveness in the implementation of R.A. 8371. The study also further indicates, based on the level of effectiveness with respect to vision, mission, goal/objectives, programs, policies/strategies by the concerned agencies, NCIP, OMA, and DAR have a verbal description of effective while DENR and LUG's have a verbal description of less effective, respectively. Moreover, based on the level of seriousness of the problems/issues met in the implementation of the program by the concerned agencies, NCIP, DENR, DAR, and OMA obtained and interpretation of serious. Furthermore, based on the combined contribution of the agencies vision, mission, goal/objective, programs and strategies significantly influenced the level of effectiveness in the implementation of R.A. 8371 in BASULTA. Finally, at least two of the

agencies differ significantly in the level of effectiveness in the implementation of programs and support services. The NCIP has demonstrated the highest level of effectiveness, OMA being second is comparable to DENR, DAR, and LGU's.

It is safe to state that, with the agencies' vision, mission, goal/objective, programs and strategies significantly influencing the level of effectiveness in the implementation of R.A. 8371 in BASULTA, the true intent of the law which was found in the CDA conducted in this present study, strongly manifested its obligatory power to be implemented for all stakeholders concerned, without any significant markers of hedging, hesitation or bias towards the governments' side who drafted this law.

**Keywords:** Ancestral Land Law, R.A. 8371, Critical Discourse Analysis, Interactional Metadiscourse Markers , Law Discourse

## **Introduction**

Land is a basic element to the existence of the indigenous people. It is the means for their survival; thus, the indigenous people have always bound themselves to protect their ancestral land. They believe that once they are dispossessed of their land, integrity of their culture shall be affected. During the colonial time, the indigenous people resisted colonial oppression because it touched their own survival as a people.

In the Bangsa Moro Homeland, the Muslims have their own laws. The Sultanate recognized private properties and was then empowered to award state land to the people. It was also then able to confiscate properties such as those that belong to criminals and traitors. But with the coming of the Americans in the early 1900 gradually the American colonial government super-imposed its own land laws known as the "Torrens System".

Tanggol (1990) argued that the Muslim were cheated of their economic goods especially their ancestral lands which are not only seen as economic means but also as Darul Islam or abode of Islam, worthy to fight and die for. First was the colonial regime's imposition of the Torrens System of land ownership that was alien unacceptable and prejudicial to the Muslim and other minority group who had ancestral claims to this lands.

Second was the gradual intrusion of foreign companies that so far had eaten a considerable chunk of the indigenous people's territory and natural resources.

Gonzales (2000) avers, the Moros and other indigenous tribes claimed ancestral ownership of all land in Mindanao. The indigenous people among others claimed that the Christian robbed them the land owned by their ancestors. In the social sense, Gonzales (2000) argued the uneven distribution of development programs and projects due to the unequal representation and the dispossession of ancestral land contributed immensely to the insufficiency of means of education and health care.

During the American regime, these particular groups of Filipino were referred to as “Non-Christian Tribe” and the colonial government sought their integration into the main body politic. A special government body known as the Bureau of Non-Christian tribes was created for the purpose. The office of the Commissioner for Mindanao and Sulu afterwards replaced this when the Commonwealth government was established. After the grant of Philippine independent in 1946, the congress then in place cognizant of the need to speed up the development of these communities and hasten their integration with mainstream population, created the Commission on National Integration (CNI) by virtue of Republic Act. No. 1888. The Commission existed for about ten years and was able to make significant gains in its bid to attain its objectives. Before its functions, in so far as the Non-Muslim minorities were transferred to the Office of the President Assistant on National Minorities (PANAMIN) an agency created under P.D. 719. The CNI continued to operate for sometime but only for the Muslim communities. Not long thereafter, its remaining functions were absorbed by the Southern Development Authority (SPDA) and later, by Ministry of Muslim Affairs (MMA).

The PANAMIN pursued the same policy of integration with respect to the Non-Muslim tribe until it was itself abolished in 1984. It was supplanted by the Office of Muslim Affairs and Cultural Communities (OMACC). Which was created by virtue of Executive Order No. 969. The OMACC was structured after the CNI. It had both Muslim and Non-Muslim communities as its clientele. But again this office was not to last long because following the 1986 February revolution the agency was among those, which were abolished during the government reorganization that took place. In its instead, three (3) district offices, all attached to the office of the President, were created namely: the office of the Muslim Affairs (OMA), the office for Northern Cultural Communities (ONCC), office of Southern Cultural Communities, (OSCC) these offices were created by virtue of Executive Order 122-A, 112-B and 122-C respectively.

In 1997, the Central Government reinforced those agencies with the policy known as "Indigenous People's Right Act of 1997" this law aimed at addressing the clamor and sentiment of the indigenous people for recognition of their culture, ancestral rights and domain. Thus, was born the office of Southern Cultural Communities.

Beside the code of Muslim personal laws of the Philippines (P.D. 1083) is also promulgated in order to recognize the Muslim laws. The 1987 constitution provides that:

*"The state shall protect the rights of the indigenous cultural communities to their ancestral land to ensure their economic, social and cultural well being". (Sec. 22 Art. 2)*

The Muslim native still adhere to the saying of Prophet Mohammad (S.A.W), the Messenger of God said "Whoever usurps the land of somebody unjustly, his neck will be encircled with seven earth on the day of resurrection."

In this present study, an in-depth Critical Discourse Analysis (CDA) is conducted to verify whether the laws on ancestral domain and its effect justice and equality , were truly the intent of the laws drafted by those in the government to be implemented by all stakeholders concerned. Of note, CDA has its practice in the law discourse . In a broader perspective, there are critical views of the law. For example, a crude Marxist stance is that the law simply protects the powerful and their interests and the capitalist system of exploitation (Holdren & Tucker, 2020). And much good evidence can be presented to make such a case. Global corporations are able to produce systematic misery around the world, seemingly supported by international law (Cotal San Martin & Machin, 2020; Mayr & Machin, 2012). Prison inmates around the world are from poorer sections of society or from marginalized ethnic groups, all trapped in cycles of poverty (Hinton, 2016; Rabuy & Kopf, 2016; Western & Muller, 2013). Sentencing patterns and other processes that comprise the criminal justice system in these societies are highly discriminatory against individuals of lower social economic status (Van Eijk, 2017), whose lives might best be described as difficult and brutish, with highly limited access to education, the employment market, good social infrastructure and other resources as well as to knowledge about the law (Mayr & Machin, 2012).

At present, very few studies have been conducted in the objective assessment of programs and project of government of those sponsored by other institution that have an impact on indigenous people in the areas BASULTA provinces utilizing the fusion of regression analysis and Critical Discourse Analysis in sequential explanatory design.

The research endeavor is to establish and prove whether the implementation of R.A. No. 8371 has a negative or positive impact upon the quality of life of the indigenous people. Whether or not the vision, mission, goal and objectives as embodied in R.A. No. 8371 is finally attained anchored and manifested within the true intent of the law crafted by its framers in the government.

### **Statement of the Problem**

Generally, this study determines how far is the implementation and preservation of ancestral land, which is considered very vital to the existence of the indigenous people. The government tried several policies but so long the people are not empowered such policies would destined to fail.

Specifically, this study sought to answer the following questions:

1. What is the demographic profile of the respondents as to:
  - 1.1 Age
  - 1.2 Gender
  - 1.3 Position
  - 1.4 Educational Attainment
  - 1.5 Length of service
2. How effective is the implementation of R.A. 8371 with respect to:
  - 2.1 Vision, Mission, goal/objective
  - 2.2 Programs
  - 2.3 Policies and Strategies
  - 2.4 Problems and Issues
3. How serious are the problem/issues met in the implementation of the program?
4. Is there significant relationships between the perceived effectiveness of R.A. 8371 implementation and the socio-demographic profile of the respondents/beneficiaries?
5. Is there significant difference that exist in the ancestral land implementation of the program and the support services among coordinating agencies?
6. What are the prominent critical discourse micro-structure interactional metadiscourse markers: boosters and hedging devices within RA 8371 eliciting the true intent of the law?

### **Significance of the Study**

This study served as policy framework in the implementation of the ancestral domain law in the area of the ARMM. This would help the implementing agencies of the government in matter of land issues and problems in the five component provinces of the ARMM.

The study also provided a comprehensive analysis on land issues and land problems based on government policies and customary law. It further provided a basis for policy formulation and decision to the following: policy maker, sponsoring agency, national government, researcher, academicians, local government units and other government agencies.

Specifically, the study may become input to the Regional Legislative Assembly (RLA) of the Autonomous Region in Muslim Mindanao (ARMM) in their quest for better governance in matters of land allocation and distribution.

### **Scope and Delimitation of the Study**

This study confines to problems and issues, which resulted from the implementation of ancestral, land law in BASULTA. It also includes analysis on workable solutions and strategies to achieve effective and efficient service.

This study was conducted in the province of Basilan, Sulu and Tawi-Tawi, where there are indigenous people like Yakan's, Samal, Badjao who are the beneficiary/clientele of the programs and project respectively.

This study had also anticipated problems in terms of political pressure, financial, and time constraint and other factors like the respondents' capacity to respond and extent support to the researcher. However, the researcher humbly, believed on the popular maxim "when there is a will, there is a way".

### **Review of Related Literature**

This chapter presents the review of related literature and studies relevant to land Management and disposition of alienable and disposable land of the public domain as well as a survey on customary law (adat) on land ownership, coupled with socio-economic and cultural development, bearing directly or indirectly to the present study. This also deals and describes the conceptual framework or model that guides this study. The researcher hypothesis and the operational definition of the variables under investigation are presented in chronological order.

## **Land Disposition**

All land of the public domain belongs to the state and only the state thru government agency can convey ownership or rights to occupy thru a grant of patent, lease or permit in favor of qualified person. This is based on the theory that ownership of all lands of the public domain is vested in the state in the concept of “Jura Regalia” otherwise known as the principle of the “Regalian Doctrine” as embodied in section 3, Article 12 of the 1986 Constitution which provides:

*Sec. 2. All lands of the public domain, water, minerals, coal, petroleum, and other minerals oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the state. With exception of agricultural lands, all other natural resources shall not be alienated. The exploration, development, and utilization of natural resources shall be under the full control and supervision of the state. The state may directly undertake such activities, or it may enter into co-production, joint venture, or production-sharing agreements with Filipino citizens, or corporations or associations at least sixty per centum of whose capital is owned by such citizens. Such agreements may be for a period not exceeding twenty-five years, renewable for not more than twenty-five years, and under such term and conditions as may be provided by law. In cases of water rights for irrigation, water supply, fisheries, or industrial uses other than the development of waterpower, beneficial use may be the measure and limit of the grant.*

As a general rule, all lands of whatever classification belong to the state. The law is clear that “only those lands declared open for disposition or concession which have been officially delimited and classified as alienable and disposable are within the jurisdiction of the Bureau of lands (Section 8 of the Public Land Act).

The Bureau of lands is one of the government agencies under the Department of Environment and natural Resources vested with immediate jurisdiction in the administration, survey and disposition of alienable lands of the public domain and other lands acquired by the government but not placed under the control of any other government agencies. Under the public land act (Act 141, as amended) the director of lands act as guardian or administrator of the public domain and has a legal obligation to see to it that land resources which are within its jurisdiction is properly managed and disposed of in accordance with existing law.

Public lands or lands of the public domains are those not acquired by private persons or corporations either by grant or purchases. In the absence of a title in fee simple granted by the state those lands are presumed to be part of the public domain (Sec. 6, C.A. No. 141).

## **Land Registration**

The Torrens system of registration was introduced into the country with the adoption of Act 496 of the Philippine Commission on February 1, 1903. The holders of Spanish title were given six (6) months from the effectivity of PD 892 on February 1976 to apply for registration of their land. Sir Robert Torrens, a British businessman who became a member of the Australian Government, worked out the system. It found its way to the United States, and from there to the Philippines. Various laws have been enacted during the present regime to amend the original version of Act 496.

## **Land Reform**

In 1973, President Ferdinand Marcos declared agrarian reform in the Philippines is a translation of the ideological concept of the "land Democracy" doctrine. It is to be viewed as a "mass line" or an egalitarian approach used in the re-structuring of society. Berte (1970) and Mangahas (1974) argue that land reform can improve equity between farmers and the landowner. Cendana (1983) argues that the new economic ideology of spreading the fruits of development to the greatest number of Filipinos especially the poor and the downtrodden is the concern of all.

In the Philippines, despite the land reform law, land is still unequally distributed about 70% of peasant are landless. The landlords exercise economic and political power that are detrimental to the peasantry. Land reform has been a national policy since 1949 but meaningful distribution of land did not take place. Many of the discontented folks have flocked to the city in search of jobs Grolier Encyclopedia, (1988).

### *Customary (Adat) Law on Land Ownership*

Ustadz Ibrahim Ghazali (1998) defined Adat Law (Customary practices) refers to the Tausugs interpretation of Islamic law, it embraces all the Tausugs traditional laws such as justice, and administration, land ownership, government, marriage and inheritance. There are many cases whereby adat law contradicts government law. And one of them is the concept of land ownership and property. The concept of land ownership among the Tausug is legally based in the teaching of Islam. In Islam, there are three kinds of land ownership. These are lands owned by society, lands owned by the state and lands owned by private individuals.

### **Lands owned by the Society**

These are referring to the lands with title and develop by the society. Under Muslim control these are lands one acquired through conquest. It must be noted that a land, which is owned by a society, cannot be disposed by anybody except the government. Since the government is the custodian of the general interest of the Ummah, such piece of land is considered a national asset. The government can only dispose them if it is for welfare of the national interest.

### **Land owned by the State**

All forest and pasturelands that are uncultivated are considered property of the state. In Islam, the state must discharge the duty and protect them for the sake and interest of the people. Like the land owned by a society, they could also be disposed except for the interest of the state. They can be granted to an individual or association or it may be leased for productive use.

### **Lands owned by Private Individual**

Adat and public land laws about land disposition and ownership are complementary to each other. Adat law like Regalian doctrines share the belief that all lands belong to the state. The state is recognized as the sole power, which can convey ownership or grant the land to the landowner.

### **Differences**

Public land law never recognizes verbal or oral agreement, while Adat law gives weight to oral and verbal testimony, provided it is supported by credible witnesses and probably reinforces by an oath, invoking the wisdom of the Qur'an. Tausug adat law believes that documentary evidence can be fabricated while oral testimony cannot. False testimony under Islamic law has an effect called Utuk (curse). Hence, oral testimony is recognized by adat law and is stronger than written document.

Public land law considers that all land is owned by the state, while adat law share the same view but state further that land is absolutely owned by Allah. The occupant is only responsible to develop and cultivate it. Also he is a trustee of God.

## **Ethnicity**

Democratic theory assumes that their needs to be group mobilization to achieve community influence, a difficult task in an ethnic group with an internal division. Political rhetoric is about nation building and development in order to legitimize the government and peace. The nature of political system (democratic or authoritarian or presidential, multi-party or two party etc,) impacts how and whether different ethnic group are able to assert their interest (Freedman, 2000).

Ethnicity is a broad concept, covering multiplicity of elements: race, culture, religion, heritage, history, language, and so on. But at bottom are all identity issues. What they fuel is termed identity - related conflict – in short, conflict over in any concept around which a community of people focuses its fundamental identity and sense of itself as a group, and over which it chooses, or feels compelled, to resort to violent means to protect that identity and under threat. Often, such identity-related factors combine with conflicts over the distribution of resources – such as territory, economic power, employment prospects, and so on. Cases where the identity and distributive issues are combined provide the opportunity for exploitation and manipulation by opportunistic leaders, and highest potential for conflict (Harris, Peter and Reilly, 1998).

## **Indigenous People of the Philippines**

Dumaan (2001) argued our ancestors were once upon a time the only inhabitants on these islands. Under the newly constituted ARMM, the Muslim, which identify themselves as Bangsa Moro or Moro nation are now the majority, constituting 75% of the total regional population. The Philippines' 1987 Constitution recognizes the rights of indigenous people (IP) to their ancestral domain and their power of dominion over their lands and resources. This new law, as well as pertinent provisions in the 1987 Constitution and in the IPRA, attempts to correct centuries of oppression against the indigenous populations in Mindanao.

The Philippines supported various international agreement and conventions to protect the rights and culture of indigenous peoples (IPs). The issue of self-determination is dovetailed and cannot be isolated from that of self-government. Both People's Republic of China and Nicaragua are countries, which have, establish autonomous region for indigenous peoples.

## **Ancestral Domain**

Moro Islamic Liberation Front (MILF) Chairman Murad Ibrahim (PDI 2006) has called on his fellow Muslims and members of the indigenous communities to stand up- together and defend their homeland. This follows stand off in the peace negotiation because of the ancestral domain issue.

## **Poverty**

The majority of the poor throughout the developing world is concentrated in rural areas and are usually landless and small-scale farmers. Urban poverty is increasing due to accelerating rural-urban migration, population growth and inadequate industrial structures. Industrial development is a critical means of raising employment and improving the living standards. The official poverty incidence in the Philippines went down from 35.5% in 1994 to 32.1% in 1997. But the number of families affected actually rose from 4,531,170 to 4,553,387.

## **History of the English Language vis-à-vis the Enactment of Laws in the Philippines**

English became the official language of the Philippines by virtue of Philippine Commission Act No. 1123 of April 1904. During those times any person who did not know English was not eligible for government service. Without English, a Filipino is deemed illiterate even if he can correctly write and speak in Tagalog or any of his major native languages.

The Thomasites were for the use of Spanish and Tagalog, with Visayan and Ilocano, as media of national education. They viewed English as "a language of economic conquest". Henry Ford himself refers to this fact when he wrote in his report on the Philippine Situation. English is fast becoming a minority language in these islands. The government and the private schools do not have enough money to pay teachers a truly living wage. And the English speaking elite, as well as the politicians, find themselves forced to campaign in Tagalog, or Filipino, for votes.

## **Law Discourse through Van Dijk's Model of Critical Discourse Analysis**

The term discourse analysis is a generic term used in many disciplines and in various senses. Discourse can be seen from the form of power relations, especially in the formation of subjects. People can know the opinions implied by the author and grasp the real situation of the events described in the discourse by critical discourse analysis. Van Dijk sees a text consisting of several

structures / levels in which each part is mutually supportive. Metadiscourse markers are auxiliary verbs in sentences that help put forward the writer's true intentions in written discourse. These interactional markers are highly relevant in law discourse, particularly Republic Act 8371 under study.

## **Profile of the Respondents**

### **Age**

Butuan (1997) cited then results from some studies of Hulin and Smith (1965) and Gibson and Klein (1970) suggest that global job-satisfaction increase with age, especially for males. Thus, the most dissatisfied workers are the youngest, and the most satisfied are those nearing retirement.

The relationship between job satisfaction age is not to uniform. Hunt and Saul (1975) reported that satisfaction with work. Supervision, working conditions, and co-workers increase with age in sample males, but the only significant positive relationship for female as for satisfaction with work (cited by Butuan, 1997).

Age appears to best in five things: old wood best to burn, old friend best to trust, old wine best to drink, old authors best to read, and old teachers best to teach (Cosby as cited by Gagabi, 1999 and further cited by Bulusan, 2002).

Moreover, Doong (1997) cited that as workers become older they tend to like their job; this could be attributed to workers adaptation based on experience. On the other hand, younger workers tend to have excessive high expectations for projections and other conditions; hence, they tend to be dissatisfied with their job (cited by Bulusan, 2002).

### **Sex**

Butuan (1997) cited the survey of Barret (1975) that women are higher than men in terms of job satisfaction, the possible results of job motivation. Teaching, accordingly, may well be perceived by women as one of the higher status opportunities open to them, while opposite perception may apply to men. These kinds of social perceptions do influence work attitudes. On the other hand, the sex factor alone could be a strong influence. Only the very naive, or very hard-live women's "libbers", would claim that these are no intrinsic genetic psychological differences between the sexes, and it may be well the case that these differences result in women finding work with children any young people more congeries than me do.

Some studies report that males are more satisfied than females. Others report opposite, and still others no differences. Butuan (1997) further cited the study of Sauser and York (1978) on government employee's males was more satisfied in global terms and also with regard to such facets as promotion, supervision, and work. The only significant finding was that women were more satisfied with pay than men. It appears that male/female differences per se do not account for much variance in job satisfaction. Rather, it is other variables, such as education, that are correlated with sex that best explain these differences.

### **Civil Status**

Gagabi (1999) stated that civil status is not a significant predictor of teaching performance. This connotes that regardless of marital/civil status, the respondents have the same teaching performance. Thus, she found out in her study that the teachers teaching performances not influenced/affected by civil status (Cited by Bulusan, 2002).

### **Length of Service**

Mc Donald (1981) as cited by Butuan (1997) showed that length of service was positively correlated with degree of job-satisfaction. There are many reasons underlying this generalization. It can be assumed that early dropped-out in the teaching profession is largely the results of some aspects of job dissatisfaction as a group.

Besides, long years indicate deep satisfaction for work because they have added knowledge and skills as tanner (1987) describes that teacher's ability to deal with problems and improve the curriculum prevent boredom and burn out among teachers (cited by Bulusan, 2002).

### **Organizational Position/rank**

As Isidro (1949) stressed out, the members of the teaching staff in a college or university are collectively called the faculty. They are classified as follows: professor, associate professor, assistant professor, instructor, assistant instructor, professional lecturer and lecturer. A new appointee, depending upon his qualifications, generally begins as an assistant instructor. In some institutions like the University of the Philippines, a new appointee is placed on a probationary period of three years. After this period he may be appointed on a permanent basis unless there are strong reasons against it. From the instructorship one may be promoted to assistant professorship,

then to associate professorship, to professorship. The promotion from one rank to the next is accompanied by an increase in compensation and sometimes in privileges.

### **Educational Qualifications**

One of the more effective ways to break the cycle of poverty and to be able to compete in this highly competitive world is through education/skill training. If you belong to low-income family and/or desire to work immediately, your best plan is to take up first short term courses like typing, computer, tailoring and others. This way you can soon acquire an employable skill and then hunt for a job. Even in the matter of promotion, the education credentials of an employee or official are more often than not scrutinized. “To get a better job, get a better education,” advised a career guidance counselor (Gavino, 1992).

### **Hypotheses (Quantitative Data)**

The following null hypothesis is formulated:

1. There is no significant relationship between the perceived effectiveness in the implementation of R.A. 8371 on the development of beneficiaries and their demographic profile.
2. The government agencies vision, mission, goals, programs and policies/strategies do not significantly influence the level of effectiveness of implementation of R.A. 8371.
3. There is no significant difference in the implementation of ancestral land law between the lead agency (NCIP) and the coordinating line agencies of the government.

### **Assumption (Qualitative Data)**

Since the law ought to ensure justice and equality for all IPs in the Philippines, its intent is strongly obligatory to be implemented by all stakeholders concerned.

### **Methodology**

#### **Research Design**

This study used a sequential-explanatory mixed-methods design that is historical, descriptive and critical discourse in nature. Historical, for it dig up and analyzed documents and circumstances affecting the past condition of indigenous people/community since time immemorial up to the present. Historical data/documents are obtained from the office of the Sulu Historical Society,

school libraries in BASULTA, and the office of the national Commission on indigenous people, ARMM. Critical discourse because it delved in deeper on the true intent of the ancestral domain law.

### **Sampling design**

For the quantitative data, purposive sampling is applied whose members are chosen based on a set of criteria. Chief of offices, administrators, managers of line agencies of government and local government units (LGU's) as well as officers of civil society (CSO) and cooperative organization are selected as respondent. They are chosen as part of the sample because of good evidence that they are the representatives of the total population.

For the qualitative data, the entire Republic Act No. 8371 was analyzed using CDA of its micro-structure component through the interactional metadiscourse markers.

### **Research Locale**

The settings of this study are the offices of the National Commission on Indigenous People (NCIP), Department of Environment and Natural Resources (DENR), Department of Agrarian Reform (DAR), Office on Muslim Affairs (OMA), Local Government Unit (LGU's), all located in BASULTA area. They are (Fig. 1-3) government institutions that aimed at (1) addressing the clamor and sentiments of the indigenous people for the recognition of their culture, ancestral rights and domain in their respective community (2) to accelerate the emancipation of indigenous community from the bondage of inequity (3) it also seeks to stop the prejudice against indigenous people through the recognition of certain rights over their ancestral land.

### **A Profile Cultural Communities of BASULTA**

#### **Location and general physical characteristic**

Basulta lies in the Southwestern Section of the Philippines bounded by the Sulu in the North, the Celebes Sea in the South and Region IX in the East.

The dispersed island or islets form a triumvirate of major island namely: Basilan, Sulu, and Tawi-Tawi. The Basilan group, which is slightly smaller than Sulu, lies closest to the Zamboanga peninsula, while the Tawi-Tawi group of islands the smallest among the three, lies farthest. The proximity of Tawi-Tawi to North Borneo makes it the closest neighbor of the region in its western section, which also marks the boundary between the Philippines and Malaysia.

Table 1, shows the population of the BASULTA Provinces as of the year 2000.

Table 1. Population

Area	1975	1980	1990	2000
Basilan	171,027	201,407	238,308	332,828
Sulu	240,001	360,588	469,971	619,668
Tawi-Tawi	143,487	194,651	228,204	322,317

Source: 2000 Census of Population and Housing

Table II. Land Area and Density (person per sq.km.)

Area	Land Area (sq.Km.)	1975	1980	1990	2000
Basilan	1,372.2	128.9	151.8	177.1	242.9
Sulu	1,600.4	150	225.3	293.7	387.2
Tawi-Tawi	1,087.4	132	179	209.7	296.5

Source: 1992 Philippine Statistical Yearbook

Table III. Distribution of Indigenous Tribe in BABULTA

Province	Municipality	Indigenous Tribes	Number
Basilan	Tuburan	Yakan	117,000
	Isabela-Lamitan	Samal (Badjao)	26,000
Sulu	Main Island	Kalibugan/Samal	40,000
	Small Island	Badjao	45,000
Tawi-Tawi		Kalagan /Samal	19,000
		Badjao	21,000
<b>Total</b>			<b>268,000</b>

Source: ARMM Social Fund 2002

### **Who are the Badjaos?**

Badjao – are scattered along the coastal areas of Tawi-Tawi, Sulu, Basilan and some coastal Municipalities of Zamboanga del sur are the sea nomads or sea gypsies commonly known as the Badjaos.

The badjaos have no permanent dwellings and live on their boats, lipa, throughout the year. In some places, the badjaos have built houses usually 20 to 30 feet long with a width of 15 feet thereby forming a perfect rectangle. Fronting the house is an open platform to serve as a boat landing stage.

### **What are their means of livelihood?**

Because of their natural environment, the badjaos are predominantly fisherman. Fishing is their livelihood and way of life.

The Badjaos are also skilled in boat making or magtapih. This is a logical occupation since their means of transportation are the vinta, banca paraw and lately the pump boat.

The Badjao women, too, do their share of work to augment the family income. The women and children engage in seashell gathering (anebra). It is their alternative means to earn a living especially when the sea is rough and fishing in open sea is not possible.

In addition, these women are skilled mat weavers. Finished products can sell at varied prices depending on the size, color and intricacies of the designs.

### **What are their beliefs and practices?**

**Animistic Beliefs:** The badjaos continue to practice their pagan beliefs although some have embraced Islam and Christianity. They believe that there are other gods and goddesses who, are assigned by the Almighty God to be guardians (tungguh). Dwell everywhere especially in big trees, big stone and big rivers.

Pag-omboh is the animistic belief of the Badjaos that the spirit of a great grandfather can transform himself into the physical being of anyone he likes, usually the oldest in the family, and can communicate with whoever need helps.

Pagsalba is a belief corollary to the pag-omboh. The pagsalba or merry making is observed for at least seven successive nights. The age-old practice is performed when there is an epidemic in a

Badjao community. It consists of pag-igal or dancing by both men and women who are believed to be loved by the omboh.

Pag-duwaa Salamat (Thanksgiving prayer) is performed every time a patient has recovered. An Imam is invited to chant a prayer, assisted by one or two learned elder men familiar with religious lore. Relatives and friends are also invited to witness the ceremony.

Pagtimbang (weighing ceremony) is promised if the afflicted persons survive during serious illness. This involves the weighing of the recuperating patient against an equal weight of rituals goods such as bananas, coconuts, sugar cane, firewood, and rice cakes.

Other rituals observed by the badjaos are: magtobbok (ear-piercing); Pag-gunting (baptism); and Pag-Islam )circumcision/religious obligations).

**Marriage:** The parents of both bride and the groom usually arrange marriages among the badjaos. It is also contracted at a very young age, from fourteen to nineteen, and the badjaos go through several stages of custom and traditions before the wedding ceremony take place: (1) pre-engagement period (annik-bih); (2) engagement period (pag-angbat or pagtunang); (3) pre-wedding period (pagbua-mamah) and, (4) wedding ceremony (pagkawin).

Like their Muslim counterparts, marriage among the Badjaos involves the payment of a bride price (dowry) by the groom.

**Death:** Although in Islamic teaching the corpses should be buried as soon as possible, it is customary among the badjaos to keep the deceased at least overnight so they can pay their last respects. Another reasons for the delay is to await the arrival of relatives who happen to be away. The badjaos have two ways of observing their death rituals: (1) turul-tanah which literally means, “to go with the earth”, and (2) hinang dandan denotes a ‘long celebration or observance’.

The turul tanah includes four stages: “Sinutchi” to bathe and cleanse the corpse; “Sinaput” shroud wrapping; “Sinambahayang” prayer to the dead; and “Kinubul” to bury the dead.

The hinang dandan is observed by the families who can afford prolonged rituals. These include ceremonies during the third and seventh days, second week and fortieth day. (OSCC 2006).

### **Who are the Jama Mapuns ?**

The Jama Mapuns are often mistakenly identified with the Samal or badjaos, considering the fact that they mingle with these two tribes. Their principal habitat is the island de Cagayan de Tawi-

Tawi but large numbers of them are also found in Palawan and North Borneo. Linguistically, they belong to the Samal-Badjao, taken as a generic linguistic family.

### **What are their means of livelihood?**

Their main economic activities are agriculture and trading, fishing being a supplementary activity. Traditionally, farming was the subsistence type (upland rice and root crops); but there has been a substantial shift to cash crop farming (coconut).

Trading has also been an important activity for the Mapuns. The trade items, in the past, included edible birds nest, cloth, metals, Chinese porcelain, forest and farm products. But now these items include modern consumer goods like cigarette, transistor radios, and the latest brands of textiles.

### **What are their beliefs and practices?**

The beliefs-ritual system of the Mapuns can be best described as “Folk Islam”. Folk Islam is a combination of native and Islamic beliefs that the Mapuns adhere to.

**Birth:** Like other tribes, the Mapuns have their own complex of beliefs and practices related to pregnancy and childbirth. During the pregnancy, the expectant and husband are under customary dos and don'ts. The wife is forbidden to sew, patch or step over a pestle and that she should unlock all containers to ensure ease in delivery. On the other hand, the husband is forbidden to have contact with death (lifting dead and digging graves), or to wear anything around his neck, lest something bad would happen to the child. Any food the wife may happen to desire, even if ordinarily forbidden (haram), should be granted such as desires are believed to spring from the child inside the womb. The rituals during actual childbirth involves the process of cleaning and cutting umbilical cord (batang ponsot), bathing the baby and wrapping the newly-born in a swaddle (barung) of pink and yellow cloth(not white which is used for wrapping the dead).

**Childhood:** The Mapun's rites of childhood and adolescence have clearly Islamic tinge. These involve: (1) bahag and kamat (blessing of the newborn); (2) paggunting and pagtimbang (cutting some hair of a newborn's head with knife or pair of scissors and weighing of the child against an equal; weight of rituals goods); (3) pagislam (to be come Muslim or to enter Islam); (4) pag-tammat (completion/graduation from a course in basic Islam).

**Marriage:** Marriage among Jama Mapuns normally involves the payment of a bride price by the groom. Bride price levels vary depending on the beauty and social status of the girl. Weeding ceremonies are often determined by the phase4 of the moon and by the month of Islamic Calendar.

**Death:** Jama Mapuns believe that the dead should be buried as soon as possible. If a person dies in the morning he must be buried before evening. If he dies at night, he must be buried before noon the following day. The dead are always buried in family cemetery near the house.

Mapuns never use coffins. The care for the dead is shown in washing the body and wrapping it in a new, white cloth. The body is placed in the grave with such care that the covering earth never touches it. This is done in such a way that the body is inserted into a niche dug at the side of the main grave, then closed off by some pieces of wood. Only then is the main grave covered by soil.

### **Who are the Yakans?**

The Yakans, known, as “men of the hinterlands” are believed to be the aborigines of Basilan, living in the interior part of the island province. They are described as people who keep much to themselves, are suspicious of everybody, treacherous, unreliable and given to fighting whenever a chance occurs.

The Yakans have marked Malay features – slanting eyes, fleur de tete, skin of a deep brown and wavy black hair of a fine texture and rich blue-black color.

### **What are their means of livelihood?**

The Yakans have long specialized in Agriculture and are extensive growers of rice, peanuts, root crops, and coconuts. They live principally on camotes, vegetables and fish although; as in times past they hunt to provide them occasional meat. They are also engaged in the making of boats, which they sell to the Samal or Tausugs seafarers. But vital to their present-day survival is their dependence on trade with coastal villages.

### **What are their beliefs and practices?**

**Religion:** Most Yakans embrace the Muslim faith-Islam. As such he accept and practices the five pillars of Islam:

- a.) He recites the shahadat
- b.) Sambahayang
- c.) Observe the Puasa
- d.) Observe the Pitla and Zacat
- e.) Maghadji

**Rituals observed among Yakans:**

- a.) The playing of wooden gubang (xylophone) perched high in the tress during the palay seasons, which is supposed to encourage the plant to grow fast and robust.
- b.) Bahasa – the man or Bahasa is called upon to cure sickness or tell one's fortune.

**Marriage and Divorce:** Marriage and divorce among the Yakans are regulated by custom and traditions. At the age when the boy starts having wet dreams, which is a sign of puberty and the girl menstruates, which starts early among Yakan women, both are considered ready to marriage. After ogling and wooing the girl, he selects a girl after his heart, and then consults with his family; a mediator is sent to talk to the girl's parent over the marriage proposal.

Marriage between fourth civil degree cousins is taboo unless the groom pays a fined called "ellet" to the Agama Court to bridge the gap of the prohibition and appease the spirits who would otherwise cause bad luck.

Most Yakans have only one wife – this is because of the difficulty involved in maintaining the additional burden and the hardship of securing permission. For each additional wife a dowry has to be paid and house and other provision for her maintenance are to be provided. Furthermore, a man cannot take a second wife without the consent of the first wife and to acquire a third both wives must give their consent.

Divorce among the yakans are categorized according to the kind and reconciliation involved, as follows:

- a.) Tallak Tiga – reconciliation is not possible under the circumstances. The parties have to remarry if they decide later to reconcile and live together.
- b.) Tallak Bayang – there is a three month separation but the husband has to pay a fine to be reconciled.
- c.) Tallak Rudju – a temporary divorce of a few days.
- d.) Tallak Kipalat – to be reconciled, prayer for forgiveness is observed.

**Death:** The burial custom of the yakans is called "Megkuwul". As in Indonesia and Malaysia, death rites consist of washing the body of itsd dirt and emptying of the bowels, the wrapping of the corpse in a white shroud accompanied by a prayer from appropriate Quranic passages. This is complemented by a purely Yakan custom: the putting of the native costume on the top of the corpse before it is placed on the wooden structure and carried to the burial site, preferably in the afternoon of the day of death or not later than the following day. The grave is dug " in the shape of a half-

moon”, and inside another half-moon is dug where the body is laid on its back without a coffin and with the head facing north. The Imams prays inside the grave and then later beside it before the grave is filled and the mourners begin eating on it.

They believe in life after death for which the dead must be adequately and properly prepared.

Table IV. Shows the Distribution of Indigenous Muslim tribes in ARMM.

Province	Indigenous tribes	Total Numbers
Lanao Del Sur	1. Maranao	742,000
Maguindanao	2. Maguindanao	644,548
Sulu	3. Tausug	502,918
Basilan	4. Samal	244,160
Tawi-Tawi	5. Yakan	198,000
	6. Sangil	77,000
	7. Palawani	25,614
	8. Badjao	28,535
	9. kalibugan	15,417
	10. Jama Mapun	14,347
	11. Iranun	12,542
	12 kalagan	7,502
	13. Malbog	5,316
Total		<b>2,509.899</b>

Source : (NCIP 2000)

## Respondents

The target respondents who are chosen as the subject of the study are categorized into two parts. The first part is composed of 100 respondents coming from the office of NCIP, DENR, DAR, OMA, and LGUs. The key informants are chief of offices, key officials and staff. Each office is represented by 20 respondents.

The second part is composed of 100 respondents who are the direct beneficiaries and clienteles of the above noted offices. The key informants are tribal and community leaders, members of the

media, officials of cooperatives and civil society organization, accredited farmers and fishermen association, and religious leaders like Ulama and Muftis.

The total respondents' covering this study is 200.

### **Research Instrument**

This study made used of a questionnaire-checklist, personal observation and interview with key informants such as career administrators from the office of the NCIP, DENR, DAR, OMA, LGU officials. On the other hand religious leaders like Ulama, Muftis, community and tribal leaders, official of cooperative, civil society and youth organization as well as farmers and fishermen association who are the direct beneficiaries and clientele are served with questionnaire checklist to ensure their responses/perception on the socio-economic impact of the programs and projects. The researcher also used informal conversation type of interview with key informant through the aid of a cassette recorder. An interview guide was prepared. All primary data were evaluated properly on account of relevance to study.

### **Validity and Reliability**

For the survey, the content validity of the instruments was established by having the final draft evaluated by five – man panel of experts whose criticisms and suggestion are noted for the refinement of the instrument. The survey instrument was submitted to pilot testing for higher reliability. All statements obtained the Cronbach's alpha value of .818 that is considered statistically as a high reliability value. Hence, all statements were retained.

For the Critical Discourse Analysis of RA 8371, there were 3 inter-coders who are PhD graduates in Language Teaching that coded the interactional metadiscourse markers within the law. The 3 inter-raters' coding were submitted to Spearman Rank correlation test to compute for the agreeableness or similarity of coding. It was found that between Coder 1 & 2 ( $r = .78$ ,  $p = .01$ ) ; between Coder 1 & 3 ( $r = .814$ ,  $p = .023$ ); and between Coder 2 & 3 ( $r = .825$ ,  $p = .013$ ). Hence, inter-coding is highly correlated. It means that the coders are in agreement with the metadiscourse markers found in the law.

### **Data Gathering Procedure**

Since the study intended is an institutional research output, the approved permission from the manager or head executive of the office or LGUs is necessary to ensure coordination and support from the latter. The division or sections head are utilized to assist in the administration of questionnaire checklist and the scheduling of interviews with the manager of the office concerned. It is verbally emphasized along with the assurance of confidentiality of the answers. Retrieval of the instruments is done after the respondents are through answering the questionnaire. All submitted questionnaire are reviewed to ascertain that no item are missed or not answered by the respondents before finally accepting them.

### **Data Analysis / Statistical Technique Used**

After the retrieval of the questionnaire the researcher tabulated, processed and analyzed the data to arrive at precise analysis of result. Data matrix based on tables are used to organize, summarize, and analyze the data on how the variables .

Statistical treatment. The statistical tools used to answer the research question of the study are described and the formula are explained. The level of confidence (either one or five percent) are stated to determine the degree of significance of the findings.

The statistical technique used in the interpretation of data in this study includes the frequency counts weighted arithmetic mean and multiple regression analysis. Comparison between mean is used to determine the average respond of the four options in each item namely: 4-Very Effective 3-Effective 2-Less Effective 1-Ineffective.

Multiple regression analysis is used to determine whether the perception five groups of respondents namely: NCIP, DENR, DAR, OMA LGUs has predictive relationship with the perceived effectiveness of implementation of R.A. 8371.

The comparison of means by Scheffe's test is likewise applied to determine the perceptive level of contribution of each lead and support agencies which regard to the implementation of R.A. 8371.

### **Results and Discussion**

This study endeavored to identify the effectiveness in the implementation of ancestral land law (RA 8371) in terms of demographic profile of respondents, with respect to vision, mission,

goal/objectives programs, policies and strategies as well as the level of seriousness of the problems/issues met in the implementation of the programs of NCIP, DENR ,DAR,OMA and LGU's.

The respondents were officials, managers and administrators of the above noted offices as well as officers of non-government organizations (NGO's) people's organization, cooperative, members of the media, academe and religious leaders. The research instruments employed in this study was a researcher made instrument pattern after (Morenos 2004) questionnaires.

### **Summary of Findings**

The combined contribution of age, gender, educational attainment and length of service of the respondents significantly influence their perception on the level of effectiveness of R.A. 8371 implementation of the programs. This finding rejects the null hypothesis which states that there is no significant relationship between the perceive effectiveness in the implementation of R.A. 8371 on the development of the beneficiaries under demographic profile. The age is considered as significant predictor when taken singly. Hence, the younger the respondent the higher is his perceived level of effectiveness in the implementation of the RA 8371.

The level of effectiveness in the implementation of the ancestral land law (RA 8371) with respect to vision, mission, goal/objectives, programs, policies and strategies by the concerned offices/agencies come up with the following results/findings:

NCIP	-	Effective
DENR	-	Less Effective
DAR	-	Effective
OMA	-	Effective
LGU's	-	Less Effective

This finding likewise rejects the second hypothesis which states that the government agencies visions, missions, goals, programs, and policies/strategies do not significantly influence the level of effectiveness of implementation of R.A. 8371.

The level of seriousness of the problems/issues met in the implementation of programs by the concerned agencies/offices comes up with the following results/findings:

NCIP	-	Serious except item no. 5 lack of honest to goodness development plan as less serious appearing in table 11 (chapter 4).
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DENR - Serious

DAR - Serious

OMA - Serious

LGU's - Serious except item no. 4 economic development appearing very serious, table 15 (chapter 4).

That the combine contribution of the agencies vision mission goal/objectives programs policies and strategies table 17 (chapter 4) significantly influenced the level of effectiveness in the implementation of the RA 8371 in BASULTA.

That at least two of the agencies differ significantly in their level of effectiveness in the implementation of programs and support services. This finding again and finally rejects the third hypothesis that there is no significant difference in the implementation of ancestral land law between the lead agency (NCIP) and the coordinating line agencies of the government. The NCIP has demonstrated the highest level of effectiveness the OMA being second to NCIP is comparable to DENR, DAR and LGU's table 18 (chapter 4).

### **The Interactional Metadiscourse Markers in RA8371: Boosters and Hedges**

As can be seen in Table 19 below, in all chapters, the use of boosters (f=301) far significantly dominates the use of hedges (f=47). This means that the authors of this law clearly mandates the implementation of the RA8371 as obligatory to all stakeholders concerned.

Table 19 The Interactional Metadiscourse Markers in RA8371: Boosters and Hedges

Segment	Chapters	Sections	Boosters	Hedging Devices
Headings				
General	I	1		0
Provisions		2a- 2f	11	
Definition	of II	3a- 3p	6	3
Terms				
Rights	to III	4-7a-7h – 8a-8b-	31	1
Ancestral		9a-9c- 10-12		
Domain				

Right to Self- Governance & Empowerment	IV	13-20	10	5
Social Justice & Human Rights	V	21-24a-24b-25- 28	22	2
Cultural Identity	VI	29-33a-33b-34- 37	20	0
National Commission on Indigenous Peoples	VII	38-44a-44q- 45- 46a-46g-47-50	83	12
Delineation & Recognition of Ancestral Domains	VIII	51-52a-k -53a- 53g-54-64	72	13
Jurisdiction & Procedures for Enforcement of Rights	IX	65-70	9	3
Ancestral Domain Funds	X	71	4	2
Penalties	XI	72-73	8	1
Merger of the Office of ONCC & OSCC	XII	74-77	16	4
Final Provisions	XIII	78-84	9	1
Total			301	47

## **Conclusion**

The Indigenous People's Right Act popularly "known as R.A. 8371" is promulgated and implemented designed to correct centuries of oppression and marginalization of the Indigenous people/community.

The research endeavor has come up with an objective assessment on the extent or effectiveness of the implementation of ancestral land law (R.A. 8371) in BASULTA as follows:

The result/findings of the study reveal that based on the combined contribution of age, gender, educational attainment and length of service, significantly influence their perception on the level of effectiveness of R.A. 8371 implementation of the program. The age is considered as significant predictor when taken singly. Hence, the younger the respondent the higher is his level of effectiveness in the implementation of R.A. 8371.

The study also further indicates, based on the level of effectiveness with respect to vision, mission, goal/objectives, programs, policies/strategies by the concerned agencies, NCIP, OMA, and DAR have a verbal description of effective while DENR and LGU's have a verbal description of less effective, respectively.

Moreover, based on the level of seriousness of the problems/issues met in the implementation of the program by the concerned agencies, NCIP, DENR, DAR, and OMA obtained and interpretation of serious.

Furthermore, based on the combined contribution of the agencies vision, mission, goal/objective, programs and strategies significantly influenced the level of effectiveness in the implementation of R.A. 8371 in BASULTA.

Finally, at least two of the agencies differ significantly in the level of effectiveness in the implementation of programs and support services. The NCIP has demonstrated the highest level of effectiveness, OMA being second is comparable to DENR, DAR, and LGU's.

It is safe to state that, with the agencies' vision, mission, goal/objective, programs and strategies significantly influencing the level of effectiveness in the implementation of R.A. 8371 in BASULTA, the true intent of the law which was found in the CDA conducted in this present study, strongly was obligatory envisioned to be implemented for all stakeholders concerned without any significant markers of hedging, hesitation or bias towards the solon's side who drafted this law.

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## **Gendered Perceptions of Faculty and Students on the K-12 Program and Multilingual Education Implementation**

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### **Abstract**

Based on the report of Julkarnain (2018), the overall perception of the respondents on K-12 program and multilingual education in terms of *effectiveness, quality basic education; length of time, economy, new scheme*, appeared to be *favorable* to their implementation. In this present study, the same 210 respondents, composed of students and teachers, were tested according to their perception on the K-12 implementation in terms of *effectiveness, quality basic education; length of time, economy, new scheme* including their perceived assessment on its classroom implementation such as *teacher's ability, classroom activities, procedures involved, administration/ management and students performance* based on gender. It was hypothesized that males and females do not differ in all the mentioned variables. Consistent with the null hypotheses, the respondents do not differ in their favorable response on the K-12 and multilingual education implementation in Zamboanga City. Hence, there is equality in terms of how both gender groups view this new pedagogical scheme.

**Keywords:** K-12 Program, Gendered Perception, Multilingual Education, Teaching and Learning in K-12 Program

## **Introduction**

Education is a never-ending process that adapts as needed. According to the World Economic Forum Global Competitiveness Report (Source: SEAMEO Innotech, 2011), the Philippines only came in at position 8 in terms of innovation potential and the caliber of science and math education. Strong transformation began from this point on.

The Philippines must quickly catch up to the rest of the globe; this is a requirement. Because of this, a decision was made to develop and change the Philippine Educational System, which needs to be prioritized and implemented. paying attention to and offering support for improving the academic communities in the Philippines' capacities, talents, and potentials. The Philippine government's primary priority and greatest concern is to increase the capacity of its human resources. This led to a change in circumstances. The curriculum for basic education has been improved. Following the 1992 Education Commission (EdCom) investigation, preparations for a relocation were made. As a result of the research study, the quality of education in the Philippines declined, which caused it to concentrate on saving.

An education act was created as a result of this during the fifteenth Congress's third regular session, which was held in Manila on July 23, 2012. Act 10533, also known as "An Act Enhancing the Philippine Basic Education System by Strengthening Its Curriculum and Increasing the Number of Years for Basic Education, Appropriating Funds Therefor and for Other Purposes," was passed in the Philippines in 2010. The Philippine Senate and House of Representatives passed this into law. According to the "Enhanced Basic Education Act of 2013," the government is required to set up, support, and maintain a comprehensive, appropriate, integrated system of education that is in line with the requirements and ideals of the Filipino people, the nation, and society at large. The K-12 Program was introduced as a way to be relevant to such changes in the academic world.

The Philippines is currently behind other African nations in terms of education, with basic schooling taking an average of 14.5 years in those nations. This served as justification for the Philippine government's action to improve the nation's basic education, which was based on Republic Act 10533. Under the President of the Republic of the Philippines' direction, DepEd Order No. 72, Series of 2012, the K–12 program and its implementing guidelines were released (Luistro, 2012). The K-12 Curriculum was thus put into practice. From here, various viewpoints, varying insights, and opposing opinions may be observed and heard.

More definitions and details on the K–12 program are intended to provide every Filipino with the high-quality basic education to which they are entitled. The Constitution of 1987's provision for free public education serves as support for this. In reality, Benigno S. Aquino, the president of the Philippines, endorsed the initiative in 2012 and stressed the importance of education in solving the nation's long-term problems. With such extensive education, the country can create better citizens and, as a result, a stronger society. The best is what parents want to provide their kids for the future. Top management and educators accepted the challenges of bringing about change since the future of the next generation was at stake. To prepare themselves with the information and technique of the new program, they undertook extensive training.

As a result of the K–12 curriculum's current implementation, stakeholders, parents, students, educators, and other interested parties have voiced divergent ideas, various insights, and multiple positions. Given how drastically the situation changed, this is an expected natural response. However, the K-through-12 program seeks to give each Filipino citizen with a fundamentally good education, and educators, DepEd, TESDA, and other associated organizations are working together to make this goal a reality. It should be highlighted that the old four-year high school curriculum would be relieved by the addition of two years of high school. As a result, the students can take their time developing the abilities and skills that lead to competency mastery in co-curricular activities like community service. Additionally, this program creates graduates who are well-rounded. The K–12 curriculum focuses on the abilities that the labor market will require of its graduates. Graduating students will get their Certificate of Competency (National Certificate in their area of specialization).

Looking at the curriculum in its whole context reveals that the core subjects are math, Science, and English, with electives that are attentive to and responsive to the interests of the learner and the demands of the local industry. Notably, the K–12 graduates will receive accreditation in their chosen fields of study, including academics, technical-vocational fields, athletics, and the arts.

This allows the researcher to concentrate on the study, Perception of Faculty and Students of Public Schools in Zamboanga City on the Implementation of the K-to-12 Program.

### **Theoretical Framework**

One well-known learning theory that is relevant to literacy learning was promoted by the K-to-12 Program. The term for it is literacy learning (Cambourne, 1988). It is necessary to find out more

opinions and perceptions from the impacted academic community about the implementation of the K–12 program based on the observed viewpoints and remarks from various beneficiaries of the academic community regarding the radical change of the educational system and its curriculum. how it impacted their environment—both socially and academically.

Australian researcher Brian Cambourne, a social education scientist, spent many hours closely monitoring young children who were developing effective reading skills. Inversion, demonstration, expectation, responsibility, use of approximation, response, and engagement were the criteria for learning that he translated from the event that he filmed and documented. When the first seven prerequisites are met, this engagement happened. These prerequisites, popularly known as "Cambourne's Conditions," are essential for any successful language learning. They function in tandem in every effective classroom and give language learning a context.

Teachers were aided in their understanding of the value of involvement with demonstration by Cambourne's work. This represents the revised K–12 curriculum methodology and content plan. Bryan Cambourne's schematic presentation is seen in Figure 2; the K–12 curriculum accepted this notion. According to the Cambourne's Theory diagram, learners need to be fully immersed in all types of literature. Engagement is required to go along with both immersion and demonstration. When the performance persuades the student to learn something, this happens. By example and observation, it is demonstrated. The learner may state that they may participate in and seek to imitate these demonstrations without worrying that doing so will cause them physical or psychological harm.

This aids the learner in making choices that add to the aesthetic aspect of teaching, which is challenging for educators who despise kids. Expectation, accountability, approximation, and response come after demonstration. Responsibility is empowered to decide for themselves when, how, and what it is.

The Cambourne Model of Learning, which this research study utilized, applies literacy learning. Bryan Cambourne made a theory about how the K–12 curriculum came to be. In her "My Learning Theory," which she dubbed another theory by Routman, Regie (1994), the author underlined how her attitude and beliefs profoundly influenced her teaching, the way she addressed her students, the curriculum, and her students' learning. The key components of her learning theory include the following: (1) Respect for learners' developmental level; (2) Expectation that learning will occur; (3) Focus on the strengths; (4) Display joy; (5) Encourage "Languaging"; (6) Process orientation;

(7) Ongoing evaluation; (8) Independence fostered; (9) Lifelong thoughtful learning; (10) Teachers as facilitator and co-learner; (11) Negotiation of curriculum; importance of choice; (12) "Demonstration" taking place; (13) Valuing time; (15) Collaboration and social interaction.

The two theories of Reggie (1994) and Cambourne (1988) were the sources from which the idea for the program research study was generated. Reggie's (1994) "My Learning Theory" was an additional theory where the K–12 program was implemented. The two theories of Reggie (1994) and Cambourne (1988) were the sources from which the idea for the program research study was generated. , Reggie's (1994) "My Learning Theory" was an additional theory where the K–12 program was implemented.

### *Multilingualism and Multilingual Education*

Multilingualism is a phenomenon that is common in many places of the world, according to a thorough assessment by Madrazo (2010). In multilingual settings like Zamboanga City, the Philippines, trilingualism—the knowledge of three language representations—can be seen particularly frequently. In this speech group, tertiary students can already speak more than two languages (i.e. Chabacano, Filipino & English). Their first language (L1) may be Chabacano, which is widely used in the city. The Philippine bilingual education policy mandates that their L2 Filipino and L3 English be studied as literacy languages starting in pre-school. Thus, implementing bilingual education is vital.

In addition to being critical for social interaction and maintaining cultural identity, language—whether it be local, national, or international—can be a crucial tool for developing linguistic and cognitive skills. According to Madrazo (2010), who referenced Bialystok (2007), in a multilingual society, explained that the main channel connecting our social and cognitive worlds is language. As a social tool, it facilitates relationships between people, establishes social standing, and defines educational options. As a cognitive tool, it offers access to concepts and meanings, the logical framework for problem-solving, and establishes the organizational framework for knowledge.

Is bilingualism advantageous for cognitive processing and language learning? Studies have demonstrated the role of L1 and L2 to L3 learning as facilitators (Jessner, 1999; Sanz, 2000). Research has also highlighted the advantages of using regional tongues (like Hiligaynon) for content learning in the setting of the Philippines (Ramos, Aguilar, & Sibayan, 1967). However, because many language planners and teachers still adhere to the monolingual framework of language education, Chabacano, along with other ethnic languages Tausug, Sama, and Bisaya, is

still not valued as a literacy language in Zamboanga City. This is demonstrated by the English-only policy that has been implemented in the teaching of English and other important subject areas at the primary, secondary, and tertiary levels of education.

Madrazo (2010) went on to discuss how Chabacano is very different from Filipino because some people might argue that trilinguals who speak Chabacano, English, and Filipino aren't really trilingual if one assumes that the two Philippine languages are actually quite similar and therefore share similar cognitive representations. Spanish Creole spoken in the Philippines is known as Chabacano (Lipski, 1987). Chabacano words like "number of words," "days, weeks, and months," and "body parts" are primarily derived from Spanish (Barrios, 2006), which is consistent with the idea that a creole's superstrate language or lexifier language adds to its lexicon (Crowley, 1997). It is acceptable to claim that Chabacano is a Romance language because Spanish is the superstrate or lexifier language that predominates in this Creole.

Due to this, Chabacano is significantly different from both English and Filipino, a member of the Austronesian language family. (which is a member of the Germanic language group). In contrast to English-Filipino bilinguals, it may be fairly believed that fluent Chabacano-English-Filipino trilinguals function with three different linguistic representations. This supposition explains why it is difficult and hard for ESL teachers and students to even process these languages within the context of K–12 programs and multilingual education.

The teachers and students of Putik Central Elementary School, Western Mindanao State University's College of Teacher Education, and Integrated Laboratory High School were chosen at random for this study. It has adopted a framework for evaluating the K–12 program's implementation. The study's time frame was the academic year 2012–2013.

### **Statement of the Problem**

This study determined the respondents' perception on the K-12 implementation in Zamboanga City. Specifically, it sought to answer the following research questions:

1. Is there a significant difference in the students and teachers' perception of K-12 in terms of *effectiveness, quality basic education; length of time, economy, new scheme* based on gender?
2. Is there a significant difference in the students and teachers' perception of K-12 in terms of *teacher's ability, classroom activities, procedures involved, administration/ management and students performance* based on gender?

## **Hypotheses**

The null hypotheses of this study posit that:

1. There is no significant difference in the students and teachers' perception of K-12 in terms of *effectiveness, quality basic education; length of time, economy, new scheme* based on gender?
2. There is no significant difference in the students and teachers' perception of K-12 in terms of *teacher's ability, classroom activities, procedures involved, administration/ management and students performance* based on gender?

## **Review of Related Literature**

K-12 curriculum is a new initiative within the Philippine Educational System, as directed by DepEd Order No. 72, Series of 2012, which was released by Sec. Br. The K–12 Basic Education Curriculum Assessment and Rating Guidelines have been distributed by Armin A. Luistro, FSC, and are attached. The directive was as follows: (1) Effective S.Y. The standard-based assessment and rating system will be put into place in 2012-2013 to support a nationwide, phased implementation that will begin with elementary and secondary schools. The Sec. The DepEd Order No. 72, Series of 2012 Attached by Luistro are: Instructions for the assessment that included enclosure; b. Instructions for Rating and Assessing Learning Outcomes; c. Prototype Rubrics for Various Assessment Levels; d. Formative and Assessment prototypes ; e. Samples of Assessment Matrixes for Grade 7 Subjects; f. Instructions for Assessing Grade 1 Learning Outcomes; g. Examples of Grade 1 assessment matrices and rubrics; f. Report Card Example

This was sent out by the DepEd Secretary to all Undersecretaries, Assistant Secretaries, Bureau Directors, Schools, Divisions, City Superintendents, and Heads of Public and Private Elementary and Secondary Schools Nationwide (Grade 1 and 7). The levels of assessments in the K–12 program are: (1) Knowledge – The substantive context of the curriculum, the facts and information that the students learn; (2) Process – Skills or cognitive operations that the student applies to facts and information in order to construct meanings and understanding; and (3) Understanding – Enduring ideas, principles, and generalizations inherent to discipline. (4) Products and Performances - Students' execution of real-world tasks serves as an example of how their understanding is being applied. Quizzes, participation, projects, periodic tests, and homework are not specifically mentioned in the assessment of student performance but are instead considered to

be tools or measures for various levels of assessment based on the assessment and rating of learning outcomes and the use of multiple measures.

The following are some examples of tools used as measurements for various levels of assessment:

(1) Knowledge-level evaluations should provide answers to the following questions: What do we want students to know? How do we want pupils to demonstrate or communicate their knowledge?

(2) The questions: What do we want students to know? should be addressed by assessment at the process skills level. How do we want them to communicate their knowledge or offer proof of it?

This level may be measured by having students create diagrams from text presentations or create analogies, graphs, models, flowcharts, mind maps, or graphic organizers. It may also be measured by having students outline, organize, analyze, interpret, translate, convert, or express the information in another form or format.

Additionally, they might be asked to sketch, point, or act out scenes in order to artistically show or express their understanding of the facts and information. In this manner, evaluation may concentrate on how students process material logically, analytically, or critically.

In order to improve the quality of education available to Filipino citizens, the DepEd Order No. 73, Series of 2012 was quickly distributed and strictly enforced compliance with the order.

The skill development that occurs in Grades 11 and 12 is one of the K–12 system's key benefits. With the requirement that students complete kindergarten before formally moving to elementary level (Grade 1 - 6), junior high school (Grade 7 - 10) and senior high school, the added two years of senior high school are intended to prepare teenagers for work in the event that they will seek employment without going to college (Grade 11 – 12).

The K–12 program provides more details on the quality basic education that every Filipino is entitled to, which is supported by the 1987 Constitution's provision for free public education.

This served as justification for the Honorable President Benigno S. Aquino III (2012) to support the initiative and stress that education is the solution to the nation's long-term problems. Due to parents' commitment to provide the greatest education possible for their children, the country may create stronger citizens who will in turn create a stronger society. The future of the following generation is thus in jeopardy. Top executives and educators accepted the challenge to bring about change. They completed extensive training to become familiar with the new educational program's procedures and information; the program is now in place with the varying viewpoints and insights

that were learned from stakeholders, including parents, students, teachers, and other interested parties.

To be clear, the Philippines is one of only three (3) nations worldwide and the last in Asia to have a ten-year plan (pre-university cycle). The other two are Djibouti and Angola. The most effective time frame for learning within the basic education is considered to be a 12-year curriculum. Additionally, it is a worldwide accepted standard for professionals and academics. Because of this, the K–12 program is now being implemented, and universal kindergarten will start in the 2011–2012 school year. S.Y. Enhanced Curriculum for Grades 1–7 was implemented in 2012–2013. S.Y. Laws governing K–12 education were passed in 2013, and the curriculum for grades 11–12 was completed in 2014. The K-12 program was prepared for implementation in 2015 when the implementation phase was complete.

The Senior High School is the last mile. The Department of Education (DepEd221 )'s divisions have all completed their planning and have enrollment estimates for the following year. These strategies were examined by a different team, and they were finalized after discussion with various stakeholders. Regarding classrooms, DepEd constructed 66,813 classrooms between 2010 and 2013. When there 2014 saw the completion and building of 33,608 classrooms. In the entire country, DepEd intends to open 5,899 senior high schools.

Teachers: From 2010 to 2014, DepEd filled 128,105 new teaching positions. As of April 30, 2015, 1,866 private schools were slated to provide senior high schools in 2016. Teachers who will teach basic subjects and teachers of specialized subjects for each track are the two types of teachers that DepEd is aiming for. DepEd will hire 37,000 instructors for senior high school, and further textbook development will take place in 2016.

The K–12 curriculum is competency-based and standardized. It is all-inclusive and designed with the community's and students' needs in mind. The completed curriculum is posted on the DepEd website. The full curriculum has never before been digitized and made publicly available. There are 2,199 private senior high schools, and 200 of them are now being processed. Less time is allotted for each unit in the college general curriculum, and subjects that are not required for Basic Education will be dropped.

CHED Memorandum Order No. 20, Series of 2013 contains information on the revised General Education Curriculum. I've heard that many individuals weren't contacted regarding 2012? Is this a fact? DepEd has always been open and honest about how it plans and executes K–12 programs.

Since 2010, before the law was established, during the creation of the IRR, and during implementation, there have been ongoing talks with diverse industries. Representatives from DepEd have also participated in a number of forums and conferences, including parliamentary hearings on K–12 education. Regarding this, this was open to criticism and ideas.

For grades K–12, the previous curriculum has been dropped in favor of a more concentrated approach that enables learning mastery. For the new Senior High School, essential topics including math, science, and language will be improved in Grades 11 and 12, and specialization or tracks in students' interests will be made available. In grades K–12, changes to particular subjects are detached. At K-12 curriculum guides, you can view and download curriculum grades. The multigrade teaching will carry on, and the K–12 curriculum will be used. The K-12 was created to meet the needs of a variety of learners and may be customized to accommodate particular learner groups. The MTB-MLE guiding principle is to use the language of teaching that students are most accustomed to and at ease with. As a result, the mother tongue or local tongue will be used as the medium of instruction; among them, the following mother tongues are currently spoken in the country: Aklanon, Bohol, Cebuano, Chavacano, Hiligaynon, Iloko, Ivatan, Kapampangan, Anarati, Maguindanao, Maranao, Pangasinense, Simbal, Surigaonon, Tagalog, Unay, Agahan, Ibanag.

The initial implementation of the K-12 curriculum has sparked some social concerns of the community in the K-12 program (Burila, 2012). He cited some concerns of the community in the K-12 program implementation, including the readiness of the Philippine government to undergo transitions such as the poverty in the Philippines, availability of technology, teachers' training, and even the low salary of the workforce of the academe. Accordingly, scientists disagree with the implementation of the K-12 program because it does not address the true problem facing the educational system.

Furthermore, Lasanilao (2014) emphasized that according to his readings, people who support the introduction of K–12 programs are not scientists or teachers. With the demands for K-12 implementation, Clara Masinag (2012) revealed that the Social Weather Stations (SWS) poll showed that the Filipinos were accepting of the K12 program. According to her survey, 72% of Filipino adults thought the new curriculum would adequately prepare students for college, even though it would cost them more money and effort.

## **Research Methodology**

### **Research Design**

This paper is descriptive research that looks into the perceptions of the respondents on the implementation of the K-12 program. As a descriptive research, the study described the conditions of the respondents vis-à-vis the variables involved in the study. Sevilla et. al. (1992) informed that descriptive research is a design which aimed at describing the nature of the situation as it exists at the time of the study and to explore the causes of phenomena.

### **Respondents**

The respondents of this research study are faculty and students of Putik Central Elementary School, Integrated Laboratory School (ILS) and College of Teacher Education (CTE) of the Western Mindanao State University. Both PCES and ILS students are those who are Grade 7 and 8. The CTE students are those practice teachers who also teach Grades 7 and 8, and the faculty members are those who are involved in the K-12 program. The respondents of this study are grouped according to: the socio-economic status (rich/average/poor), ethnicity (Zamboangueños, Visayans, Ilonggos, Tausugs, Samas, Subanens), residence (urban/rural).

### **Data Gathering Procedures**

The following events were undertaken in the process of gathering relevant data. A request letter was sent to the ACLCFI Dean that the researcher is scheduled to gather data to institution's venue. Validity testing of instruments was done. Upon approval, a dry-run was conducted to ensure test validity and reliability of questionnaire with 15 respondents per school to find out whether the statements were clear and comprehensive. The computation resulted to a valuable of .71 (topic area statements); therefore, the result is high, the instrument is valid.

### **Sampling Design**

Purposive sampling was employed in this study. This design is also known as judgmental sampling. In this study, the researcher used good judgment in selecting the respondents who best met the purposes of this study (Andales, 1992). In selecting respondents, lottery sampling was used. And this was done by preparing pieces of papers (50 with check marks and the others with no marks at all for all faculty). Those who will pick up the paper with check were considered

respondents of the study. In the lottery sampling technique each population unit has assigned a number which is written on a piece of paper. All pieces of papers with written numbers are rolled and put in a box from where samples are drawn at a time until the desired sample size was reached. A number is taken just once since each population unit is assigned for one number (Andales, 1992).

### **Research Instrument**

In this study, the research instrument used is a self-made questionnaire used 4-point Lickert scale of measuring the results. The Likert scale is consist of four parts:

Part I – elicits the background of the respondents to provide data on the profile of the subject of the study.

Part II – consists of statements on the perceptions of the respondents of the study on the K12 education program. It has five (5) point scale: Strongly agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly disagree (SD).

Part III – consists of the evaluation done on the extent the preparation and implementations of the K-12 program. Scales are Very high, High, Average, Low and Very low.

Part IV – is an assessment on the Ongoing Outstanding, Very good, Good, Fair, Needs and Improvement.

### **Statistical Treatment of Data**

The data were encoded for appropriate statistical procedures using the Statistical Package for Social Sciences (SPSS).

Part I – elicits the background of the respondents to provide data on the profile of the study.

### **Validity**

To ensure that the research instrument on its requirements, and quality instrumentation, the research tool was submitted for validity to the panel of experts and reliability testing to the graduate school statistician. The panel of evaluators, consisted authorities in the field of research and language have evaluated the research instrument. The evaluators looked on to the grammatical structures, relevance of the items to the research problem, the correctness of format and quality of the items or statements included in this tool. Prior to the conduct of the research instruments, a dry-run was given to 20 teachers and 20 students. Corrections and revisions were made until the validity of the instruments was ascertained with the help of the panel of experts and my research

adviser. Likewise, item-total correlation analysis was employed to retain, improve and discard the items that had high and low coefficient. For the reliability, the split-half method was employed and yielded a coefficient correlation of .83 which is high, thus the instrument is reliable.

## Results

### *Perception on the Various Areas in the Implementation of the K-12 Program and Multilingual Education based Gender*

Table 1 presents the respondents' perception on the various areas in the implementation of the K-12 program and multilingual education based gender. As revealed in Table 1 below, male and female groups do not differ on their perception of K-12 implementation in the following areas: *effectiveness, quality basic education; length of time, economy, new scheme* with their corresponding t values ( -1.204, -.824, -1.474, & 1.188) all not significant at alpha .05. Hence, it can be inferred that gender is not a factor that influences both the students and teachers' perception of K-12 program.

Table 1 Difference: Perception on the Various Areas in the Implementation of the K-12 Program and Multilingual Education based Gender

N=210 ; Male=92; Female=118

Variables	Mean			Differenc e	t	p	Interpretation
	Gender	Mean	df				
Effectiveness	Male	3.0000	122	-.31579	-1.204	.295	Not Significant
	Female	3.3158	84.132				
Quality Basic Education	Male	3.2083	122	-.22588	-.824	.457	Not Significant
	Female	3.4342	90.675				
Length of Time	Male	3.0417	122	-.36623	-1.474	.218	Not Significant
	Female	3.4079	86.972				
	Male	2.9583	122	-.29167	-1.188	.300	Not Significant

The New Female Scheme	3.2500	92.593
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\* Significant at alpha .05

*Perception on the Respondents' Detailed Assessment on the Implementation of the K-12 Program and Multilingual Education in the Classroom based on Gender*

Table 2 presents the difference in the detailed assessment on the implementation of the K-12 and Multilingual Education in the classroom based on gender. It shows that male and female respondents do not vary on their perception of K-12 and Multilingual Education implementation in the classroom in terms of *teacher's ability, classroom activities, procedures involved, administration/ management and students performance* as evidenced by the t values (-1.429, -.886, -1.402, -.622, & -.645) , all not significant at alpha .05. Thus, it implies that gender does not affect the respondents' perception of the implementation of K-12 program and Multilingual Education.

Table 2 Difference: Respondents' Detailed Assessment on the Implementation of the K-12 Program and Multilingual Education in the Classroom based on Gender  
N=210 ; Male=92; Female=118

Variables	Mean			Differenc e	t	p	Interpretation
	Gender	Mean	df				
Teacher's Ability	Male	2.9583	122	-.34430	-1.429	.229	Not Significant
	Female	3.3026	100.253				
Classroom Activities	Male	3.3125	122	-.85855	-.886	.426	Not Significant
	Female	4.1711	87.260				
Procedures Involved	Male	3.1875	122	-.36513	-1.402	.236	Not Significant
	Female	3.5526	94.526				
	Male	3.2500	122	-.18421	-.622	.572	Not Significant

Administratio Female

n/ 3.4342 87.897

Management

Students'	Male	3.2292	122	-.17873	-.645	.558	Not Significant
Performance	Female	3.4079	97.968				

\* Significant at alpha .05

## Discussion

The data here clearly shows that there is no gender variation that occurred in the respondents' perception on K-12 and Multilingual Education implementation. Compared to the gender differences in the literature concerning K-12 program, mostly, these studies reported on the learners' performance in the classroom, not necessarily perception based. The views of the participants here, originally reported in Julkarnain (2018) revealed that there is equality as regards their positive favorable responses in answering the survey which indicate that there is no gender bias when it comes to how the respondents view K12 and Multilingual Education.

## Conclusion

It is safe to conclude that the K-12 and Multilingual Education curriculum now being currently implemented in Zamboanga City is well positively received by both students and teachers regardless of gender. It is a welcoming report that educators can utilize as bases for their maintenance in relation to gender equality and the positive implementation of K-12 program and Multilingual Education. The future direction of this research inquiry is leading towards a wider regional investigation involving bigger randomized sampling to ascertain generalizability of results.

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## **The Primary Health Care Services for the Samals in Zamboanga City: A Mixed-Methods Ethnolinguistic Study**

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### **Abstract**

A total of 1,305 Samals residing in the coastal communities of Zamboanga City plus the 24 health workers, who took charge of operating the health centers in coastal barangays, served as respondents of the study. The study seeks to assess the implementation of the government primary health care services and related programs for the Samals in Zamboanga City. Using a mixed – methods ethnolinguistic design , it was found that there were several factors that affected the delivery of the public health services and programs. As a result, the highest rate that both the services and programs received was only “*Normal*”, which indicated that despite the additional health efforts to improve the delivery of services, no significant improvement were experienced. The inadequacy in terms of human, material, physical resources used in the delivery of the public health services, were but just part of the entire system of nurses experienced by the entire Philippine government. Hence, in the case of the shortage of medical staff/personnel despite of the enormous number of medical professionals that education institutions do produced annually is something that health authorities should look into.

**Keywords:** Heath Care, Primary Health Care Services, Samal of Zamboanga City, Sama, Ethnolinguistic Study

## **Introduction**

R. A. 7160 or the Local Government Code of 1991, prescribed four (4) major services to be delivered by LGU's, as a general service government. Those services includes: Education, Public Works, Public Safety, and Public Health Services.

This study has placed its focus into the health services delivery system, for the Samal tribe residing within the coastal communities of Zamboanga City. It has looked into the relevance and or the responsiveness of the health programs, whether it contributed towards the improvement of the health condition of this indigenous people.

Information from the study several local and international paper relative to the Indigenous Tribes in the Philippines, revealed that, the Samals are the poorest of the poor. Thus, addressing their needs became a challenge to past government administration. The Samal has the Badjao as its lowest class, who are sometimes referred to as "Sea Gypsies", who are found mostly in the area of ZAMBASULTA.

The Samals were viewed by many as the vanishing tribes, as a result of exploitation, by dominant tribes, as well as diseases, starvation, intermarriages and their inability to cope with social changes. As the study conducted by Fr. Tamayo (2010), on the pastoral care of the Samals and Nomads revealed that there is no exact counting of the Samals in the Philippines, hence, unofficial counting place their number to about few thousands.

In view of the condition of the Samal in the Philippines, it became the conviction of some sectors of the community that, there was a neglect and lack of sensitivity on the part of the government to improve the quality of life of the Samals, despite of the many claims made by the same government.

For instance, while looking at a Samal in a vinta making their daily living of catching fish it appears that, they are the type of people that seldom experience infectious diseases. Yet, as accounted by some of their community members, that there exist many deaths from among them. But such deaths were never reported to authority as the births of most of them were unreported. The causes of death were either illness or injury.

The study has therefore look into the manner as to how the Samals avail the health services offered by the government considering the existing set-up of the government health service delivery structure.

Political leaderships and health authorities perceived the existing structural set-up as the most ideal health paradigm to respond to the health demands of the populace most especially the underprivileged. Hence, the arguments remained, as a result of the increase in the illness related mortality rate as claimed by community member most especially those who belonged with the disadvantaged sectors in the countryside.

### **Linguistic ethnography**

As stated by Sapir (1921) in Creese & Copland (2015, p. 14) as cited by Madrazo (2019), "linguistic ethnography holds to the idea that an intimate look at language use produced culturally in a situated society provides the researcher rich and significant insights," such as "the mechanisms and dynamics of social and cultural production in everyday activity." Because language and culture are intrinsically linked, studying one requires an examination of the other.

UK Linguistic Ethnographers (2004) in Madrazo (2019) identified seven elements of the ethnographic technique in a discussion paper. The research starts by examining how "strangeness and familiarity" interact. The approach lets researchers interact with a culture or society, and as a result, comprehend the participants' activities that are afterwards relayed to outsiders. Second, it looks at the minute details that have an impact on how the community is portrayed. This enables the researchers to contribute to the community's generalizations and makes them more pertinent. The third aspect of ethnography is that it concentrates on the socio-cultural layers of the underlying meanings and processes. It is aware of the importance of communal customs and interactions. Fourthly, the patterns of a community's activities are another focus of ethnography. The researcher searched for systems that could eventually aid in the process of the researcher making sense of the culture while immersed in it. Its fifth quality is its capacity to make concepts and facts more sensitive. Researchers can be flexible with their inquiries thanks to the approach, which offers suggestions for "where/which to seek" along with any queries or theories that were formed at the outset of the study.

Next, ethnography emphasizes the relevance of the role of the researcher. It acknowledges that during the research process, researchers have the potential to provide subjective analyses, which might affect how participants understand their own behavior. Finally, ethnographers are aware of their limitations. Because the experiences in the chosen community are viewed as singular, one-time occurrences, the researchers believe that experiences are irreducible.

Since linguistic ethnography studies both social and linguistic processes, it gives equal weight to how the society and its activities are conducted and how the language is used internal conversation that takes place. Language's impact on social processes is influenced by the characteristics of ethnography, which combine with a similar level of attention to the linguistic aspect, and vice versa (Copland, Creese. Rock & Shaw, 2015).

The languages used in this present study to gather data are English , Filipino , Sama. Madrazo (2019) presented a comprehensive review of English and Filipino.

### **English**

The study's use of English is based on American English, a Germanic language family language descent (ethnologue.com). The Philippine language, English, has existed for a while. system of education since the early 1900s. The first time that English was used as a language of instruction on April 1, 1900, US President William McKinley sent a letter of instructions to the Philippine Commission (Bernardo, 2004). Since that time, all subject-specific learning areas have been taught in English. However, when the BPE was put into place in 1974, English and Filipino were used as the primary languages of teaching in elementary and secondary schools. English domain (English communication arts, mathematics, and science) and Pilipino domain were created for the topics (Pilipino communication arts, social studies, history).

BPE was reorganized in 1987 to be under the Department of Education, Culture, and Sports. In contrast to how English was more strictly defined as the worldwide language and the non-exclusive language of science and technology, the importance of Filipino as the language of literacy and academic discourse was highlighted. Additionally, it required universities to lead the way in "intellectualizing" Filipino culture (Bernardo, 2004, 2007). English continues to dominate the Philippine educational system to this day, serving as the predominant medium of teaching for all major subject areas at the preschool, primary, secondary, and tertiary levels.

### **Filipino**

The Tagalog dialect of the Austronesian language family, of Malayo-Polynesian origin, is the Filipino employed in this study. Filipino is a language that has been enhanced with aspects (mostly vocabulary) from other Philippine languages as well as non-local languages spoken in the Philippines, according to Gonzales (1998), who based his claim on the 1997 Constitution of the

Republic of the Philippines. The language spoken in Manila and the provinces of Rizal, Cavite, Laguna, Batangas, Quezon, Camarines Norte to the south of Manila as well as Bulacan, Nueva Ecija, and a portion of Tarlac to the north of Manila, serves as the structural foundation of Filipino. Filipino is now taught at all levels of education in the Philippines, including pre-school, primary, secondary, and tertiary, thanks to the Philippine Bilingual Education Policy (BPE) of 1974.

## **Sama**

The Sama-Bajau people of the Sulu Archipelago, the Philippines; Sabah, Malaysia; and some regions of Indonesia speak the Sama language, also known as Sinama (Sama + the infix -in-; sometimes known as Bahasa Bajau). One of Southeast Asia's most dispersed ethnic groups is the Sama. Based on their mutual understanding, the Ethnologue separates Sinama into seven different languages. The seven Sinama languages are Mapun, Bajau West Coast of Sabah, Southern Sinama, Northern Sinama, Central Sinama, and Sinama Pangutaran from the island of Pangutaran west of Jolo Island. A related language that is often also referred to as Sinama is Jama Mapun, which originates from the island of Mapun, historically known as Cagayan de Sulu. Sama themselves rarely adhere to these divisions and instead categorize their Sinama according to the village or island in which they were born. The language of a Sama individual is classified as emic, i.e. The seven Sinama or Bajau languages commonly divide into Silumpak, Laminusa, and Tabawan varieties (Ethnologue.com, 2022)

## **Literature Review**

### **Theoretical Framework**

The World Health Organization Standards (2006), was established by the eHealth Standardization Coordination Group (eHSCG). The eHSCG served as the venue for an exchange of information, and was tasked to create a cooperation mechanism with the following functions:

- Identify areas where further standardization is required and try to identify responsibilities for such activities;
- Provide guidance for implementation and development of case studies;

- Establish requirements for appropriate development paths for health profiles of existing standards from different sources in order to provide functional sets for key health applications;
- Support activities to increase users awareness of existing standards.

Another health principles introduced by the eHSCG (2007), was the Definition of Information Standards for Traditional Medicine. The guiding principles were to Internationally Classify Traditional Medicine that may serve as basis and evidence for the administration of traditional medicine. The principle guided the production of indigenous health terminologies and classifications of patients' diagnoses and medical interventions.

As one from among the proponents, Dr. Marie-Paul Kieny, believed that, the use of traditional medicine is widespread in the different parts of the world, such as: Western Pacific, Southeast Asia, Africa and Latin America, and thus, this have served as the primary source of health care.

The Community Organizing Participatory Research "COPAR" (1994), is one type of tool for use in community development and people empowerment as it helps the community workers to generate community participation in development activities. One of the COPAR component programs which is the Human Resource Development Program Standards, whose one of the focus was the availability and accessibility of health services to depressed and underserved communities in the Philippines. While the other focus includes the maximum community involvement through collective identification and analysis of community health problems and collective health actions.

The strategies employed by COPAR include the following:

- Education and training;
- Networking and linkages;
- Mobilization on health and development concerns;
- Implementation of livelihood programs;
- Developing secondary leaders.

The Alma-Ata Declaration affirmed health as a fundamental human right and called for transformation of conventional health care systems. The Health Care Reform Program in Thailand (1996) was recognized as one of the country's most ambitious program with the goal of achieving universal access to high quality health services.

### **Related Literature**

ATSIC (2006); conducted a study on: “Contemporary social determinants and cultural concepts in indigence health”, revealed that the Indigenous Australians enjoyed better health in 1788 than most contemporary Europeans. Australians did not suffer from smallpox, measles, influenza, tuberculosis, scarlet fever, sexually transmitted syphilis and gonorrhea, diseases that were common in 18<sup>th</sup> Century Europe that caused deaths to many. The most common infections suffered by Australian were Hepatitis B, bacterial infections, mosquito-borne infections and some cases of intestinal parasites. The major cause of death at the time was trauma, anemia, arthritis, periodontal diseases and tooth attrition were known to have occurred. Their impact at population level was relatively mild compared with the effects of the epidemic diseases that affected 18<sup>th</sup> Century Europe.

The situation changed with the arrival of introduced illness, initially smallpox and sexually transmitted infections, and later tuberculosis, influenza, measles, scarlet fever and whooping cough. These diseases, particularly smallpox, caused enormous loss of life among indigenous population, but the devastation was not restricted to the immediate victims. The epidemics also affected the fabric of indigenous societies through depopulation and social disruption.

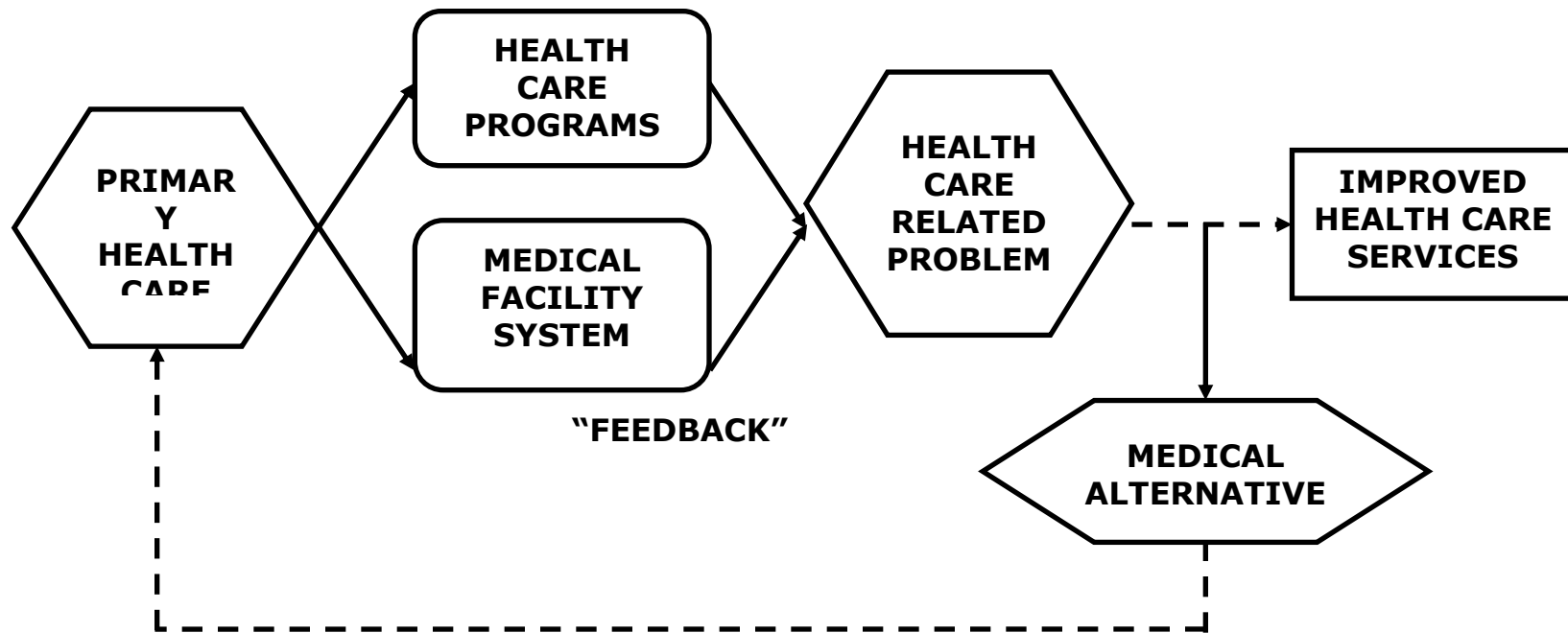
Studies on health care services in the different parts of the world identified the insufficient financing as the one major factor that contributed to the deterioration of the delivery of public health services. Thus, a study on “Equitable Financing of Health Care System”, was conducted. The study revealed the different mode of financing of the health care system of different countries of the world and that, the financing of health care is a subject of major concern worldwide. As defined by the study, health care financing is the activity of raising or collecting revenue to pay for the operation of a health care system. The conventional categorizations of finance sources of health care are taxation, social health insurance, private health insurance and out-of-pocket payments. Through the study it was gathered that there are variations in the finance sources used to fund health care. Difference in social health insurance, whose implementation are either in the

national or community level, eligibility mandatory or voluntary basis, and contribution either by the individual or employer. Variations in out-of-pocket payments are its formality and function either as co-payment, co-insurance or full-cost. Hence, the emergence of finance sources such as community health insurance and informal payments.

The study suggested that policy-makers should consider the development and implementation of various financing strategies directed towards strengthening health care financing. Such implementation is likely to have a substantial impact on the equity of health care financing. Equity involves a value judgment of fairness on the variations from the equality in the population. Equity in health care financing is assessed by the degree of inequality in paying for health care between households of unequal ability to pay. It is usually represented by the extent to which health care is financed.

The study therefore recommended that equitable financing should be the key objective of health care systems. Its importance is evident in policy documents, policy statements, and health economists and policy analysts. Policy-makers throughout the world should commit themselves in financing health care according to the principles prescribed by the equity financing scheme.

## CONCEPTUAL PARADIGM



*Figure 2: THE INTERRELATIONSHIP FROM AMONG THE INDEPENDENT AND DEPENDENT VARIABLES AND THE FEEDBACK*

## **Conceptual Framework**

The Alma-Ata Declaration defined primary health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their participation and at the cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-determination. The declaration became the main reference in structuring the basic primary health care services in the Philippines. The health care services includes Maternal and child health, Dental health, Nutrition, Family planning, Communicable disease control. Curative and preventive services in the primary, secondary and tertiary hospital facilities form a part of the health care services.

While, formulating the policy structure of the country's health care services were done smoothly; implementing such health policy/programs were confronted with enormous problems most especially in the countryside.

Citing the case of the Samals in the coastal communities of Zamboanga City, it is presumed that only very few of them managed to avail the government health care services for one reason or the other. In fact, one community member accounted that, his wife passed away a year ago, before interviewed by the researcher. While being alive, the wife often complained of abdominal pain. The other cases involved a maternal death, where the mother died while on delivery; and the child followed a few days after. The cases of undernourished children are but a common sight from among the families belonging to the Samal tribes. Health incidents such as the experience of many Samal families do occur despite of the enormous efforts and investments of public funds.

The research study would therefore attempt to determine the relevance of the existing health related policy/programs, in the attempt to find-out its compatibility to that of the Samal tribes considering the uniqueness of their culture. Attempt would likewise be made to measure the availability of the health-related facility, equipment, and medical staff personnel and other medical related resources used in the delivery of primary health care services. The interrelationship of these variables or referred to as units for analysis is presented in a figurative form.

Figure 2, or referred to as the Conceptual Framework of the study, shows the relationship from among the "Independent" and "Dependent" variables. The independent variable is the variable that has the ability to influence other variables, treated as the dependent variables. Looking into the Public/Primary health care services vis-à-vis the Conceptual Paradigm it can therefore be said that

the dependent variables are but the components of the independent variables. Where, the state of the delivery of the Public/Primary health care services can only be determined through the process of individual assessment of the individual health care program service component. Along with the inventory of the status of the medical staff personnel, the medical equipment/apparatus and facilities like hospital, centers, laboratory and transportation facilities. The problems encountered in the delivery of health services would also be identified as part of the process shown in the framework. With the problems on hand clearly identified, medical alternatives can therefore be proposed as resolution to the problems.

The “Feedback”, provides the information needed by the study to determine the development of the various health programs implemented by the government.

### **Problem Statement**

The study seeks to assess the implementation of the government primary health care services and related programs for the Samals in Zamboanga City, findings of which shall serve as basis for an improved public health care services delivery system.

Specifically, the study would focus into the following:

1. How responsive are the health care services and related programs to the needs of the Samals as perceived by the providers and recipients in the following areas:

- 1.1 Health Care Services

- 1.1.1 Maternal and Child health;

- 1.1.2 Dental health;

- 1.1.3 Communicable disease control;

- 1.1.4 Curative and preventive services?

- 1.2 Related Programs

- 1.2.1 Anti-TB;

- 1.2.2 Polio prevention;

- 1.2.3 Deworming of school children;

1.2.4 Rabies control/awareness;

1.2.5 Population development?

2. What is the level of adequacy of the existing medical facility system in delivering the needed health care services for the Samals as perceived by the providers and the recipients in terms of:

2.1 Medical Staff Personnel;

2.2 Hospital/Health Care Centers (Bed Capacity);

2.3 Laboratory Facility; and

2.4 Equipment/Apparatus, Instruments/Transportation Facilities?

3. What are the problems encountered by the providers and the recipients in the delivery of the health care services for the Samals?

4. Is there significant difference between the perceptions of the providers and the recipients as to the level of adequacy of the existing medical facility system?

5. What improved public health care services delivery system can be proposed based on the findings of the study?

### **Hypothesis**

There is no significant difference between the perceptions of the providers and the recipients as to the level of adequacy of the existing medical facility.

### **Assumption**

The problem stated in Research Question 3 is best understood with the use of an interview in three languages English, Filipino and Sama. The respondents who were encouraged to speak the language they were most comfortable using were productive in providing the needed data in this study.

## **Research Methods and Procedures**

The chapter was considered as a vital part of the research paper, as it presented the methods used in the conduct of research. The sample population and sample size or respondents of the study were also determined within this chapter, through the use of valid statistical tools. The mode and method of administration would be explained in this part of the study, and statistical instruments in the treatment and processing of data gathered was discussed and presented.

### **Method of Research Used/Design**

In as much as the research paper concentrated its effort in studying the health services intended specifically for the Samals in the coastal communities of Zamboanga City; the study then was treated as exploratory in nature. Bailey (1994) claimed that exploratory studies are also referred to as Descriptive because they attempt to describe phenomena in detail, in the absence of a formal hypothesis.

The descriptive method was designed to gather information on certain phenomenon and find out its existing conditions in the present time and to repeat similar investigation at different periods of time. The principal aim why the method was used is because the study being undertaken requires a broader description of the conditions of the primary health care services for the Samals. And to further explore such phenomena.

Bert (1963) defined descriptive research as the process of description and interpretation of the phrase "*what is*". The method is most concerned with the conditions of relationships that exist; practices that prevail, beliefs, processes that are going on; effects that are being felt, or trends that are developing.

The process of descriptive research goes beyond mere gathering and tabulation of data. It involved the element of interpretation of the data gathered and finding the true and significant meaning of the subject or unit of analysis. The process of description is often combined with comparison and contrast involving measurements, classifications, interpretation and evaluation.

In brief, it can then be stated that research is a fact-finding undertakings with adequate analysis and interpretation. As a process, it goes more and beyond just data gathering; the true meaning of the data collected should be reported from the point of view of the objectives vis-à-vis the basic assumptions of the project underway. Facts obtained may be accurately processed through expression of central tendency, of deviation, or of correlation; hence, the report could not yet be

classified as a research unless the discussion of those data that are collected are carried up into the level of adequate analysis and interpretation.

Citing the case of the government health care services for the Samals, all data collected were subjected to the thinking process in terms of ordered reasoning. The output or product of the effort to study the Samals was then considered as an example of good exposition that can be acceptable in English form of well classified material. Yet, it has not rise above the level of rather monotonous discussion of the details of the data presented. The generalization phase in the research, which was presented in the form of summation of figures in the tables as trends or surfaces of frequency in figure, were recognized in terms of adequate explanations and pertinent conclusion. These figures were analyzed and sufficiently interpreted.

The study did also employ the Documentary Analysis Method. The method was used considering the needs to draw information from primary and secondary documents.

By primary documents, this may be taken into an eyewitness account, written by people who experienced a particular event or behavior. Secondary documents comes from people who were not present on the scene but who received the information necessary to compile the document by interviewing eyewitness or by reading primary documents. For instance, there were cases of illness related death from among the Samal tribe in Zamboanga City that were learned only from the relatives of the deceased person. Such information taken is considered then as secondary documents. While, the information extracted directly from a sick Samal/Badjao man, who accounted that he failed to avail the health service assistance from the government, is in turn treated as primary documents. Documentary Analysis is very relevant to this type of study, since bulk of information will be taken from published health references, annual reports, and related government health records.

### **Information Collection Instruments**

The questionnaire or interview schedule was identified as the most suitable research instrument compatible with the form, organization, structure and orientation of the study undertaken, and thus, it was utilized. There were two ways as to how the research instruments were distributed by the researcher. The first was when the particular research instruments were handed and filled by the respondents with no whatever help from the researcher or research assistant. The said instrument was treated as a Questionnaire. The second mode, referred to a type of research instrument that

was not given directly to the respondents but was filled in by either the researcher or her assistant who read and interpreted the questions found in the instrument to the respondent. The instrument was generally called an Interview Schedule.

Both distribution techniques was employed, since majority of the research instruments were directly administered to the respondents, who were in need of assistance from the researcher or assistant in filling out each item as indicated in the research instrument.

A fixed type or close-ended questionnaire was constructed, to which permitted the respondents to select one or more specified categories provided by the researcher. There were reasons why the questionnaire as the information collection tools were constructed in such a way that it was. The first was, the answers required by the study were standard and can be compared from one person to the other; the answers are much easier to code and analyze, and can be coded directly from the questionnaire; the respondents did understand the meaning of the questions; the choices of answers corresponding each item were consistent.

The questionnaire was designed in a way that it permitted the researcher to draw information to which determined the extent of response of the primary health services and programs of the government to the health needs and demands of the Samals. The instrument further served as apparatus to find out the condition of the health facility system used in the delivery of health care services. The problems encountered by the health providers were identified through the use of the instrument, including the best choices of alternatives consistent with the cultural norms, and pattern of behavior of the subject being studied.

For purpose of scoring, each item in the questionnaire corresponded with choices with the equivalent numerical scale such choices/options were developed to find out whether health/programs services has sufficiently responded to the health needs of the Samals:

Very Responsive	– 5.00
Responsive	– 4.00
No Impact	– 3.00
Irresponsive	– 2.00
Very Irresponsive	– 1.00

Choices/options such as the following were likewise used to determine the existing condition of the health facility systems offered for primary health care services:

Very Adequate	– 5.00
Adequate	– 4.00
Average	– 3.00
Inadequate	– 2.00
Very Inadequate	– 1.00

The extent to which the problems encountered affected the delivery of health services was determined through the following choices/options:

Very Serious	– 5.00
Serious	– 4.00
Routinary	– 3.00
Moderate	– 2.00
Mild	– 1.00

Choices/options such as the following was also used to determine the likelihood of the medical alternatives being proposed:

Very Favorable	– 5.00
Favorable	– 4.00
Just Fair	– 3.00
Unfavorable	– 2.00
Very Unfavorable	– 1.00

### **Validity of the Research Instruments**

In the attempt to improve the questionnaire instrument, a committee was created by the researcher to validate the research instruments. The Committee consisted of personalities who possessed sufficient knowledge relative to the study being undertaken. Considering the broad knowledge and experience of the Committee Members, they made the necessary corrections to the questionnaire

instruments, to determine the relevance between the items and choices of response as listed in the research instruments.

The Committee Members rated the research instruments in accordance with the following scales:

Very Relevant	3
Relevant	2
Needs Changes	1

### **Respondents of the Study and Questionnaire Distribution**

In determining the sample size or respondents of this particular study, the researcher first designated a population of interest, which were the Samals residing in the coastal communities of Zamboanga City. As per survey conducted by the National Statistics Office (NSO), on the ethnic groups in Zamboanga City, records showed that there are 5,676 Samal/Badjao residing in the different coastal barangays of the city. The identification of respondents were based on the dialect they speak, norms and behavioral pattern and the manner how they earn a living. From the population, the selection of a subset was followed, through the use of valid statistical tools such as the Slovin formula. A total of 1,305 personalities (Samals) plus the 24 health workers, who take charge of operating the health centers in coastal barangays, served as the sample or respondents of the study. The sample was expected to adequately represent the entire population, because the information drawn from them was just as accurate as the data that could be gathered from the entire population.

Hence, problem did remain, as how to reach the target respondents, considering their behavioral characteristics of moving from one place to the other. Considering the dilemma faced by the researcher in the distribution of questionnaires, the Snow-ball sampling technique was employed. The technique has achieved increased use in the recent years, particularly by researcher conducting observational research in communities. For this particular study the Snow-ball technique was conducted in stages. In the first stage, a few members from among the Samal tribe were identified by the researcher through the assistance of barangay officials. The first group would be interviewed, personally by the researcher; where, each item as indicated in the questionnaire would be read and translated to them. This first group was used as informants to identify others who qualify for inclusion in the sample population. The same interview administration was followed to

the other group who identified and lead to more persons who were interviewed in the third stage. The term snowball stems from the analogy of a snow ball, which begins small but becomes bigger and bigger as it rolls downhill. The Snow-ball technique is also referred to as Chain-referral sampling.

Through the sampling techniques used, it is expected that the information/data collected would reflect the actual status and conditions of the government health programs/services intended for the Samals in the coastal communities of Zamboanga City. Hence, considering the enormous and unmanageable size of the sample population, the Board of Dissertation panel had suggested and agreed that only a total of 20 barangays would be considered. And that the respondents of the study would include the following: 5 Samals and 5 health workers from each barangay with a total of 200.

**Respondents from 20 Coastal Barangay in Zamboanga City**

COASTAL BARANGAY	HEALTH PROVIDERS		HEALTH RECIPIENTS		TOTAL
	Dist.	Ret.	Dist.	Ret.	
<b>East Coast</b>					
1. Rio Hondo	5		5		
2. Mariki	5		5		
	5		5		
3. Manicahan Aplaya	5		5		
	5		5		
4. Sangali	5		5		
	5		5		
5. Bolong	5		5		
	5		5		
6. Tictabon	5		5		
	5		5		
7. Arena Blanco					
8. Mampang	5		5		
9. Sta. Cruz Island					
(Sta. Barbara)					
10. Taluksangay	5		5		
	5		5		
	5		5		
<b>West Coast</b>	5		5		
	5		5		
1. Labuan	5		5		
	5		5		
2. Talisayan	5		5		
	5		5		
3. Recodo	5		5		
	5		5		

4. Ayala					
5. Cawit					
6. Sinunuc					
7. Lower Calarian					
8. Campo Islam					
9. Baliwasan Seaside					
10. Pitogo					
<b>TOTAL</b>	100		100		

Legend:

Dist. – Distributed

Ret. – Returned

### Research Locale

Zamboanga City is located at the southernmost tip of the Zamboanga Peninsula (ZAMPEN). It is approximately 505 nautical miles South of Manila, 270 nautical miles from Cebu City and 320 nautical miles from Davao City. It is bounded on the North of Zamboanga del Norte (ZDN) and Zamboanga del Sur (ZDS); on the West by the Sulu Sea; on the East by the Moro Gulf; and on the South by the Basilan Strait and Celebes Sea. The territorial jurisdiction of the city includes the Great and Little Sta. Cruz Islands, Tictabon, Sacol, Manalipa, and the Seven and Eleven Islands. In terms of land area, Zamboanga is the third largest city in the country with a total land area of 1,483,384 square kilometers. In the 2007 census, Zamboanga registered 774,407 residents making it the sixth largest city in the country in terms of population. The population consists of several tribes to include chabacano, tausug, Cebuano, Samal, Ilonggo, and others.

It is within this location and physical profile and having the Samal tribe as the main subject, that the study was conducted.

### **Administration/Distribution of Questionnaires/Instruments**

The questionnaires were distributed from among respondents based on the principles and techniques as identified by the study. The study identified two groups of respondents. It includes the Barangay health workers who were deployed in the coastal communities; and, the Samals group. The researcher has exerted efforts in determining difference in the responses between groups.

The questionnaires for the first group was administered through the assistance of the barangay officials during the first stage. Each item indicated in the questionnaires was read and interpreted to them. The first set of respondents within the first group helped the researcher identify their fellow Samal and the same questionnaire administration was followed.

For the second group of respondents, who were the barangay health workers, the questionnaires intended for them, was handed to them directly by the researcher. Retrieval of questionnaires was done by the researcher or representatives three days after distribution.

### **Statistical Instrument Used**

The researcher coordinated with health authorities, barangay health workers and members of the Samals ethnic group for the availability of data. The data collected from the respondents was kept with confidentiality.

Statistical instruments such as the frequency counts (f), percentages (%), and the Arithmetic Mean ( $\bar{x}$ ), was used in processing the data collected from the respondents. To attain further accuracy, the Kruskal Wallis T-Test was computed on the responses of the respondents.

## **Results and Discussion**

### **Summary of Findings**

The following are the findings of the study, as end result of the interpretation and analysis of the data presented in the different tables.

As regards to the responsiveness of the various health services for the Samals, the findings revealed the following:

1. Of the six (6) health services administered to the Samals, there was one health service, the “Preventive Services”, that registered the highest x score of 3.7 with the corresponding interpretation of “No Impact”.

The 2<sup>nd</sup> highest x score of 2.9 was registered on the service, “Communicable Disease Control”, with the corresponding interpretation of “Irresponsive”.

A x score of 2.8 was computed on the service, “Dental Health”, interpreted as “Irresponsive”.

The x score of 2.7 was computed on the following services: “Child Care Services” and “Curative Services”. Both bears the interpretation of “Irresponsive”.

The lowest x score of 2.3 was computed on “Maternal Health Services”, with the interpretation of “Irresponsive”.

As regards to the characteristics of responses of the respondents, a “Significant Difference” was detected on the responses of the respondents on the “Maternal Services”. The computed standard deviation of 0.096, was greater than the  $\alpha = 0.05$ . the standard deviation results computed on the other five (5) health services indicated “No Significant Differences”, from among the responses of the respondents.

2. In terms of the four (4) related programs, the x score of 3.1 was computed on the following programs: “Polio Prevention”, “Deworming of School Children”, and “Rabies Control”. All three programs has the equivalent interpretation of “No Impact”.

The program “Anti-TB” has a x score equivalent of 2.6 with interpretation of “Irresponsive”. The standard deviation computed result of all the four items was lower than the  $\alpha = 0.05$ . revealing a “No Significant” difference in the responses of the respondents.

3.1 When pertaining to the level of adequacy of the existing medical facility system, the findings revealed the following:

In terms of the medical staff personnel, the highest x score of 2.9 was computed on the “Dentist” with an interpretation of “Inadequate”.

Preceded by the x of 2.1 registered on both the “Medical Doctors” and “Midwife” with the interpretation of “Inadequate”.

The computed x results of 2.0 was computed on the following medical staff/personnel: “Nurses”, “Barangay Health Workers”, and “Sanitary Inspector”. All has the equivalent interpretation of “Inadequate”.

The computed standard deviation results, corresponding all medical staff/personnel, was found lower than the  $\alpha = 0.05$ , which implied that there exist “No Significant” differences in the responses from among the respondents.

3.2 As regards to the adequacy of the medical infrastructure/facilities, the highest x score of 2.9 was computed on the “Hospitals”, with an equivalent interpretation of “Inadequate”.

The remaining two (2) types of medical facilities of “Health Centers” and “Laboratories”, has the equivalent x score of 2.7 and 2.0 respectively. Both has the equivalent interpretation of “Inadequate”.

“No Significant” differences were ever detected in the responses of the respondents. As the computed standard deviation results corresponding all the three (3) types of medical infrastructure/facilities have not exceeded the  $\alpha = 0.05$ .

3.3 As regards to the medical equipment/apparatus, the findings revealed the following: the highest computed x of 3.2 was computed on “B.P. Instrument”, with the equivalent interpretation of “Average”.

This is preceded by the following equipment of: “Weighing Scale”, and “Injection Set”, with the computed x response of 3.1, and equivalent interpretation of “Average”.

The x score of 3.0 was computed on the following apparatus, “Glucose Monitoring Unit”, “Thermometers”, and “Vaginal Speculum”. The verbal interpretation for all the three (3) types of apparatus was “Average”.

The x score of 2.9 was obtained on “Microscope” with an interpretation of “Inadequate”.

The remaining equipment which was the “Complete Set of Delivery Room”, obtained a x score of 1.9. “No Significant” difference was detected on the responses of the respondents as the computed standard deviation results for all types of equipment was lower than the  $\alpha = 0.05$ .

3.4 In terms of transportation facilities, the findings revealed the following: the highest computed x of 2.0 was obtained on “Motorcycle”, with the equivalent interpretation of “Inadequate”. While, the mean score of 1.9 and 1.8 was computed on “Ambulance” and “Motorboats”. Both has the equivalent interpretation of “Very Inadequate”. “No Significant” differences was detected on the responses of the respondents because all the computed standard deviation result has not exceeded the  $\alpha = 0.05$ .

4. There were eleven (11) pressing problems encountered by the health providers. The problems were as follows:

The highest computed x score of 4.9 was recorded on the problem of “Structural Set-up of the Health Service Delivery System”. With the corresponding interpretation of “Serious”. It is followed by “Inadequate Medical Apparatus, Equipment and Instruments”. The verbal interpretation was “Serious”. The x score of 4.7 was computed on “No Permanent Residence of Recipients”, with the verbal interpretation equivalent to “Serious”. The x score of 4.5 was computed on the problems of “Unstable Peace and Order Condition” and “Lack of Medical Supplies”. The “Behavioral Pattern of Recipients” has a computed x score of 4.2 and verbal interpretation of “Serious”. The “Lack of coordination between the National and LGU” has a computed x of 4.1, with corresponding interpretation of “Serious”. The x score of 3.9 was computed on the problems of: “Lack of Medical Staff/Personnel” and “Lack of Transportation Facilities”. Both has an equivalent interpretation of “Normal”. The remaining two (2) problems received the lowest computed x score of 3.1, with verbal interpretation of “Normal”. The problems were “Irrelevant Health Programs” and “Insufficient Medical Infrastructure”.

The computed standard deviation results computed on all the eleven (11) problems has not exceeded the  $\alpha = 0.05$ , which revealed that there was “No Significant” differences detected in the responses of the respondents. Hypothesis is therefore accepted.

5. There were six (6) proposed options presented to improve the delivery of public health services. The highest x score of 4.8 was computed on the proposal to “Conduct critical study to the behavioral pattern of the Samals”. The verbal interpretation corresponding the proposal was “Favorable”. The proposal for a “Full decentralization of the primary health care delivery system” has registered the second highest x score of 4.6, with verbal interpretation of “Favorable”. The computed x score of 3.8 was computed on the two (2) proposals “Forging of MOA from among foreign/local engineering firms” and “Lateral coordination with PNP/AFP medical corp”. Both has a corresponding verbal interpretation of “Favorable”. The “Strengthening of coordination between national and the LGU”, registered a computed mean score of 3.4. The verbal interpretation of “Favorable” was obtained corresponding the proposal. The lowest mean score was computed on the proposal to “Request for medical assistance from foreign medical institutions”. The verbal interpretation of “Just Fair” was obtained on the proposal.

From among the six (6) proposal, the standard deviation result of 0.097 was computed on the proposal to “Request for medical assistance from foreign medical institutions”. The standard

deviation result exceeded the  $\alpha = 0.05$ , indicating a “Significant” differences in the responses of the respondents. The hypothesis therefore of no significance is rejected corresponding the proposal. There were no differences that were detected on the responses of the respondents in the remaining five (5) propositions.

## **Conclusions**

From the findings of the study the following conclusions were drawn:

1. There were several factors that affected the delivery of the public health services and programs. As a result, the highest rate that both the services and programs received was only “Normal”, which indicated that despite of the additional health efforts to improve the delivery of services, no significant improvement were experienced.
2. The inadequacy in terms of human, material, physical resources used in the delivery of the public health services, were but just part of the entire system of Nurses experienced by the entire Philippine government. Hence, in the case of the shortage of medical staff/personnel despite of the enormous number of medical professionals that education institutions do produced annually is something that health authorities should look into.
3. The problems encountered by health providers in the delivery of public health services were the same problems that persisted for already several decades. The problem encountered are classified into: Internal and External. This is in other words by saying that the health organization by itself is handicapped in the delivery of public health services due to several constraints confronting the organization. While, external refers to the problem created by the recipients, and the environment to which the health services should be delivered.
4. From among the six (6) proposal made to uplift the condition of the medical facility system, there were at least two (2) that received the highest mark. The reasons behind is that both has the potential to resolve the problems confronting the providers who are tasked to deliver the health services needed by the people.

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## **Information Technology (IT) Practices and Computer Assisted Language Learning (CALL) Instruction of Faculty in Higher Education Institutions**

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### **Abstract**

The study was conducted to identify the integration of Information Technology (IT) and Computer Assisted Language Learning (CALL) of selected Higher Education faculty in their instructional practices. Specifically, it tried to determine the Information Technology (IT) used in teaching, frequency of usage, IT innovations done for teaching; as well as main concerns of faculty regarding the use of IT in teaching and faculty's preference in IT training methods for professional development. The study employed a descriptive quantitative research design with a survey questionnaire as the main instrument of the study. Selecting the four (4) biggest schools in Zamboanga City with two (2) public and two (2) private HEI's, the researchers distributed survey forms to faculty to achieve the aforementioned objectives. The study revealed data on instructional practices of faculty in the city identifying also the differences in terms of age, sex, teaching experience, educational attainment, level taught, and classification of schools. The results suggest a need to provide HEI faculty with relevant Information Technology (IT) training that will certainly aid in facilitating an effective teaching-learning process inside the classroom.

**Keywords:** Information Technology, IT Practices, Higher Education Faculty; Instructional Practices

## **Introduction**

The Information Technology (IT) in the present generation greatly affects the environment and have radically transformed people in their work, study and personal lives. Today's learners had to deal with the diverse environment characterized by technological change and innovation. On the other hand, educators being the prime movers had recognized that there is a need to equip learners with the necessary tools and skills as well as experiences that will enable them to become not only as participant but also as contributing members of the competitive community of an advanced technology. Research has shown that the Integration of Information Technology Education (ITE) course in teaching refers to computers and other tools of information technology that, when applied to the teaching process, ultimately effecting a significant change in the process, from the traditional to a higher quality of education (Mangin, 2011).

Information Technology (IT) as being termed as I.T., is the collective term for the various technology being used in the processing and transmitting information such as: telecommunication and interdependencies. This type of tools facilitate communication of knowledge globally. It can generate educational resource materials inclusive of data programs, presentation programs, blogs, websites, word processing, electronic mails (Mangin 2011). Information Systems manage various courses like the course Management System or E-Learning Management, which shall oversee and manage IT hardcore subjects integrated into the curriculum by HEIs and other educational institutions specifically in the preparation of lesson planning, classes online presentation and recording (Mangin, 2011, Roblyer, 2006).

However, the integration of Information Technology into the curriculum of education has to be treated with utmost consideration thus, educators are required to be Information Technology (IT) competent to achieve effective classroom teaching delivery and lesson presentation management in all of subjects in all of the courses.

While it is becoming the trend that HEIs encourage the teaching faculty to integrate and adopt the new technologies for the teaching preparation and delivery of classes, various other factors influence the integration, which means that the resistance or acceptance of these technologies by the teaching faculty, can affect the adoption of IT into the colleges and universities. These factors are the following: (1) age, (2) highest education earned; (3) teaching experience; (4) computer literacy; (5) availability of technology, among others. The quality of the educator is an important influence on student's achievement and achievement of the school, as a whole. High quality

professional development is likewise essential for the increase of the educator's knowledge as well as the levelling-up of skills in order to facilitate higher levels of student's learning. On the other hand, the most effective way to improve practices that are result-oriented, data gathered driven, and work embedded with the integration of information, and communication technology, is through professional development. According to Collins, et al (1991), the integration of information technology in the teaching-learning process in the classroom, has indeed made a positive effect on the learning of the students, hence Madiam (1991) and Duhaney (2000) both concluded that learning is now more interactive.

#### *Computer Assisted Language Learning Instruction*

Computer-assisted language learning (CALL) has sparked a revolution in language education . Before the advent of technology, traditional approaches to language training were unable to give language learners the tools they needed for effective communication. The lack of software programming and countless other tools that would have helped students to quickly advance their language abilities also made learning difficult and time-consuming.

Over the past few decades, technology has integrated itself into every aspect of people's life. In a way, it also serves as the foundation for the vast array of communication methods used by people around the world that transforms it into a world village. Additionally, it enhances language contact, which makes most people feel like their conversation could be better. One of the improvements' characteristics shows itself as linguistic instruction. Many students have engaged in establishing new connections and communicating with individuals from other cultural backgrounds. They also take action. with regard to employing communication technologies, their academic objectives. The main focus of those objectives among the groups of people who academically pursue this goal has always been language study. Technology may help people learn new languages in a variety of ways, but computer-assisted language learning (CALL) is the most important.

The main benefit of CALL materials is that they make it easier for learners to interact and use language. According to linguists, speaking the language can help learners recognize the differences between their native language and the language they desire to learn. Additionally, it is said that language creation serves as a type of practice in a way that bolsters mental connections (Swain & Ellis, as cited in Reinders & White, 2010). A learner of L1 could communicate with a learner of L2 by email or chat using one of the many systems meant to provide opportunities for language use. Interactional understanding alone does not result in the development of accuracy. However,

in order to effectively communicate with users, computer-assisted communication materials and instructions should coordinately focus in a specific direction. Differentiate the demands of the students and the language tasks that are expected of them (Reinders & White, 2010).

In view of this, the study was conducted to identify the integration of Information Technology among college teachers' instructional practices. Moreover, it includes finding out some concerns of teachers in doing such. The faculty of the College of Education in each selected school will only be the respondents of the study with at least thirty respondents per school. Although it is ideal to have as much respondents as possible, ethical considerations will strictly be observed. If a respondent is not willing to participate, he/she will not be forced to. The number of faculty who will refuse participation will be stated as one of the limitations of this research. Details of participants who are chosen but not willing to participate will not reveal any identifying information that will violate their privacy.

## **Objectives**

The primary purpose of this paper is to determine the IT and CALL Instructional Practices and innovations of faculty in selected public and private higher education institutions (HEIs) in Zamboanga City.

Specifically, the following are the objectives of the study:

1. To determine the information technology used in teaching:
  - a. Computer / Laptop
  - b. Internet
  - c. Email
  - d. Video conferencing
  - e. Teleconferencing
  - f. Network
  - g. Software Applications such as MS Word, MS Excel, MS Powerpoint and other Software Applications.
2. To determine the frequency of the faculty members' use of information technology
  - a. Computer / Laptop
  - b. Internet
  - c. Email

- d. Video conferencing
  - e. Teleconferencing
  - f. Network
  - g. Software Applications such as MS Word, MS Excel, MS Powerpoint and other Software Applications.
3. To determine the IT innovations done for teaching:
    - a. Special Programs
    - b. Database software
    - c. Drawing Programs
    - d. Web design
    - e. Animation
  4. To determine the main concerns of the faculty regarding the use of IT in teaching.
  5. To determine the faculty's preference in IT training methods for professional development.

### **Statement of the Problem**

This study will determine the Information Technology Instructional Practices of faculty in selected public and private education institutions (HEIs) in Zamboanga City. Specifically, it endeavors to answer the following questions:

1. What information technology are used by the faculty in teaching when they are grouped according to Age, Sex, Teaching Experience, Highest Educational Attainment, Level Taught, and Classification of School in terms of:
  - a. Computer / Laptop
  - b. Internet
  - c. Email
  - d. Video conferencing
  - e. Teleconferencing
  - f. Network
  - g. Software Applications such as MS Word, MS Excel, MS Powerpoint and other Software Applications.

2. What is the frequency of the use of computer applications by the faculty when they are grouped according to Age, Sex, Teaching Experience, Highest Educational Attainment, Level Taught, and Classification of School in terms of:

- a. Computer / Laptop
- b. Internet
- c. Email
- d. Video conferencing
- e. Teleconferencing
- f. Network
- g. Software Applications such as MS Word, MS Excel, MS Powerpoint and other Software Applications.

3. What Information Technology innovations are done for teaching when they are grouped according to Age, Sex, Teaching Experience, Highest Educational Attainment, Level Taught, and Classification of School in terms of:

- a. Special programs
- b. Database software
- c. Drawing Programs
- d. Web design
- e. Animation?

4. What are the main concerns of the faculty regarding the use of IT in teaching when they are grouped according to Age, Sex, Teaching Experience, Highest Educational Attainment, Level Taught, and Classification of School in terms of:

- a. Special programs
- b. Database software
- c. Drawing Programs
- d. Web design
- e. Animation?

5. What training methods are the preferences of the faculty, for professional development when they are grouped according to Age, Sex, Teaching Experience, Highest Educational Attainment, Level Taught, and Classification of School in terms of:

- a. Special programs

- b. Database software
- c. Drawing Programs
- d. Web design
- e. Animation?

### **Scope and Delimitation of the Study**

This study will focus on knowing the Information Technology (IT) Instructional Practices of faculty in higher education institutions in terms of the use of computer applications and related technologies, IT innovations in teaching as well as the concerns and preferences of the faculty. It will be conducted in four (4) HEIs in Zamboanga City, composed of two (2) public HEIs and two (2) private HEIs with faculty of the College of Education in each school as the only respondents. A research instrument (survey questionnaire) shall be used as the main tool of data gathering, and the data will be limited to the responses of faculty members covered in the study which will be administered on the months of February- March 2019.

### **Literature Review**

Bates (1997), in his article entitled “Restructuring the University for Technological Change”, declared that; many universities have been investing in various new technologies primarily for teaching purposes. This increased use of World Wide Web or www has been leading many academics for the use of Information Technology (IT). However, through the span of time, the widespread in the adoption of new technologies for teaching evidently keeps on bringing changes. With these changes, equitably the unit cost also increases. For technological change to be effective it usually needs more major structural and organizational re-structure for its full potentialities.

Research has shown that IT has the power to motivate the teacher-learner engagement and helps to develop more e-learning skills. Being considered as a powerful educational tool IT facilitates that would help facilitate transformation of educational system. To make this happen, it is vitally important to bring about the proper mind set and culture among faculty, administrator, parents and students. Thereby, this vision to re-design the curriculum may harness IT as an important challenge to all educators, (Hannah, 2003).

According to Arena (2007) over the decades, processing of digital information underwent a dramatic, and continuous technological revolution. Indeed, infant stages in the field of education

have already been improving and provided students with a quality higher education. It is basically important for new teachers to have these technological skills so that these are harnessed, and the teachers gained the power of computers and other related technologies for effective teaching.

On the other hand, most educational system and still conducted in the traditional classroom teaching delivery. A debate between parents and teachers is ongoing relative to the use of the computer as powerful teaching and learning tools, and whether the integration of computer technology is indeed appropriate for classroom teaching. Up to this time, most of the faculty are still illiterate in the use of IT.

The following are the related studies conducted and documented to look into the technological competencies of the faculty and integration of IT into the school curriculum.

Based on the study of Ramganesha and Zayapragassara (2010) in the article entitled “ ICT Competencies of Higher Education Teachers in Puducherry Region” the trend of today’s generation in highly urbanized and it is a rich environment for Information and Communication Technology (ICT), which were employed mostly by the higher education professionals. It primarily showed the output of the study on professionals specifically teachers who are computer literate and are currently devoted in teaching in the Arts and Science Colleges of Puducherry region.

In this research, the primary purpose was to know the extent and frequency of ICT usage by the faculty. It also endeavored to find out how often the faculty incorporate ICT in the teaching-learning process. Moreover, it is in this study that the competence of the faculty in terms of computer literacy was determined as well as the consistency in the integration of the needed technology in the teaching-learning process. Furthermore, it determine the preferred technology needed for the professional advancement and development of the faculty. A prepared questionnaires were given 120 faculty member in the higher education.

The findings showed that faculty members are moderately competent in the following ICT tools such as internet, e-mail, word processing, presentation software and transparencies. It also revealed that the faculty are less competent in the other areas of ICT tools. As a result, these faculty members were categorized as moderately competent.

As a result, these faculty who were categorized with moderately competent are frequently users of the ICT tools.

The study further emphasized that these faculty had to undergo further training on those tools used and integrated less frequently in the classroom due to the lack of proper and technical support. Accordingly, it is more preferable for the faculty to undergo and have enough seminar.

The study further disclosed that the faculty with limited knowledge as well resources may increase their level of competencies and make an impact in classroom teaching if given the proper training on advanced technological tools.

In the study of Tella, et al (2007), conducted among 700 teachers in the Nigerian secondary schools. IT perceived as very useful for teaching learning activities. It was highly recommended that professional development policies should support IT related teaching models. In addition, emphasis should also be prioritized on the pedagogy of IT used for teaching and learning. However, in this study it was found out that there was an insufficient technical support from the schools. Likewise, the faculty also were having problems on IT literacy.

The Digital Education Enhancement Programme (DEEP) involved 12 primary schools in the rural and under-privileged areas in the South Africa for over two (2) years. The DEEP reported that the use of IT enhanced the professional knowledge and capabilities of the faculty.

Louisiana Challenge Grant Teacher Survey surveyed teachers and students about the use of instructional technology in their classrooms. The researchers recommend direct access on providing direct access between students-teachers' communication through electronic mail. Over half of the population said that the students used technology to manipulate, analyze and interpret information.

Analysis of the data indicated that the concepts of IT use among teachers, and students showed to have both positive and negative impact and those were noted by the results presented which in turn gave direction as to what can be the goal for the study. The results of this study were in agreement with the findings established by previous studies, that there were certain IT software that were used by faculty, administration and the students. An example is the use of technology as a tool of instruction in a survey conducted on one thousand and two hundred and seventy seven teachers of the University of California. The findings indicated evidence of substantial use of a broad range of technologies.

## **Theoretical Framework**

This study was anchored on the standards provided by the Information Technology in Education to guide the preparation programs on faculty' knowledge and the use of Information Technology (IT). Among the three theories cited, this study stressed the theories such as the following, to wit: *Rogers' theory of diffusion and innovations*. This theory is the adoption of technology in higher education and educational environments (Medlin, 2001; Parisot, (1995). The generation of today's millennial age is unstoppable in using computer technology. It is directly observable that the students nowadays are more literate or 'expert' in manipulating computers to their benefits, than their teachers. Indeed, it is really a shame that if teachers are illiterate in using computer technology in classroom teaching, these teachers are considered as liabilities rather than an assets. This requires faculty training in technology and professional development. Therefore it is considered necessary to invest for the improvement of the technological competency of the teachers and implies sending them to Information Technology (IT) crash course.

Mangin's (2011) The integration of Information Technology Education (ITE) course in the College of Education refers to the use of computers and other tools of information technology, applied to the teaching process. It was theorized that this can significantly change the process from traditional to more quality higher education. In this theory, the term Information Technology is applied the teaching process, the outcome has of which has a definite significant change as compared to the traditional education. The uses of ICT in education refers to Internet, Spread Sheet, Word Processing, Electronic Mail that are very useful to faculty especially in preparing lesson planning and other paper works related to their profession.

Morze, Kocharian, Smyrnova- Trybulska, ICTE Journal's (2015) The rapid development of technology affects business development, labor market and, in turn, to a system of higher education should prepare graduates for today's conditions ." Thus, foreseeing these conditions: (1) Instructional Practices (2) Information Technology in Education as innovation; (3) Instructional Policies on Information Technology in Education, we really need to have faculty and graduates with new IT competence to meet the demands of the competitive environment.

## Research Methodology

### Research Design

The design of this research is descriptive- quantitative as it only seeks the descriptive instructional practices of faculty in terms of the integration of Information Technology in classroom instructions and the whole teaching and learning process. According to Fox, W. & Bayat, M.S. (2007) “A Guide to Managing Research” Juta Publications, p.45, Descriptive research is “aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method.” The research method of the study is quantitative method wherein the researchers get a sample of the total population of each school subject to study.

### Research Locale

The research locale of the study is Zamboanga City, which is a highly urbanized city, with a population of 700,000, and ranked as the 6<sup>th</sup> most populous city in the country. The city is the center of trade, health services and education in the Western Mindanao region. As far as education is concerned, Zamboanga City boasts of seventeen (17) tertiary level institutions of which three (3) are college universities and seven (7) sectarian and seven (7) non-sectarian. It also encompasses a total of 98 barangays, subdivided into two districts.

Specifically, the study will be conducted in two (2) public HEIs and two (2) private HEIs, all of which are located in Zamboanga City, in the province of Zamboanga Del Sur, Region IX, Philippines.

Specifically, the coding of the involved academic institutions are as follows:

<b>PUBLIC HEI's</b>	<b>CODED AS</b>
TEI 1	<b>A</b>
TEI 2	<b>B</b>
<b>PRIVATE HEI's</b>	
TEI 3	<b>C</b>
TEI 4	<b>D</b>

1. **A** is the only State University popularly known as the premier university in Zamboanga City. It has three (3) campuses, where the main campus has a land area of 79,000 square meters, while the 2<sup>nd</sup> campus has a land area of 9,147 sq.m. located at the eastern side of the main campus, both in Barangay Baliwasan, Zamboanga City. The third campus is situated 15 Km away from the main campus, specifically in Barangay San Ramon, in the same city. One college, particularly the College of Social Work and Community Development (CSWCD) was given the award as the Best School of the Philippines for the Social Work course. This academic institution has one (1) institute, fifteen (15) colleges and two (2) autonomous campuses currently offering degrees in postgraduates and undergraduate courses. It's students population is pegged over 32,000 with over 600 faculty members and with administrative personnel of no less than 200. According to the survey made by the Top Academic Institutions of the Philippines, this state university ranked 6<sup>th</sup> among the 68<sup>th</sup> university of the country. Another college was also considered as the Center for Development, and this was the College of Architecture.
2. **B** is known as the only State College offering the degree in Marine Technology along with other courses related to sea studies. This school is considered and currently the center for Marine and Aquatic Studies. The school is located in the Rio Hondo Barangay, Zamboanga City which is just a stone throw from the Fort Pilar Shrine.
3. **C** was granted University status in 2005. As reported, this University holds 8% of all the college enrolment in Region 9, including enrollees of Western Mindanao. Currently, this university has 8 school campuses, one of which is the Main Campus, located in Barangay Tetuan, Zamboanga City. The College of Criminology is in the Cabatangan Campus, while the College of Agriculture is in Pasonanca Campus. The Veterans campus is for the Laboratory and Nursing Courses while other allied medicines are in San Jose Campus. Business courses can be seen in the Canelar Campus. It has an extended campus in Ipil, Zamboanga Sibugay. As of now, the school has 2 secondary schools, the Science High School and the Technical High School.
4. **D** is a private non-sectarian college in Zamboanga City. It presently consists of three Campuses, namely the Central Campus, the West Campus and the East Campus, all located in Zamboanga City. The school is known for their course in Customs and other business courses. Its high school can also be seen in the same campuses.

## Respondents of the Study

The target population of this study is the permanent faculty of the College of Education in higher education, who are currently employed in the pre-selected public and private schools, in the city of Zamboanga. Only a sample population from the four (4) HEI's will be taken to be part of the study. Once the data on the total population of each school is determined, Slovin's formula shall be computed and random sampling will be conducted. At least 20% of the total population will be taken under study to warrant statistical analysis. To be included in the study, the respondents must meet the following criteria: (1) must be a permanent faculty of their institution; (2) teaching college students in their College of Education department; and (3) willing to participate in the study. The respondent will not be included if they are visiting lecturers or under contractual service/temporary service, does not teach college students and is not willing to participate in the study. A respondent may withdraw anytime if and when he feels uncomfortable answering the instrument and/or has reported no spare time to accomplish the survey given the agreed period. With these conditions, his/her data will not be used in any part of the study. Moreover, a respondent who has not finished answering the survey will also be withdrawn or excluded in the study.

## Profile of Respondents

**Table 3.1 Profile of Respondents (N=241)**

Profile category	Frequency	Percent
<b>Age group</b>		
20-29	77	34.7
30-39	58	26.1
40-49	51	23.0
50-59	32	14.4
60 up	4	1.8
<b>Sex</b>		
male	99	42.9
female	132	57.1
<b>Teaching experience</b>		
0 – 3 years	88	37.0
4 – 6 years	45	18.9
7 – 10 years	27	11.3
Above 10 years	78	32.8
<b>Highest educational attainment</b>		
Bachelor's degree	56	23.4

B. w/ Master's units	75	31.4
Master's degree	54	22.6
M. w/ Doctoral units	39	16.3
Doctoral degree	15	6.3
<b>School classification</b>		
Public HEI	170	70.5
Private HEI	71	29.5
<b>Levels taught in college (multiple response)</b>		
First year	186	77.2
Second year	126	52.3
Third year	111	46.1
Fourth year	122	50.6
Graduate level	26	10.8
<b>Topics taught incorporating IT practices (multiple response)</b>		
Information Technology	32	13.3
English	32	13.3
Pedagogy	10	4.1
Mathematics	31	12.9
Filipino	8	3.3
History	20	8.3
Science	32	13.3
Physical Ed	15	6.2
HE & Livelihood Ed	44	18.3
<b>No. of Trainings attended about IT instruction use</b>		
None	82	34.6
1 - 5 times	127	53.6
6 - 10 times	14	5.8
More than 10	14	5.9

The survey was administered to 241 participants from four different type of HEIs. The profile of the respondents is presented in Table 3.1 in various socio-demographic categories including teaching background. Respondents were from 20 to 60 years old with mean age at 36.4 years. The second and third quartile age distribution is from the late twenties to early forties, having a majority at the youngest age group at their twenties (34.7%). Most of the faculty surveyed were young with only about 16.2% of older faculty aged 50 and above. There were also more females (57.1%) than males (43%) and more participants were from the public HEIs (71%) compared to those from the private institutions (30%). In terms of teaching experience, there were varied range of years in

teaching having 37% for less than three years and 33% for more than 10 years. Most have also gained units after bachelor's degree (31%), while 23% have had bachelor's degree, 23% completed a master's degree, and several teachers have earned doctoral units and completed a doctorate degree at 16% and 6%, respectively.

These educators have been teaching in all four college levels and graduate courses for masters and doctorate degrees. But majority are detailed with the first-year students (77.2%) and only about 11% are handling graduate courses. The topics that incorporated the use of IT were on Home Economics & Livelihood Education (18%), English (13%), Science (13%) as well as Information Technology (13%), Math (13%). A few other subjects also used IT for History, Physical Education, Pedagogy and Filipino. As for the number of trainings attended on the use of IT as one of the instruction techniques, more than half (54%) have had at least one to more than five trainings, while several teachers never had any type of training related to IT (35%).

### **Research Instrument**

The research instrument to be used in this study will be a survey questionnaire. The first part will be a letter and informed consent form where the respondents are informed about matters regarding the study and their involvement and where they will affix their signature as a sign for the confirmation to participate in the study. The second part requires the respondents to disclose personal information that will be needed in the statistical analysis which includes the: age, sex, educational qualifications, , subjects taught in the college of education and the use of Information Technology (IT) in the classroom teaching and management as a tool for effective learning, among others. The third part is the survey questionnaire where the respondents tick/select the answer appropriate for them. The items include a rating scale and checklist based on the research questions of the study. The questions will focus on specific questions relative to the IT instructional practices and innovations used in the teaching and learning process and will also identify the concerns of the faculty regarding the integration of IT in the classroom. The instruments shall be validated by identified experts.

### **Sampling Technique**

The researcher intentionally selected three (3) public and three (3) private Higher Education Institutions as research location because they meet the need of the study. Due to time constraints

and limited research funding, the respondents will be selected using simple random sampling based on the total population of each school. With this, Slovin's formula will be used to compute the sample population.

Slovin's formula is written as:

$$n = N \div (1 + Ne^2)$$

where n = Number of samples, N = Total population and e = Error tolerance

### **Data Collection**

After the approval of the conduct of the study is obtained, the researchers will:

1. Set a criteria for the target participant; at least 3 years of teaching experience; regular and permanent employee, listed faculty of the College of Education teaching pre-service teachers.
2. Write a letter to the head/presidents of each school and seek approval
3. Write a letter to target respondents with the informed consent – mentioning the voluntary participation and confidentiality of the information to be gathered.
4. The researchers will seek assistance to the head of each department to identify the appropriate respondents in the study.
5. Once the total population of each school is identified and the sample computed, random sampling will be conducted by picking the names among the qualified respondents in a jar to reduce bias in selection.
6. The research instruments will be distributed personally to respondents and they shall be given 1-3 days to answer the said survey. The respondents are free to answer the questions in their workplace or at the convenience of their home. The researchers will go back to them to the agreed day of questionnaire retrieval.
7. If respondents have questions/queries, they are free to contact the researchers.
8. Responses from each of the question in the instrument will be statistically analyzed using appropriate statistical tools. A project enumerator/encoder will gather the raw data and do the counting and statistical analyses under the close supervision of the researchers and a hired statistician as consultant.
9. Data gathering, analysis and interpretation shall be conducted and shorten within 6 months. Final results will be presented before the given deadline.

#### Ethical Considerations:

- The research study is fully funded by Western Mindanao State University through Outright grant worth Php 60, 000 covering all expenses which include: personal services, maintenance and other operating expenses. The principal investigator, co-researcher, project enumerator, consultant and others involved in the study planned the budget together and agreed on the distribution of items before conducting the study.
- The respondents of the study are not related to the researchers by blood or acquaintance. If in case they are, the researchers ensure that familiarity will not influence the results of the study.
- The researchers ensure that the identity of the respondents will remain confidential during and even after the conduct of the study.
- All questionnaires and other documents leading to the identity of the respondents will be kept safely in a locked drawer with only the main researcher having access to the key.
- To ensure that data of respondents are preserved and retained confidential, the researcher herself will distribute and retrieve the questionnaires in their respective workplaces.
- Since respondents are legal adults (above 18 years old), they are capable to give consent by signing in their copy of Informed Consent Form and will be submitted to the researcher before they are allowed to answer the questionnaire.
- In the informed consent form, most of the commonly asked questions regarding their involvement in the study are stated including the benefits of participation.
- The study ensures no harmful risks to the participants. However, it may disclose the information technology instructional practices of each school. But such information will not jeopardize in any way the standing of respondents in their respective institutions. The purpose of this study is to determine the present instructional practices employed by teachers using information technology and through that, the researchers aim to give recommendations in improving such.

#### **Data Analysis Procedures**

Data was analyzed using SPSS software version 20 to calculate frequencies and percentage distribution of the variables including crosstabulation of variables. Mean was also used for one variable with a Likert scale test-item specifically on the frequency of use on the type of Information

Technology. Bar graphs were also used to provide graphical illustration on the major key findings of the study, which was created through MS Excel.

Since the study was aimed at only providing descriptive information on patterns of IT use in instructional practices, and objectives have been limited to describing five major areas of IT practices across teachers' individual variables, no inferential statistics were computed. This study shall serve as baseline data for instructional practices of HEI teachers using IT equipment or application.

### Study Limitations

This study intended to capture quantifiable proportion of HEI teachers using IT in their instructional practice. It aimed at using probability sampling technique using simple random sampling for selection of study participants. However, due to time constraints and inaccessibility of most of the educators, sampling design utilized convenience sampling at the four targeted research areas. Hence, findings of the study may be limited in terms of generalizability of results.

## Results and Discussion

### 4.1 Information Technology Equipment and Applications Used in Teaching

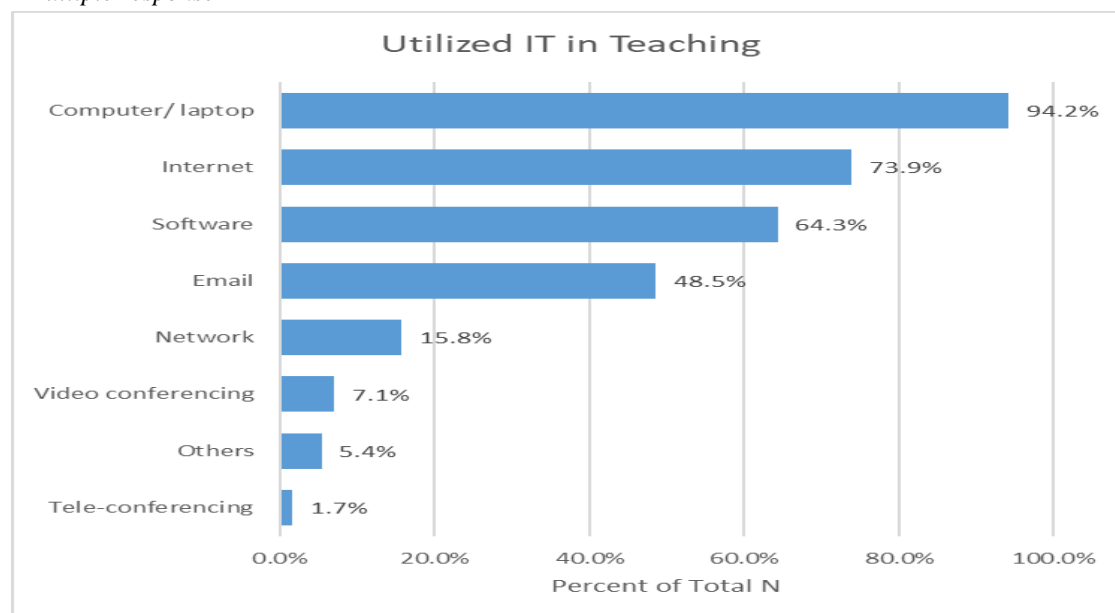
Table 4.1 presents the distribution of response on the IT applications/equipment used by educators in their instructional practice across teachers' profile. The Information technology identified were the use of computers or laptops, internet, email, video conferencing, tele-conferencing, networking and the use of various computer software such as MS Word, MS Excel, MS Powerpoint and other Software Applications.

Table 4.1 Percentage Distribution of IT Applications and Equipment Used in Instructional Practice by Categories of Faculty Profile (N=241)\*

Information Technology		Computer / laptop	Internet	Email	Video conferencing	Tele-conferencing	Network	Software	Others
N	Age group								
77	20-29	97.4	76.6	51.9	6.5	2.6	19.5	68.8	2.6
58	30-39	96.6	75.9	53.4	0.0	1.7	13.8	69.0	15.5
51	40-49	94.1	74.5	49.0	11.8	0.0	13.7	62.7	3.9

32	50-59	90.6	71.9	37.5	12.5	3.1	15.6	62.5	0.0
4	60 up	100.0	100.0	50.0	0.0	0.0	25.0	50.0	0.0
	<b>Sex</b>								
99	male	97.0	76.8	51.5	4.0	1.0	20.2	65.7	7.1
132	female	93.2	73.5	47.7	8.3	2.3	12.9	65.2	4.5
	<b>Teaching experience</b>								
88	0 – 3 years	94.3	72.7	48.9	5.7	1.1	18.2	65.9	5.7
45	4 – 6 years	97.8	77.8	51.1	8.9	2.2	15.6	51.1	8.9
27	7 – 10 years	96.3	88.9	51.9	0.0	0.0	7.4	81.5	3.7
78	Above 10 years	91.0	67.9	44.9	10.3	2.6	16.7	65.4	3.8
	<b>Highest educational attainment</b>								
56	Bachelor's degree	92.9	76.8	48.2	0.0	0.0	19.6	66.1	1.8
75	B. w/ Master's units	96.0	70.7	46.7	6.7	2.7	10.7	60.0	5.3
54	Master's degree	92.6	74.1	44.4	9.3	0.0	13.0	66.7	3.7
39	M. w/ Doctoral units	94.9	79.5	59.0	12.8	2.6	23.1	69.2	12.8
15	Doctoral degree	93.3	73.3	53.3	13.3	6.7	20.0	66.7	6.7
	<b>School classification</b>								
170	public	95.9	71.2	44.7	6.5	1.2	14.7	67.6	6.5
71	private	90.1	80.3	57.7	8.5	2.8	18.3	56.3	2.8
	<b>Levels taught in college</b>								
186	First year	93.0	71.0	45.7	5.9	2.2	16.1	64.0	3.8
126	Second year	94.4	77.8	50.8	5.6	2.4	19.0	65.1	5.6
111	Third year	95.5	76.6	49.5	4.5	1.8	18.9	68.5	5.4
122	Fourth year	96.7	82.8	51.6	6.6	.8	14.8	66.4	6.6
26	Graduate level	92.3	73.1	53.8	11.5	3.8	38.5	69.2	11.5
241	<b>Total respondents (% of N)</b>	<b>94.2%</b>	<b>73.9%</b>	<b>48.5%</b>	<b>7.1%</b>	<b>1.7%</b>	<b>15.8%</b>	<b>64.3%</b>	<b>5.4%</b>

*\*Multiple response*



**Figure 4.1 Utilized IT Equipment and Applications in Instructional Practice in HEIs**

Among all 241 respondents, the use of computers and laptop is the most well-known IT instructional practice utilized by as much as 94% of the population. Figure 4.1 shows that it is ranked as the first utilized IT, followed by the use of the internet (74%), the use of computer software (64%) and communicating through emails (48%). Less than 20% of the educators utilize networking, video conferencing, tele-conferencing and other forms of ICT in teaching.

Across the age groups, a high proportion of computer users can be seen on all age groups, and all four of the educators above 60 years old use the internet in teaching. It can be observed that similar trends of ranking on the type of IT used can be seen across all age groups, with minimal use of video and tele-conferencing.

Across sexes, it can be observed that a slightly higher proportion of the male educators seem to use IT compared to the female instructors, i.e. computers (97% for males vs 93% for females), using emails (52% for males and less than the majority of females 48%), and the internet (77% for males, 74% for females). However, both sexes tie on the use of computer software at 65% each.

Computer use, internet and software applications have also similar proportions of use across years in teaching experience. Those above 10 years in teaching however have the least proportion for use of computer, internet and email when compared to those earlier years, but with similar

proportions on the use of software applications. The higher years in teaching above 10 years also showed the greatest percent on the use of video conferencing (10%) compared to others.

Similar trends on proportions can be seen across educational attainment. More than 90% of in all levels of education use computers, more than 70% use the internet and more than 60% use software applications. Networking seems to have modest users of more than 20% among those with doctoral units and doctoral degrees as well as users of more than 10% for video conferencing compared to those with lower educational attainment.

Across school classification, slightly higher percentage of use is seen on public HEIs for computers and software applications. But higher percentage of use of the internet, emails and networking system can be observed among private educators.

For IT use across levels taught, computers still have more than 90% of use in all levels. But the graduate courses seem to have a higher percentage of use for networking and video conferencing compared to the rest of the levels. There is also less than a majority of the total proportions of first year teachers who use emails in instruction and the fourth-year teachers have the highest use of the internet. Software applications have closely similar rates of use for all levels greater than 60%.

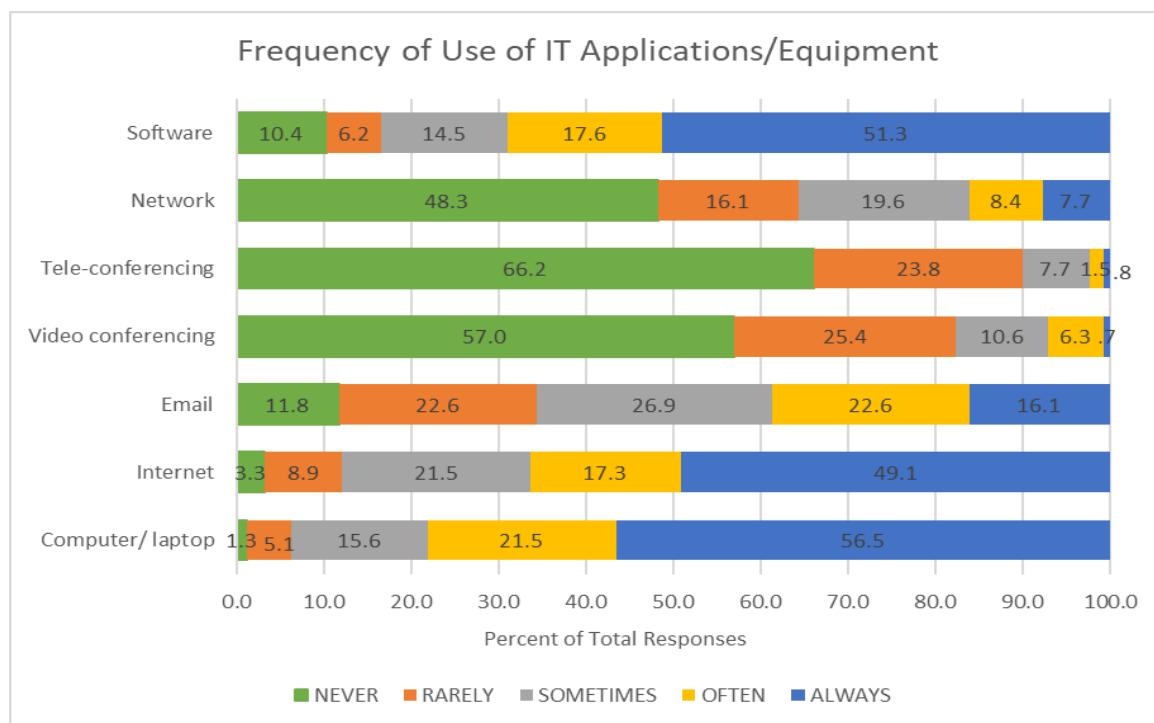
#### **4.2 Frequency of Use of IT Applications/Equipment**

Having computers/laptops, internet and software applications as the first three types of IT used, Table 4.2 shows the average frequency of use of these items as well as all other IT types. About 98% of the respondents always use the computer, while 89% often times use the internet and 80% also often use computer software. Moderate frequency of use was rated on emails and other types of IT platforms. And more than half of the surveyed population rarely use networking and never use video-conferencing nor tele-conferencing.

Table 4.2. Overall Mean Ratings of Frequency of Use of IT Applications/Equipment

<b>IT Applications/ Equipment</b>	<b>Computer/ laptop</b>	<b>Internet</b>	<b>Software</b>	<b>Email</b>	<b>Others</b>	<b>Network</b>	<b>Video conferen- cing</b>	<b>Tele- conferen- cing</b>
N	237	214	193	186	26	143	142	130
Percent of N	98.3%	88.8%	80.1%	77.2%	10.8%	59.3%	58.9%	53.9%
Mean	4.3	4.0	3.9	3.1	3.0	2.1	1.7	1.5

Std. Deviation	1.0	1.2	1.4	1.3	1.7	1.3	.9	.8
Mean Adjectival Rating*	Always	Often	Often	Sometimes	Sometimes	Rarely	Never	Never
*Adjectival Rating Criteria: 1.0-1.8 Never; 1.9-2.6 Rarely, 2.7-3.4 Sometimes, 3.5-4.2 Often; 4.3-5.0 Always								



**Figure 4.2 Distribution of Responses on Frequency of Use of IT Applications/Equipment**

To provide a distribution of users per type of IT, Figure 4.2 shows the distribution of responses on the frequency of use per type of IT application/equipment. The high proportions of very high users ‘always’ are seen on software applications (51.3%), computers and laptops (57%) and the internet (49%). There are also about 16% of the teaching population who always use emails in instruction but also has more than 20% of the population with varied response on lower frequency of use. This may imply that most HEI instructors are still unaccustomed on the use of emails as a form of instructional practice.

IT apps that are never used at all are video conferencing (57%), tele-conferencing (66%) and networking (48%), showing the highest proportion of non-usage. These never used protocols are types of communication platforms that would require a strong internet or telephone system in schools or learning areas. It may be one of the reasons why such IT applications are less likely used.

On the average, computers and the internet are always and often times used by all age groups. While four respondents who are above 60 years old rated to always use video-conferencing in teaching. Software applications have shown moderate use on all age groups except for the older group who often times use them. Email showed very poor frequency of use especially for the 30s and 40s educators. While networking, and both conferencing platforms showed even better mean ratings than the frequency of use for emails.

Comparing frequency of use across sexes and across type of HEI, mean frequency of use are similar for all types of IT on all categories of sex and school classification. But as for years in teaching experience, educators less than 6 years and below always use computers, but only often times for those 7 years and above. Similar mean frequency of use is seen on all years for the use of the internet, software applications, emails, networking and video conferencing. Varied mean are seen on tele-conference usage with moderate use for those 7-10 years in teaching and often times used by those in the early years in teaching.

Mean ratings for IT use especially for computers and the internet are interesting across educational attainment. Those with doctoral degrees seem to be always using these platforms compared to those with lower educational attainment who only rated often. Educators with doctoral degrees also rated to always use both conferencing platforms. The frequency of use may be higher for those with doctorate degree due to the familiarity of the use of these IT platforms. On the other hand, emails have the very low mean usage for those from the bachelor's degree to those on master's degree with doctoral units and rarely for doctorate degree holders.

Across levels taught in college, the use of computers, the internet and email as instructional tools have similar mean frequency of use regardless of which level taught, of which mean usage are always, often and never. Only those teaching graduate courses seem to show a different mean for the use software applications, networking and teleconferencing. Those teaching in graduate courses seem to use software applications more often, sometimes use networking and always use

teleconferencing than those teaching in the bachelor's levels who sometimes use software applications, rarely use networking and sometimes use teleconferencing method.

### 4.3 IT Innovation Incorporated in Teaching

Frequency of response on the items for IT innovation incorporated in teaching have smaller proportions compared to other areas presented herein. Mode of responses barely shows half of the total population surveyed. Nonetheless, Table 4.4 cross-tabulates each identified IT innovation per category of teacher's profile and Figure 4.3 illustrates the ranking of these items.

Among the younger age groups up to those aged fifties, special programs have the higher proportion of responses compared to other items. But those aged above 60 years old have more preference for animation and database software. However, due to the very small number of samples for this group, the comparison may still be more likely equal if sample size for the older group will be merged to the 50s age group. Database software had the second highest proportions, followed by animate and drawing programs for more or less all age groups.

The male respondents have slightly greater proportion of responses for all types of innovation compared to their female counterparts. It may be inclined to the nature of the programs provided such as database, drawing and animation and web design are more familiar to the male instructors but still difference on proportions cannot also be established due to slight variations.

Table 4.4 Percentage Distribution of IT Innovation Incorporated in Teaching by Categories of Faculty Profile (N=241)\*

		Special Programs	Database software	Drawing programs	Web design	Animation	Others
N	Age group						
77	20-29	48.1	36.4	20.8	16.9	26.0	5.2
58	30-39	37.9	34.5	20.7	10.3	20.7	13.8
51	40-49	33.3	19.6	11.8	9.8	23.5	11.8
32	50-59	37.5	31.3	28.1	18.8	21.9	9.4
4	60 up	25.0	50.0	25.0	25.0	75.0	0.0
	Sex						
99	male	50.5	34.3	28.3	17.2	24.2	14.1
132	female	31.8	28.0	12.9	10.6	22.7	6.1
	Teaching experience						
88	0 – 3 years	43.2	31.8	21.6	10.2	23.9	5.7

45	4 – 6 years	42.2	28.9	24.4	17.8	24.4	15.6
27	7 – 10 years	63.0	37.0	37.0	18.5	18.5	7.4
78	Above 10 years	23.1	29.5	6.4	14.1	24.4	11.5
<b>Highest educational attainment</b>							
56	Bachelor's degree	44.6	42.9	21.4	14.3	17.9	5.4
75	B. w/ Master's units	46.7	25.3	28.0	12.0	22.7	8.0
54	Master's degree	22.2	20.4	13.0	13.0	31.5	16.7
39	M. w/ Doctoral units	33.3	38.5	10.3	12.8	20.5	12.8
15	Doctoral degree	53.3	33.3	13.3	26.7	26.7	0.0
<b>School classification</b>							
170	public	32.9	30.0	22.4	12.9	24.1	10.6
71	private	52.1	32.4	11.3	15.5	21.1	7.0
<b>Levels taught in college</b>							
186	First year	36.6	31.2	17.7	11.8	21.5	10.8
126	Second year	38.9	30.2	18.3	16.7	22.2	11.9
111	Third year	41.4	32.4	24.3	20.7	28.8	9.0
122	Fourth year	36.9	32.0	18.0	18.0	24.6	12.3
26	Graduate level	46.2	26.9	11.5	15.4	23.1	15.4
241	<b>Total respondents (% of N)</b>	<b>38.6%</b>	<b>30.7%</b>	<b>19.1%</b>	<b>13.7%</b>	<b>23.2%</b>	<b>9.5%</b>

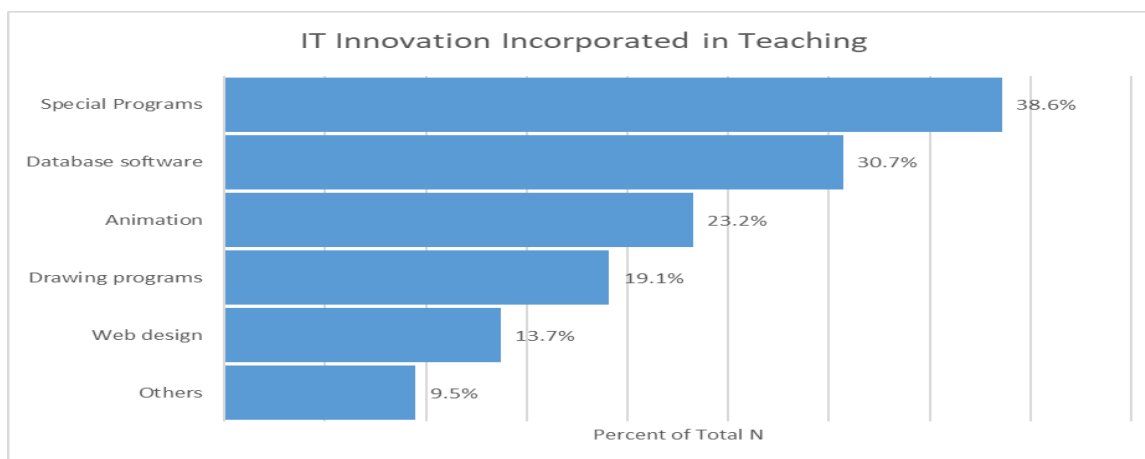
*\*Multiple response*

Special programs had the highest proportion of response for those teaching from 7 to 10 years (63%). For this age group, special program received more than half of the 27 samples with teaching years of 7-10 years indicating that this innovation is likely used in this group compared to others. Although special programs still remain to be the leading innovation used, database and drawing programs are also more used for those close to 10 years in teaching, but showed the least proportion for animation use.

As for educational attainment, those with bachelor's degree seem to prefer incorporating the use of special programs and database software having responses greater than 40%. Those with master's units only have special programs as highly used innovation with greater than 40% responses. Animation is more likely for the educators with master's degree (32%), while database software leads the proportion of response for items among those with master's degree with doctorate units. Majority of the doctoral degree educators use special programs compared to other types of IT innovation.

Describing proportion of responses across school classification indicates that special programs and database software have close to similar range of responses on the public sector. But majority of the population in the private HEIs use special programs compared to the rest. However, in observing who has higher mode of responses, more public educators seem to use drawing and animation programs while private educators integrate special programs, database software and web design in their teaching.

Across levels taught, higher percentage of responses are still seen on special programs, database software and animation with proportions above 30 and 20 percent. And at least 10% of responses for drawing and web designs, with slightly higher proportion among third year educators.



**Figure 4.3 Ranking of IT Innovation Incorporated in Teaching**

Overall, special programs rank the first type of IT innovation used in teaching with proportion of total response at close to 40%. This is followed by database software at 31% and animation at 23%. Other IT innovations used in teaching with less than 20% responses were drawing programs and web designs. Since web-design shows the most complex type of IT platform to be used in teaching, this is the least item identified along with other type of innovation such as online courses or blended learnings.

#### **4.4 Main Concerns in the Use of IT in Teaching**

Issues that impede incorporating IT in instructional practices are identified in Table 4.5 grouped across profile with highlight of overall response at Figure 4.4. Since the use of information technology requires the need for ICT equipment and facilities, it is apparent that the main issue

will be the lack of facilities. And across all categories in teacher's profile, this issue ranks first in the list.

Majority of responses from the age groups excluding those above 60 shows greater cumulative response for lack of facilities and no internet support. While those above 60 highlights overcrowded classroom and poor admin support to add to the lack of facilities as most of the issues identified. The 50s age group identifies lack of IT training greater than the rest of the group and the 60s group sees IT integration as an unusual practice in teaching.

High proportion of male respondents identify limited facilities as the major cause followed by no internet support. Although similar trend is also seen on the female counterpart, proportion of responses are greater for males particularly on issues of facilities and internet support, overcrowding, poor admin support, no IT related training and seeing it as an unusual practice. Females have slightly greater response for the issue on no internet support.

Similar patterns are seen across teaching experience with facilities, internet support and IT related trainings with greater proportion of responses. As for educational attainment, majority of responses having greater than 50% identifies facilities and internet support as well, but those with master's degree and master's units earned includes IT training as one of the major issues.

Table 4.5 Main Issues on the Use of IT in Teaching by Categories of Faculty Profile (N=241)\*

		Limited Facilities	Overcrowded Classrooms	Poor Admin support	Not Proficient in IT use	No Internet support	No IT training	Unusual practice	Not needed	Others
N	Age group									
77	20-29	76.6	36.4	14.3	14.3	54.5	27.3	6.5	3.9	2.6
58	30-39	75.9	46.6	36.2	19.0	67.2	39.7	17.2	1.7	1.7
51	40-49	64.7	31.4	17.6	13.7	56.9	45.1	9.8	2.0	2.0
32	50-59	75.0	40.6	25.0	9.4	59.4	56.3	12.5	0.0	3.1
4	60 up	100.0	75.0	50.0	0.0	25.0	25.0	25.0	0.0	0.0
<b>Sex</b>										
99	male	85.9	49.5	33.3	18.2	57.6	41.4	18.2	4.0	3.0
132	female	65.2	30.3	16.7	12.9	58.3	39.4	6.8	2.3	1.5
<b>Teaching experience</b>										
88	0 – 3 years	71.6	33.0	11.4	10.2	55.7	23.9	3.4	2.3	3.4
45	4 – 6 years	71.1	44.4	28.9	22.2	55.6	51.1	24.4	6.7	4.4
27	7 – 10 years	81.5	51.9	48.1	18.5	74.1	63.0	25.9	3.7	0.0
78	Above 10 years	71.8	39.7	25.6	15.4	57.7	43.6	7.7	0.0	0.0
<b>Highest educational attainment</b>										
56	Bachelor's degree	80.4	37.5	23.2	14.3	57.1	30.4	12.5	3.6	0.0
75	B. w/ Master's units	70.7	38.7	16.0	17.3	52.0	30.7	10.7	4.0	5.3
54	Master's degree	64.8	35.2	25.9	7.4	57.4	50.0	7.4	0.0	1.9
39	M. w/ Doctoral units	74.4	48.7	30.8	20.5	69.2	53.8	12.8	2.6	0.0
15	Doctoral degree	80.0	40.0	33.3	13.3	66.7	46.7	20.0	0.0	0.0
<b>School classification</b>										
170	public	71.8	44.1	24.7	15.3	61.8	45.9	13.5	2.9	1.8
71	private	74.6	28.2	19.7	15.5	49.3	25.4	7.0	2.8	2.8
<b>Levels taught in college</b>										
186	First year	73.7	36.6	21.0	14.5	57.5	38.7	9.1	2.7	2.7
126	Second year	77.0	39.7	23.8	15.9	59.5	38.1	11.9	4.0	3.2
111	Third year	78.4	44.1	30.6	13.5	64.0	43.2	16.2	3.6	2.7

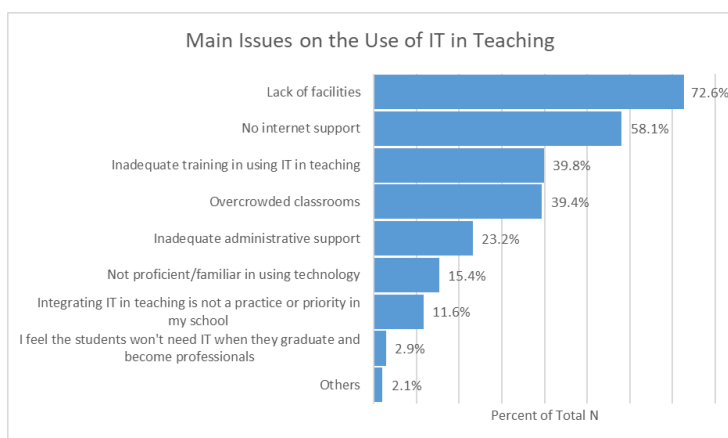
122	Fourth year	69.7	43.4	27.0	13.1	64.8	41.8	13.1	1.6	2.5
26	Graduate level	84.6	46.2	34.6	19.2	53.8	65.4	15.4	0.0	0.0
241	<b>Total respondent s (% of N)</b>	<b>72.6%</b>	<b>39.4%</b>	<b>23.2%</b>	<b>15.4 %</b>	<b>58.1%</b>	<b>39.8%</b>	<b>11.6%</b>	<b>2.9%</b>	<b>2.1 %</b>

*\*Multiple response*

Across HEI classification, higher proportion of response for private schools are issues related to limited facilities alone. But public HEIs has higher responses for overcrowded classrooms, poor admin support, no internet support and no IT related trainings including seeing it as an unusual practice. Internet support is seen as a problem in public HEIs with 62% responses, while only less than 50% for private HEIs.

As for levels taught in college, the educators in the graduate level sees problems in facilities at 85% major issue followed by 65% no IT related trainings and 54% no internet support. Responses with more than the majority among those teaching in all bachelor's level are seen on limited facilities and no internet support only.

Ranking these eight major issues, Figure 4.4 shows lack of IT facilities as the first concern to top the list (73%) followed by no internet support with more than the majority of population responses (58%). Inadequate training in IT for teaching and overcrowded classrooms both have 39% of accumulated response and inadequate admin support has more than 20% of responses. These are the top five concerns faculty members have in using IT methods in teaching.



**Figure 4.4 Ranking of Main Issues on the Use of IT in Teaching**

Issues with at least greater than 10% of accumulated response are issues related to being not proficient or familiar in using the technology and not seeing IT as a practice or priority in school. There is a general challenge of ICT equipment support in the overall issues identified, while several areas of individual competencies also hinder the use IT in teaching.

#### 4.5 Preferred Training Methods for Professional Development

Lastly, on the training methods preferred related to IT instruction, Table 4.6 describes the distribution of response of training methods across faculty profile.

Table 4.6 Preferred Training Methods for Professional Development by Categories of Faculty Profile (N=241)\*

		Regular in-service trainings	Online learning courses	Modular instructions	Seminars/ workshops	Coaching/ Mentoring programs	Others
<b>N</b>	<b>Age group</b>						
77	20-29	72.7	49.4	50.6	88.3	59.7	5.2
58	30-39	82.8	44.8	53.4	77.6	60.3	1.7
51	40-49	74.5	47.1	45.1	72.5	58.8	9.8
32	50-59	78.1	46.9	53.1	75.0	59.4	3.1
4	60 up	100.0	0.0	0.0	75.0	25.0	0.0
	<b>Sex</b>						
99	male	79.8	46.5	58.6	81.8	57.6	6.1
132	female	75.8	45.5	43.9	78.0	59.8	3.8
	<b>Teaching experience</b>						
88	0 – 3 years	71.6	43.2	45.5	86.4	50.0	3.4
45	4 – 6 years	82.2	46.7	51.1	77.8	66.7	8.9
27	7 – 10 years	81.5	55.6	70.4	77.8	77.8	3.7
78	Above 10 years	76.9	46.2	51.3	70.5	57.7	5.1
	<b>Highest educational attainment</b>						
56	Bachelor's degree	76.8	41.1	50.0	78.6	55.4	1.8
75	B. w/ Master's units	74.7	49.3	49.3	84.0	56.0	5.3
54	Master's degree	74.1	40.7	51.9	72.2	57.4	1.9

39	M. w/ Doctoral units	79.5	56.4	59.0	79.5	71.8	15.4
15	Doctoral degree	93.3	40.0	46.7	80.0	53.3	0.0
<b>School classification</b>							
170	public	78.2	47.1	51.2	81.8	65.9	5.3
71	private	73.2	43.7	50.7	71.8	42.3	4.2
<b>Levels taught in college</b>							
186	First year	78.0	44.1	46.8	77.4	53.2	5.4
126	Second year	79.4	47.6	50.0	80.2	55.6	5.6
111	Third year	81.1	51.4	57.7	82.0	62.2	8.1
122	Fourth year	79.5	53.3	54.9	78.7	64.8	4.1
26	Graduate level	84.6	53.8	57.7	76.9	65.4	3.8
<b>241</b>	<b>Total respondents (% of N)</b>	<b>76.8%</b>	<b>46.1%</b>	<b>51.0%</b>	<b>78.8%</b>	<b>58.9%</b>	<b>5.0%</b>

*\*Multiple response*

Among the young educators on their twenties, they more likely prefer seminars and workshops related to IT (88%), while those on their thirties prefer regular in-service trainings at least twice a year (83%), as with other older teachers on their forties (75%) and fifties or older (78%, 100%). More than half of the age group population for fifties also prefer modular instruction and coaching/mentoring programs.

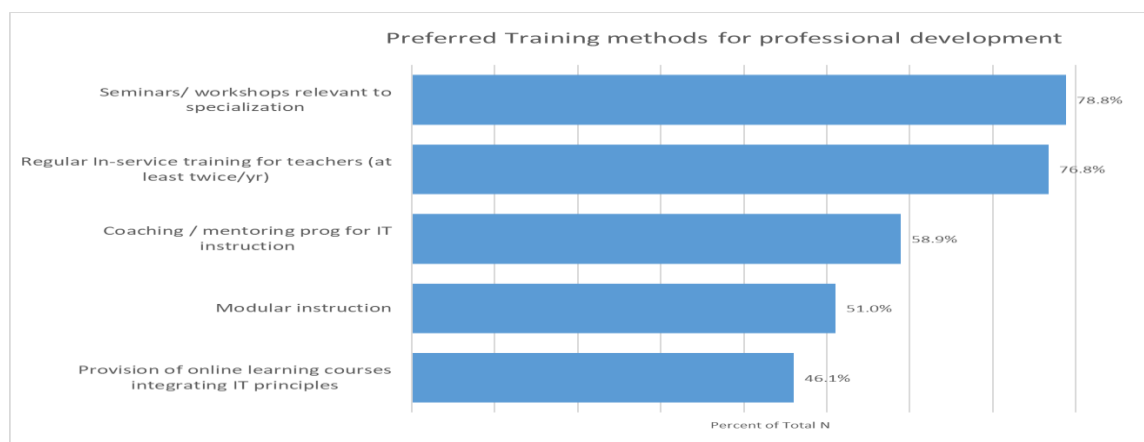
Higher percentage of male teachers also want seminars/workshops more than females but closely have closely similar proportion of preference for regular in-service trainings, online learning courses and coaching programs. Modular instruction is also higher by 15% for males compared to females.

The young teachers with less than 4 years of experience prefer seminars and workshops better than all other experienced teachers who likely went for regular in-service trainings. Less than half of the groups in teaching experience want online learning courses except for those 7-10 years teachers whose majority prefer all training methods.

More than 90% of the educators with doctoral degree prefer regular in-service trainings better than all other methods. And those with master's units have higher proportion for seminars/workshops. Master's degree holders have closely similar proportions for preference of both in-service and workshop trainings, similar with master's degree holders with doctoral units.

Across HEI classification, teachers from the public institutions have higher percentage for seminars/workshops (82%) more than regular in-service trainings. On the other hand, private instructors have closely similar preference for regular in-service trainings and workshop trainings. It can also be observed that coaching and mentoring programs is higher by 24% for those in the public HEIs.

And lastly, greater percentage of preference 80% and above are seen for seminars/workshops for second and third year teaching team, while regular in-service trainings for teachers handling third year and graduate courses. Coaching and mentoring programs also has more than half of the population groups preference in all levels taught. Less than the majority from the educators handling first year want online learning courses and modular instructions, while less than half of second year teachers want online learning courses alone.



**Figure 4.5 Ranking of Preference in Training Methods for Professional Development**

In general, the highly preferred methods are seminars and workshops related to specialization (78%) as well as regular in-service trainings (77%). More than half of the 241 respondents also prefer coaching or mentoring programs for IT instruction (59%) and modular instructions (51%). The least sought training method is online learning with only 46% of preference. The online learning courses on instructional practice with IT integration is only preferred by educators among master's degree holders with doctoral units who have been teaching for 7-10 years and are handling third- and fourth-year levels as well as those handling graduate courses.

## **Conclusion**

The most common information technology used by public and private HEI teachers in their instructional methods include the use of computers/laptops, the internet and software programs. These platforms are used always and often times for majority of the sampled population, while the use of email as an instructional method is only sometimes used by half of the educators. These IT methods are used simply as teaching tools, but innovations are less likely utilized since most IT innovations done in teaching only recovered less than half of the proportion of IT users. Nevertheless, they do innovate teaching through the use of special programs and database software applications particularly the use of special programs among private educators holding doctoral degrees who have been teaching for more than seven years. Database software is more ideal for the older teachers above sixty years old and among those with bachelor's degree.

Using IT in teaching is mostly hampered by the HEI's lack of ICT facilities and poor internet support. Overcrowded classrooms and poor IT training of teachers also accumulated sufficient percentage indicating that most of the main concerns relates to having inadequate infrastructure support in schools and instructors with fewer number of trainings on instructional methods with IT use. Since majority of the sampled population have at least one to only five trainings in using IT platforms in teaching, seminars and workshops relevant to specialization and regular in-service trainings on IT is highly preferred by more than the majority of teachers. Modular instructions and coaching/mentoring programs also acquired majority of preference for professional development. Most of the instructional practice have similar patterns across teachers' profile. Although statistical difference was not measured, minimal difference in the proportions was observed in the instructors' demographic profile or school and teaching background. It may imply that the use of IT in teaching does not really rely much on the individual characteristic of the teacher but might well be related to the capacity of the HEIs to provide for ICT equipped classrooms or platforms that teachers can use for their students and the competency of the educators to use IT in their teaching. Thus, the problems of poor ICT infrastructure gained high response and having trainings and seminars were highly preferred by most.

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## **Development of SMS Text Blaster for Western Mindanao State University (WMSU) Personnel Using GSM Mobile English Communication Network for Android Platforms**

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### **Abstract**

This study captures the internal libraries of Android Operating System (OS) such as SMS manager, contact manager and GSM technology of the smartphone. Through the years, Android OS produces several versions and available widgets and upgrades which provide substantial improvements in user interface and capabilities of mobile phone technology. These libraries were used in this present study as springboard on how the device can be used and test its capabilities and limitations, and evaluate the internal libraries' behavior. Android OS internal SMS manager only allows sending of a bulk-message to 10 contact numbers. These capabilities limit the user to send multiple contact number at the same time. These problem can be resolved by developing a customized SMS manager that tailors the requirements and specification of the applications. The study utilized the new development methodology specifically designed for mobile application development, called "Agile methods" utilized by Ambler & Reifer (2003). The Model-View-Control "MVC" Framework which is an architecture to develop mobile and web applications in a different manner than the traditional mobile development augments the methodology used in order to fully revolutionize the creation of Development of Wireless Online Bulletin-Board for Western Mindanao State University (WMSU) Personnel Using *GSM Mobile English Communication Network for Android Platforms*. With Agile development for mobile application and MVC practices, the researcher developed a light-weight android application by using agile methodology.

The researcher accomplished the following on the process: a) constructed a system; b) provided changes in planning and requirements; c) enhanced technical know-how to adapt new system development approach and used in the information system research. It is observed that using Agile approach and incorporating MVC best practices are highly essentials in successfully developing a mobile application for android platforms. The basic idea is to develop a mutli-reciepent SMS android application using the conventional GSM technology. The researcher achieved the system requirements at the limited shared library resources from android operating system.

**Keywords:** SMS Text Blaster, GSM Mobile Network Communication, Administrative Communication, English Communication, Agile Methodology, Model-View-Control Framework

## **Introduction**

With the changing world and constant new mobile technology that is available, Universities need to be aware of the technology that will increase the efficiency their Bulletin Board system. Mobile technology, specifically hand-held cellular-based devices, is playing a large role in redefining how information is disseminated. The revolution of mobile technology is changing the primary purpose of mobile devices from making or receiving calls to retrieving the latest information on any subject (CSIAC, 2015). The wireless technology have increasingly transformed since it was in the 2000s. Bulletin Board System has gone from an electronic display into wireless systems. Students and Faculty began to see the possibility of Wireless Online Bulletin-Board. The idea was to notify the students and faculty, administrative personnel through Short Message Service or “SMS”. The result was the fourth generation Online Bulk-SMS Bulletin-Board System using Android Platform, real-time notification. The fourth generation took system far beyond being mere text messenger and created android apps with which the university management is confidently assured its constituent that every announcement would be properly disseminated throughout the university. SMS stands for Short Message Service is messaging service module of telephone and mobile telephony systems. This service is using a standard communication protocols to allow landline or mobile phone devices to trade short text messages (Wikipedia). Vodafone mobile was the first mobile devices to send a short message service using the technology of “GSM” a Global System

Mobile communication network on December of 1992. Since then this mobile technology has been introduced worldwide. And it has been existing for 21 years now.

SMS is a unique and the furthest-reaching communication tool for business and personal messaging port to instantly connect with a group of people. It is cost-efficient, flexible and easy to use. This communication tool is widely used by people as a vital part of modern-day living. According to a new report from market research company International Data Corporation (IDC, 2014), about 30 percent of all Filipinos are using mobile phones. In the last three years, the total smartphone usage among Filipinos in the Philippines doubled more according to a report from statistics (Statista, 2021).

Bulk-SMS online messaging system via SMS is an easy-to-use web portal which enable you to set-up, manage and send text messages to group of people of any size. This type of messenger system requires information technology infrastructure, such as Web server, high speed internet connectivity and gateway systems. It is widely used by corporate firm and other government institution, Universities and Colleges institution as notification access for announcement and confirmation purposes. Online web browser-based group text messaging is readily to deploy system, but it's quite expensive and requires higher maintenance.

Android phone is a smartphone device using an android operating system own by an American company, Google. Android operating system is an open-source operating system, it means FREE OS. Smartphones are highly customized phone, and such can be altered to fit your flavor and desire, such as wallpaper, themes, widgets which complete altered the look of your mobile interface. Google store is an online service portal offers the user to download updates and Free android apps, including the access of YouTube, Maps, Gmail and more. Android offers a shared Built-in Library application, in such a developer can access and development an independent android application using Java programming Language. Where developer can directly access device resources such as Camera, GPS , SIM, SMS Manager including the phone contacts and other various resources.

This study captures the internal libraries of Android Operating System such as SMS manager, contact manager and GSM technology of the smartphone. Through the years, Android Operating System produces a lot of OS versions and available widgets and upgrades which gives a lot of improvements in user interface and capabilities of mobile phone technology. These libraries will be used by the researcher as a starting point on how the device can be used and test its capabilities

and limitations and evaluate the internal libraries' behavior. Android Operating System internal SMS manager only allows sending of a bulk-message to 10 contact numbers. These capabilities limit the user to send multiple contact number at the same time. This problem can only be resolved by developing a customized SMS manager that tailors the requirements and specification of the applications.

### ***English Language in Administrative Communication***

As comprehensively reviewed by C. Madrazo (2019), the English language used in universities in the Philippines is based on American English, which is descended from the Germanic language family (ethnologue.com). Since the early 1900s, English has been a part of the Philippine educational system. When US President William McKinley sent a letter of instructions to the Philippine Commission on April 1, 1900, English became the first language to be used in schools (Bernardo, 2004). Since that time, all subject-specific learning areas have been taught in English. However, when the BPE was put into place in 1974, English and Filipino were used as the primary languages of teaching in elementary and secondary schools. English domain (English communication arts, mathematics, and science) and Pilipino domain were created for the topics (Pilipino communication arts, social studies, history). BPE was reorganized in 1987 to be under the Department of Education, Culture, and Sports. In contrast to how English was more strictly defined as the worldwide language and the non-exclusive language of science and technology, the importance of Filipino as the language of literacy and academic discourse was highlighted. Additionally, it required universities to lead the way in "intellectualizing" Filipino culture (Bernardo, 2004, 2007). English is still the primary language of instruction for the majority of the subjects taught at the primary, intermediate, and tertiary levels in the Philippine educational system.

Not only that the English language is used in schools. It is also very much present in the mainstream media and all government agencies for administrative communication purposes (Bautista, 1997, Bernardo, 2000, 2004, Madrazo, 2010, C. Madrazo, 2019). Hence, this review is relevant since this present study utilized announcements/ memorandums written in English that were circulated for WMSU employees.

## **Problem Statement**

The purpose of this study was to address the existing conventional dissemination of announcement for administrative personnel and faculty member in the University. This also involved the integration of SMS-Bulk application by means of GSM English communication technology in dissemination of relevant information in the university. Also, this study determined the extent features and limitations of sending an SMS with multiple recipients via the GSM technology.

The study addressed this problem by providing a solution through the development of customized SMS manager for multiple recipient text messaging system using appropriate methods, programming tools, and work products that maximizes the capabilities of mobile phone and improves the Bulk-SMS system as wireless bulletin-board system.

## **Objectives of the Study**

This study aimed to develop a Bulk-SMS system as Wireless Bulletin-Board System. This study also seeks to analyze the current capabilities and limitation of android internal SMS manager in which the system will be used as text messenger. Moreover, the development of customize mobile phone contact manager and manage incoming and outgoing messages for android mobile platforms.

Specifically, this study sought to:

1. Develop an Bulk-SMS android application for the wireless bulletin-board system on the approved requirements specifications to be implemented in android mobile platforms.
2. Determine the internal SMS manager features restrictions on the limited recipient of bulk messaging.
3. Identify the capability of GSM technology for mobile devices for the following service.
  - a. Memory Usage
  - b. Object Instance capabilities
  - c. Behavior on Iteration techniques on mobile platforms;
4. Study the behavior of GSM mobile technology in resending on undelivered text messages.
5. Implement the mobile application development process using Agile software development methodologies, such as Lean, Speed, Flexibility, Responsive and Learning. Each of these Agile approaches is focused on different aspect and comparing these methodologies is imperative.

## **Scope and Delimitations of the Study**

This study deals with Android SMS manager, phone contact manager and incoming and outgoing message for mobile device for Wireless bulletin-board system in WMSU. Such it will cover the specification and requirements data gathering and definition and the development of Bulk-SMS application and system testing.

Moreover, this study is limited only to text messaging system for android mobile devices, and managing incoming and outgoing messages. It also includes the manipulation of the phone contacts manager. This study will not cover on the features of scheduled auto messaging capability. Other mobile phones such Apple IOS, Blackberry and Windows are not included in this study. However, the output applications of this study would be used as a Beta version in Bulk-SMS apps for Western Mindanao University.

## **Literature Review**

### **2.1 Wireless SMS Bulletin Board System**

#### *2.1.1 Wireless Digital Notice Board Using GSM Technology*

According to Guravl and Jagtap (2015), a wireless notice board system is useful in college, industries, hospital, and organizations. This is a wireless module that sends message wirelessly with the help of GSM module. It means user or registered person can able to send the message from anywhere and this message is displayed on liquid crystal display. In addition this message also sends to everyone whose user number store in memory the everyone get the message personally. Whenever a new message is received, a notification is given by buzzer. As engineer's main aim is to make life simple with help of technology, this is one step to simplify real time noticing.

### *2.1.2 SMS Based Wireless Notice Board Display Using GSM Mobile*

According to Payal Mishra, Pinki Singh and Shivani Gupta (2013), SM standard system has developed a replacement for first generation analog cellular networks and described digital, circuit-switched network optimized for full duplex voice telephony. The architecture and advanced services of GSM have made it a model for third generation digital cellular system. In today's scenario GSM network is widely used for calling or SMS. Sometimes the places like in Colleges and railway stations, share market needs urgent notices which should be in real time. There is a need of real time notice display. This paper is about to explain a GSM based electronic notice display system which we can be used to replace current programmable electronic display. It discusses how to write the message in the mobile and send it as SMS to other side of electronic notice board.

## **2.2 Android™ Architecture**

2.2.1 Android™ is a mobile operating system developed by Google® Inc. Android™ runs on an open-source Linux kernel that offers hardware access to all applications through a series of API libraries. Android™ uses the Dalvik Virtual Machine, a custom virtual machine that ensures multiple instances run efficiently on a single device. Applications for Android™ are developed using Java or C++. Android™ is an application-neutral platform, meaning that native and third-party applications are written with the same APIs and executed on the same run time environment. Eclipse provides a fully featured IDE aiding design and code management. With the advent of Android™'s SDK plugin, Eclipse now provides a tightly coupled environment for application development. Google freely provides the Android™ SDK including APIs, Android™ Virtual Device Manager and Emulator, sample code, full documentation, and online support for Android™ applications [MEIER].

2.2.2 All Android™ hardware and system service access is managed using Dalvik as a middle tier. By using a virtual machine to host application execution, developers have an abstraction layer that ensures they never have to worry about a particular hardware implementation. The Dalvik Virtual Machine executes Dalvikexecutable files, a format optimized to ensure minimal memory footprint. Developers create .dex files by using the tools supplied within the SDK” [MEIER].

Applications developed for the Android can make use of the following components:

- Hardware-accelerated graphics (including 3D graphics using Open GL ES 2.0)

- GPS Location
- Maps
- InterProcess Communication (IPC) message passing
- Address Book contacts
- External hardware accessories
- Peer-to-peer Bluetooth connectivity
- Wi-Fi hardware access
- GSM, EDGE, 3G networks for telephony or data transfer
- Full multimedia hardware control, including playback and recording with the camera and microphone
- SQLite Database for data storage and retrieval
- Home-screen, Widgets, Live Folders, Live Wallpaper
- HTML5 WebKit-based browser

### **2.3 Agile development for mobile applications**

Agile methods represent a moderately new approach to software development where developer is focused in communications oriented. These methods become wide-spread in the mid-1990s as a part of reaction against traditional waterfall, Rapid Application Development, Prototyping methods. The ideas behind these methods are a response to the radical change in the modern business and information technology, mobile applications environments (Salo, 2006). The unique features of agile methods are derived from the principles of Flexibility (ready to adapt to expected change at any time), Speed (encourage rapid and iterative development of the product in small releases), Lean (focuses on shortening timeframe and cost and on improved quality), Responsive (reacts appropriately to expected and unexpected changes), and Learning (focuses on improvement during and after product development) .

## 2.4 Systems Development Life Cycle

Table 1: Planning

Phase	Step	Activities	Deliverable
<b>Planning</b>  <i>Why build this system?</i>  <i>How to structure the project?</i>	Identify opportunity	Project identification	System request
	Analyze feasibility	Technical feasibility	Feasibility study
	<i>Develop workplan</i>	Time estimation Task identification Work breakdown structure	Project plan — work plan

Table 2: Analysis

Phase	Step	Activities	Deliverable
<b>Analysis:</b> <i>Who, what, where, and when for this system?</i>	Develop analysis strategy	Business process automation	System proposal
	Determine business requirements	Interview Questionnaire	Requirements definition
Phase	Step	Activities	Deliverable
<b>Design</b>  <i>How will this system work?</i>	Design physical system	Design strategy	System specification
	Design architecture	Hardware & software selection	Hardware & software specification
	Design interface	Data flow diagramming Program specification	Interface design

	Design programs		Physical process model Program design
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Table 3: Implementation

Phase	Step	Activities	Deliverable
<b>Implementation</b>  <i>Delivery and support of completed system.</i>	Construct system	Programming Software testing Performance testing	Test plan Programs documentation
	Install system	Conversion strategy selection	Training plan
	Maintain system	Training System maintenance	Support plan Problem Report

## 2.5 MVC and MVP in Architectures in Android

As Robert “Uncle Bob” Martin mentioned on his Handbook of Agile Software Craftmanship, “*The only way to make the deadline-the only way to go fast is to keep the code as clean as possible at all times*”.

MVC and MVP are architectural patterns (architectural patterns aim to provide kind of a “template” for organization of software system). The idea behind MVC and MVP is that many software systems can be divided into three independent components:

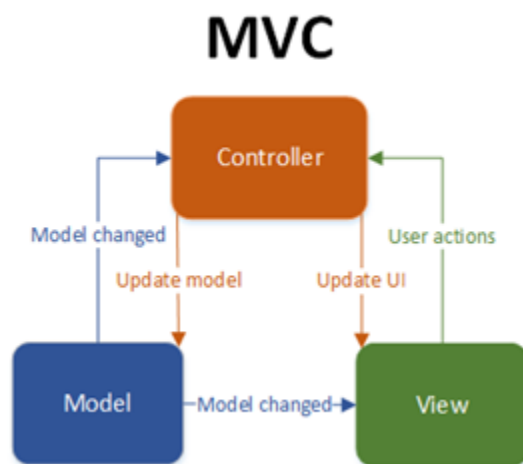
- The component that stores system’s state (whether this state persistent or not). This component is referred to as Model.
- The component that handles input-output from/to the client (the client might be a human user, but it doesn’t have to). This component is referred to as View.
- The component that represents the logical functionality of the system, holds system’s “business rules”. This component is referred to as Controller/Presenter.

Components of a good MVC/MVP implementation should be decoupled as much as possible: it should be possible to switch from one input/output entity (View) to another, or to change the location or the type of persistent storage mechanism (Model) without affecting other components.

Benefits of a clean MVC/MVP implementation are:

- Readable, understandable and maintainable code
- Modular code which provides high degree of flexibility
- More testable code (especially in context of unit testing)
- Reusable

Figure 1. MVC Model



## 2.6 Agile Methodology for Mobile Development

A new development methodology specifically tailored for mobile application development, called “Agile methods” This method generally promote a disciplined project management process that encourages frequent inspection and adaptation, a leadership philosophy that encourages teamwork, self-organization and accountability, a set of engineering best practices that allow for rapid delivery of high-quality software, and a business approach that aligns development with customer needs (Scott Ambler & Donald J Reifer, 2003).

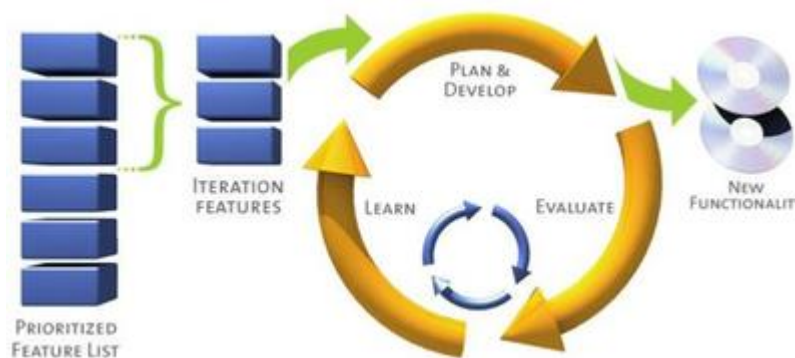
Manifesto for Agile Software Development: The twelve key points of defined in the Agile

Manifesto.

1. Satisfy customer through early and continuous increments.
2. Deploy first increment within couple of weeks and the whole software within couple of months.
3. Customer and agile teams must work jointly daily throughout the project.
4. Agile team and customer must have face-to-face meetings.
5. Welcome requirements even in late phases of the system development.
6. Trust and respect must be maintained among agile team members.
7. Velocity of the project must be measured after delivery of each increment.
8. Emphasis should be on good design to increase agility.
9. Best architecture and design always come out from self-organization.
10. Adjust and tune according to the situation.
11. Whole development process must follow keep it simple (KIS) principle.
12. Agile project needs consistent work until completion.

The below figure 2 shows the steps in Agile Methodologies which focus on iteration and adaptable to change.

Figure 2: Agile Methodology



Agile Methodologies appeal many people because they attempted a useful compromise between no process and too much process to gain a reasonable payoff. They are less document-oriented, usually emphasizing a smaller amount of document for a given task. Agile Methodologies are people-oriented more than process-oriented. Agile Methods assert that no process will ever make up the skill of the development team, so the role of a process is to support the development team

in their work. Moreover, because of flexibility and team-oriented, agile methodologies is well suited to the current business environment which continues to change dramatically.

## Conceptual Framework

As Maxime Cormier (2014): states that mobile app development requires design process including the necessary research and planning stages. Her idea suggests that often time visual nature is the ideal way to make your design readable and understandable. This requires the in-depth analysis and appropriate approach that will balance capability of the device and the requirements of the system that can fit to the user's demand. Moreover, system design should be reviewed and finalized before the implementation to evade redundant design system and maintain good quality system application.

The most common design tools used to come up with the actual system designs are data flow diagrams, entity-relationship diagrams, structured charts, application architecture, and user interface. The figure 3 below shows the concept of android mobile system application.

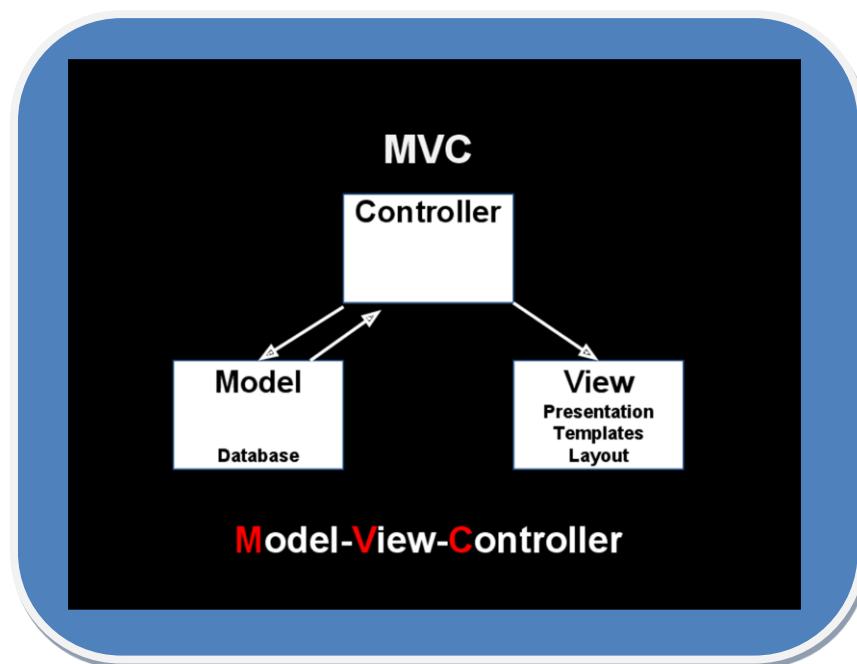


Figure 3: Model-View-Control Development

## **MVC Framework**

The Model-View-Control “MVC” Framework is an architecture to Develop mobile and web applications in a different manner than the traditional mobile development. The basic concept is relatively simple to understand . “MVC” pattern is widely used in program development with different programming languages such as Java, Smalltalk, C, and C++,ASP.net.It has been heralded by many developers as a useful pattern for the reuse of object code and a pattern that allows them to significantly reduce the time it takes to develop applications with user interfaces. Brett Meyer (2011) a software engineer @ Red Hat & entrepreneur, states MVC in a several context is extremely quick to develop with and, most importantly , doesn't feel "bloated".

## **Design study**

The model-view-controller pattern proposes three main components or objects to be used in software development:

3.2.1.1 A *Model* , which represents the underlying, logical structure of data in a software application and the high-level class associated with it. This object model does not contain any information about the user interface.

3.2.1.2 A *View* , which is a collection of classes representing the elements in the user interface (all of the things the user can see and respond to on the screen, such as buttons, display boxes, and so forth).

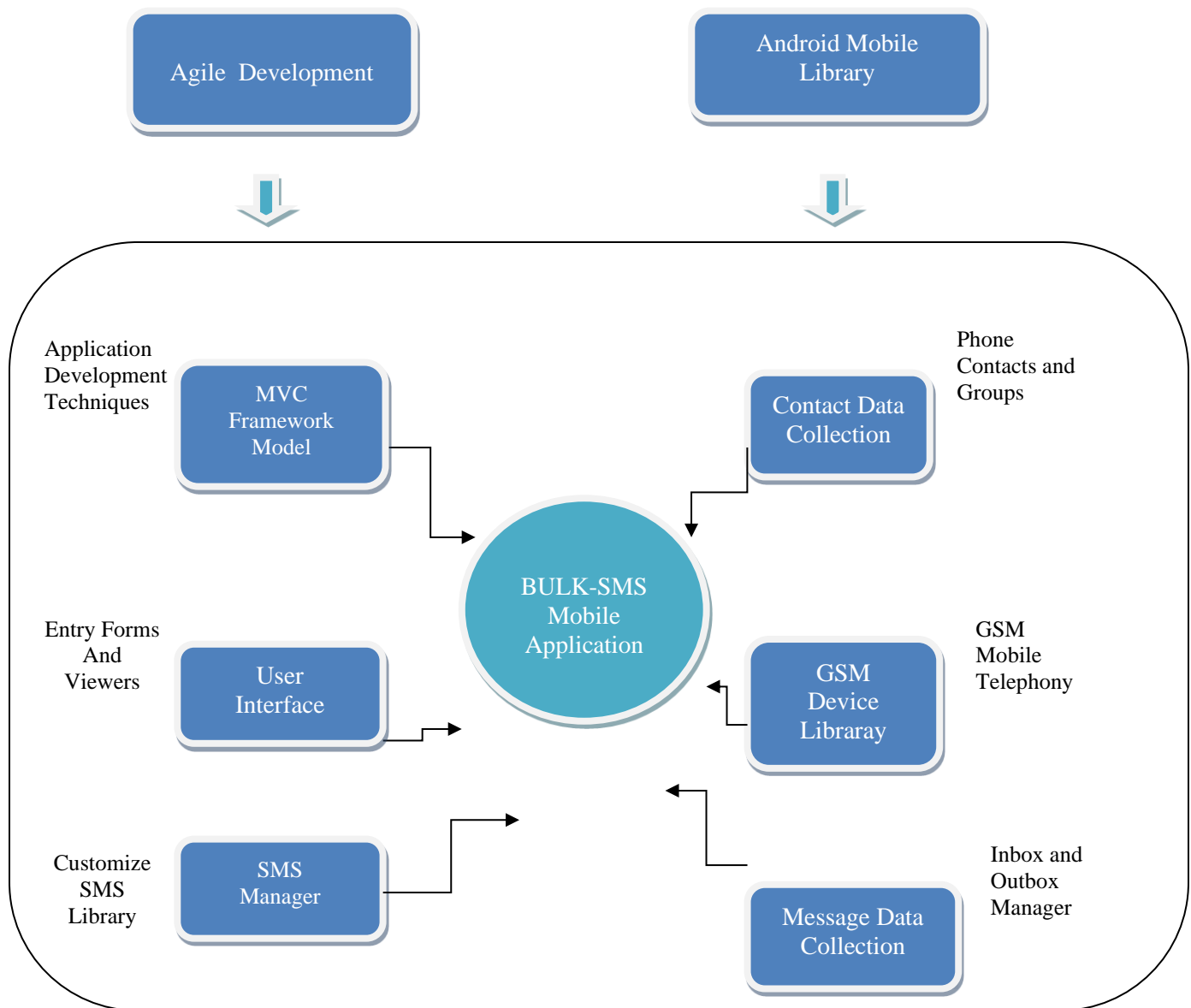
3.2.1.3 *Controller* , which represents the classes connecting the model and the view, and is used to communicate between classes in the model and view.

#### **4.0 Research Methodology**

In the last years, there has been a constant increase in the number of software engineering researchers exploring a faster and well-organized way of developing mobile applications. For the development of mobile applications using Agile practices, several essential objectives were considered and this chapter provides the aims and objectives of this research. It also presents the flowchart of research methodology used, the steps involved in the process of the development process of the proposed Agile model, including procedures used for literature review, best practices for mobile design application, data collection and its analysis. It also implements the conceptual framework of the study into the development of system Figure 4. Presents the

flowchart of research methodology and the proposed framework implementation

Development process used in this study:



#### **4.1 Research Site Description**

The research was conducted at Western Mindanao State University (WMSU) is located at the Normal Road, Baliwasan, Zamboanga City. This university was established in 1901 through Act. No. 74 of the Philippine Commission provided for a formal Philippine educational system. The university offers curricular programs that suit to the needs of the diverse sectors of society with focus on the development potentials of industries. It constantly initiates the review and revision of course offerings and the updating of their contents that should be reflective of the needs of the times. It believes that the relevance of its offerings can only be gauged by the extent to which the needs of the greater society are served by its graduates. This university have more than 15000 students and 1000 employees with 15 colleges.

#### **4.2 Research Data Collection**

In this study, data collection was facilitated through questionnaires which were analyzed through the text format with the help of diagrams and tables. Interview was also administered to get the responses of the personnel and faculty of the University. The respondents of the study are the different Department Heads and Deans of respective colleges, as well as Administrative Officers. Refer to Appendix A for the System User Evaluation Table used to evaluate the user satisfaction. The research outcomes of the study are presented according to research purpose. The data were analyzed through qualitative perspective. Detailed analysis was performed on all the responses collectively.

##### **4.2.1.1 Usability Testing**

Usability testing from system point of view is a black box technique and is used to identify any error(s) and improvements in the system by observing the users through their usage and operation. Jakob Nielsen (2012) “Usability 101; Introduction to Usability”, is a user advocate and CEO of the Nielsen -Norman Group. He mentioned in his article, “User Testing: How many Test user in a Usability Study,” usability testing requires at least 5 users. This lets you find almost as many usability problems as you’d find using many more than test participant.

#### 4.2.1.2 Compatibility Testing

Testing the system response as intended on for the different test conditions such as stated in Table 4.

Test Conditions	Mobile	
	Test Conditions	Remarks
Operating System	Android 4.0	
	Android 5.0	
	Android 6.0	
	Different Smartphones and Tablets	

#### Acceptance Testing

The main purpose of this test is to evaluate the system's compliance with the system requirements and verify if it has met the required criteria for delivery to end users. Acceptance testing is carried out at three levels - System Testing, Integration System and Beta Testing.

#### System Testing

System testing of apps is a testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. The Bulk-SMS apps will undergo thorough testing of its inner design code or logic by the developer.

#### 4.2.1.3 Performance Testing

It is mostly used to identify any bottlenecks or performance issues rather than finding the bugs in software. There are different causes which contribute in lowering the performance of software:

### **A. Stress Testing**

Stress testing sometimes called “tortured testing,” identifies errors due to minimal resources or overload opened apps on the background. Minimum memory or low storage may disclose defects in the application. Other defects might results from heavy load of systems running on the background. Stress testing identifies the peak load the system can handle.

- Validate system response during loading of all Phonebooks
- Validate system response during loading of all Inbox Messages
- Validate system response during loading of all Sent Messages
- Validate system response during loading Group Contact.

### **B. Load Testing**

A process of testing the behaviour of the system by applying maximum load in terms of application accessing and manipulating large input data. It can be done at both normal and peak load conditions. This type of testing identifies the maximum capacity of system and its behavior at peak time.

- Validate system response when sending SMS with more than 30 recipients.
- Validate system response when update group members with more than 30 contact numbers.

#### **4.2.1.4 Integration Testing**

This test will be performed after all the critical defects in the unit has been detected and debugged. Related modules will be tested and verified if links have been established or data have been shared. This test specifically checks if problems will exist when apps are combined in internal Phonebook and SMS box. The main modules to be integrated are the following:

- **Group Messenger** – Group Table and Phonebook Table
- **SMS inbox Viewer** - URI sms\inbox
- **SMS outbox Viewer** – URI sms\outbox
- **SMS Undelivered Viewer** – URI sms\draft

- **PhoneBook Manager** – Phonebook Table
- **Group Manager** – Group Table

#### **4.2.1.4 Beta Testing**

In beta testing a sample of the intended user tests the application. Beta testing is also known as pre-release testing. Beta test versions of software are ideally distributed to a wide user on the Web Portal, partly to give the program a "real-world" test and partly to provide a preview of the next release. In this phase the user will be testing the following:

The beta test were conducted in the different Department and Colleges in Western Mindanao State University. A total of twenty (20) Department Heads and Deans were taken as beta testers of the Bulk-SMS apps. A beta test form was given to the beta users for them to evaluate the functionality, performance and usability of the Bulk-SMS apps.

##### **A. User Interface**

Design is another norm fundamental from the users' point of view. Thus, the User Interface is considered important because mobile phone furnish a high level of screen quality not only in terms of colors but also in terms of design possibilities. User Interfaces develop towards simplicity. Therefore, this decisive factor has to be dealt with Thoroughness.

##### **B. Performance**

This principle is one of the most critical if not the most critical for choosing a mobile development approach. As mobile technology advances, powerful responsive smart phones are released and mobile users are progressively more focused on details. Accordingly, mobile applications developers must keep the fast, almost distracted, pace of advancement to please their customers. Performance is therefore one of the most criticized criteria for mobile application review.

##### **C. Platform Stability**

This criterion is useful due to the fast pace trend of the mobile application development area. New technologies, frameworks, software development kits are frequently released which contributes in regulating the advance pace market trend. Hence, mobile application developers are forced to

follow up and offer the best user experience according to the latest technologies. Mobile companies that plan to build an app should consider the platform stability in order to be able to be seen by the utmost number of smart phone users.

#### **D. Cost**

Cost is undeniably a major criterion to be accounted for. Usually, Bulk-SMS or ordinary text messaging is quite expensive for the user. Where users will experience different rates in using SMS different mobile network company. Think that you have 100 recipients to send SMS with has different mobile network. Therefore, cost is a criterion that can be an obstacle to the end users.

#### **E. Suitability**

The suitability feature is covered in the criterion. It gives the developers ideas what is the best suitable device that can be use in this application. This will provide additional guidelines for mobile application development. Hence, it should be one of the first criteria to focus on when choosing a mobile development strategy.

#### **F. Item Pass/Fail Criteria**

The activities being tested will pass the test if it met the requirements specified in the Use Case and the conditions defined in the test case. Once the item has passed the test, the activities can be integrated to test a wider scope of system functionalities.

#### **4.2.1.5 Android Phone Features and Limitations**

Android™ is a mobile operating system developed by Google® Inc. Android™ runs on an open-source Linux kernel that offers hardware access to all applications through a series of API libraries. Android™ uses the Dalvik Virtual Machine, a custom virtual machine that ensures multiple instances run efficiently on a single device. Applications for Android™ are developed using Java or C++. Android™ is an application-neutral platform, meaning that native and third-party applications are written with the same APIs and executed on the same run time environment.

Table 5. The comparison chart enumerates the features and limitations of Android Operating

## System

Criteria	Android 4.1.X	Android 5.1.X	Android 6.1.X
Standard 160 character SMS messaging	✓	✓	✓
SMS Delivery status	✓	✓	✓
SMS Multiple recipients	✓ (10Receipents)	✓ (10Receipents)	✓ (10Receipents)
SMS Management	✓	✓	✗ (View Only)
PhoneBook Capacity	2GB (3600 entries)	3GB (6500 entries)	4GB (9000 entries)
Group Name Capacity			
SMS Messenger API	✓	✓	✓
Phonebook API	✓	✓	✓
Resend Undelivered SMS	✓	✓	✗

The analysis of the table above permitted for the collection of data using these common criteria when developing an tailored Bulk-SMS. The following criteria aims at gear up review clarifying which criteria has limitations in selecting preferred Android Operating System.

### A. SMS message Limit

Standard 160 character per message is allowed when sending an SMS

### B. Delivery Status

Indication within the GSM message logs that a message has been sent, awaiting delivery, delivered or failed based on delivery status receipts provided by network operators.

### C. Multiple Recipients

Sending an SMS with multiple recipients per message

### D. Messages Logs

Refers to Inbox, Sent, Draft and Undelivered SMS

### E. Phonebook Entries

The number of contact entries has a phone memory can manage.

### F. Group Entries

The number of group name of entries has a phone memory can manage.

#### **G. SMS API**

Manages SMS operations such as sending data, text, and pdu SMS messages. This object can be used the static method used by external apps.

#### **H. PhoneBook API**

API that manage the contact list of the device

#### **I. Undelivered SMS**

Undelivered or failed SMS based on delivery status receipts provided by network operators.

### **4.2.2 Graphical User Interface**

A mobile user interface (mobile UI) is the graphical and usually touch-sensitive display on a mobile device, such as a smartphone or tablet, that allows the user to interact with the device's apps, features, content and functions. The proposed user interface are listed in Appendix B.

### **4.3 Research Design**

The development of Bulk-SMS Bulletin Board System consists of the basic stages of software development process (adopted from the Agile Model). The development starts from the initial planning, requirements gathering, system analysis and design to implementation ,deployment and evaluation. The figure below illustrates the different stages of development of the Bulk-SMS system.

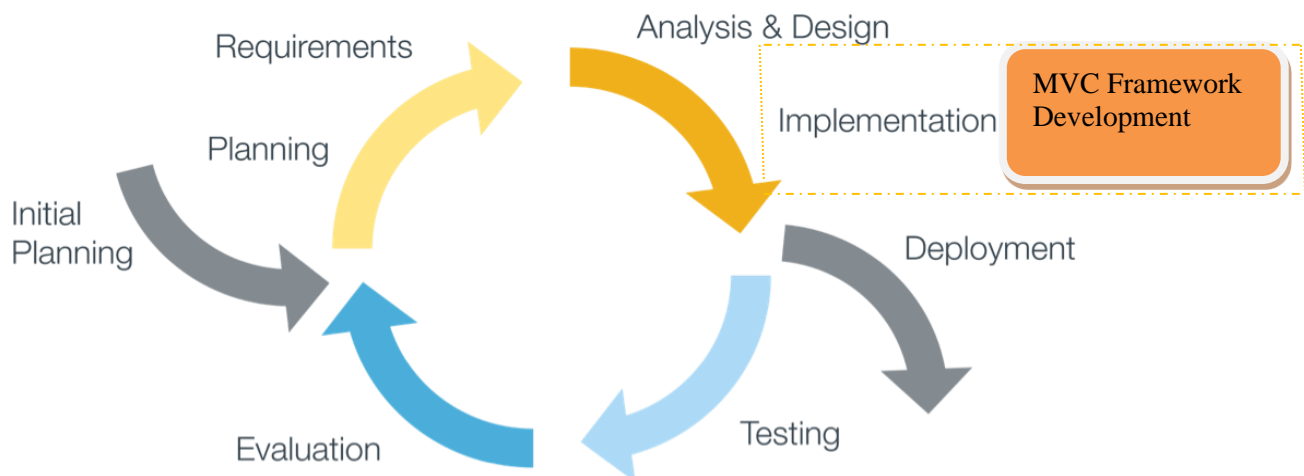


Figure 5. Development Stages of Bulk-SMS System

#### 4.3.1 Agile Development for Mobile Applications

Boehm & Turner (2003) identified the essential concepts to agile development which are simple design principles, a large number of releases in a short time frame, extensive use of refactoring, pair programming, test-driven development, and seeing change as an advantage.

According to Abrahamsson, et al., (2002), an agile development method is incremental (multiple releases), cooperative (a strong cooperation between developer and client), straightforward (easy to understand and modify) and adaptive (allowing for frequent changes).

It is obvious that large scale mobile application development projects are moving away from process-intensive approach towards agile approaches. Agile methods are driven towards establishing cost efficiency and client satisfaction. The mobile software application has user interface modules which respond instantly to user interactions, and since this is an setting with quickly changing user demands, the development of such applications requires an agile approach. Among the available software development methods, agile methods are the most suitable and likely solution for mobile application development.

Some of the importance agile distinctiveness that well aligns with requirements of mobile application development includes:

- **Test-driven development:** Testing goes hand-in-hand with development process.
- **Continuous customer involvement:** Mobile Apps Developer focuses on demands from the end-users. Client participation during all phases of SDLC is well thought-out very important to avoid disagreeable or exceptional variations in requirements. This helps to adapt for that reason.
- **Prioritization of requirements:** According to iteration, level of abstraction and current scope, the requirements may vary and has to be prioritized. Once they are prioritized, the design and performance processes are focused on satisfying the highly important requirements first and then towards presence to less important system requirements.
- **Effective Communication:** The most important means of communication is face-to-face

people interaction. Agile development believes in building projects around stimulated individuals in the team.

- **Enhanced quality assurance:** The iterative incremental model and process-wide review-learning sessions to make sure a better quality assurance.

This methodology consists of the different phases namely:

Phase 1: Requirements Analysis

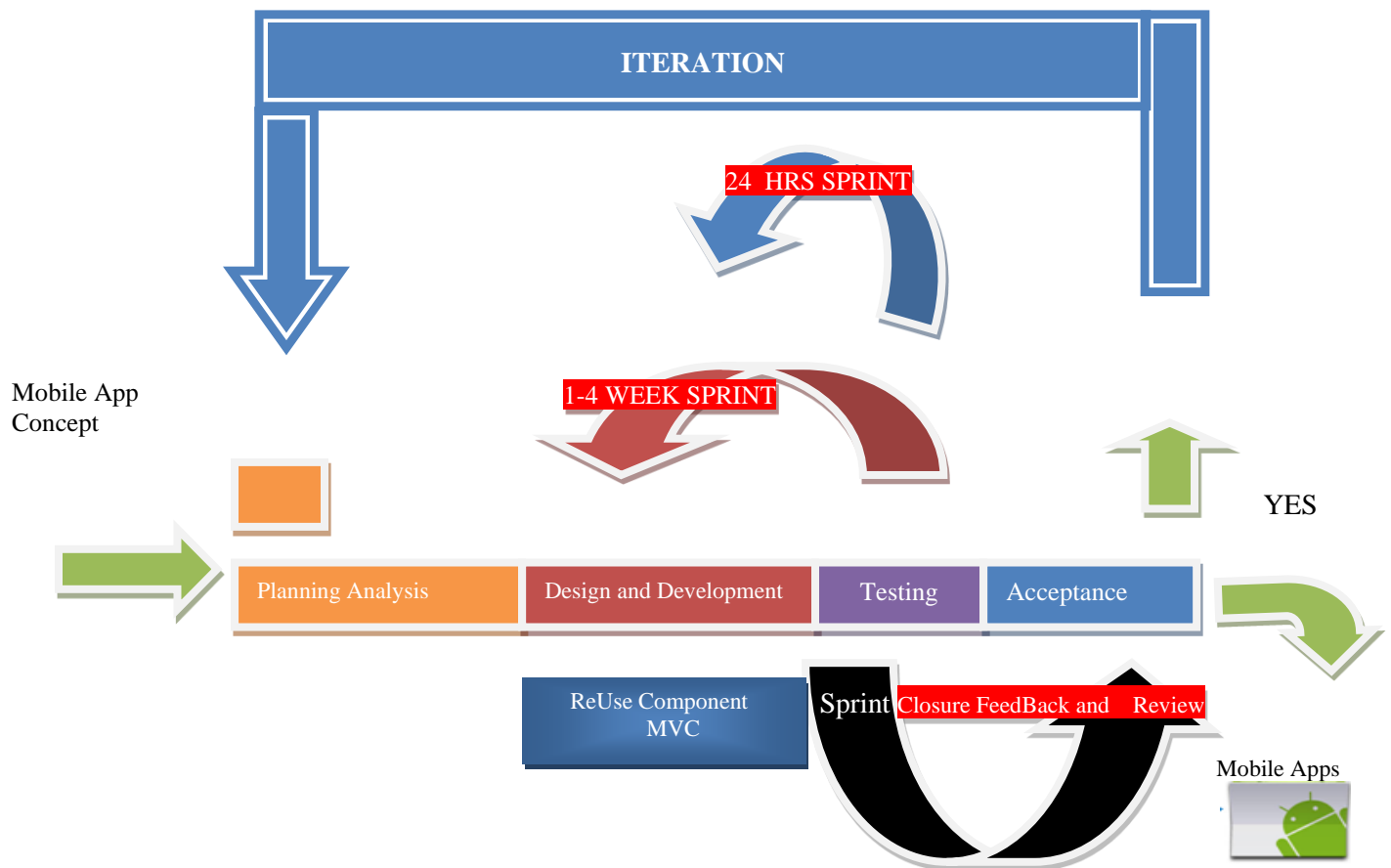
Phase 2: Design and Development

Phase 3: Test

Phase 4: Product

These take part a vital roles in justifying uncertainties and technical risks respectively if they are incorporated in the early stages of development. Phases 2 and 3 form a Sprint in our development that would lasts for 1 to 4 weeks. The Re-usability concept in system development is covered in Phase 2 of the methodology and is implemented in Android application by means of class instantiation. Phase 4 marks the finality of each sprint after which, valuable feedback and demonstration are held to document the best practices and shortcomings faced in the current sprint iteration.

Figure 6. Agile Methodology for Mobile Development



#### 4.3.1.2 Planning and Analysis

Ilie Ghiciuc (2014) in his research entitled “All Phases of Mobile Product Development Process”, he stated that “the mobile product development process is, undoubtedly, a costly and complex one. Analysing the market, deciding for the type of app you will build, estimating the budget and, finally, the execution – they all are lengthy steps that can sometimes discourage the product owner. However, they all are equally important. Neglecting some can prejudice the others and can eventually cause delays in the release.”.

Planing phase focuses mainly on fundamental of project planning work. This phase is important in sprints so as to lessen the risk of roadblocks during development cycle. These includes of gathering of background information such as:

- **Mobile Application Platform Target**

These planning is to gather more information about platform target of the mobile application. Nevertheless, determining the type of mobile device platform that is widely use by common user of the mobile application project. Hence to this, the questions asked for objective would be:

1. What are mobile platforms to be targeted?
2. What are the common mobile device is widely used?

- **Android Core API Usage and Restrictions**

These planning is to shed light to the core essentials features of android API. These will determined of the core device API of android and this library has a vital role for the apps development. By identifying what API resouces are available in mobile device for this project will be the milestone of the success of this research.

- **Mobile Application Prototyping**

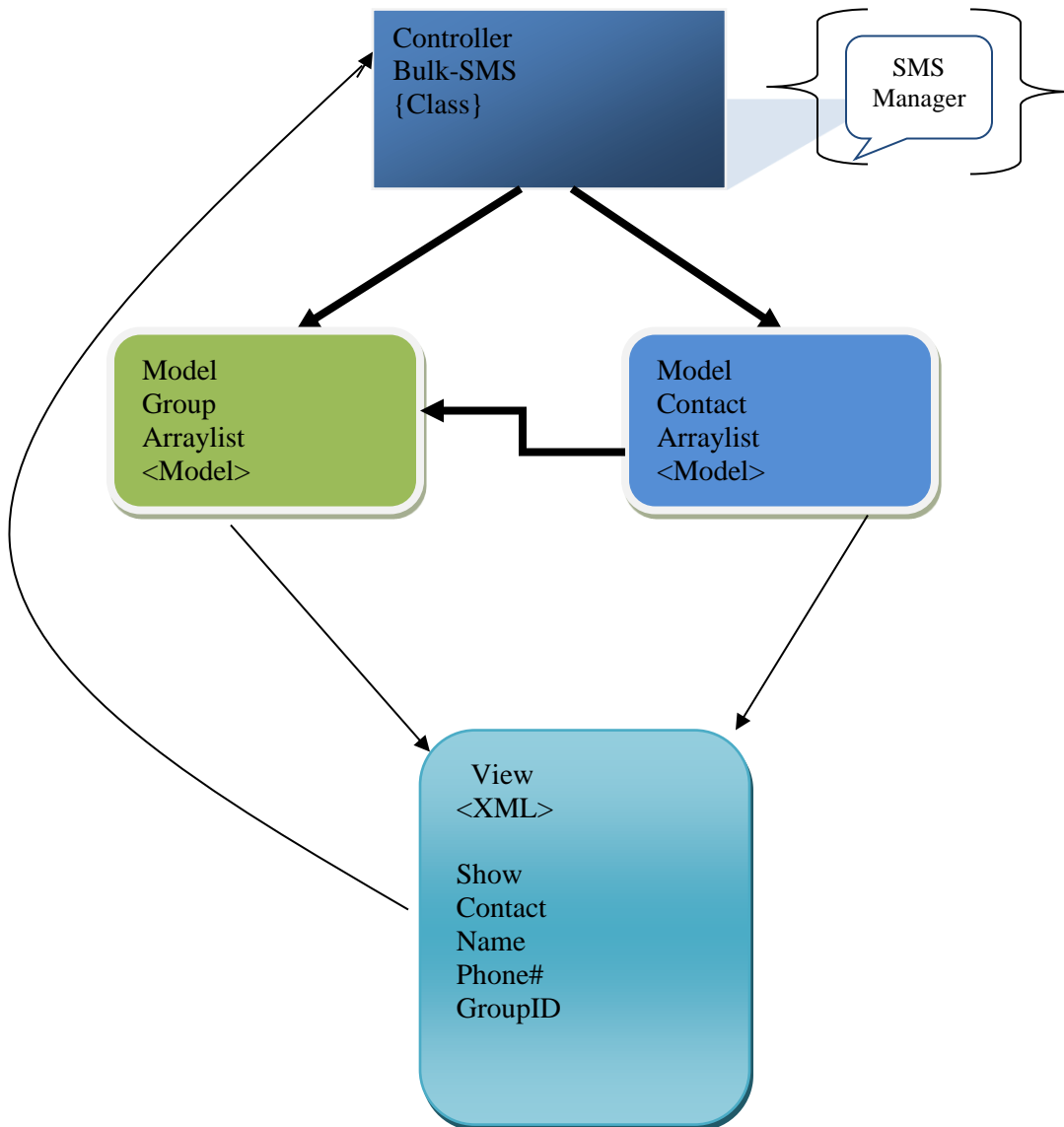
Designing mobile app is about creating a product with the individual in mind set. Every design follows a process of simplifying, sketching and testing. Mobile app prototyping requires invovative insight to develop concept and structure design. However, these process is preliminary phase in developing an mobile application system.

#### **4.3.1.2MVC Design and Development**

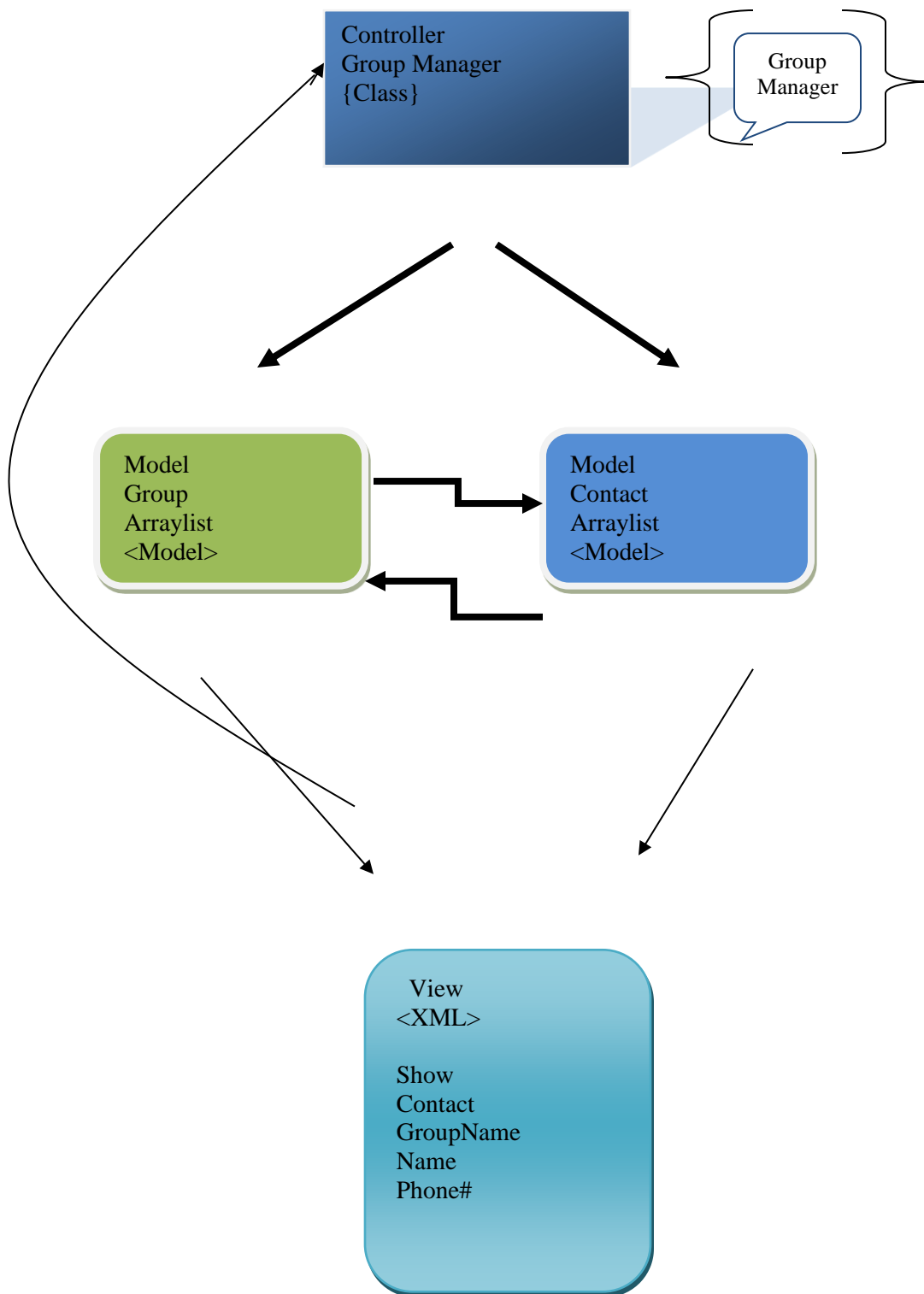
Model-View-Controller (MVC) is a standard software project that separates the user interface (View) and the business rules and data (Model) using a mediator (Controller) to connect the model to the view. The main advantage is the MVC separation of concerns. Each part of the MVC takes care of its own work: the view takes care of the user interface, the model takes care of the data, and the controller sends messages between both of them “Julio Sampiao, Android MVC: Creating a Model-View-Controller Framework for Android.

Android already uses an MVC pattern with XML files acting as a view. However, this does not give us any real possibilities of separation of concerns. And the controller provides the data model to view and connect the user interface. Any changes to the controller are visible to view and UI changes will not change the production logic and vice versa.

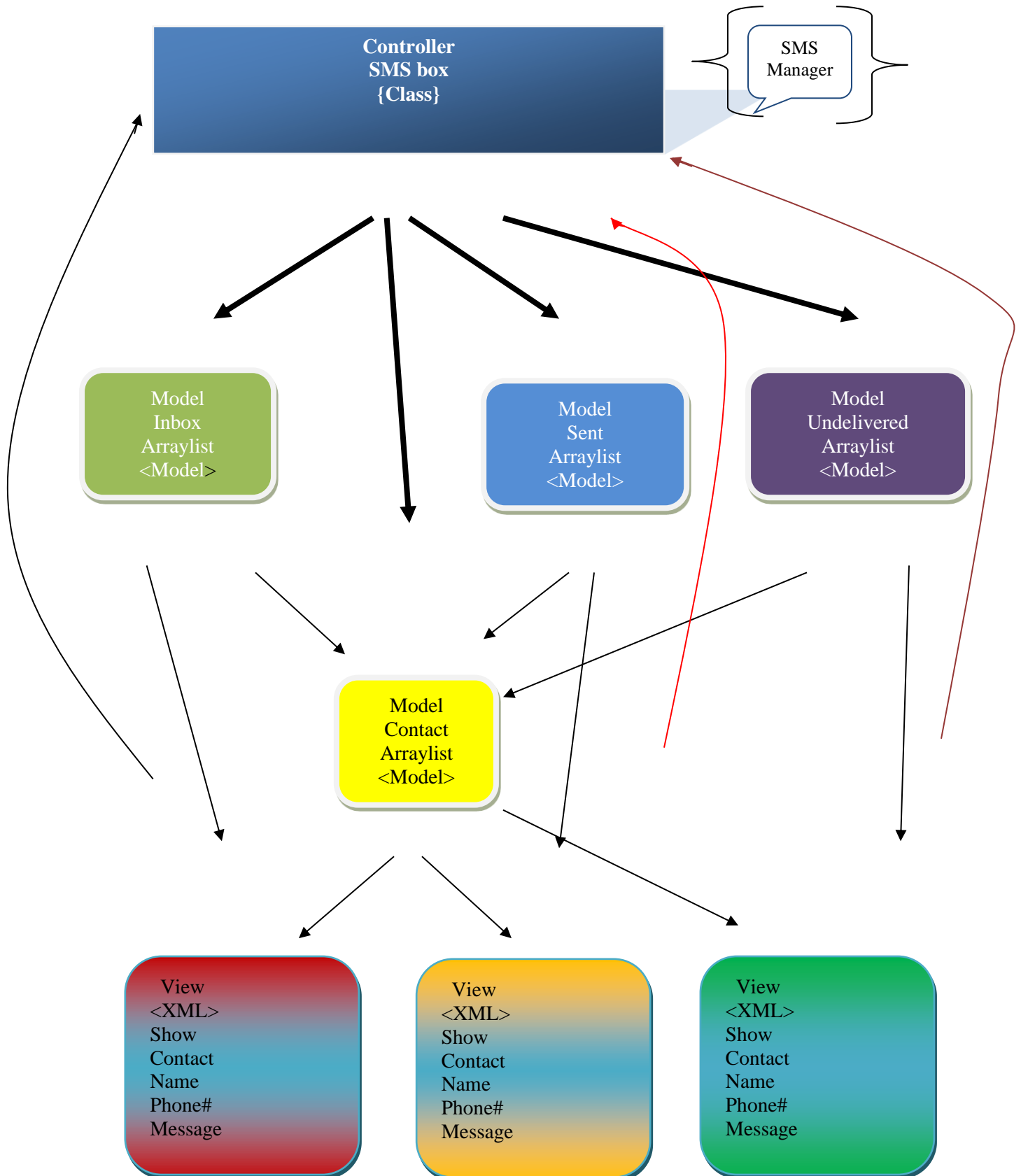
A. Figure 7. Bulk-Messenger Controller



**B. Figure 8. Group Manager Controller**



C. Figure 9. SMS (Inbox,Sent,Undelivered) Manager Controller





## 5.1 Results

It is observed that using Agile practices and incorporating “MVC” best practices are highly essential in successfully developing a mobile application for android platforms. The basic idea is to develop a multi-reipient SMS android application using the conventional GSM technology.

We have achieved the system requirements at the limited shared library resources from android operating system. We have obtained multi-reipient SMS capability by using customized SMS class library. This manifests the success that we have indeed developed a customized bulk-sms apps.

Another important feature to highlight is that this application can determine how many undelivered SMS from a recipient which the user can identify due to the poor signal network communication. It has also a capability to manage the group of contacts and the SMS box of the mobile device.

Due to the limited hardware resources of mobile devices, the number of entries like sms data collections, contacts were also curbed due to limited storage specification of any existing mobile phone device. Nonetheless, based on the trends, the next generation of mobile device which nano technology is now exploring, all of this limited hardware limitation can be resolved with this new advanced technology.

This research can be an eye opener to other android apps developers or researchers as an alternative bulk-messenger apps using the conventional available device such as “GSM” network technology.

## 5.2 Results of the Survey

Table 6. The following is the results of user satisfaction evaluation.

Criteria	Description	Deans		Department Head	
		Acceptable	Unsatisfactory	Acceptable	Unsatisfactory
User Interface	The design is furnish and high level quality colors, user friendly	5		15	
Performance	The apps is responsive.	5		15	

Platform Stability	The apps development are using framework, software development kit	5		10	5
Cost	Using apps SMS is cost effective, less over-head charges.	5		13	2
Suitability	The apps is suitable for mobile device	5		15	

This table 6 shows the results of the survey conducted wherein 20 respondents participated in the itemized criteria as shown above. This table is established after a thorough review and evaluation by the users. Based from these results, the above criteria were evaluated and the users understood the functionality of each criterion. These results indicate that the system requirements of this application are in compliance in accordance to the standard of mobile application. This is spelled out by more than 15 users who affirmed that this application is acceptable as reflected in the solicited responses from the department heads with criteria 1, 2 and 5. These responses overwhelmingly project a marginal difference superseding the actual responses given by the Deans.

Table 7. The following results of module compatibility of different versions operating system.

Criteria	Android 4.1.X	Android 5.1.X	Android 6.1.X
Group Manager	✓	✓	✓
SMS Delivery status	✓	✓	✗
SMS Bulk Manager	✓	✓	✓
Sent Box	✓	✓	✗ (View Only)
Inbox	✓	✓	✗ (View Only)
Phonebook	✓	✓	✓

As shown in table above, these results represent the compabitibility issues of different versions of

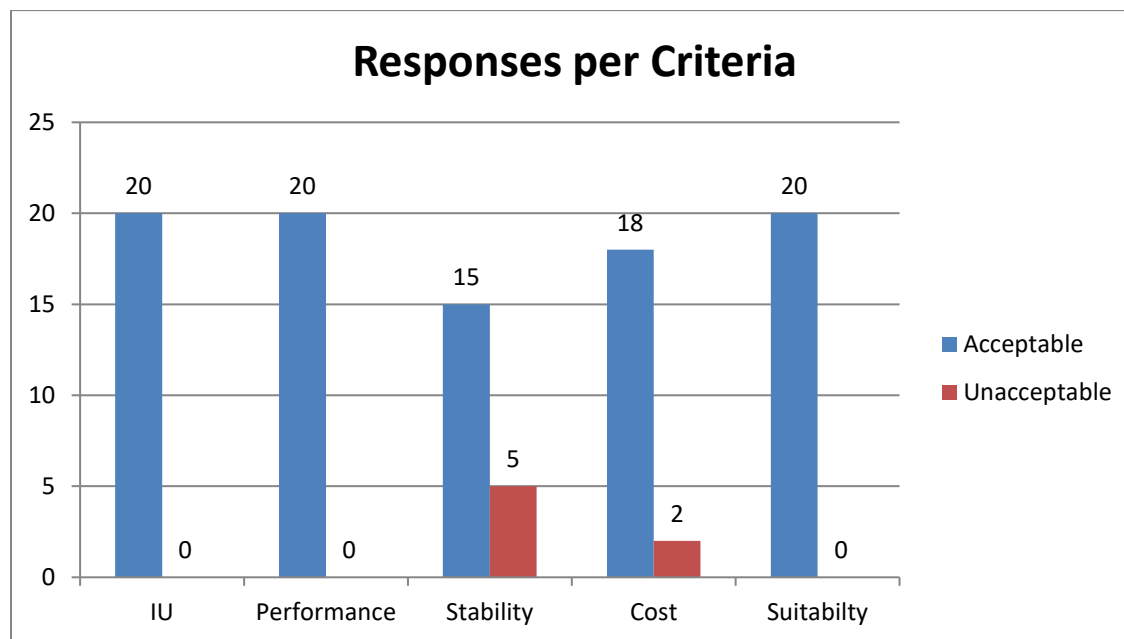
android operating system. The previous version of operating system indicate that most of the restrictions and features of android are similar, where compatibility are most likely not an issue on the third part apps. The latest version of android specifically marshmallow has a lot new restrictions in terms on the internal accessibility of the resource of the mobilephone, particularly, on the management of sms data which the only default application can manage the sms collections. However, third party application is allowed to read the data collections. The restrictions were placed as an anti-thief features to avoid hacking of some vital information such as contacts data and sms collections.

Table 8. The following results of Stress and Load testing of different operating system.

Criteria	Android 4.1.X	Android 5.1.X	Android 6.1.X
SMS Bulk	75 Sec.(30 entries)	75 Sec.(30 entries)	75 Sec.(30 entries)
Group Manager	8 Sec. (248entries)	9 Sec. (248entries)	5 Sec(38 entries)
Sent Box	3 Sec.(263entries)	3 Sec.(250entries)	2 Sec.(431entries)
Inbox	4Sec.(351entries)	4Sec.(351entries)	4Sec.(507entries)
Phonebook	13Sec.(420entries)	14Sec.(420entries)	8Sec.(400entries)

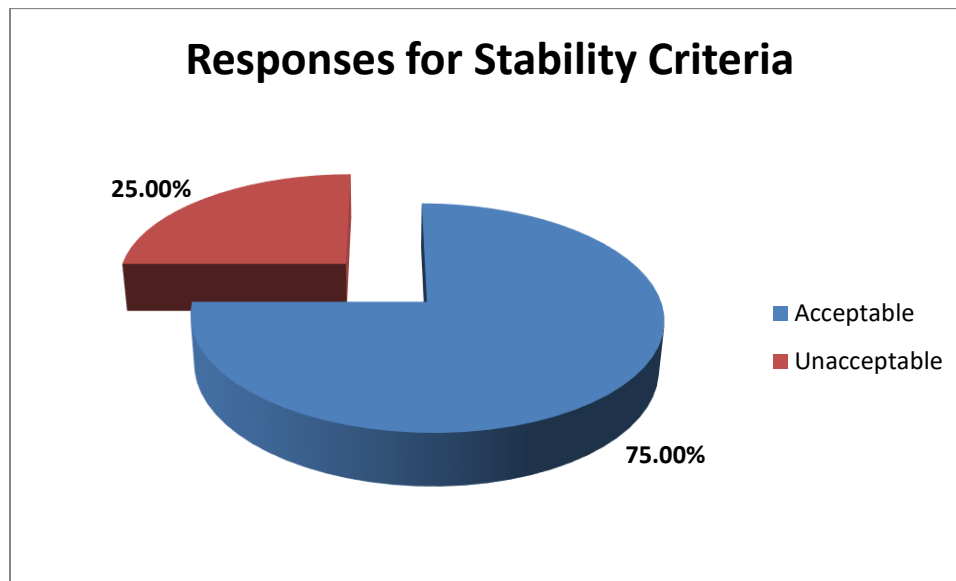
The table 10 shown above, depicts results indicating that the apps where able to pass the stress and loading test procedure. In which each of the module is thouroughly tested in different settings such like multiple open applications. These kind of procedures will test the device's capability in handling applications, where the resources of mobile device will determine its maximum capacity at the given rate of time. The results show that in this settings the application were able to perfrom the expected output in the given environment or setting. However there were some indications that the new version of android operating system is most likely on edge with the previous versions. These may be the factors on the device specifications where the new smartphones have higher capacity in terms of storage, memory and processor from its predecessor.

**Figure 10. Illustration of responses of survey per Criteria**



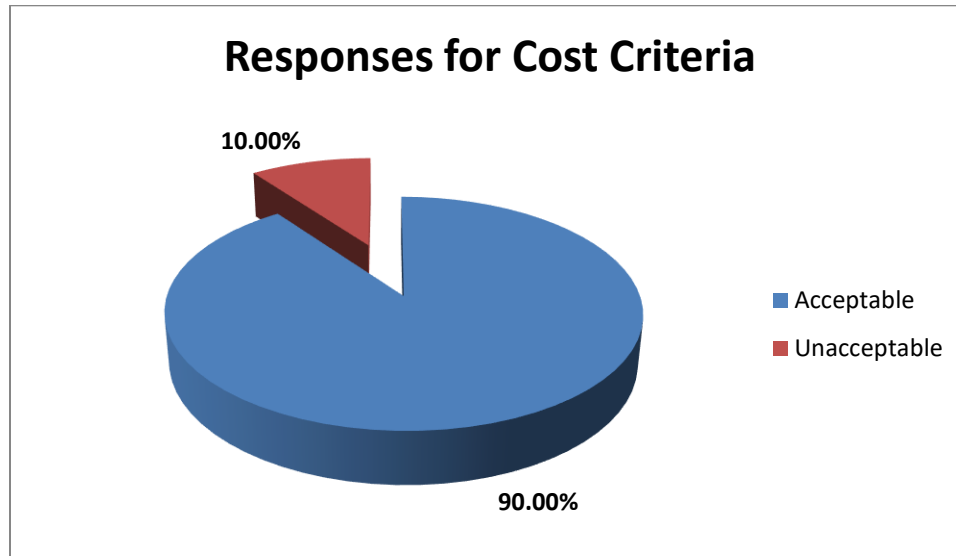
As shown figure 10 by the chart above, the responses of the respondents acknowledges the criteria performance, stability, cost and sustainability. The blue color graph denotes Acceptability is observed to have surmounted over the Unacceptability response with a huge marginal difference of approximately 15 points. This in return pronounces positive response towards user's acceptance.

**Figure 11. Illustration of the survey's Stability criteria**



As figure 10 chart above, a huge share of 75% overwhelms the remaining 25% responses given by respondents in terms of stability. In return, it overwhelmingly tells us that the system way passed the acceptable criteria based on respondent's responses. The 50% difference between the Acceptable and Unacceptable response further speaks the relative conformance of such system to be acceptable in the taste of the respondents.

**Figure 12. Illustration of the survey's Cost Criteria**



In reference to figure 12 the chart given above a dramatic way far difference of 80% is seen in the response of the the respondents when asked about the system in terms of cost. This difference literally speaks the conformity of the respondents that the system is Acceptable. Given so only 10% of the total respondents classified the sytem to be unacceptable.

## 6.0 Conclusion

With Agile development for mobile application and MVC practices, the researcher was able to develop a light-weight android application. Using agile methodology the researcher were able to: a) construct a system ; b) provide changes in planning and requirements; c) enhanced technical know how to adapt new system development approach and used it in the information system research. The researcher studied agile methodology and it's best practices that suit the requirements of android application development and applied them in building a mobile BULK-SMS application. Using this methodology, The researcher was able to successfully developed a stable group messenger on android platform. This application was developed using MVC framework and features of agile methodology for mobile application such as adaptability to evolving requirements and agile sprint approach, feedbacks and review, and test-driven development approach. The use of re-usability techniques is believed to reduce the redundant classes and avoid ambiguous procedure method. Adapting internal Core API has resulted a secured, efficient data management and GSM telephony system which verified light-weight features and multi-recipient sms capability of our android application. Moreover, complete understanding of the limitations of mobile platform are considered essential in avoiding unprecedented risks.

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