International Journal of Educational Contemporary Explorations

ORIGINAL RESEARCH | e-Published: June 23, 2026
Vol. 3, No. 1, pp. 323-339 DOI: 10.69481/MOOM9567

Curriculum Demands, Instructional Practices, and Time Allocation Management among Multigrade Teachers in Island Schools: Basis for an Adaptive Multigrade Teaching Framework

Melvin Sila Francisco
Sugbay Elementary School, Brgy. Sugbay, Surigao City, Philippines
Cagutsan Elementary School, Brgy. Cagutsan, Surigao City, Philippines
Email: melvin.francisco@deped.gov.ph
ORCID: 0009-0008-7963-7149

Abstract

This study examined curriculum demands, instructional practices, time allocation management, classroom resource management strategies, and curriculum delivery challenges among multigrade teachers in island schools as the basis for developing an Adaptive Multigrade Teaching Framework. Using an explanatory sequential mixed-methods design, quantitative data were first collected from 161 multigrade teachers in selected public elementary schools in the Surigao City Division, followed by qualitative interviews with 10 purposively selected multigrade teachers. A researcher-made survey questionnaire and semi-structured interview guide were used. Quantitative data were analyzed using mean, standard deviation, Pearson product-moment correlation, and multiple linear regression, while qualitative data were examined through thematic analysis. Findings revealed that multigrade teachers highly practiced lesson integration, differentiated instruction, and collaborative learning strategies. They also demonstrated effective time allocation management through instructional scheduling, rotational teaching strategies, and independent learning management. Significant relationships were found between instructional practices and time allocation management, while regression results showed that selected instructional practice domains significantly predicted time allocation management. Qualitative findings indicated that teachers managed classroom resources through shared instructional materials, classroom space organization, flexible grouping, learning stations, and locally improvised materials. However, teachers encountered heavy workload, multiple curriculum demands, diverse learner needs, limited materials, time constraints, and insufficient training and support. The integrated findings show that multigrade teachers in island schools rely on adaptive, flexible, and resource-sensitive teaching practices to sustain curriculum delivery. These findings informed the development of an Adaptive Multigrade Teaching Framework responsive to the realities of island multigrade education.

Keywords: Adaptive Multigrade Teaching Framework, Classroom Resource Management, Curriculum Delivery Challenges, Instructional Practices, Island Schools, Multigrade Teaching, Time Allocation Management

1. Introduction

Access to inclusive and equitable quality education remains a central concern in global and national education systems, particularly in geographically isolated, sparsely populated, and resource-constrained communities. Sustainable Development Goal 4 emphasizes the need to ensure inclusive and equitable quality education and lifelong learning opportunities for all, yet education systems continue to face persistent challenges related to equity, quality, teacher availability, and resource adequacy (UNESCO, 2024). In remote and rural contexts, one mechanism for sustaining access to basic education is multigrade teaching, where one teacher handles learners from two or more grade levels within a single classroom. This arrangement is not merely an administrative response to small school populations or teacher shortages; it is also a pedagogical model that requires careful

curriculum organization, flexible instruction, classroom management competence, and adaptive use of limited resources (Ares-Ferreirós et al., 2025).

In the Philippines, multigrade education has long served as an important strategy for reaching learners in isolated, hard-to-reach, underserved, and sparsely populated communities. The Multigrade Program in Philippine Education has been recognized as a viable delivery mechanism for expanding access to elementary education in communities where conventional monograde arrangements may not be feasible (SEAMEO INNOTECH, 2020). However, while multigrade teaching supports access and inclusion, it also places considerable demands on teachers. In a single instructional period, multigrade teachers must address multiple grade-level competencies, manage learners with varied developmental and academic needs, prepare differentiated learning activities, monitor independent work, and sustain classroom order. These tasks become more complex in island schools, where geographic isolation, limited instructional materials, restricted professional development opportunities, and logistical constraints affect curriculum implementation.

The complexity of multigrade teaching is strongly linked to curriculum demands. Teachers are required to cover grade-specific learning competencies while also ensuring that instruction remains meaningful, developmentally appropriate, and manageable within limited instructional time. In this context, instructional practices such as lesson integration, differentiated instruction, collaborative learning, peer tutoring, contextualized teaching, and independent learning become essential. These strategies allow teachers to reduce duplication of instruction, group learners more effectively, promote peer support, and make learning activities more responsive to learner readiness and local realities. Recent literature affirms that multigrade classrooms require active methodologies, cooperative learning, curricular contextualization, and teacher flexibility to transform structural constraints into meaningful learning opportunities (Ares-Ferreirós et al., 2025). Similarly, teaching materials in rural multigrade schools often need to be adapted or created because available resources are not always aligned with the realities of mixed-age and mixed-grade classrooms (Carrete-Marín & Domingo-Peñafiel, 2022).

Time allocation management is another critical concern in island multigrade classrooms. Since one teacher must divide attention across several grade levels, instructional time has to be deliberately structured through scheduling, rotational teaching, and independent learning management. Poorly managed time may lead to incomplete curriculum coverage, uneven teacher attention, learner disengagement, and reduced opportunities for reinforcement. Conversely, effective time allocation allows teachers to sequence direct instruction, group work, independent activities, and assessment in ways that sustain learning across grade levels. This makes time management not merely a procedural classroom concern but a central condition for curriculum delivery and instructional quality in multigrade settings.

Classroom resource management also shapes the quality of multigrade instruction. In many island schools, teachers work with limited textbooks, learning materials, classroom space, technology, and supplementary resources. These limitations require teachers to improvise materials, organize learning stations, share available resources, use locally available materials, and arrange learners strategically. The international literature on rural and multigrade education has repeatedly noted the need for teaching materials that reflect the contextual realities of rural learners and support active participation in multigrade classrooms (Carrete-Marín & Domingo-Peñafiel, 2022). For island schools, this issue is especially important because resource limitations are intensified by distance, transportation challenges, and reduced access to external instructional support.

Despite the recognized importance of multigrade education, several gaps remain in the literature and practice. First, many studies focus broadly on the challenges and experiences of multigrade teachers, but fewer examine the relationship between instructional practices and time allocation management. This gap is important because the way teachers design and implement instruction may directly affect how efficiently they manage time across grade levels. Second, existing studies often use either quantitative or qualitative approaches, producing either measurable patterns or narrative accounts but not an integrated explanation of both. A mixed-methods approach is therefore needed to determine statistical relationships while also explaining the lived classroom realities behind

those relationships. Third, although multigrade teaching challenges have been widely documented, there remains a need for context-specific and evidence-based frameworks that can guide teachers in island schools. General recommendations may be insufficient because island multigrade classrooms operate within distinctive geographic, material, and instructional conditions.

Responding to these gaps, the present study examined the instructional practices, time allocation management, classroom resource management strategies, and curriculum delivery challenges of multigrade teachers in island schools. Specifically, it investigated the extent to which teachers used lesson integration, differentiated instruction, and collaborative learning strategies; the extent to which they practiced instructional scheduling, rotational teaching, and independent learning management; the relationship and predictive influence of instructional practices on time allocation management; and the resource management strategies and curriculum delivery challenges experienced by teachers. By integrating quantitative and qualitative findings, the study aimed to develop an Adaptive Multigrade Teaching Framework for Island Schools that is empirically grounded, context-responsive, and useful for teachers, school leaders, and education policymakers.

Theoretical Framework

This study is anchored on **Constructivist Learning Theory** and **Mastery Learning Theory**. Constructivist Learning Theory explains that learners actively construct knowledge through social interaction, meaningful experiences, collaboration, and engagement with their environment (Piaget, 1952; Vygotsky, 1978). This theory supports the instructional practices examined in the study, particularly lesson integration, differentiated instruction, collaborative learning, peer tutoring, contextualized teaching, and independent learning. In island multigrade classrooms, where learners from different grade levels and ability groups are taught simultaneously, constructivism provides a basis for understanding how teachers facilitate active, cooperative, and context-responsive learning.

Mastery Learning Theory, originally advanced by Bloom (1968), posits that learners can achieve desired competencies when they are given sufficient instructional time, appropriate teaching support, corrective feedback, and opportunities for practice. This theory supports the study's focus on time allocation management, particularly instructional scheduling, rotational teaching strategies, and independent learning management. In multigrade classrooms, teachers must organize limited instructional time carefully so that learners from different grade levels can progress toward curriculum competencies. Together, Constructivist Learning Theory and Mastery Learning Theory explain how multigrade teachers adapt instruction, manage learner diversity, and structure classroom time to support effective curriculum delivery in island schools.

Conceptual Framework

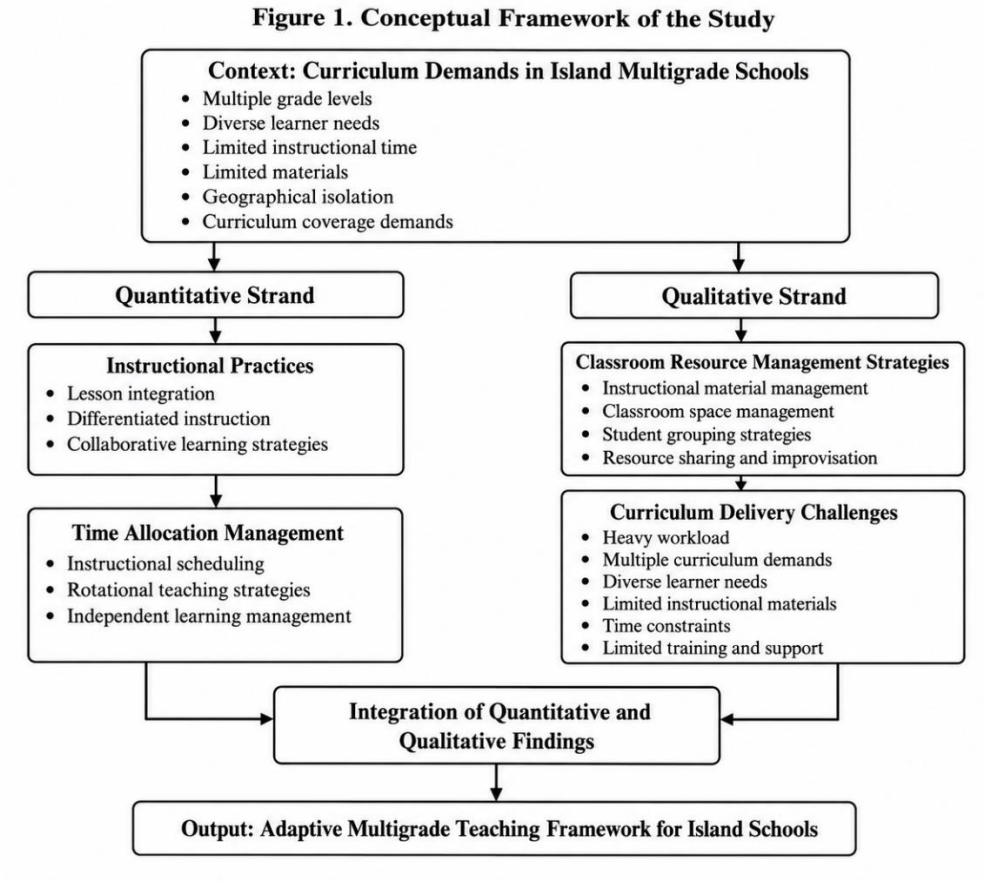

Figure 1. Diagram of Conceptual Framework

Figure 1 presents the conceptual framework of the study. It shows that multigrade teaching in island schools is influenced by curriculum demands such as multiple grade levels, diverse learner needs, limited instructional time, limited materials, geographical isolation, and curriculum coverage requirements. The quantitative strand examines how instructional practices, specifically lesson integration, differentiated instruction, and collaborative learning strategies, relate to time allocation management through instructional scheduling, rotational teaching strategies, and independent learning management. The qualitative strand explores classroom resource management strategies and curriculum delivery challenges experienced by multigrade teachers. The integration of the quantitative and qualitative findings serves as the basis for developing the proposed Adaptive Multigrade Teaching Framework for Island Schools.

Aim and Objectives

This study aimed to examine the instructional practices, time allocation management, classroom resource management strategies, and curriculum delivery challenges of multigrade teachers in island schools as bases for developing an Adaptive Multigrade Teaching Framework for Island Schools.

Specifically, the study sought to:

1. determine the extent to which multigrade teachers use instructional practices in terms of lesson integration, differentiated instruction, and collaborative learning strategies;
2. assess the extent of time allocation management among multigrade teachers in terms of instructional scheduling, rotational teaching strategies, and independent learning management;

3. determine whether a significant relationship exists between instructional practices and time allocation management among multigrade teachers;
4. identify which domains of instructional practices significantly predict time allocation management among multigrade teachers;
5. explore the classroom resource management strategies used by multigrade teachers in island schools;
6. examine the curriculum delivery challenges experienced by multigrade teachers in island schools; and
7. develop an Adaptive Multigrade Teaching Framework for Island Schools based on the integrated quantitative and qualitative findings.

2. Literature Review

Multigrade teaching remains an important instructional arrangement in rural, remote, island, and low-density communities where separate monograde classes are difficult to sustain because of small enrolment, teacher shortage, and limited school resources. Rather than being viewed only as an administrative solution, recent scholarship frames multigrade teaching as a distinct pedagogical context that requires differentiated planning, flexible grouping, peer-supported learning, resource adaptation, and strong classroom organization (Ares-Ferreirós et al., 2025; Çakır & Şahin Fırat, 2022). In the Philippine context, multigrade education has been used to address access and inclusion concerns in remote, isolated, low-resourced, and underserved communities, where teachers are expected to provide different but developmentally appropriate activities to learners within the same classroom (SEAMEO INNOTECH, 2020). This literature is directly relevant to the present study because island schools operate within similar structural constraints: limited staffing, constrained materials, diverse grade levels, and geographically mediated barriers to instructional support.

A major theme in the literature is that curriculum delivery in multigrade classrooms is more complex than in monograde classrooms because teachers must address multiple grade-level competencies within the same instructional period. The work of multigrade teachers therefore involves curriculum compression, lesson integration, differentiated activities, and continuous monitoring of learner progress. Ares-Ferreirós et al. (2025) synthesized recent international studies and showed that multigrade classrooms present both challenges and opportunities: they can support cooperative, inclusive, and autonomous learning, but they also require highly intentional pedagogical design. This is consistent with the present study's focus on curriculum demands in island schools, where teachers must reconcile multiple grade levels, diverse learner readiness, limited instructional time, and curriculum coverage expectations. The current study extends this body of work by examining not only the existence of these demands but also how instructional practices are associated with time allocation management.

Instructional practices are central to effective multigrade teaching because they determine how teachers make curriculum delivery feasible across grade levels. Lesson integration allows teachers to connect similar competencies or themes across grade levels, thereby reducing repetitive instruction and maximizing common learning experiences. Differentiated instruction allows teachers to adjust content, processes, outputs, and support according to learners' readiness and grade-level expectations. Collaborative learning, peer tutoring, and flexible grouping enable learners to support one another while the teacher attends to another group. Çakır and Şahin Fırat (2022) found that teachers who had experience in multigrade classrooms emphasized the need for careful instructional planning, flexible teaching, and classroom organization in order to handle learners from different grades. Similarly, Carrete-Marín and Domingo-Peñafiel (2022) noted that teaching materials in rural multigrade classrooms need to support inclusion and learning among children of different ages. These findings support the present study's examination of lesson integration, differentiated instruction, and collaborative learning strategies as core instructional practices in island multigrade schools.

Time allocation management is closely connected to instructional practice because multigrade teachers must distribute their attention across different grade levels while keeping all learners engaged. Effective time management in multigrade classrooms requires structured scheduling, rotational teaching, independent learning tasks, and clear transitions between teacher-led and learner-led activities. When instructional practices are poorly

organized, the teacher may spend too much time with one grade level while other learners remain passive or under-supported. Conversely, integrated lessons, collaborative tasks, and independent learning activities can create instructional continuity even when the teacher is not directly facilitating every group. This relationship is central to the present study because it tests whether instructional practices are significantly related to, and predictive of, time allocation management. In doing so, the study responds to a gap in the literature, where many studies describe multigrade teaching challenges but fewer empirically examine how specific instructional practices influence classroom time management.

Resource management is another recurring concern in multigrade education. Rural and island teachers often work with limited textbooks, insufficient instructional materials, restricted learning spaces, and limited access to technology. Carrete-Marín and Domingo-Peñafiel (2022) concluded that teaching resources in rural schools must be understood in relation to the realities of multigrade classrooms, where learners of different ages and grade levels study together. SEAMEO INNOTECH (2020) also reported that Philippine multigrade schools face issues related to learning environment, instructional resources, teacher preparation, and support mechanisms. These findings connect directly with the qualitative strand of the present study, which explores how island multigrade teachers manage instructional materials, classroom space, student grouping, resource sharing, and improvisation. The present study therefore treats resource management not as a peripheral issue but as a practical condition that shapes curriculum delivery and instructional feasibility.

The literature further indicates that multigrade teaching may offer pedagogical advantages when properly supported. Multigrade classrooms can promote learner autonomy, peer collaboration, leadership among older learners, and inclusive participation among mixed-age groups (Ares-Ferreirós et al., 2025). However, these advantages are not automatic. They depend on teacher competence, appropriate materials, institutional support, contextualized training, and realistic curriculum expectations. UNESCO and the International Task Force on Teachers for Education 2030 (2024) emphasized that teacher shortages and teacher support remain major concerns for achieving inclusive and equitable quality education. This has particular significance for island schools, where limited access to professional development may intensify the challenges of multigrade instruction. The present study's focus on limited training and support as a curriculum delivery challenge is therefore aligned with broader concerns about teacher preparation and educational equity.

While the reviewed literature provides important insights, several gaps remain. First, many studies describe the conditions, experiences, and challenges of multigrade teachers, but fewer examine the statistical relationship between instructional practices and time allocation management. Second, much of the literature treats instructional strategies, resources, and challenges as separate concerns, whereas the realities of multigrade teaching require these dimensions to be understood together. Third, existing studies often focus on rural multigrade schools generally, with less attention to island schools where geographical isolation affects access to materials, training, monitoring, and school support. Fourth, although multigrade education is often recommended as a strategy for access and inclusion, there remains a need for context-specific frameworks that translate empirical findings into practical guidance for teachers and school leaders.

In response to these gaps, the present study integrates quantitative and qualitative evidence to examine multigrade teaching in island schools more comprehensively. The quantitative strand determines the extent of instructional practices and time allocation management and tests the relationship and predictive influence between them. The qualitative strand explains how teachers manage resources and experience curriculum delivery challenges. By integrating both strands, the study contributes to the development of an Adaptive Multigrade Teaching Framework for Island Schools. This framework is intended to reflect the actual conditions of island multigrade classrooms and to provide a context-responsive basis for improving instructional planning, time use, resource management, and curriculum delivery.

3. Methodology

This study employed an explanatory sequential mixed-methods design to examine the instructional practices, time allocation management, classroom resource management strategies, and curriculum delivery challenges of multigrade teachers in island schools. This design was appropriate because the study first generated quantitative evidence on the extent of instructional practices and time allocation management, as well as the relationship and predictive influence between these variables. The qualitative phase was then conducted to explain, clarify, and deepen the quantitative findings through the lived classroom experiences of selected multigrade teachers. The use of mixed methods enabled the study to combine measurable patterns with contextual explanations, thereby providing a stronger empirical basis for developing the proposed Adaptive Multigrade Teaching Framework for Island Schools (Creswell & Plano Clark, 2018; Guetterman et al., 2015).

The study was conducted in selected public elementary schools with multigrade classes in the Surigao City Division, Philippines. The locale was appropriate because the division includes rural, coastal, and island communities where multigrade teaching is used to sustain access to basic education despite limited enrolment, geographical distance, and resource constraints. These conditions made the study setting suitable for examining how teachers respond to curriculum demands, instructional limitations, time allocation concerns, classroom resource constraints, and curriculum delivery challenges in island multigrade classrooms.

The quantitative respondents were 161 multigrade teachers from a total population of 181 eligible multigrade teachers across ten districts in the Surigao City Division. The study used purposive criterion sampling because the respondents had to meet specific inclusion criteria: they were currently assigned to multigrade classes, handled at least two grade levels in one classroom, were employed in selected public elementary schools within the division, and voluntarily agreed to participate. Since 161 of the 181 eligible teachers participated, the study obtained a high-coverage purposive sample suitable for describing instructional patterns and conducting correlation and regression analyses. For the qualitative phase, 10 multigrade teachers were purposively selected from the survey respondents. They were chosen based on their direct experience in multigrade teaching, willingness to participate, length of service, and ability to provide detailed explanations of classroom resource management strategies and curriculum delivery challenges. The smaller qualitative sample was appropriate because the purpose of this phase was depth of explanation rather than statistical generalization (Hennink & Kaiser, 2022).

Two researcher-made instruments were used in the study: a structured survey questionnaire and a semi-structured interview guide. The survey questionnaire gathered quantitative data on two main variables. The first variable was instructional practices, covering lesson integration, differentiated instruction, and collaborative learning strategies. The second variable was time allocation management, covering instructional scheduling, rotational teaching strategies, and independent learning management. Responses were measured using a five-point Likert scale. The semi-structured interview guide was used in the qualitative phase to gather in-depth data on classroom resource management strategies and curriculum delivery challenges. It explored how teachers managed instructional materials, classroom space, student grouping, learning stations, resource sharing, and locally improvised materials. It also examined challenges related to heavy workload, multiple curriculum demands, diverse learner needs, limited instructional materials, time constraints, and limited training and support.

The validity of the instruments was established through expert validation. The survey questionnaire and semi-structured interview guide were reviewed by experts in educational research, educational management, and multigrade instruction to determine the clarity, relevance, appropriateness, and alignment of the items with the study's aim, research questions, conceptual framework, and design. Items that were unclear, repetitive, or weakly aligned with the constructs were revised, removed, or reworded. The reliability of the survey questionnaire was established through pilot testing with 15 multigrade teachers who had similar characteristics to the actual respondents but were not included in the final data collection. Cronbach's alpha was used to determine internal consistency. The instructional practices scale obtained a Cronbach's alpha of 0.853, while the time allocation

management scale obtained a Cronbach's alpha of 0.813, indicating good reliability because both values exceeded the acceptable threshold of 0.70 (Taber, 2018).

Data collection was conducted in two phases. In Phase 1, the researcher secured permission from the Graduate School, the Department of Education Division Office, district supervisors, and school heads of the selected public elementary schools. After approval was granted, the researcher coordinated with school heads and designated contact persons to identify eligible multigrade teachers. The validated survey questionnaire was administered to the 161 teacher-respondents either in printed form or through an online platform, depending on school accessibility and communication arrangements. Respondents were informed of the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. Completed questionnaires were retrieved, checked for completeness, coded, encoded, and prepared for statistical analysis.

In Phase 2, qualitative data were collected from 10 purposively selected multigrade teachers after the initial quantitative analysis. The purpose of this phase was to explain the quantitative results and provide richer contextual accounts of teachers' classroom resource management strategies and curriculum delivery challenges. Before the interviews, the researcher explained the purpose, procedure, expected duration, voluntary nature of participation, right to withdraw, and confidentiality safeguards. Informed consent was obtained, and permission to record the interviews was secured from each participant. The interviews were transcribed and checked for accuracy before analysis.

Quantitative data were analyzed using descriptive and inferential statistics. Means and standard deviations were used to determine the extent of instructional practices and time allocation management. Mean scores were interpreted using the following scale: 4.21–5.00 as highly practiced, 3.41–4.20 as often practiced, 2.61–3.40 as sometimes practiced, 1.81–2.60 as seldom practiced, and 1.00–1.80 as not practiced. Pearson product-moment correlation was used to determine the significant relationship between instructional practices and time allocation management. Multiple linear regression was used to identify which domains of instructional practices—lesson integration, differentiated instruction, and collaborative learning strategies—significantly predicted time allocation management. The level of significance was set at 0.05.

Qualitative data were analyzed using thematic analysis. The researcher followed the general procedure of Braun and Clarke's thematic analysis by familiarizing with the transcripts, generating initial codes, grouping related codes into categories, reviewing possible themes, defining and naming themes, and presenting the themes with supporting participant responses (Braun & Clarke, 2021, 2022). The coding process was guided by the research questions and conceptual framework. Responses related to instructional materials, classroom space, student grouping, resource sharing, and improvisation were coded under classroom resource management strategies. Responses related to heavy workload, multiple curriculum demands, diverse learner needs, limited instructional materials, time constraints, and training needs were coded under curriculum delivery challenges.

The quantitative and qualitative findings were integrated after both data sets had been analyzed separately. Integration was conducted through side-by-side comparison, where the statistical findings on instructional practices and time allocation management were compared with the qualitative themes on classroom resource management strategies and curriculum delivery challenges. This process enabled the researcher to identify areas where the qualitative findings confirmed, expanded, or clarified the quantitative results. The integrated findings served as the empirical foundation for the development of the proposed Adaptive Multigrade Teaching Framework for Island Schools.

4. Results

The results are presented according to the objectives of the study. Descriptive statistics were used to determine the extent of instructional practices and time allocation management. Pearson product-moment correlation was used to test the relationship between instructional practices and time allocation management, while multiple

linear regression was used to determine which instructional practice domains significantly predicted time allocation management. The qualitative results are presented thematically to show the classroom resource management strategies and curriculum delivery challenges experienced by multigrade teachers in island schools.

Table 1. Summary of Instructional Practices Used by Multigrade Teachers

Domain	Mean	SD	Verbal Interpretation
Lesson Integration	4.394	0.666	Highly Practiced
Differentiated Instruction	4.384	0.693	Highly Practiced
Collaborative Learning Strategies	4.401	0.694	Highly Practiced
Overall Instructional Practices	**4.393**	**0.570**	**Highly Practiced**

Table 1 shows that the overall instructional practices of multigrade teachers were highly practiced, as reflected by the overall mean of 4.393 and standard deviation of 0.570. Among the three domains, collaborative learning strategies obtained the highest mean of 4.401, followed by lesson integration with a mean of 4.394, and differentiated instruction with a mean of 4.384. These findings indicate that multigrade teachers frequently used learner-centered and adaptive strategies to address the needs of pupils from different grade levels within one classroom. The results further suggest that collaboration, integration of related lessons, and adjustment of instruction were central to the teachers' management of curriculum demands in island multigrade schools.

Table 2. Extent of Time Allocation Management among Multigrade Teachers

Domain	Mean	SD	Verbal Interpretation
Instructional Scheduling	4.687	0.462	Highly Practiced
Rotational Teaching Strategies	4.607	0.519	Highly Practiced
Independent Learning Management	4.578	0.524	Highly Practiced
Overall Time Allocation Management	**4.624**	**0.451**	**Highly Practiced**

Table 2 shows that the overall extent of time allocation management was highly practiced, with an overall mean of 4.624 and standard deviation of 0.451. Instructional scheduling obtained the highest mean of 4.687, indicating that teachers strongly emphasized the planning and organization of instructional time across grade levels and subjects. Rotational teaching strategies and independent learning management were also highly practiced, suggesting that teachers used structured routines, group rotation, worksheets, activity sheets, modules, and independent learning tasks to keep pupils engaged while the teacher attended to another grade-level group

.

Table 3. Relationship Between Instructional Practices and Time Allocation Management

Instructional Practice Domain	Time Allocation Management	Pearson r	p-value	Interpretation
Lesson Integration	Overall Time Allocation Management	0.569	< .001	Significant
Differentiated Instruction	Overall Time Allocation Management	0.525	< .001	Significant
Collaborative Learning Strategies	Overall Time Allocation Management	0.691	< .001	Significant
Overall Instructional Practices	**Overall Time Allocation Management**	**0.715**	**< .001**	**Significant**

Table 3 shows that all instructional practice domains had significant positive relationships with time allocation management. Lesson integration was moderately and significantly related to time allocation management, $r = 0.569$, $p < .001$. Differentiated instruction was also moderately and significantly related to time allocation management, $r = 0.525$, $p < .001$. Collaborative learning strategies had the strongest relationship with time allocation management, $r = 0.691$, $p < .001$. Overall instructional practices had a strong, positive, and significant relationship with overall time allocation management, $r = 0.715$, $p < .001$. Therefore, the null hypothesis stating that there is no significant relationship between instructional practices and time allocation management was rejected. The findings indicate that stronger use of instructional practices was associated with better management of instructional time in island multigrade classrooms.

Table 4. Predictors of Time Allocation Management

Model Statistic	Value
R	0.731
R Square	0.534
Adjusted R Square	0.525
Standard Error of the Estimate	0.311

Table 4 shows that the combined instructional practice domains had a strong relationship with time allocation management, as indicated by an R value of 0.731. The R Square value of 0.534 indicates that lesson integration, differentiated instruction, and collaborative learning strategies explained 53.4% of the variance in time allocation management. This means that more than half of the differences in teachers' time allocation management were accounted for by the three instructional practice domains.

Table 5. Analysis of Variance for the Regression Model

Model Statistic	Value
F-value	59.937
df Regression	3
df Residual	157
p-value	< .001

Table 5 shows that the regression model was statistically significant, $F(3, 157) = 59.937$, $p < .001$. This indicates that the instructional practice domains, taken together, significantly predicted time allocation management among multigrade teachers.

Table 6. Regression Coefficients for Instructional Practice Domains Predicting Time Allocation Management

Predictor	B	SE	β	t-value	p-value	VIF	Decision
Constant	2.174	0.192	—	11.332	< .001	—	—
Lesson Integration	0.143	0.047	0.211	3.059	.003	1.609	Significant
Differentiated Instruction	0.103	0.044	0.158	2.356	.020	1.522	Significant
Collaborative Learning Strategies	0.311	0.048	0.478	6.501	< .001	1.820	Significant

Table 6 shows that all three domains of instructional practices significantly predicted time allocation management. Collaborative learning strategies had the strongest predictive contribution, $\beta = 0.478$, $p < .001$, followed by lesson integration, $\beta = 0.211$, $p = .003$, and differentiated instruction, $\beta = 0.158$, $p = .020$. The VIF values ranged from 1.522 to 1.820, indicating no serious multicollinearity concern. The regression equation may be expressed as:

Time Allocation Management = 2.174 + 0.143(Lesson Integration) + 0.103(Differentiated Instruction) + 0.311(Collaborative Learning Strategies)

These findings indicate that instructional practices contributed meaningfully to how teachers managed instructional time in multigrade classrooms. In particular, collaborative learning strategies appeared to be the strongest instructional mechanism for supporting efficient time use because group work, peer support, and shared learning tasks helped keep learners engaged while the teacher attended to another grade-level group.

Table 7. Thematic Findings on Classroom Resource Management Strategies

Major Theme	Core Meaning	Sample Practices Identified
Management of	Teachers organized, reused, and adapted	Use of modules, worksheets, activity sheets,

Instructional Materials	available materials to serve different grade levels.	visual aids, reusable charts, and subject-based learning materials
Classroom Space Management	Teachers arranged the classroom to support simultaneous instruction and independent learning.	Learning corners, grade-level sections, activity stations, reading areas, and flexible seating arrangements
Student Grouping Strategies	Teachers grouped learners according to grade level, ability, task, or learning need.	Same-grade grouping, mixed-ability grouping, peer tutoring, buddy system, and small-group activities
Resource Sharing and Improvisation	Teachers shared materials and created low-cost teaching aids due to limited resources.	Locally made instructional materials, shared books, improvised charts, recycled materials, and teacher-made learning aids

Table 7 shows that multigrade teachers used resource-sensitive strategies to sustain instruction despite limited materials and classroom constraints. They organized and reused available materials, arranged classroom spaces to support simultaneous learning activities, grouped learners flexibly, and improvised instructional aids from locally available or low-cost materials. These findings indicate that classroom resource management was not limited to the physical availability of materials but also included teachers' capacity to organize, adapt, share, and improvise resources to support multiple grade levels.

Table 8. Thematic Findings on Curriculum Delivery Challenges

Major Theme	Core Meaning	Common Experiences Identified
Heavy Workload	Teachers performed multiple teaching and non-teaching tasks while handling several grade levels.	Preparing several lessons, checking outputs, preparing materials, reports, and school-related tasks
Multiple Curriculum Demands	Teachers needed to cover different competencies for different grade levels within one classroom.	Simultaneous lesson preparation, curriculum mapping, prioritization of competencies, overlapping subject requirements
Diverse Learner Needs	Teachers handled learners with different grade levels, abilities, readiness, and learning pace.	Remediation, enrichment, differentiated tasks, peer support, classroom behavior management
Limited Instructional Materials	Teachers had insufficient textbooks, modules, visual aids, and learning resources.	Sharing materials, photocopying, improvising, reusing old materials, creating teacher-made resources
Time Constraints	Teachers had limited instructional time to address all grade levels and subjects.	Shortened direct instruction, rotation difficulty, unfinished activities, limited feedback time
Limited Training and Support	Teachers needed more specialized preparation for multigrade teaching.	Lack of multigrade-specific seminars, limited mentoring, insufficient technical assistance, need for practical training

Table 8 shows that multigrade teachers experienced interrelated curriculum delivery challenges. Heavy workload, multiple curriculum demands, diverse learner needs, limited instructional materials, time constraints, and limited training and support affected the delivery of instruction in island multigrade classrooms. These challenges confirm that multigrade teaching requires not only individual teacher adaptability but also institutional support, specialized training, contextualized materials, and realistic curriculum implementation mechanisms.

Table 9. Integrated Quantitative and Qualitative Findings as Basis for the Adaptive Multigrade Teaching Framework

Quantitative Finding	Qualitative Finding	Integrated Interpretation	Implication for the Framework
Lesson integration was highly practiced.	Teachers combined related competencies and modified materials for different grade levels.	Lesson integration helped reduce repetition and allowed teachers to address several grade-level competencies within limited time.	Integrated lesson planning should be a core component of the adaptive framework.
Differentiated instruction was highly practiced.	Teachers adjusted tasks, grouped learners by ability, and provided remediation or enrichment.	Differentiation helped teachers respond to diverse learner needs in one classroom.	Differentiated task design should be included in the framework.
Collaborative learning strategies were highly practiced.	Teachers used peer tutoring, buddy systems, group work, and shared learning tasks.	Collaboration helped maintain learner engagement while the teacher attended to other groups.	Peer-supported learning should be strengthened in the framework.
Instructional scheduling was highly practiced.	Teachers divided class time among grade levels and subject areas.	Scheduling helped teachers organize instructional delivery across multiple grade levels.	Sample multigrade schedules should be included in the framework.
Rotational teaching strategies were highly practiced.	Teachers moved from one group to another while other pupils worked independently.	Rotation supported simultaneous instruction and reduced idle time.	Rotational teaching models should be included in the framework.
Independent learning management was highly practiced.	Teachers used worksheets, modules, activity sheets, learning stations, and self-paced tasks.	Independent learning allowed pupils to remain engaged while the teacher handled another group.	Independent learning routines should be formalized in the framework.
Instructional practices were significantly related to time allocation management.	Teachers explained that integrated, differentiated, and collaborative activities made time easier to manage.	Strong instructional practices supported better management of limited instructional time.	Instructional practices and time management should be treated as connected components.
Instructional practices significantly predicted time allocation management.	Teachers' classroom experiences showed that collaborative and integrated practices reduced delays and supported group rotation.	Instructional practices influenced how effectively teachers organized classroom time.	Training should focus on practices that improve time allocation.
Teachers experienced resource limitations.	Teachers shared materials, reused resources, improvised aids, and used locally available materials.	Resource scarcity was managed through adaptation and improvisation.	Resource optimization should be included in the framework.
Teachers experienced curriculum delivery challenges.	Teachers reported heavy workload, multiple curriculum demands, diverse learners, time constraints, and limited support.	The challenges confirmed the need for a practical and context-responsive teaching framework.	Institutional support, training, and learning materials should be part of the framework.

Table 9 shows that the integrated findings supported the development of an Adaptive Multigrade Teaching Framework for Island Schools. The quantitative findings confirmed that instructional practices and time allocation management were highly practiced and significantly connected. The qualitative findings explained how teachers operationalized these practices through resource management, flexible grouping, improvisation, and adaptive classroom routines. The integrated results indicate that an effective framework for island multigrade teaching should include integrated lesson planning, differentiated task design, collaborative and peer-supported learning, instructional scheduling, rotational teaching models, independent learning routines, resource optimization, contextualized materials, and institutional support.

5. Discussion

The findings indicate that multigrade teachers in island schools highly practiced lesson integration, differentiated instruction, and collaborative learning strategies. This suggests that teachers did not rely on a single instructional approach but used adaptive pedagogical combinations to address the realities of teaching learners from different grade levels within one classroom. The high rating for lesson integration reflects teachers' effort to connect related competencies across grade levels and reduce unnecessary repetition of instruction. This is important in multigrade classrooms because teachers must manage several curricula within limited instructional time. The result supports the view that multigrade teaching requires flexible and context-responsive pedagogy rather than the direct transfer of monograde teaching routines into mixed-grade classrooms (Ares-Ferreirós et al., 2025).

The high extent of differentiated instruction further shows that teachers adjusted learning tasks, activities, and support mechanisms according to learners' readiness, grade level, and learning pace. This finding is consistent with the nature of multigrade classrooms, where diversity is not incidental but structural. Since learners differ in age, competence, grade placement, and independence, differentiated instruction becomes necessary for maintaining instructional relevance and learner participation. In island schools, differentiation is especially important because limited teaching personnel and materials require teachers to use available resources strategically. The finding also affirms that differentiated instruction functions not only as a learner-support strategy but also as a classroom management mechanism that allows teachers to attend to varied learning needs simultaneously.

Collaborative learning strategies obtained the highest mean among the instructional practice domains. This finding suggests that peer-supported and group-based learning played a central role in sustaining instruction in multigrade classrooms. In this context, collaboration enables pupils to work with classmates, receive assistance from more capable peers, and remain engaged while the teacher attends to another grade-level group. This supports constructivist assumptions that learning is strengthened through social interaction and shared meaning-making (Vygotsky, 1978). It also reflects the practical value of peer tutoring and cooperative learning in multigrade classrooms, where the teacher cannot provide continuous direct instruction to all learners at the same time.

The results also showed that time allocation management was highly practiced, particularly in instructional scheduling, rotational teaching strategies, and independent learning management. This implies that teachers were conscious of the need to organize classroom time systematically across grade levels and subject areas. The high mean for instructional scheduling indicates that teachers used planned routines to distribute instructional attention fairly and efficiently. Rotational teaching strategies and independent learning management further suggest that teachers structured classroom activities so that one group could work independently while another received direct teacher support. These findings are consistent with Mastery Learning Theory, which emphasizes the role of sufficient learning time, organized instruction, corrective support, and opportunities for practice in achieving learning outcomes (Bloom, 1968).

The significant positive relationship between instructional practices and time allocation management confirms that pedagogy and time use are interdependent in multigrade classrooms. Teachers who more strongly practiced lesson integration, differentiated instruction, and collaborative learning also tended to manage instructional time more effectively. This finding is theoretically and practically meaningful. It indicates that time allocation in

multigrade classrooms is not merely a scheduling issue; rather, it is shaped by the quality and suitability of instructional design. Integrated lessons reduce duplication, differentiated activities allow simultaneous but varied learner engagement, and collaborative tasks keep pupils productively involved while the teacher rotates among groups. Therefore, effective instructional practice becomes a mechanism for improving time use.

The regression results further strengthen this interpretation. The model showed that instructional practice domains significantly predicted time allocation management, explaining a substantial proportion of its variance. Among the predictors, collaborative learning strategies made the strongest contribution. This suggests that collaborative learning may be particularly useful in island multigrade classrooms because it distributes learning responsibility across the class. When learners work in pairs, groups, or peer-assisted arrangements, the classroom becomes less dependent on continuous teacher-led instruction. This allows the teacher to manage time more efficiently and provide focused support to specific grade levels or learner groups. The finding supports the argument that collaborative learning is not only an engagement strategy but also a practical time-management strategy in multigrade education.

The qualitative findings provide important explanations for the quantitative results. Teachers managed classroom resources through instructional material management, classroom space management, student grouping strategies, and resource sharing or improvisation. These practices show that island multigrade teachers responded to limited resources through adaptive use rather than passive acceptance of scarcity. The use of locally available materials, teacher-made resources, shared books, worksheets, learning corners, and flexible classroom arrangements indicates that resource management was embedded in daily instructional decision-making. This finding corresponds with literature showing that rural and multigrade classrooms require teaching materials and resource arrangements suited to mixed-age and mixed-grade learning environments (Carrete-Marín & Domingo-Peñafiel, 2022).

The identified curriculum delivery challenges—heavy workload, multiple curriculum demands, diverse learner needs, limited instructional materials, time constraints, and limited training and support—show that island multigrade teaching remains a highly demanding professional assignment. These challenges are interrelated. Multiple curriculum demands increase workload; diverse learner needs require differentiation; limited materials require improvisation; time constraints affect curriculum coverage; and limited training reduces teachers' access to specialized multigrade strategies. Although teachers demonstrated high levels of adaptive practice, the qualitative findings suggest that teacher resourcefulness alone is insufficient. Sustainable improvement requires institutional support, targeted professional development, adequate instructional materials, and realistic curriculum implementation mechanisms for multigrade contexts.

The integration of quantitative and qualitative findings confirms the need for an Adaptive Multigrade Teaching Framework for Island Schools. The quantitative findings demonstrate that instructional practices and time allocation management are both highly practiced and significantly connected. The qualitative findings explain how teachers enact these practices despite resource limitations and curriculum delivery challenges. Together, the findings suggest that an effective framework should include integrated lesson planning, differentiated task design, collaborative and peer-assisted learning, structured instructional scheduling, rotational teaching models, independent learning routines, classroom space organization, resource optimization, and teacher support mechanisms. Such a framework would be especially relevant to island schools because it recognizes both pedagogical requirements and contextual constraints.

The study contributes to multigrade education research by showing that effective island multigrade teaching depends on the alignment of instructional practice, time management, resource adaptation, and contextual support. The findings move beyond a general description of multigrade challenges by demonstrating that specific instructional practices significantly influence teachers' ability to manage classroom time. The results also show that teachers' adaptive practices are shaped by the realities of limited resources, diverse learners, and geographical

isolation. Therefore, improving multigrade education in island schools requires both teacher-level pedagogical strategies and system-level support for materials, training, monitoring, and curriculum implementation.

6. Conclusion and Recommendations

The study concludes that multigrade teachers in island schools demonstrate a high level of adaptive instructional practice in responding to complex curriculum demands. Lesson integration, differentiated instruction, and collaborative learning strategies were highly practiced, indicating that teachers deliberately modified instructional delivery to accommodate multiple grade levels, varied learner readiness, and limited classroom time. Time allocation management was also highly practiced through instructional scheduling, rotational teaching, and independent learning management, showing that teachers used structured routines to sustain instruction across groups of learners. The significant relationship between instructional practices and time allocation management, together with the regression findings, confirms that effective instructional design contributes substantially to teachers' ability to manage limited instructional time in multigrade classrooms. Among the instructional practice domains, collaborative learning strategies emerged as the strongest predictor, suggesting that peer-supported and group-based learning is particularly useful in sustaining engagement while teachers rotate among grade levels.

The qualitative findings further show that multigrade teachers manage classroom limitations through resource sharing, material improvisation, flexible grouping, classroom space organization, and the use of locally available materials. However, the study also concludes that island multigrade teaching remains constrained by heavy workload, multiple curriculum demands, diverse learner needs, limited instructional materials, time constraints, and insufficient training and support. These challenges indicate that teacher adaptability alone cannot fully address the structural and pedagogical demands of island multigrade education. Therefore, the integration of quantitative and qualitative findings supports the need for an Adaptive Multigrade Teaching Framework for Island Schools that connects instructional planning, time management, resource optimization, learner grouping, independent learning routines, and institutional support.

Based on the findings, it is recommended that school leaders and education supervisors strengthen instructional support for multigrade teachers through targeted professional development on lesson integration, differentiated instruction, collaborative learning, rotational teaching, and independent learning management. Training programs should be practical and classroom-based, allowing teachers to develop sample integrated lesson plans, multigrade schedules, activity sheets, peer-learning routines, and assessment tools that are directly applicable to island school contexts. Since collaborative learning strategies were found to be the strongest predictor of time allocation management, teachers should be further supported in designing peer tutoring systems, mixed-ability grouping, learning stations, and structured group tasks that maintain learner engagement while the teacher attends to other grade levels.

It is further recommended that the Department of Education and school administrators provide more context-responsive instructional materials for island multigrade schools. These may include multigrade lesson exemplars, competency-mapping guides, reusable learning activity packages, localized reading and numeracy materials, and independent learning modules that can be used across grade levels. Schools should also be supported in improving classroom space organization through learning corners, grade-level stations, and resource centers that facilitate simultaneous instruction. In addition, technical assistance, mentoring, and regular monitoring should be strengthened so that multigrade teachers do not depend solely on individual improvisation. Finally, the proposed Adaptive Multigrade Teaching Framework for Island Schools should be pilot-tested, refined, and institutionalized as a practical guide for improving curriculum delivery, time allocation, resource management, and learner support in geographically isolated multigrade settings.

Declarations

Ethics Approval and Consent to Participate

This study was conducted in accordance with ethical standards for educational research involving human participants. Permission to conduct the study was secured from the appropriate academic and institutional authorities, including the Graduate School, St. Paul University-Surigao, the Department of Education Division Office, district supervisors, and school heads of the participating public elementary schools. The participants were informed about the purpose of the study, the voluntary nature of their participation, their right to withdraw at any stage, and the confidentiality of their responses. Informed consent was obtained from all participants before data collection.

Consent for Publication

The authors confirm that the manuscript does not contain personally identifiable information of the participants. The participants' responses were treated confidentially and were reported only in aggregated or anonymized form. Consent for the use of anonymized data for scholarly publication was obtained.

Availability of Data and Materials

The data that support the findings of this study are not publicly available due to confidentiality and ethical restrictions involving teacher-participants and school-level information. However, anonymized data may be made available from the corresponding author upon reasonable request and subject to applicable institutional approval.

Competing Interests

The authors declare that they have no competing interests.

Funding

This research received no specific grant from any public, commercial, or not-for-profit funding agency.

Authors' Contributions

Melvin Sila Francisco served as the principal researcher and was responsible for the conceptualization of the study, data collection, data analysis, interpretation of findings, and preparation of the manuscript. Don Anton Robles Balida provided scholarly supervision, methodological guidance, manuscript review, and editorial support. Both authors reviewed and approved the final version of the manuscript for submission.

Acknowledgments

The authors express sincere appreciation to the Department of Education Surigao City Division, the participating school heads, and the multigrade teachers who contributed their time and insights to this study. The authors also acknowledge the Graduate School and Professional Studies of St. Paul University Surigao for its academic guidance and support.

Use of Artificial Intelligence

Artificial intelligence-assisted tools were used only for language refinement, formatting assistance, and manuscript organization. The authors reviewed, verified, and approved all content and remain fully responsible for the accuracy, integrity, originality, and scholarly merit of the manuscript.

References

Ares-Ferreirós, M., Rodríguez-Rodríguez, J., & Santos-Rego, M. A. (2025). Challenges and opportunities of multi-grade teaching: A systematic review of recent international studies. *Education Sciences, 15*(8), Article 1052. https://doi.org/10.3390/educsci15081052

Bloom, B. S. (1968). Learning for mastery. *Evaluation Comment, 1*(2), 1–12.

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Carrete-Marín, N., & Domingo-Peñafiel, L. (2022). Textbooks and teaching materials in rural schools: A systematic review. *Center for Educational Policy Studies Journal, 12*(2), 67–94. https://doi.org/10.26529/cepsj.1288

Çakır, P., & Şahin Fırat, N. (2022). The opinions of primary school teachers who taught in multi-grade classrooms on multigrade class instructional practices. *Journal of Educational Leadership and Policy Studies, 6*(1), 1–25.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *The Annals of Family Medicine, 13*(6), 554–561. https://doi.org/10.1370/afm.1865

Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine, 292*, Article 114523. https://doi.org/10.1016/j.socscimed.2021.114523

Piaget, J. (1952). *The origins of intelligence in children*. International Universities Press.

SEAMEO INNOTECH. (2020). *A review of the current situation and practices of multigrade schools in the Philippines: Full report*. Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology.

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*, 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

UNESCO. (2024). *Transforming education towards SDG 4: Report of a global survey on country actions to transform education*. United Nations Educational, Scientific and Cultural Organization.

UNESCO & International Task Force on Teachers for Education 2030. (2024). *Global report on teachers: Addressing teacher shortages and transforming the profession*. UNESCO. https://doi.org/10.54675/JKZG9143

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.