



Students' Preferences Between Printed and Digital Teaching Materials

DOI 10.5281/zenodo.13744928

Jelly A. Cuyag¹, Dimple T. Lawan², Mylen A. Coronel³, Gethrou Veidall Sanchez⁴ and Ma. Loth M. Lamanilao⁵
Student, Mandaue City College, Philippines^{1,2,3,4,5}

Abstract:

This study aimed to investigate the students' preferences in teaching materials between printed and digital. This study utilized a quantitative methodology with a descriptive design to interpret collected data. The survey was administered via Printed Survey Form and utilized a simple percentage and weighted mean for data analysis. The finding shows that the majority of the students are prefer to have their teaching materials on print. Such as books, printed output, and other print-related resources. The researchers have agreed to recommend that each student must have the privilege to choose either they want to buy their own book or not. This is to ensure that the school caters the student's best interests this study highlights the importance of engaging materials, and the advantages of both formats (focus/annotation for print and interactivity for digital).The research aims to explore the student preference and its connection to academic performance. It also identifies limitations to students' such as lack of printed materials and internet connectivity issues. Ultimately, this study seeks to inform educators in choosing the appropriate materials to optimize the learning experience for students. The study of Edgar Dale's cone of experience, suggests that people learn best by doing, with reading and other visual aids at the higher, and also the theory implies that interaction with the materials is the key to learning.

Keywords: Teaching Materials, Printed Materials, Digital Materials, Quantitative Methodology, Descriptive Design

Introduction:

Teaching materials are the essential tools of education, turning basic facts into vibrant lessons. They encompassed a range of resources, from traditional textbooks to interactive simulations, facilitating understanding through engaging visuals, hands-on activities, and immersive experiences. These materials cater to all learning styles, offering infographics for visual learners and audio guides for auditory learners, ensuring every student could learn effectively. According to Right (2018), as cited in "The Importance of Learning Materials in Teaching" (2021), teaching materials enhanced student learning and boost their success.

Ultimately, they are not just tools, but invitations to a world of discovery, empowering students to become co-creators in their own educational journey. They acted as informers, presenting facts and concepts in engaging formats like textbooks, videos, and simulations. According to (Post, 2023, also cited in Arop et al., 2019) Instructional materials are materials that assisted teachers to make their lessons explicit to learners. They were also engaging, drawing students in with interactive activities, hands-on experiments, and field trips.

Mandaue City College (MCC) students faced challenges in catching up with lessons due to intense pressure, hectic schedules, and external problems. Researchers are conducting a study to understand how they coped with these challenges. Students used printed and digital media as instructional materials, finding them comprehensible due to content, preferences, and interactivity. Moreover one of the gaps in the study is the lack of printed materials such as books to be used in classes as the school cannot avail into purchasing books for their subjects, the problems regarding the internet connectivity. The availability of digital devices to be used as media for educational purposes, the relationship between students' academic performance, learning styles, and their preferences between printed and digital instructional materials in Mandaue City, specifically in Mandaue City College.

This study aimed to investigate the students' preferences between print and digital media as teaching materials for students in Mandaue City College. The purpose is to find out what is the best teaching materials to be used in order to give the students the quality education they all deserve. The students learn best in school if they know that the materials are effective and are highly sufficient for learning. Therefore, at the end of this study, the researcher would be able to identify answers to this problem.

Literature Review:

According to Mayembe and Nsabata (2020) a chosen method of teaching influences the type of educational material to be used though other areas might also be affected like the learning outcomes, task types, and students' responses. When it comes to teaching, the use of various media always matters as students' learning styles depend on the way the instructor teaches the learners and how they utilize the learning materials provided for the students. The content, the interactivity, the format, and the ease of access are some of the few aspects that could be found within these media that promote students' study habits and learning styles, thus influencing these and affecting their way of acquiring



knowledge. Mayembe and Nsabata (2020) also stated that educational materials used in the classroom could ignite and yield new interest, motivation, and stimulation of the learning process, including psychological aspects.

Using these educational materials in the teaching orientation stage assisted the effectiveness of the learning procedure and the way messages and lesson content are presented. In simpler terms, the appeal of the content is also one of the prominent factors that serve as a stimulant for learning. The more the content is appealing to the learners, the more they are driven to learn and more likely to acquire more knowledge found in the said media, be it printed or digital. Hirsh-Pasek et al (2015) stated that when giving instructional material, choosing the right media matters as the number of details would also determine the student's attention to the instructional material whether it would be distracting or not. Making it as interactive as possible would also pique their interest and not only promote to improvement of one skill or level of knowledge but several more. In other words, interactive media would not just improve cognitive skills but it could also improve several skills like technical skills and so on. Desk (2023) stated that Newspapers, magazines, and books comprised the three most important representatives of print media. Instructions in traditional classrooms lack the ability to provide a direct learning avenue, quicker assessments, and high engagement. In contrast, Haleem et al (2022) stated that this void was filled in by the presence of digitalized learning materials.

According to Donkor (2021), students are given self-instructional materials to study on their own at home as a tutor-in-print or instructor substitute. Because magazines and newspapers offered a wealth of fascinating and amusing content, they may serve as a bridge to solve this issue.

They were widely used in classrooms and their daily activities since these could be easily accessed and students could easily contribute to the collection of these materials. Print media fosters a love for reading and fortnightly at learning centers established in existing conventional technical and vocational institutions, the learners also get local personal support in the form of tutorials, counseling, access to practical lessons, self-help study group activities, etc. Being a rich source of entertainment, print media removed boredom from classrooms. Experts recommended encouraging students to read sports and comics otherwise do not read. Textbooks provide limited reading material since it is based on an academic point of view. Based on Desk (2023) Print media has been delivering many crucial responsibilities in all fields of learning especially in education for the past five centuries. They provided abundant reading materials, in a way to advance educational opportunities and foster literacy to a significant extent.

The factor of interest is very important because reading skills could be improved only if the student takes an interest. Textbooks consist of a curiosity for knowledge, triggering a positive cycle: It starts by informing and entertaining, then leads to increase literacy and a lifelong thirst for learning, ultimately driving individuals to pursue formal education. Desk (2023) stated that while print media's primary goals are to inform and amuse readers, it also helps to advance language usage generally and reading comprehension in particular. Print media could address the lack of motivation students experience with textbooks, offering diverse and engaging content that enhances reading skills and supports successful reading development. Desk (2023) stated that students are less motivated to read course books and this situation brings a lot of challenges to the trainers who trained students how to read. Therefore, print media could be an effective source of motivation for students.

Textbooks alone are insufficient for successful reading development and therefore, plenty of supporting reading materials could be used for reading skills. The diversity of content in print media allows for personalized learning, as students could choose materials that align with their interests and reading levels, fostering a sense of ownership and motivation. On the other hand, the wide variety of reading materials makes it easy to choose the appropriate reading notes. In addition to that, they used pictures and illustrations to raise interest and motivation among students towards reading. Print media transformed reading from a mandatory task to a pleasurable experience, sparking a genuine interest in exploring new ideas and expanding knowledge beyond the confines of textbooks that is according to according to Desk (2023) Print media enabled students to make it a habit to read new things by providing them with interesting and entertaining resources. Widely used in classroom atmospheres, print media encouraged students to do extensive reading unlike the traditional textbooks.

As stated in Charbonnet (2023) Libraries have long been known as a source of knowledge and learning. They provided students and the public with the resources to learn and foster an appreciation for literature, art, history, and more. Certain technologies offered efficiency that is superior to those of conventional learning approaches. It made sense for schools and other educational institutions to make effective use of cellphones and other wireless technology devices by integrating them into the classroom as these devices are becoming more and more common among the general public.

According to Vakaliuk et al. (2021) and Cavas et al., learning is becoming more enticing to the younger generation due to the adaptability and non-intrusive nature of today's technology. However, it could be challenging to employ at first because conventional educators are hesitant to embrace current technology and devices in the classroom and view them as distractions rather than smart teaching tools. Precise Instruction focused on tailoring educational experiences for each student, thereby fostering an environment conducive to skill acquisition and fluency development. According to Estriégana et al. (2019), Educational technologies and e-learning systems have been adopted by the majority of higher education institutions. Even in face-to-face classes, students are increasingly being asked to use new e-learning formats



such as management systems or communications networks. Because of the pandemic, the transition of classes widens. Additionally, they allowed educational institutions to customize their curricula according to the needs of individual students, as noted by Dudar et al. (2021). The use of technology to improve the educational experience for students is known as "technology integration in education."

Students that use various forms of technology in the classroom including virtual classrooms become actively involved in the learning objectives. Penprase (2018) claimed that incorporating technology into the classroom gives learners a dynamic learning environment that keeps them interested in the material without being sidetracked. The availability of interesting research, the simplicity of connecting to the internet, and the well-designed class interface were among the factors that contributed to students' positive experiences with online education. Using technology in the classroom could encourage participation from both aural and visual learners. Using easy-to-use technology in the classroom, such as PowerPoints, games, online homework assignments, and online grading systems, could significantly impact students' development. The usage of computers, projectors, and other cutting-edge technology in the classroom were other influences.

According to Kosaretsky et al. (2022), integrating technology into the classroom could increase students' engagement with the material. Considering how used today's children are to utilizing electronics, incorporating them into the classroom would undoubtedly assist in piquing students' interests and boosting participation. Additionally, encouraging oral presentations and group participation allows students to develop their communication, collaboration, and critical thinking skills, leading to a more well-rounded learning experience Kryukov et al. (2017) suggested that integrating technology resources, oral presentations, and group participation into classroom assignments could enhance student engagement and make learning more dynamic. Participation is not limited to spoken communication. Digital tools allow for individualized learning paths that cater to the unique needs and interests of each student. Students could choose learning materials that align with their learning style and pace, receive personalized feedback, and explore topics that spark their curiosity. This personalized approach ensured that students are challenged and engaged, maximizing their potential for growth and development Quinnan O. Lopez-Fernandez (2021S) states that using computers and other devices in conjunction with digital tools allows students to play a more proactive role and be at the center of the process.

Transformative digital technologies' effects on education, lead to the emergence of "digital classrooms" that leverage electronic devices and platforms to deliver instruction. This shift fosters a more dynamic and engaging learning environment, potentially enhancing accessibility, collaboration, and the overall educational landscape. Digital classrooms, as defined by Kumar et al. (2022), are those that use electronic platforms or devices, like social media, multimedia, and mobile phones, to instruct students. The use of digital technology in education has improved and changed the educational landscape of today. According to Trembach & Deng, & Ozdamli (2018) as cited in Cavus (2021) the topic of millennial students and their use of technology has become extremely popular in the library and higher education literature. Searching for some sources online may help students find another alternative idea for a specific purpose. Digital classrooms employ websites and educational programs to help students get the most out of their education, according to Ozdamli and Cavus (2021).

According to Chron (2021), video lessons offered a multifaceted experience that could incorporate live video, music, slideshows, charts, images, graphics, narration, and screenshots. This makes it possible for students to remember the information in a method that best suits them, despite having different learning styles. A student has to concentrate, understand, and remember the material in more ways when additional tools are used in video instruction. A lot of these multimedia tools could be too difficult or time-consuming to use daily in a traditional classroom setting. exam preparation. New generation means new trend. The mode of learning changes over time. They could not take away the fact that as they climb higher to this modern generation, access to new learning is inevitable. Chron (2021) claimed that because online learning uses online platforms, it has become a fixture of the twenty-first century. However, Online learning is not the future (Herman, 2020).

Online learning allows students to learn at their own pace and sometimes even asynchronously which is impossible in an in-person learning environment. Let's dive into how the flexibility of online classes positively impacts the lives of students in higher education. Quinain et al. (2022) stated that students' good experiences with online education included flexibility, affordability, availability of electronic research, simplicity of connection to the Internet, and well-designed class interfaces. Unfavorable experiences for students were caused by bad vision, tardy feedback from teachers, a lack of technical assistance, dull teaching methods, and poorly organized course materials. Enhance and even surpass children's comprehension of stories as compared to reading traditional storybooks, claimed Ordaniza & Superales (2022).

Conversely, it was found that interactive features like games, dictionaries, and hotspots were more of a burden than a help. These days, students can study a wide range of subjects independently thanks to the internet and virtual classrooms. As stated in (Haleem et al., 2022c) by Schnackenberg, Gurunath, and Samantha (2013), color charts, graphs, and models were used in schools to depict the best teaching practices. But as per Gurunath Samanta (2022), these days are seen as outdated approaches to schooling. Furthermore, according to Haleem et al. (2022c), learning in the classroom now involves more than just reading books, taking notes in their books, and writing explanations of chapters and concepts on the whiteboard. Children choose digital books over print ones more frequently, and they choose



digital gadgets more frequently for a variety of reasons. Takacs Z. K., Swart E. K., Bus A. G. (2015). Benefits and pitfalls of multimedia and interactive features in technology-enhanced storybooks: A meta-analysis. *Review of Educational Research*, 85, 698–739. Strouse, Mourlam, & Newland (2019) state that video tutorials could be accessed on computers via websites, DVDs, online streams, and other mobile devices like smartphones. They made learning accessible to people with disabilities who couldn't physically attend a live classroom, and mothers of small children could learn at home while still taking care of their kids. The integration of haptic technology into traditional learning methods added a feel of realism

Armenton et al. (2022) stated that the introduction of new technology-assisted learning tools such as mobile devices, smart boards, Massive Open Online Courses (MOOCs), tablets, laptops, simulations, dynamic visualizations, and virtual laboratories have altered education in schools and institutions. In some cases, it also has its disadvantages, especially when it comes to expecting more from their school because of what they have seen online. Base Chron (2021) through video tutorials, students could also obtain courses from professors in foreign countries and other well-known experts in their disciplines who would otherwise be inaccessible to them owing to distance. The additional perspective that these lecturers on video could offer to students studying those subjects may be something that their local schools are unable to offer. Learners could also engage with an online education platform wherever they are, on whatever digital device is available to them. According to Büyükbaykal (2015), a sizable percentage of instructors and students use social media as an essential part of the e-learning process.

Araújo et al. (2021) stated that digital technologies assist in developing abilities that would require students' professional performance, such as problem-solving, thinking structure creation, and process comprehension. When discussing flexible learning methodologies, physical space design is frequently brought up as a way to facilitate student-centered learning and individualized training. Printed media developed the love and curiosity of students in reading. Magazines and newspapers kept students' interest in reading intact aside from the information learned. This impact of printed media made people learn to read and literate. Technologies enable learners to co-create knowledge and leverage digital learning tools empowering them to collaborate, assess each other's work, and drive deeper learning. Borthwick et al. (2015) claimed that web 2.0 technologies (wikis, podcasts, blogs, etc.) helped students create content, work together, evaluate one another's work, and advance toward co-learning. Using learning-optimizing strategies in the classroom, such as gamification or flipped classes, was made simple by digital technologies.

According to Cavanagh, (2020), the paradigm shift in education from printed materials into digitalized ones is globally viewed as inevitable and a necessity. At the macro-level, this transition is gradually happening and teachers still need to rely on the printed modality due to financial and technology-related limitations. When students are highly engaged cognitively with the educational materials used and undistracted, have built knowledge based on personal meaning, and are given chances for social relations aligned to the learning outcomes, then learning happens. Strong correspondences between the verbal and nonverbal cues offered in media, as stated by Paivio and Mayer (2005) as referenced in (Strouse et al., 2019), would facilitate learning.

Online learning makes use of the internet as a delivery medium to impart instruction even if there was no physical interaction between teachers and students. Because of technology, educators could build new relationships with their students. It gives them the ability to create new avenues for communication and use the Internet to offer course material to students in novel ways, both of which have the potential to be highly advantageous. In contrast to the ears and eyes, gadgets that excite touch (tactile, kinesthetic, and thermal) have a greater presence in the human body. Preschoolers should be able to recognize numbers, but a lot of young kids have trouble understanding basic math concepts. Prior studies have indicated that increasing children's exposure to math-based technologies and applications can lead to a notable enhancement in their number sense abilities. Bhargava (2014) asserted that research has shown the Internet of Things (IOT) to be among the most economical ways to develop young minds.

Students could come and go from the online learning environment whenever it is convenient for them. According to (Vygotsky and Wang, 1978, as cited in Cook, 2017), educators must help students who are struggling to grasp concepts by teaching them in a method that would enable them to learn the material and advance at their own pace. Teaching learners in the intelligences they may already be strong in order to help them grow their weaker intelligences is one technique to achieve this goal. Students do have different preferences when it comes to learning styles. Learning style theories have been identified as useful tools for supporting teachers in identifying the remarkably various demands that students bring to the classroom, that is according to Mahmud et al. (2019). According to Mead, n.d. education assumes all students learn in the same ways "One size fits all". However, Mead, (n.d.) also stated that curriculum should be differentiated to suit the individual needs of each unique student because in that way students can receive the best possible education and be prepared for future success.

When teachers used the best instructional materials for students, they would also give their best interest. In To tailor instructional strategies to the specific needs of each individual student, this review addresses some trade-offs that must be made as well as the benefits and drawbacks of using learning styles. By doing so, students are given the best education possible and are better equipped for success in the future. (Pashler et al., 2009, as cited in Cuevas, 2015). Research has also shown that when instructional materials are used, learning environments are highly stimulating and students seem to take a greater interest in learning.



Research Method:

The study utilized a descriptive method. The respondents of the study were composed of regular first years, second years, and third years English students of Mandaue City College. The researcher utilized a modified questionnaire. The data collection tool was designed through a Likert scale and Dichotomous (Yes/No) questionnaire.

Findings and Discussion:

Part 1: Students' Teaching Materials Preference

Table 1: **Printed and Digital Teaching Materials**

<i>Preferences</i>	Yes		No	
	F	%	F	%
1. I prefer having printed copy of notes rather than a digital one.	53	88%	7	12%
2. I use printing materials for academic requirements.	53	88%	7	12%
3. I use non-electronic modules in learning process.	36	60%	24	40%
4. I easily understand the lesson with interactive teaching materials.	52	87%	8	13%
5. I use audio learning media.	31	52%	29	48%
6. I use mobile learning for the learning process.	52	87%	8	13%

*Simple Percentage (YES/NO)



As shown from the above table, numbers 1, 2, and 3 are statements under printed instructional materials while numbers 4, 5, and 6 are statements that are under digital instructional materials. In other words, the majority of 88 percent of the students agreed to have printed notes and materials while 12% of the students also agreed that digital materials are better than printed copies.

Part 2: Factors affecting Students' Preferences

Table 2: **Multiple Intelligence**

<i>Multiple Intelligences</i>	WM	DE
1. I read and enjoy poetry and occasionally write my own.	2.96	A
2. I like to write stories, essays, an/or maintain a written journal.	2.76	A
3. When I'm engaged in physical activity, problem- solving comes more easily to me.	3.01	A
4. I prefer hands- on activities rather than written activities.	3.01	A
5. I'm good reader. I like reading articles.	3.08	A
6. I understand more when looking a pictures and diagrams.	3.08	A
Total:	2.98	A

Legend: 1.00-1.75 - Strongly Disagree (SD), 1.76-2.50 - Disagree (D), 2.51-3.25 - Agree (A), 3.26-4.00 - SA (Strongly Agree)



As shown in Table 2, most of the respondents answered Agree on every question in the said table. Thus, the student's overall mean is (2.98) a remark that indicates that students mostly responded agree in the questionnaire. Most of them are fond of reading as they prefer writing and reading literary pieces such as stories and poetry as well as articles as shown from questions 1,2 and 5 from the Multiple Intelligences portion of the questionnaire. On the other hand, the respondents preferred doing hands on activities rather than written activities as shown in questions 3 and 4. Which in this case, they were also Tactile or Kinaesthetic Learners who learn best and work best through performance task and real-world experiences. As shown in question 6, most of the students or the respondents answered Agree. This means that they are Visual type of learners



Table 3: **Learning Style**

<i>Learning Style</i>	WM	DE
1. I learn more by reading textbook than watching videos.	3.23	A
2. Making use of flashcards aids in my test-taking memory retention.	2.98	A
3. I remember something better if I write it down.	3.11	A
4. When learning a new skill, I rather than things that I see or read	2.73	A
5. When learning a new skill, I rather watch a video tutorial than reading the steps.	2.91	A
6. If I had the choice to learn new information through a lecture or textbook, I would choose to listen it rather than read it.	2.73	A
Total:	2.94	A

Legend: 1.00-1.75 - Strongly Disagree (SD), 1.76-2.50 Disagree (D), 2.51-3.25 – Agree (A), 3.26-4.00 - SA (Strongly Agree)

Table 3 shows most of the respondents answered Agree in every question in the said table. Thus, the student's overall mean is (2.94) a remark that indicates that students mostly responded agree in the questionnaire. The respondent's responses signify that there are some students who opted reading and writing, or anything that is related to printed learning materials at some point as shown from their average responses to questions 1, 2, 3. Despite its simplicity compared to videos and other digital learning materials, reading materials offer benefits that the former could not. A stark example would be the attentiveness of the learners when they were immersed on the said material. Videos offer a much more aesthetic and interactive approach compared to reading; however, these are also considered as lapses or flaws which some students would be distracted and then lean toward the material's surface or the visuals or the video itself rather than its main gist or the information itself. On the other hand, some students also prefer watching videos as a mode of lecture or a way of taking down information rather than the traditional method of writing down their notes or reading the information itself as shown in questions 4,5, and 6.

Table 4: **Availability of Resources**

<i>Availability of Resources</i>	WM	DE
1.I resort to print the study guides as I do not have any devices like phones to use for studying	3.01	A
2. I submit my homework/activity on print rather than being encoded in a document file digitally	2.78	A
3. I learn best when I have my lesson printed rather than in digital manuscript.	2.88	A
4. It is more convenient to have the lessons in digital files for it does not require printing it.	3.11	A
5 I prefer digital lessons due to their portability and accessibility	2.9	A
6. I found it easier to have it online due to lack of books and other printed materials on hand.	3.01	A
Total	2.94	A

Legend: 1.00-1.75 - Strongly Disagree (SD), 1.76-2.50 Disagree (D), 2.51-3.25 – Agree (A), 3.26-4.00 - SA (Strongly Agree)

Table 4 shows the respondent's average responses from the Likert Scale Questionnaire. As shown from the table, most of the respondents answered Agree in every question in the said table. Thus, the students' overall mean is (2.94) a remark that indicates that students mostly responded agree in the questionnaire. Based on the results shown in the table, half of the population preferred using printed materials as study guides, homework, and lessons while the other opted to use digital files as they were more convenient, portable, and accessible. There are key reasons why some resorted to printed materials while others stuck to digital materials, and one of the most prominent reasons is availability. Some students do not have phones to access their homework and lessons digitally, this applies to the latter when they are lack printed materials such as books for their lessons and assignments. In their online classes, students who do not have access to gadgets are exhibiting negative outcomes when it comes to communicating with their teachers.



Conclusion:

According to the Cone of Experience Theory, when students interacted with materials in a tangible and physical form, such as printed teaching materials, they were more likely to retain and understand information compared to digital format. This is consistent with the findings of the study, which showed that a significant majority of students preferred printed teaching materials. These physical materials provide a tangible experience for students, allowing them to directly interact with the content, annotate, and interact with it in a multisensory way. On the other hand, only a minority of students expressed a preference for digital teaching materials. While digital materials offer convenience and accessibility, they may not provide the same level of engagement and sensory experience as printed materials, potentially leading to reduce comprehension and retention of the material. In conclusion, the findings of the study support the Cone of Experience Theory by showing that students understand their lessons better when they have access to printed instructional materials. This preference for tangible materials highlighted the importance of providing students with hands-on, sensory-rich experiences to optimize learning outcomes.

Limitations and Further Research:

After analyzing the study's findings and conclusions, the researchers propose that every student should have the option to decide whether they wish to purchase their own books or not. This is to ensure that the school caters the student's best interests. Almost 88% of the students prefer to have their instructional materials printed. It is the majority of the study's findings. The researchers would like to recommend the teaching guide provided. At one hand, it would also be better if the library could have at least five (5) books per subject. This is to ensure that the school could cater those students who could not purchase their own books due to lack of finances. On the other hand, teachers could also do printing so that students could have their lessons printed. Also, the researchers would like to recommend the future researchers to conduct the same study but this time in qualitative method. It is better to have the study conducted in both quantitative and qualitative to understand the study and gather more data to elaborate the information for future use.

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