Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School

By

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Abstract

The world in which today's children's lives is in fact different from that of the pasts. Today's generation, students use smart phones, tablets, laptops, instant messaging, Facebook, Instagram, and twitter to connect to friends, family, teachers, and others in their community and around the globe. They are now exposed with the term Digital Literacy. Regarding this issue, there were few studies conducted as to what aspects of digital literacy can effectively affect the learning styles of the students here in General Santos City. For this reason, this study aimed to determine if there is a significant relationship between digital literacy and the learning styles of the students. There were 200 respondents chosen randomly using Stratified random sampling from the five selected sections out of eleven sections of Grade 11 in Mindanao State University Senior High School. In the research process, the researcher used adapted and modified questionnaires and checklists, which were validated by a panel of experts. The findings of the study revealed that the level of digital literacy of the students is high (x=4.20). In addition, the dominant among the three learning styles of the students was the kinesthetic (4.07). Moreover, results showed there was a statistically significant relationship between the digital literacy and the learning styles of students. This indicates that increase in the usage of ICT tools tend to improve the attitude of students towards English subject. Results of this study may serve as basis for teachers on how to efficiently utilize ICT tools that support and enhance students' learning.

Keywords: Digital Literacy, Information Literacy, Computer Literacy, Media Literacy, Learning Styles, VAK Learning Styles, MSU Gensan, Senior High School.

1. Introduction

Digital literacy is a skill that every individual must possess in order to compete and survive in this battlefield of life, a life in the digital generation. In the field of education, an educator must also be equipped with this essential skill to fulfill the duty to help students learn better. The learners must also be digitally literate so that they can improve their knowledge and skills in order for them to achieve a successful life in the future. However, if a person who is digitally literate cannot control himself by using digitals or software can give unnecessary effects to his learning performance and behaviors.

With the proliferation of technology, one of the main issues is to form and develop in the new generations the competencies of learning how to learn by developing a dominant Learning Style. Carmen and Torii (2013) [5] believe that students have to be taught how to manage a large volume of information in a relatively short time, from various teaching styles to their own learning styles, as well as how to adapt to the different and increased difficulty of the learning tasks, or how to integrate into a new group. This study reflects how the technology influences the learning styles of students.

Jones-Kavalier and Flannigan (2008) [9] believed that digital literacy represents a person's ability to perform tasks effectively in a digital environment. This means that being digitally literate can also improve the learning of the students.

This study was conducted in the university where many students want to study for college, the Mindanao State University – General Santos City. On the year 2016, this university has offered Senior High School for the first time in its history. Out of almost two thousand students who tried to enter, only four hundred eighty-four were passed the entrance examination. This means that the learning condition of these students who passed the exam are good.

With those above mentioned, the researcher is challenged to study on the relationship between Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School. The results of this study hope to support a better understanding of student's learning styles and their strategies related to literacy use of digital technologies.

Statement of the Problem

The main objective of the study was to find out the relationship between Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School.

Specifically, this study endeavored to answer the following sub problems:

1. What is the digital literacy level of the selected Grade 11 students of in terms of:

    1.1 Information literacy;

    1.2 Computer literacy;

    1.3 Media Literacy; and

    1.4 Communication Literacy?

2. What is the dominant learning style of the selected Grade 11 students among these different learning styles:

    2.1 Visual;

    2.2 Auditory; and

    2.3 Kinesthetic?

3. Is there any significant relationship between digital literacy and learning style of the students?

Scope and Delimitation

This study determines the level of digital literacy and learning styles of selected Grade 11 students of MSU Senior High School, Brgy. Fatima, General Santos City. Specifically, digital literacy covers four (4) areas: Information literacy, Computer literacy, Media literacy, and Communication literacy. Also, learning styles will cover three (3) areas: visual, auditory, and kinesthetic. This study also identifies if there is a significant relationship between digital literacy and learning style of the students?

Using the Stratified Random Sampling, the respondents of the study were randomly selected with a total number of two hundred (200) Grade11 students enrolled in MSU Senior

High School under K-12 Curriculum. Stratified random sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members' shared attributes or characteristics. A random sample from each stratum is taken in a number proportional to the stratum's size when compared to the population. These subsets of the strata are then pooled to form a random sample

Significance of the Study

The study was undertaken to determine the digital literacy level and the dominant learning style of selected Grade 11 students of MSU Senior High School. This study will be the benefit to the following persons:

This study may give the School administrator baseline data on the significant relationship between digital literacy and learning style of students as well as informs them on the some effects brought by digital technologies to the students and to their learning styles and performance. Additionally, the result of this study may serve or guide on how schools might use modern forms of teaching to encourage the students to learn better.

This study may provide the teachers information about what aspect of the digital technologies could effectively affect the learning of their students and help them in addressing the needs of their students.

This study may help the students to gain more knowledge on how their literacy on digital technologies may affect their learning styles.

This study will enable the researcher to have an in-depth knowledge about the digital literacy as a tool that will improve the teaching methods of teachers and learning styles students.

This study may encourage the other researchers to develop scientific assessment of the digital literacy level and how to successfully translate the relationship of the digital literacy and learning style of the students.

2. Review of Related Literature

Digital Literacy

Martin (2006) [11] defined digital literacy as the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process.

In addition to this definition, Jones-Kavalier and Flannigan (2008) [8] suggested that Digital literacy represents a person's ability to perform tasks effectively in a digital environment; digital means information represented in numeric form and primarily use by a computer, and literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation and to evaluate and apply new knowledge gained from digital environments. Aviram and Eshet-Alkalai, (2006) [1] described digital literacy as a combination of technical-procedural, cognitive emotional and social skills.

Information Literacy

Information literacy is defined as a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and effectively use the needed information. Teaching these skills has always required an implicit awareness of the social, economic, and legal conditions for the communication of scholarship within specific disciplines. The fragmentation caused by digital technologies, however, and the unprecedented, unmediated access to scholarship that is now possible, forces us to adapt our approaches to teaching users to be fluent in the new information environment (Davis-Kahl and Hensley, 2013) [7].

Computer Literacy

Computer literacy is the human competency to use one's own knowledge, skills and abilities from the close sphere of the hardware and software computer equipment, as well as from the wider sphere of ICT, for the collection, storage, processing, verification, evaluation, selection, distribution and presentation of information in a required form and quality to achieve their relevancy to a specified destination (Ondrej & Roman, 2010) [13].

Media literacy

Media literacy is generally defined as the ability to access the media, to understand and to critically evaluate different aspects of the media and media contents and to create communications in a variety of contexts (European Commission, 2007) [8].

Communication Literacy

Winnepeg School Division (2010) [17] emphasized that in communication literacy, learners must be able to communicate effectively as individuals and work collaboratively in groups, using publishing technologies (word processor, database, spreadsheet, and drawing tools.), the Internet, as well as other electronic and telecommunication tools.

Learning Styles

Ozata & Ozdamar-Keskin (2014) [14] defined learning style as an important feature for learner preferences. The term of "learning style" refers to the view that different people learn information in different ways. It is related to one's characteristic ways of perceiving, processing, and interpreting information.

Clark (2012) [6] discussed that one of the most accepted understandings of student learning styles fall into three (3) categories: Here as follows: (1) Visual learning style (the depiction of information in maps, diagrams, charts etc.), (2) Auditory learning style (the preference for information that is "heard or spoken."), (3) Kinesthetic learning style (the preference related to the use of experience and practice (simulated or real). VARK is an acronym that refers to the four types of learning styles: Visual, Auditory, Reading/Writing Preference, and Kinesthetic. The VARK model is also referred to as VAK model, eliminating Reading /writing as a category of preferential learning. The VAK model acknowledges that students have different approaches to how they process information, referred to as "preferred learning modes".

Visual Learning

Lucas, & Corpuz, (2007) [10] posited that visual learning individual are those who refer to the ones that more interested in visual imagery such as film, graphic displays, or pictures in order to solidify learning. They usually have good picture memory, a.k.a. iconic imagery and

attend to pictorial detail. They would like to read a map better than to read a book; Visual-symbolic. Those who prefer this form of input feel comfortable with abstract symbolism such as mathematical formulae or the written word. They would prefer to read a book than a map and would like to read about things than to hear them. They tend to be good abstract thinkers who do not require practical means for learning.

Auditory Learning

Auditory Learning style refers to the view that the learners learn best by hearing or listening. Auditory learners are very good listeners. They tend to absorb information in a more efficient manner through sounds, music, discussions, teachings, etc. These individuals will be more likely to record lectures so that they can replay them at a later time for study purposes. Auditory learners appreciate books on tape and may find that reading aloud will help them to retain information. Rather than written reports, auditory learners tend to do better on oral presentations and reports (Rourke, B., & Ahmad S., et al, 2012) [15].

Kinesthetic Learning

Kinesthetic and tactile learning are separate learning styles, with different characteristics. She defined kinesthetic learning as the process that results in new knowledge (or understanding) with the involvement of the learner's body movement. This movement is performed to establish new (or extending existing) knowledge. Kinesthetic learning is established when the learner uses language (their own words) in order to define, explain, resolve and sort out how his or her body's movement reflects the concept explored. One example is a student using movement to find out the sum of 1/2 plus 3/4 via movement, then explaining how their motions in space reflect the mathematical process leading to the correct answer (BenZion, 2013) [3].

Hypothesis

The researcher tested the hypothesis at 0.05 level of significance.

There is no significant relationship between digital literacy and learning styles of the selected Grade 11 students MSU Senior High School.

3. Methodology

Research Design

The researcher had used descriptive-correlational method of research to describe the level of digital literacy in terms of Information literacy, Computer literacy, Media Literacy, and Communication Literacy of the selected Grade 11 students of MSU Senior High School and the dominant learning style in terms of visual, auditory, and kinesthetic learning styles.

Descriptive research design was used to explore the present situation or condition of particular persons, strategy, or event. It is scientific method in which involves observing and describing the behavior of a subject without influencing it in any way.

Correlation research design attempts to explore relationship between or among variables in order to make prediction.

Research Locale

This study was conducted at MSU Senior High School, located at Brgy. Fatima, General Santos City. This school has now started the first batch of Grade 11 since the K-12

Curriculum is implemented. MSU Senior High School has the Academic track that offers the three strands and is separate unit of the College of Education Training Department (CETD) which means it has its own structure.

Mindanao State University – General Santos City is one of the academic institutions nationwide offering Senior High School. The location of this University has coordinates 6.0705o North, 125.127106o East.

Research Respondents

The respondents of this study were two hundred (200) students out four hundred eighty-four (484) grade 11 students randomly selected from the five (5) sections out of the eleven (11) sections in MSU Senior High School.

Stratified random sampling had been used in selecting the respondents in order to provide every member of the population an equal chance to be part of the sample. Same procedure will be done to the other sections until the 200 desired respondents will be obtained.

Table 1 *Distribution of Respondents*

Sections	Population	No. of Respondents
Grade 11Sorzano	43	40
Grade 11Algeham	43	40
Grade 11 Macabinta	43	40
Grade 11 Diones	43	40
Grade 11 Chato	43	40
Total	**215**	**200**

Table 1 represents the distribution of the respondents in each section. There are forty-three (43) students in Grade 11Sorzanoand forty (40) will be taken as respondents. There are forty-three (43) students in Grade 11Algehamand forty (40) will be taken as respondents. In Grade 11 Macabinta there are forty-three (43) students and forty (40) will be taken as respondents. In Grade 11 Diones there are forty-three (43) students and forty (40) will be taken as respondents. The total number of the respondents is two hundred (200).

Research Instrument

The following questionnaires have been utilized to gather the needed information.

Part I. Digital Literacy. The adapted and modified questionnaire from University of Dundee, Library & Learning Centre, CASTLE, (2014) [15] is used to know the level of Digital Literacy. It contains 20 items and each concept consists of 5 items. Five-point scale was used by the students to answer the questions.

Scale	Verbal Interpretation	Qualitative Description
5	Very High	The level of digital literacy is very high with a rating of 81-100%
4	High	The level of digital literacy is high with a rating of 61-80%
3	Moderate	The level of digital literacy is moderate with a rating of 41-60%
2	Low	The level of digital literacy is low with a rating21-40%
1	Very Low	The level of digital literacy is very low with a rating1-20%

Weighted Mean interval	Scale	Verbal Interpretation	Qualitative Description
4.21-5.00	5	Very High	The level of digital literacy is very high with a rating of 81-100%
3.41-4.20	4	High	The level of digital literacy is high with a rating of 61-80%
2.61-3.40	3	Moderate	The level of digital literacy is moderate with a rating of 41-60%
1.81-2.60	2	Low	The level of digital literacy is low with a rating 21-40%
1.00-1.80	1	Very Low	The level of digital literacy is very low with a rating 1-20%

Part II. Learning Styles. The adapted and modified questionnaire from Clark, (2012) is used to determine is the dominant from among the three different learning styles namely: (a) visual learning style, (b) auditory learning style, and (c) kinesthetic learning style. It contains 15 items and each topic consists of 5 items. Five-point scale was used by the students to answer the questions.

Scale	Verbal Interpretation	Qualitative Description
5	Very High	The specified learning style level is very high with a rating of 81-100%
4	High	The specified learning style level is high with a rating of 61-80%
3	Moderate	The specified learning style level moderate with a rating of 41-60%
2	Low	The specified learning style level is low with a rating 21-40%
1	Very Low	The specified learning style level is very low with a rating 1-20%

Data Gathering Procedure

To gather the data needed for this study, the researcher wrote a letter of permission to the Director of MSU Senior High School to conduct this study. Immediately after request granted the researcher asked the grade 11 class advisers in every selected section a copy of the list of students enrolled in S.Y. 2016-2017 in every class. The researcher had set a schedule with the adviser for the floating of the instrument.

The students were gathered in a room by the adviser. They were asked to be seated and the researcher explained the purpose of the data gathering. Instructions were explained clearly to the respondents. As soon as the respondents were done answering the questionnaire; retrieval followed.

Statistical Treatment of the data

For sub-problems one (1) and two (2), the responses were tallied and statistically treated and computed using weighted mean to determine the mean rating for each item in the questionnaire. Weighted mean interprets through the given five-point scale with the corresponding qualitative description as to describe the implication of the results. The scale below indicates the level of digital literacy of the students.

The scale below indicates the level of Learning Styles of the students.

Weighted Mean interval	Scale	Verbal Interpretation	Qualitative Description
4.21-5.00	5	Very High	The specified learning style level is very high with a rating of 81-100%
3.41-4.20	4	High	The specified learning style level is high with a rating of 61-80%
2.61-3.40	3	Moderate	The specified learning style level moderate with a rating of 41-60%
1.81-2.60	2	Low	The specified learning style level is low with a rating of 21-40%
1.00-1.80	1	Very Low	The specified learning style level is very low with a rating of 1-20%

To answer sub-problem number three (3), Pearson-Product Moment Correlation was used in order to determine the significant relationship between Digital Literacy and Learning Styles of Selected Grade 11 students of MSU Senior High School and to test the null hypothesis if it would be accepted nor rejected at 0.05 level of significance. The correlation value will be interpreted using Calmorin (2000) [4] interpretation.

Correlation Value	Interpretation
+ 1.00	Perfect Relationship
+ 0.71 - + 0.99	High Relationship
+ 0.41 - + 0.70	Moderate Relationship
+ 0.21 - + 0.40	Slight Relationship
+ 0.00 - + 0.20	Negligible Relationship

4. Presentation, Analysis, and Interpretation of Data

Table 2 showed the level of digital literacy skills of selected Grade 11 Students of Mindanao State University Senior High School. Result revealed that their ability in computer literacy is very high with a total mean of 4.53. Specifically, in computer literacy, the students know how to turn on and off the computer which got the highest weighted mean of 4.91. This was followed by their knowledge on how to use Microsoft word, excel, and PowerPoint to make studies easier (wm=4.63). Next was, their knowledge on how to correct the spelling every time they type misspelled words (wm=4.58). Then, they know how to use shortcuts in the keyboard to make their work faster (wm=4.29). Lastly, they know how to keep a digital record of the relevant information they find online using standard desktop tools (wm=4.22).

In addition, the mean of 4.10 indicated that the Information Literacy of the Grade 11 students of MSU Senior High is high. Specifically, they have knowledge on how to choose the right tool to find, use or create information which got the highest weighted mean of 4.20. This was followed by their literacy on how to cite a reference to an online resource (e.g. in an assignment) using the correct format (wm=4.14). Then, their knowledge on how to use other people's work (found online) without committing plagiarism (wm=4.11). Followed by their knowledge on what information they can find in an online library (wm=4.07) and lastly was their literacy on what their 'digital footprint' is, i.e. what happens to personal information which they share online with the mean of 4.00.

Moreover, the mean of 4.09 implied that the communication literacy of the students is high. Specifically, they know how to interact with others online (forums, blogs, social networking sites, audio, video, etc.) which got the highest weighted mean of 4.37. Next was, their knowledge on how to add comments to blogs, forums or web pages, observing 'netiquette' and appropriate social conventions for online communications (wm=4.28). Then, they know how to collaborate safely with others online to create a shared document or presentation as well as how to 'tag' information they create online to allow others to retrieve

it quickly with the same weighted mean of 4.04. Lastly, they know how to create content online for different audiences using the appropriate style or tone, e.g. a web page or blog entry for private use, a presentation for use by their fellow students, an assessment for their course or a webpage to be read by the general public (wm=3.72).

Furthermore, the mean of 4.08 also showed that Media Literacy of the students is high. Specifically, their ability on how to use social networks to find information to support my studies is very high which got the highest weighted mean of 4.35. This was followed by their ability on how to use information in different media, for example, podcasts or videos (wm=4.18). Next was, they know how to assess whether an online resource (e.g. web page, blog, wiki, video, podcast, academic journal article) or person is credible and trustworthy (wm=4.10), their ability on how to use media-capture devices to record and edit a podcast or video (wm=3.99), and their knowledge on how to create content in different media for people to read online (wm=3.80).

To summarize, the result in table 2 showed that the students rated highest on computer literacy with a total mean of 4.53, followed by information literacy (wm=4.10) and communication literacy (wm=4.09). However, they were rated lowest in media literacy (wm=4.08). Therefore, the digital literacy of the Grade 11 students of MSU SHS is high as evidenced by its over-all mean of 4.20. This further indicated that their computer literacy is very high, that their literacy on information is high and lastly their communication literacy is high as well and this further revealed that they are competent and can cope with the digital generation based on their experience on this digital literacy.

Table 2 *The Level of Digital Literacy of Selected Grade 11 Students of Mindanao State University Senior High School*

INDICATOR	WM	Des.
A. Information Literacy. **I know…**		
1. How to cite a reference to an online resource (e.g. in an assignment) using the correct format.	4.14	H
2. What my 'digital footprint' is, i.e. what happens to personal information which I share online.	4.00	H
3. How to choose the right tool to find, use or create information.	4.20	H
4. What information I can find in an online library.	4.07	H
5. How to use other people's work (found online) without committing plagiarism.	4.11	H
Mean	*4.10*	*H*
B. Computer Literacy. **I Know…**		
1. How to turn on and off the computer.	4.91	VH
2. How to use Microsoft word, excel, and PowerPoint to make my studies easier.	4.63	VH
3. How to keep a digital record of the relevant information I find online using standard desktop tools.	4.22	VH
4. How to use shortcuts in the keyboard to make my work faster.	4.29	VH
5. How to correct my spelling every time I type misspelled words.	4.58	VH
Mean	*4.53*	*VH*
C. Media Literacy. **I have the ability to…**		
1. Use information in different media, for example, podcasts or videos.	4.18	H
2. Assess whether an online resource (e.g. web page, blog, wiki, video, podcast, academic journal article) or person is credible and trustworthy	4.1	H

3. Create content in different media for people to read online.	3.80	H
4. Use social networks to find information to support my studies.	4.35	VH
5. Use media-capture devices to record and edit a podcast or video.	3.99	H
Mean	*4.08*	*H*
D. Communication Literacy. **I have ability to…**		
1. Add comments to blogs, forums or web pages, observing 'netiquette' and appropriate social conventions for online communications.	4.28	VH
2. Interact with others online (forums, blogs, social networking sites, audio, video, etc.)	4.37	VH
3.Create content online for different audiences using the appropriate style or tone, e.g. a web page or blog entry for private use, a presentation for use by my fellow students, an assessment for my course or a webpage to be read by the general public.	3.72	H
4. Collaborate safely with others online to create a shared document or presentation.	4.04	H
5. To 'tag' information I create online to allow others to retrieve it quickly.	4.04	H
Mean	*4.09*	*H*
Overall mean	*4.20*	*H*

Table 3 showed the level of learning styles of selected Grade 11 Students of Mindanao State University Senior High School. Result revealed that their kinesthetic learning style is high with a total mean of 4.07. Specifically, they learn best when they are shown how to do something, and they have the opportunity to do it which got the highest weighted mean of 4.33. This was followed by their styles that If they had to explain a new procedure or technique, they would prefer actually demonstrating it (wm=4.17). Next was, when reading a novel, they pay a lot of attention to passages revealing feelings, moods, action, drama, etc. (wm=4.15). Then, before they follow directions, it helps them to see someone else do it first (wm=4.03). Lastly, they tend to solve problems through a more trial-and-error approach, rather than from a step-by-step method (wm=3.66).

Moreover, the mean of 3.76 implied that the visual learning style of the students is high. Specifically, they remember something better if they write it down which got the highest weighted mean of 4.48. Next was, if they are taking a test, they can "see" the textbook page and where the answer is located (wm=3.87). Then, when trying to remember someone's telephone number or something new like that, it helps them to get a picture of it in their mind with the weighted mean of 3.69, they enjoy doodling and even their notes have lots of pictures and arrows in them (wm=3.57). Lastly, they get lost or are late if someone tells them how to get to a new place, and they don't write down the directions (wm=3.21).

Furthermore, the mean of 3.50 also showed that auditory learning style of the students is high. Specifically, it's hard for them to read other people's handwriting of 3.79. This was followed by remembering things that they hear, rather than things that they see or read (wm=3.58). Next was, Papers with very small print, blotchy dittos or poor copies are tough on them (wm=3.46), It helps to use their finger as a pointer when reading to keep my place (wm=3.36), and they understand how to do something if someone tells them, rather than having to read the same thing to themselves is high which got the highest weighted mean (wm=3.30).

To summarize, the result in table 3 showed that the students rated highest on kinesthetic learning style with a total mean of 4.07, followed by visual learning style (wm=3.76). However, they were rated lowest in auditory learning style (wm=3.50). Therefore, the learning styles of the Grade 11 students of MSU SHS are high as evidenced by its over-all mean of 3.78. This further indicated that their kinesthetic learning style is high, that their visual learning style is high and lastly their auditory learning style is high as well

and this further revealed that they are they can more learn effectively by doing or executing things.

The over-all mean of 3.78 described as high indicated that the majority of the students are kinesthetic learners. This means that the dominant learning style of the students among the three learning styles is the kinesthetic. They learn best through moving, doing, acting out and touching. Projects that are hands-on in nature are best for kinesthetic learners. Kinesthetic learners tend to become frustrated when they must sit for long periods of time. They enjoy conducting experiments, exploring and performing tasks. Kinesthetic learners learn best through moving, doing, acting out and touching.

Table 3 *The Level of Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School*

INDICATOR	WM	Des.
A. Visual Learning Style		
1. I remember something better if I write it down.	4.48	VH
2. If I am taking a test, I can "see" the textbook page and where the answer is located.	3.87	H
3. I get lost or am late if someone tells me how to get to a new place, and I don't write down the directions.	3.21	M
4. When trying to remember someone's telephone number or something new like that, it helps me to get a picture of it in my mind.	3.69	H
5. I enjoy doodling and even my notes have lots of pictures and arrows in them.	3.57	H
Mean	*3.76*	*H*
B. Auditory Learning Style		
1. I remember things that I hear, rather than things that I see or read.	3.58	H
2. I understand how to do something if someone tells me, rather than having to read the same thing to myself.	3.30	H
3. Papers with very small print, blotchy dittos or poor copies are tough on me.	3.46	H
4. It helps to use my finger as a pointer when reading to keep my place.	3.36	M
5. It's hard for me to read other people's handwriting.	3.79	M
Mean	*3.50*	*H*
C. Kinesthetic Learning Style		
1. If I had to explain a new procedure or technique, I would prefer actually demonstrating it.	4.17	H
2. I learn best when I am shown how to do something, and I have the opportunity to do it.	4.33	VH
3. Before I follow directions, it helps me to see someone else do it first.	4.03	H
4. I tend to solve problems through a more trial-and-error approach, rather than from a step-by-step method.	3.66	H
5. When reading a novel, I pay a lot of attention to passages revealing feelings, moods, action, drama, etc.	4.15	H
Mean	*4.07*	*H*
Overall Mean	*3.78*	*H*

Table 4 shows the relationship between digital literacy and learning styles among selected Grade 11 Students of Mindanao State University Senior High School. The results revealed that there was a statistically significant relationship between the two variables as supported by the r value of 0.417 with significant p-value of 0.000. These results showed that digital literacy of students was related to their learning styles.

Furthermore, the coefficient of variation or R-squared of 0.174 implied that 17.4% of the variations in learning styles were due to digital literacy. This is similar to the findings of Bawden (2008) [2] that the digital literacy can enhance students learning. Students can use

their literacy in computer to transform data from numbers to graphs or to translate words from one language to another. They can develop their visual, kinesthetic, aural, and oral skills. Students with physical disabilities can use computers with adaptive devices so that they can participate fully with their classmates.

Table 4 *Relationship between Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School*

CORRELATIONS				
Indicators	**r**	**R^2**	**p-value**	**Extent of relationship**
DIGITAL LITERACY LEARNING STYLES	0.417**	0.174	0.000	Moderate relationship at **0.05** level.
**. Correlation is significant at the 0.05 level (2-tailed).*				

5. Findings, Conclusions, and Recommendations

Findings

The following were the results of the study:

1. The level of digital literacy of the students is high with an over-all mean of 4.20. Specifically, the level of their computer literacy is very high (4.53), followed by information literacy (wm=4.10) and communication literacy (wm=4.09). However, they were rated lowest in media literacy (wm=4.08).

2. The dominant among the three learning styles of the students is the kinesthetic. The level of the learning style of the students is high with an over-all mean of 3.78. Specifically, the students rated highest on kinesthetic learning style with a total mean of 4.07, followed by visual learning style (wm=3.76). However, they were rated lowest in auditory learning style (wm=3.50).

3. There was a significant relationship between digital literacy and learning style of students as evidenced by the multiple r value of 0.417 with significant p-value of 0.000. These results showed that digital literacy of students were highly related to their learning styles.

Conclusions

Based on the findings, the following are the conclusions:

1. Most of the selected grade 11 students have a high level of digital literacy.

2. Majority of the students have a high level of learning style. The dominant learning style of the students among the three learning styles is the kinesthetic learning style.

3. There was a statistically significant relationship between digital literacy and learning style of students.

Recommendations

The following recommendations were made based on the findings of the study:

1. The students should be helped so that they can easily create content online for different audiences using the appropriate style or tone, e.g. a web page or blog entry for private use, a presentation for use by their fellow students, an assessment for their course or a webpage to be read by the general public.

2. The students should be encouraged to strengthen their skill since they don't understand how to do something if someone tells them, rather than having to read the same thing to their own selves.

3. The digital literacy skills of students should be developed since it is highly related to their learning styles.

References

Aviram, R. &Eshet-Alkalai, Y. (2006). Towards a theory of digital literacy: three scenarios for the next steps. European Journal of Open Distance E-Learning. Retrieved August 20, 2010 from http://www.eurodl.org/materials/contrib/2006/Aharon

Bawden, D. (2008). Digital Literacy. SciTopics. December 29. Retrieved from http://www.scitopics.com/Digital_Literacy.html

BenZion, G. (2003). An analysis of kinesthetic learners' responses: teaching mathematics through dance. Doctoral Dissertation. American University, Washington D.C.

Calmorin, L. (2000). Research and Statistic with Computer. Mandaluyong City. National Book Store.

Carmen A. & Torii C. (2013). Educational Technology on the Learning Styles of Students. University of Galati str Garii no. 63-65, 800003, Romania

Clark, D.R. (2012). Design Methodologies: instructional, thinking, agile, system, or x problem? Retrieved from http://nwlink.com/~donclark/design/design_models.html

Davis-Kahl, S. and Hensley, M. eds. (2013). Common Ground at the Nexus of Information Literacy and Scholarly Communication. Chicago, IL: Association of College and Research Libraries. Retrieved from http://www.ala.org/acrl/files/publications/booksanddigitalresources/digital/commonground_oa.pdf

European Commission (2007) A European approach to media literacy in the digital environment. URL (consulted July 2009): http://ec.europa.eu/avpolicy/media_literacy/docs/com/en.pdf

Jones-Kavalier, B., & Flannigan, S. L. (2008). Connecting the digital dots: Literacy of the 21st century. Teacher Librarian, 35(3), 13-16.

Lucas, M. and Corpuz B. (2007). Facilitating learning: a Metacognitive Process. 776 Aurora Blvd., cor. Boston Street, Cubao, Quezon City, Metro Manila: Lorimar Publishing, Inc.

Manalao, A. (2022). Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanaoi State University Senior Highschool. "To be Published"

Martin, A., Grudziecki, J. (2006). DigEuLit: Concepts and Tools for Digital Literacy Development. University of Glasgow, Scotland. Retrieved online April 30, 2010 from: ics.heacademy.ac.uk/italics/vol5iss4/martin-grudziecki.pdf

Ondrej K. & Roman H. (2010) Importance Of Computer Literacy For E-Learning Education Institute of Engineering Pedagogy and Humanities, Faculty of Materials Science and Technology, Slovak University of Technology, Paulínska 16, 91724 Trnava, Slovakia.

Ozata, Z. &Ozdamar-Keskin, N. (2014). Students' preferences and opinions on design of a mobile marketing education application. Turkish Online Journal of Distance Education, 15(1), 189-205.

Rourke, B., Ahmad S., Collins, D., Hayman-Abello, B., Hayman-Abello, S., and Warriner, E. (2002). Child clinical/pediatric neuropsychology: some recent advances. Annual Review of Psychology, 53, 309Ð339.

University of Dundee, Library & Learning Centre, CASTLE, from, Being digital: Digital literacy skills checklist, Copyright © 2012 The Open University.

Winnepeg School Division (2010). Technology Outcomes Continuum Guide (K-S1). Retrieved online May 1, 2010 from: http://www.wsd1.org/techcont/communication_literacy.htmCoffield, F., Moseley, D., Hall, E., Ecclestone, K. (2004). Learning Styles and Pedagogy in Post-16 Learning: A systematic and critical review. www.LSRC.ac.uk: Learning and Skills Research Centre. Retrieved from: http://www.lsda.org.uk/files/PDF/1543.pdf