

INTEGRATED CO-TEACHING (ICT) IN THE ACADEMIC PERFORMANCE OF LEARNERS WITH SPECIAL NEEDS

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ABSTRACT:

This study examined the effectiveness of the Integrated Co-Teaching (ICT) strategy on the academic performance of senior high school students with special needs in media and information literacy at Mandaue City Central Special Education (SPED). The study employed one group pretest-posttest design. Findings indicated that most participants had intellectual disabilities and came from economically disadvantaged backgrounds, underscoring significant socioeconomic challenges. While learners excelled in identifying media types and understanding media relationships, they faced difficulties with ethical media use and effective information presentation. A comparative analysis of scores showed a statistically significant improvement in academic performance after ICT implementation, with a t-value of 3.37 and a p-value of 0.002. Demographic factors such as age, gender, and family income did not significantly impact academic outcomes, suggesting that teaching methods are more crucial for success than socioeconomic status. The study concludes that ICT effectively enhances learning for students with special needs and highlights the value of collaborative, tailored educational approaches. Recommendations include ongoing educator training in co-teaching, developing modules on ethical media use, integrating assistive technologies, establishing national inclusive education guidelines, and increasing funding to create supportive learning environments. These initiatives aim to empower students with special needs in their academic and ethical development in a complex digital landscape.

Keywords: Integrated Co-Teaching (ICT), Special Needs Education, Media and Information Literacy, Academic Performance, One Group Pretest-Posttest Design

INTRODUCTION

Teaching learners with special needs in information literacy and multimedia skills is essential for enabling them to efficiently access, assess, and utilize data in multiple formats. This is particularly crucial for those requiring alternative communication tools such as braille, audiobooks, or text-to-speech software. These competencies not only enhance their ability to process information but also support the development of critical thinking and problem-solving skills necessary for autonomous learning and academic achievement (UNESCO, 2021). Learners with disabilities—including those with significant physical, cognitive, or learning difficulties—require distinct approaches that focus on individual performance and growth (Jozwik, 2018; “2023 Alzheimer’s Disease Facts and Figures,” 2023).

Inclusive education through integrated co-teaching (ICT) provides an effective method for meeting these diverse needs. Co-teaching combines the strengths of the general educator—who masters curriculum structure, pacing, and content—with the special educator—who adapts instruction to accommodate unique learning needs (Sornson, 2020). Western countries have embraced inclusion through laws like the Education for All Handicapped Children Act (1975), IDEA (1990), and the No Child Left Behind Act (Greenwell, 2019). In the Philippines, DepEd Order No. 44, s. 2021 outlines educational programs and services for learners with disabilities, while R.A. 11650 institutionalizes inclusive learning resource centers. However, implementation remains fragmented. In Region VI, fewer than 30% of senior high schools have functioning ICT models in place, especially in subjects like MIL.

The ICT model is ideal for delivering the regular curriculum to learners with special needs while promoting socialization and inclusion. In Mandaue City, teachers assigned to senior high school subjects have reported challenges in teaching learners with disabilities, often due to the lack of specialization in key areas like science. Given the rigor of the senior high school curriculum, SPED teachers must employ scaffolded, specialized instruction—achievable through ICT. Despite several studies on co-teaching, limited research explores how ICT can be effectively localized in the context of Media and Information Literacy for learners with hearing impairments (HI) and intellectual disabilities (ID) in the Philippines. This study aims to address that gap.

The study's results will serve as a reference for school heads, SPED teachers, and stakeholders in providing responsive instruction. It is expected to improve the academic performance of learners with special needs and support SPED teachers in delivering science concepts using ICT strategies. Parents will gain insights into lesson reinforcement and

motivation techniques. Additionally, findings will guide school heads in teacher programming and professional development and inform policymakers on the appropriateness of ICT for inclusive instruction. Ultimately, this study aligns with national mandates and global inclusive practices, contributing to the creation of responsive systems that ensure equitable access to quality education for all learners.

Research Questions

The study assessed the effect of integrated co-teaching (ICT) strategy on the academic performance of senior high school learners with special needs in media and information literacy in Mandaue City Central Special Education (SPED) School during the School Year 2023-2024, as a basis for a localized ICT model.

Specifically, the study seeks to answer the following questions:

1. What is the basic information of the students with disability in terms of:
 - 1.1 age;
 - 1.2 gender;
 - 1.3 family background; and
 - 1.4 type of disability
2. What is the learner's academic performance in media and information literacy during the first quarter of the school year?
3. What is the learner's academic performance in media and information literacy after the application of integrated co-teaching (ICT) strategy?
4. Is there a significant improvement on the learner's academic performance in media and information literacy after the application of integrated co-teaching (ICT)?
5. Is there a significant association between the basic information of the learners and their academic performance before the treatment?
6. Based on the findings, what localized ICT model can be designed?

LITERATURE REVIEW

Integrated Co-Teaching (ICT)

Integrated Co-Teaching (ICT) began in early 20th-century education through Montessori and Dewey, emphasizing collaboration. The 1990s saw a rise in co-teaching as inclusive education brought together general and special educators to support all learners in shared classrooms. Though originally focused on these two roles, ICT now includes librarians, language experts, and tech staff.

Co-teaching is the ongoing collaboration of two or more educators who plan, guide, and evaluate a group of students. Its effectiveness depends on blending diverse expertise to create a better learning environment (Sangster et al., 2020). However, challenges arise with complicated issues, especially when teaching students with disabilities (Aldabas, n.d.).

Tandon (2016) highlighted that long-term collaboration between general and special educators improves results, while Woods (2017) also found that sustained cooperation enhances co-teaching outcomes. Problems like lack of administrative support and weak collaboration affect implementation. Data from Malaysia supports ICT's effectiveness with proper teacher training.

Aldabas (n.d.) concluded that co-teaching is increasingly significant and beneficial, especially for students with impairments. Inclusive classrooms improve students' behavior, social skills, and academic performance, while teachers benefit from shared instructional strategies. The readiness and teamwork of teachers influence positive attitudes toward ICT.

Learners with Special Needs

Learners with special needs struggle with reading, writing, speaking, thinking, and math due to difficulties in using or interpreting spoken or written language (Supermaniam & Zaharudin, 2021).

Intellectual disabilities affect their cognitive performance and academic achievement (Ávalos et al., 2016).

Talafha (2022) found that emotional factors—such as fear, depression, low self-confidence, and inferiority—along with socioeconomic background, family support, teaching strategies, and societal attitudes, impact academic success for disabled students.

Learning disabilities do not include physical, mental, or intellectual impairments, or disadvantages from economic, cultural, or environmental conditions. Common learning problems include perceptual impairments, developmental aphasia, dyslexia, and dysgraphia.

An estimated six to eight percent of school-aged children have learning disabilities. Some researchers believe underreporting may occur due to varying or missing screening techniques (Shah et al., 2019).

This segment contains the research design, locale, participant, instrument, data gathering procedure, data analysis, and ethical considerations of the study on the effectiveness of integrated co-teaching (ICT) in teaching multi-media and literacy information to learners with special needs.

RESEARCH METHODOLOGY

Design

This study employed a one-group pretest-posttest design. A one-group pretest-posttest design is a quasi-experimental study method in which the same dependent variable is examined in one group of participants before (pretest) and after (posttest) treatment is being administered (Privitera, 2024). This type of design was utilized in the study to analyze the results of the pretest and posttest after the treatment.

Environment

The study was conducted in Mandaue City Central Special Education (SPED) School, Division of Mandaue City. The school was established and duly recognized in 1970, catering to learners with special educational needs. There are 14 secondary teachers facilitating 126 students with special needs. The school is led and managed by a School Head specialized in special education for disadvantaged learners.

Participants

The participants of the study were 18 secondary learners with special needs from Mandaue City Central Special Education (SPED) School, consisting of students diagnosed with Intellectual Disabilities (ID)—seven males and three females—and Hearing Impairments (HI)—four males and four females. Using purposive sampling, the inclusion criteria involved learners who were officially enrolled in the secondary level, had a formal diagnosis of either ID or HI, and could participate in classroom activities. The exclusion criteria ruled out learners with other types of disabilities, those in the elementary level, and those unable to engage in class activities due to medical or behavioral reasons.

Instrument

The instrument of this study was anchored on the most essential learning competencies for senior high school curriculum during the first quarter of the school year. It underwent content validation by three experts namely: School Head, Education Program Supervisor for Special Education, and a Master Teacher. The first part of the instrument gathered the data on the basic information of the participants. The first part was administered in a separate sheet. The second part contained the questions which measured the competencies of the participants in the first quarter of the school year. The questions covered the pretest and posttest activities administered to the participants before and after the intervention.

Data Gathering Procedure

The data gathering procedure of this study was satisfied in three phases namely pre-data collection, actual data collection, and post activity.

Pre-Data Collection. The salient activity initiated prior to conducting the data collection of the study was to secure the notice to proceed from the Research Ethics Committee immediately after the presentation of the research proposal. Permission was then sought from the Office of the Schools Division Superintendent and School Head to conduct study in their school. Upon the approval by the School Head, another letter request was sent to the parent of the student for his participation as a participant of the study. During the planning stage, a series of activities for the implementation of the study were discussed by the special education teacher and the general education teacher.

Actual Data Collection. In this phase, the co-teachers collected the scores of the identified participants in the first quarter test and determined the frequency of errors from the set of questions being administered. The items with high frequency of errors were considered as least learned competencies by the learners which were the focus of the co-teachers during the instructional stage or remediation for a four-week session. The topics discussed were indicated in a Gantt chart. A pre-test was administered to the participants before the commencement of remediation. The

results of the pretest were analyzed and served as basis for the co-teachers in determining appropriate competencies for them to introduce for the whole four-week sessions. Upon the culmination of the remediation, the assessment stage was initiated by the co-teachers, hence, a posttest of the same competencies was administered to the learners.

Post Data Collection. After collecting the data, the analysis and treatment of such followed using appropriate the statistical method. Communicating to the parent of the student was then followed given them assurance of the confidentiality of the information obtained from the process, which will be deleted upon the completion of the study.

Data Analysis

The study utilized frequency count and simple percentage for the data collected for sub-problem number one. Central Tendency was used to treat the data for sub-problems number two and three while paired samples t-test was used for subproblem number four. Chi square was used for subproblem number five.

Ethical Considerations

The study was conducted according to the guidelines of the Declaration of Helsinki. It will undergo thorough review and evaluation following the protocol of the Research and Ethics Committee of the University of the Visayas. The research involved 18 learners with special needs. Prior to the commencement of the study, consent was sought from the parents of the identified participants for the learner's involvement. The parents were properly informed of the purpose of the study and assured of the confidentiality on the information relative to the profile of their kids. No financial incentives were provided to the teachers and participants of the study.

RESULTS AND DISCUSSION

The study delved on the effect of integrated co-teaching (ICT) strategy on the academic performance of senior high school learners with special needs in media and information literacy in Mandaue City Central Special Education (SPED). Specifically, the learners involved in this study included learners with intellectual disabilities (ID) and hearing impairments (HI). The variables considered were the basic information of the participants, academic performance in media and information literacy during the first quarter of the school year before and after the treatment.

Basic Information of the Learners

This variable provides vital information about the learner-participants of this study. It includes the type of disability, age, gender, family background, and combined family monthly income. The information gathered from each variable supports the agenda of the study, as shown in Table 1.

Table 1
Basic Information of The Learners

Indicators	Frequency	Percentage (%)
Type of Disability		
Intellectual Disability (ID)	10	56
Hearing Impairment (HI)	8	44
Age		
20-21 years old	5	28
18-19 years old	13	72
Gender		
Male	11	61
Female	7	39
Family Background		
4.1 Number of Siblings		
6-7	2	11
4-5	7	39
2-3	9	50
4.2 Living with parents or any member with the family	15	83
4.3 Living with Relative such as Auntie, Uncle, Cousin	1	6
4.4 Living with other family	2	11
Combined family monthly income in terms of pesos		
5.4 3,501 – 5,000	3	17
5.5 5,001 - 7,500	3	17
5.6 7,501- 9,500	4	22
5.7 9,501 onward	8	44

N=18

It is read in the table that intellectual disability learners (56%) appeared more than the learners with hearing impairment (44%). Learners whose ages ranged from 18 to 19 years old (72%) dominated the tally with male learners surfaced as majority (61%). The scenario claimed that majority of the learners are nearly closed to the age of a regular student in senior high school which is from 17 to 18 years old (Mamolo, 2019). For the family background, 50% of the learners have 2 to 3 siblings while others have 4-7 siblings. The data further revealed that 83% of learners were living with parents or any member with the family while 17% of them were with their relatives and other family. Finally, the information shows that 44% of the learners are children of families whose monthly income is more than 9,500 while 66% of the belong the family with less than 9,500.

According to Philippine Statistics Authority (2024), the minimal income needed for a family to satisfy their basic needs for food and non-food items, or the poverty threshold, was raised from P11,998 in 2021 to a nationwide average of P13,873 per month for 2023. This implies that a family's monthly income must be below the cutoff for them to be classified as poor. The PSA determines the poverty line by dividing the food line by the total basic expenditure, which is the sum needed to cover essential non-food requirements such housing, clothes, healthcare, education, and power and water. As of 2023, the monthly food threshold was P9,581 for a household of five, or around P64 per person per day. The information from PSA defines the situation that all learner-participants of this study belong to the families considered as poor.

Learner's Academic Performance in Media and Information Literacy in the First Quarter Per Competency

The course, as offered to Grade 12 learners with disabilities, introduces the learners on basic understanding of media and information as channels of communication and tools for their development in the community. Media and information literacy equips learners with disabilities with critical skills to navigate and evaluate information, fostering independence and informed decision-making. It enhances their ability to access and engage with diverse media, promoting inclusivity and active participation in society. It is crucial for learners with disabilities, enabling them to access, analyze, and utilize information effectively across platforms. This skill fosters independence enables active participation in society and promotes inclusivity by enabling them to contribute to the digital era (Tkaczyk, 2023). Table 2 shows the performance of learners on the different learning competencies being measured during the test.

The data that define the performance of the learner-participants in media and information literacy in each learning competency in the first quarter of the school year. Table shows that identifying the types of media ($m=83.33$) and examining the traditional media and new media and their relationships ($m=84.44$) are both *approaching proficiency* level. Learners with disabilities and hearing impairments often excel in analyzing various types of media due to their unique communication needs and reliance on visual and sensory information. This encourages them to explore both traditional media, such as books and films, and new digital platforms, enhancing their critical thinking about how different formats convey messages to diverse audiences (Unesco, 2017). Moreover, by examining the relationships between traditional and new media, these learners engage in discussions about the evolution of communication and its societal impacts. Their exposure to diverse media fosters an understanding of established norms and contemporary innovations, helping to build their media literacy. This empowers them to navigate the complex media landscape effectively, enhancing their learning, self-expression, and contribution to informed community discourse (Rana et al., 2019).

Table 2

Learner's Academic Performance in Media and Information Literacy in the First Quarter per Competency

Learning Competencies	Number of Items	No. of Correct Responses	Mean of Correct Responses	Percentage of Mean of Correct Response	Performance Level
Recognize the different components in the communication process	4	15	3.06	76.39	Developing
	2	12			
	3	16			
	4	12			
Identify types of media	5	18	5.00	83.33	Approaching Proficiency
	6	16			
	7	15			
	8	15			
	9	12			
Examine the traditional media and new media and their relationships	10	14	4.22	84.44	Approaching Proficiency
	11	17			
	12	16			
	13	16			

	14	13			
	15	14			
	16	12			
	17	16			
Identify the similarities and differences of media literacy, information literacy, and technology literacy	18	12	5.33	76.19	Developing
	19	15			
	20	12			
	21	15			
	22	14			
	23	15			
	24	16			
Determine the different sources of information	25	17	4.56	75.93	Developing
	26	16			
	27	10			
	28	8			
	29	9			
	30	15			
Discuss the responsible use of media and information	31	12	3.00	60.00	Beginning
	32	9			
	33	9			
	34	12			
	35	9			
	36	10			
Present information using pictures or images.	37	10	4.38	62.79	Beginning
	38	9			
	39	14			
	40	15			
	Mean Score	29.55	78.9	Developing	

N=18. Legend: *Advanced* - 90% and above, *Proficient* - 85%-89%, *Approaching Proficiency* - 80%-84%, *Developing* - 75%-79%, *Beginning* - 74% and below

Present information using pictures or images ($m=62.79$), *beginning*, is noted as the second least performed learning competency. Individuals with intellectual disabilities may face challenges in presenting information using pictures or images due to several factors associated with their cognitive and developmental differences. These can include difficulties in understanding complex concepts, organizing thoughts coherently, and processing visual information effectively. They may struggle with the interpretation of visual cues or symbols that are commonly used in imagery, which can hinder their ability to convey a clear message. Consequently, these obstacles can lead to less effective communication when relying on visual representation, making it challenging for them to ensure their audience accurately grasps the intended information (Hinzen, 2017).

Hearing-impaired individuals may find it challenging to present information using pictures or images due to their reliance on visual communication and potential difficulties with associating images with spoken or written language. Without access to auditory cues, they might struggle to interpret or select visuals that accurately convey the intended message or engage the audience effectively (Langland-Hassan & Vicente, 2018). Hence, if they lack training in how to use visual aids or are unfamiliar with relevant symbols and concepts, they may not select images that effectively communicate the information. This can lead to misunderstandings or ineffective presentations, as the connection between imagery and verbal context becomes less intuitive for them (Council et al., 2015).

On the other hand, discuss the responsible use of media and information ($m=60.00$), *beginning*, got the lowest mean. While the other two competencies, identifying the similarities and differences of media literacy, information literacy, and technology literacy, and determining the different sources of information are both *developing*. This implies that the learner-participants are not fully aware of their responsibilities and accountabilities as they engaged themselves to using media and information activities. The lack of media literacy education among learners suggests a critical gap in understanding their responsibilities and accountabilities in media and information activities. This lack of awareness can lead to challenges in discerning credible sources, understanding copyright laws, and recognizing the ethical implications of sharing and producing content. Without a clear understanding of their role as consumers and creators, learners may inadvertently propagate misinformation, infringe on intellectual property rights, or misuse digital tools. Enhancing educational frameworks that promote critical engagement with media and instill responsibility in navigating ethical and legal dimensions is essential for empowering learners in a rapidly evolving digital world (Unesco, 2021).

Academic performance data show that learner-participants have varying levels of media and information literacy, particularly when it comes to employing images to deliver information. These students flourish because to specialized

teaching practices that increase engagement and knowledge, allowing for clear expression and interactions with others. However, their significantly lower ratings in responsible media usage show a considerable educational gap in terms of understanding of ethical obligations in media consumption and production, which increases the likelihood of misinformation propagation. For these populations, a lack of appropriate educational materials may impair their capacity to critically assess media content, leaving them more vulnerable to disinformation. With low media literacy understanding, students may fail to identify reputable sources or detect biased material, perhaps leading to the propagation of falsehoods.

Learner's Academic Performance in Media and Information Literacy after the Treatment Per Competency

This part discusses the academic performance of the participants in Media and Information Literacy (MIL) after the treatment using integrated coteaching approach (ICT). The results are presented in Table 3.

The integrated coteaching strategy involves the continual collaboration of two or more instructors with the primary purpose of planning, directing, and assessing the same group of students. Co-teaching between general and special educators is now common practice in modern education to ensure that all students understand the subject being delivered. The efficiency of the strategy is dependent on the participation of several professionals with diverse areas of competence. These co-teachers create a new working environment that leads to greater outcomes by sharing their experiences and merging their views on how to give education. (Sangster et al., 2020). The table shows the performance of students across various Media and Information Literacy competencies, showing their ability in recognizing components of communication, identifying media types, and understanding media literacy. Each test item evaluates specific skills and reports the number of correct responses, the corresponding percentage, and the mean percentage of correct responses. The categorization of performance levels as "Developing,"

Table 3

Learner's Academic Performance in Media and Information Literacy after the Treatment per Competency

LEARNING COMPETENCIES	Test Item No.	No. of Correct Responses	Mean of Correct Responses	Percentage of Mean of Correct Responses	Performance Level
Recognize the different components in the communication process	1	15	3.17	79.17	Developing
	2	13			
	3	16			
	4	13			
Identify types of media	5	18	5.06	84.26	Approaching Proficiency
	6	17			
	7	14			
	8	15			
	9	13			
Examine the traditional media and new media and their relationships	10	14	4.39	87.78	Proficient
	11	18			
	12	16			
	13	15			
	14	15			
Identify the similarities and differences of media literacy, information literacy, and technology literacy	15	15	5.67	80.95	Developing
	16	13			
	17	17			
	18	12			
	19	17			
Determine the different sources of information	20	15	4.61	76.85	Developing
	21	15			
	22	13			
	23	13			
	24	15			
Discuss the responsible use of media and information	25	17	3.50	70.00	
	26	16			
	27	10			
	28	12			
	29	11			
	30	15			
	31	12			

	32	14			Beginning
	33	11			
	34	12			
	35	13			
	36	10			
Present information using pictures or images.	37	12	5.06	72.22	Beginning
	38	14			
	39	15			
	40	15			
	Mean Score		31.44	78.61	Developing

N=18. Legend: Advanced - 90% and above, Proficient - 85%-89%, Approaching Proficiency - 80%-84%, Developing - 75%-79%, Beginning - 74% and below

"Approaching Proficiency," "Proficient," and "Beginning" indicates how well students grasp these competencies, revealing overall trends in their educational progress. It is noted that examining the traditional media and new media and their relationships received that highest mean ($m=87.78$), *proficient*, followed by identifying types of media ($m=84.26$). The third highest mean is identifying the similarities and differences of media literacy, information literacy, and technology literacy ($m=80.95$), *approaching to proficiency*. The results inform that the same competencies in the pretest result appear to have been consistently demonstrated by the learner-participants. The result affirms the findings of Unesco (2017) which claimed that learners with disabilities and hearing impairments often excel in analyzing various types of media due to their unique communication needs and reliance on visual and sensory information. This encourages them to explore both traditional media, such as books and films, and new digital platforms, enhancing their critical thinking about how different formats convey messages to diverse audiences.

Furthermore, the table also shows the last two competencies which have the lowest ratings namely discussing the responsible use of media and information and presenting information using pictures or images. This is a repeated scenario as in the pretest results. The two mentioned competencies appeared to have been consistently rated low in both tests, *beginning*. This result affirms to the findings in Table 2.

Comparative Analysis on the Learner's Academic Performance in Media and Information Literacy After the Application of Integrated Co-Teaching (ICT)

This analysis stemmed from an idea to investigate if there exists significant improvement on the academic performance of the learner-participants in Media and Information Literacy grounded on the pretest and posttest results, before and after the treatment has been made. Using Jamovi application, the comparative analysis on the pretest and posttest results is defined in Table 4.

The t-value of 3.37 indicates a positive difference in the mean performance scores between the two measured groups, suggesting that students performed better after the application of Integrated Co-Teaching. In the context of hypothesis testing, the t-value is derived from the means of the groups being compared and provides insight into the strength of the evidence against the null hypothesis, which posits that there is no difference between the two measures (Lienggaard et al., 2020). A higher t-value typically indicates a greater degree of difference between the groups, signaling that ICT may have played a significant role in enhancing academic performance in this subject area.

Table 4

Comparative Analysis on the Learner's Academic Performance in Media and Information Literacy After the Application of Integrated Co-Teaching (ICT)

Test	Mean	SD	Md/SD	t-test	p-value	Significance
Pretest	29.56	2.74	1.89/2.38	3.37	.002	Significant
Posttest	31.44	2.31				

Md=mean difference df=39

The degrees of freedom (df) reported as 39 is a crucial aspect of statistical tests, often calculated as the total number of observations minus the number of groups being compared. The value of 39 suggests that the sample size used in this analysis is sufficient to provide reliable results, as a larger number of degrees of freedom generally increases the robustness of the statistical test being conducted. This reinforces the credibility of the findings, ensuring that the results are not artifacts of small sample size uncertainties (Çetinkaya-Rundel & Hardin, 2021).

The p-value of 0.002 is particularly noteworthy. A p-value less than the conventional alpha level of 0.05 indicates strong evidence against the null hypothesis, leading to its rejection (Ando et al., 2022). In this case, the p-value suggests that the difference in academic performance after the Integrated Co-Teaching intervention is statistically

significant, with only a 0.2% probability that the observed difference is due to random chance (Guess et al., 2020). As such, the analysis concludes that Integrated Co-Teaching likely has a positive impact on learners' academic performance in Media and Information Literacy, warranting further exploration into the potential benefits of this educational approach specifically in special education classes.

Significant Association Between the Basic Information of The Learners and Their Academic Performance Before the Treatment

Table 5 in the next page shows the findings of statistical tests evaluating the relationship between learners' academic performance prior to the implementation of a certain educational program and their basic information, including age, gender, number of siblings, living arrangements, and family income. The Chi-square (χ^2) test, which looks for a significant relationship between categorical variables, has been used to assess each variable. The results are shown together with p-values, degrees of freedom (df), and comments on whether the null hypothesis (H_0) was accepted or rejected.

Table 5

Test of Significant Association Between the Basic Information of The Learners and Their Academic Performance Before the Treatment

Pair of Variables	χ^2	df	p-value	Remarks
Academic Performance and ...				
Age	0.47	1	.4941	Accept H_0
Gender	0.01	1	.9139	Accept H_0
Siblings	1.73	2	.4210	Accept H_0
Living with Family or Others	0.53	2	.7665	Accept H_0
Family Income	1.34	3	.7187	Accept H_0

Going through with age, the derived Chi-square value is 0.47 with 1 degree of freedom, yielding a p-value of 0.4941. This indicates that there is no significant association between age and academic performance, leading to the acceptance of the null hypothesis. A p-value above 0.05 indicates a lack of statistically significant evidence to reject the null hypothesis, which posits that there is no association between the two variables in this case, age and academic performance (Yang et al., 2020). This finding implies that age may not be a critical factor affecting the academic performance of the learners in Media and Information Literacy.

Next, the analysis considers gender, which similarly shows a Chi-square value of 0.01 and a p-value of 0.9139. Like age, these results suggest that academic performance does not significantly differ based on gender among the learners observed. As such, the null hypothesis is again accepted. This outcome may reflect the absence of gender bias in educational methods or environmental influences affecting students' performance in this context, suggesting that educational strategies can be uniformly applied across genders.

When looking at the number of siblings, the Chi-square value is slightly higher at 1.73 with 2 degrees of freedom, resulting in a p-value of 0.4210. Here again, the findings illustrate no significant association, leading to the acceptance of the null hypothesis. Similar conclusions are drawn for the learner's living arrangements, which also produced non-significant results with a Chi-square value of 0.53 and a p-value of 0.7665. Lastly, family income shows a Chi-square value of 1.34 and a p-value of 0.7187, reinforcing the notion that family financial status does not significantly impact academic performance in this sample. Hence, the lack of significant associations across all variables suggests that the diverse backgrounds of learners may not significantly influence their academic results prior to the intervention, highlighting the potential for focusing on other variables or educational strategies that could meaningfully enhance learning outcomes.

CONCLUSION

The study concludes that the Integrated Co-Teaching (ICT) strategy effectively enhances the academic performance of senior high school learners with special needs in media and information literacy at Mandaue City Central Special Education (SPED). While participants demonstrated strengths in analyzing media forms, there is a need for improvement in understanding ethical media use. The significant performance gains post-ICT application highlights the importance of collaborative, tailored educational strategies for learners with disabilities.

Demographic factors such as age, gender, and family income did not significantly affect academic achievement, indicating a need to focus on effective pedagogical approaches. The study encourages ongoing adaptation of teaching practices to create an inclusive and supportive environment for students with special needs and emphasizes the importance of developing educational frameworks that empower these learners, particularly in navigating media and information literacy.

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