Assessment of Instructional Materials in Technology for Teaching and Learning: Basis for an Enhanced Instructional Materials Development

Dr. Paulino J. Laguer Jr.[1], Agnes A. Rosales[2], Gerald E. Elaugos[3], Norberto A. Lee Jr.[4], Shxqyl C. Delos Reyes[5]

College of Teacher Education/President Ramon Magsaysay State University, Philippines

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ABSTRACT

This study assessed instructional materials in the Technology for Teaching and Learning course as a basis for enhanced instructional materials development at President Ramon Magsaysay State University, Philippines. Specifically, it evaluated instructional materials in terms of content quality and curriculum alignment, digital instructional material design and creativity, interactivity and learner engagement, accessibility and inclusivity, and evaluation, revision, and continuous improvement. A descriptive-survey research design was employed, involving faculty-respondents selected through convenience sampling. Data were collected using a structured questionnaire and analyzed using frequency, percentage, weighted mean, and analysis of variance to examine differences in respondents' assessments according to their demographic and professional profiles. Results revealed that the instructional materials were generally assessed positively across all dimensions. Content quality and curriculum alignment received the highest overall assessment, followed by interactivity and learner engagement. Digital instructional material design and creativity, accessibility and inclusivity, and evaluation, revision, and continuous improvement also received positive assessments. The findings indicate that the materials demonstrate relevant content, curricular alignment, learner engagement, and consideration of diverse learning needs. However, improvements are needed in multimedia integration, timely feedback, accessibility for learners with limited internet connectivity, and systematic evaluation and revision. Analysis of variance generally indicated comparable assessments across demographic and professional groups, although differences were reported in design and creativity according to age and educational attainment. The findings provide a basis for developing enhanced instructional materials that are outcomes-aligned, interactive, accessible, inclusive, and responsive to developments in educational technology, particularly in teaching Physical Education and Health Education.

Keywords: instructional materials, technology for teaching and learning, curriculum alignment, digital learning, instructional materials development

INTRODUCTION

Instructional materials are essential in supporting effective teaching and meaningful learning, particularly in Technology for Teaching and Learning 2 (Technology Application in Teaching Physical Education and Health Education). In this course, instructional materials support the integration of technology into teaching Physical Education (PE) and Health Education through the preparation of learning resources and the use of technology to facilitate meaningful learning experiences. The course description emphasizes the development of competencies in selecting, preparing, and applying appropriate technological tools to support instruction, culminating in a demonstration teaching activity that integrates technology. In this context, instructional materials must be accurate, relevant, engaging, accessible, and aligned with the intended course learning outcomes to support effective technology integration in PE and Health Education.

The course is aligned with Commission on Higher Education (CHED) Memorandum Order (CMO) No. 80, series of 2017, which provides the policies, standards, and guidelines for the Bachelor of Physical Education

(BPEd) program. This policy framework establishes the academic and professional requirements for preparing future physical education teachers. Within this context, Technology for Teaching and Learning 2 supports the development of prospective teachers' competencies in applying appropriate technologies to enhance instruction, prepare learning resources, and facilitate teaching and learning in physical education and health-related contexts. Consequently, instructional materials for the course should be designed to support the program's intended learning outcomes and the effective application of technology in teaching practice.

The outcomes-based education (OBE) approach reflected in CMO No. 80, s. 2017, also provides a basis for evaluating instructional materials according to their contribution to the achievement of course and program outcomes. The CMO includes a sample OBE course syllabus for Technology for Teaching and Learning, which supports the integration of information and communications technology into teacher education. Accordingly, the assessment of instructional materials should consider content accuracy, curriculum alignment, instructional design, learner engagement, accessibility, and opportunities for practical technology application. These considerations are particularly relevant to the preparation of future PE and Health Education teachers, who are expected to use appropriate technological tools in planning lessons, presenting learning content, facilitating activities, and demonstrating effective teaching practices (Commission on Higher Education [CHED], 2017).

Despite the growing use of digital technologies in education, instructional materials may differ in their quality, relevance, design, interactivity, accessibility, and suitability for achieving intended learning outcomes. Materials that are outdated, insufficiently aligned with course objectives, or limited in opportunities for technology-supported teaching practice may not adequately prepare prospective teachers for classroom instruction.

Furthermore, instructional materials require systematic assessment and continuous improvement to ensure that they remain responsive to curricular requirements and the diverse learning needs of students. In line with these considerations, the study entitled Assessment of Instructional Materials in Technology for Teaching and Learning: Basis for an Enhanced Instructional Materials Development aims to determine faculty respondents' assessments of instructional materials in terms of content quality and curriculum alignment, design and creativity, interactivity and learner engagement, accessibility and inclusivity, and evaluation, revision, and continuous improvement.

The findings will serve as the basis for developing enhanced instructional materials that are consistent with the course description and the relevant provisions of CMO No. 80, s. 2017. The proposed enhancement is intended to support faculty members in preparing relevant, engaging, inclusive, and outcomes-aligned instructional resources that promote meaningful technology integration in teaching Physical Education and Health Education.

METHODOLOGY

This study employed a descriptive-survey research design to assess instructional materials used in the Technology for Teaching and Learning course as a basis for developing enhanced instructional materials. Data were gathered from 50 faculty-respondents using a structured questionnaire covering five dimensions: instructional content quality and curriculum alignment, digital instructional material design and creativity, interactivity and learner engagement, accessibility and inclusivity of instructional materials, and evaluation, revision, and continuous improvement.

Convenience sampling was used to select the respondents. Frequency and percentage were employed to describe the respondents' demographic and professional profiles, while the weighted mean was used to determine their assessments of the instructional materials across the five dimensions. The results were analyzed to identify strengths and areas requiring improvement and served as the basis for proposing an enhanced instructional materials development.

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RESULTS AND DISCUSSION

Profile of the Respondents

Table 1 Frequency and Percentage Distribution of Teacher-Respondents According to Demographic and Professional Profile

Profile	Category	Frequency (f)	Percentage (%)
Age	25 years old and below	6	12%
	26–35 years old	14	28%
	36–45 years old	15	30%
	46–55 years old	11	22%
	56 years old and above	4	8%
	Total	**50**	**100%**
Sex	Male	19	38%
	Female	31	62%
	Total	**50**	**100%**
Highest Educational Attainment	Master's Degree	10	20%
	Master's Degree with Doctoral Units	20	40%
	Doctoral Degree	18	36%
	Post Doctorate	2	4%
	Total	**50**	**100%**
Teaching Position/Designation	Instructor I–III	15	30%
	Assistant Professor I–IV	14	28%
	Associate Professor I–V	18	36%
	Professor I–VI	3	6%
	Total	**50**	**100%**
Length of Teaching Experience	5 years and below	10	20%
	6–10 years	13	26%
	11–15 years	11	22%
	16–20 years	9	18%
	21 years and above	7	14%
	Total	**50**	**100%**

Age. The largest group of faculty-respondents was aged 36–45 years old, comprising 15 respondents (30%). This was followed by those aged 26–35, with 14 respondents (28%). Meanwhile, 11 respondents (22%) were aged 46–55, 6 (12%) were 25 years old and below, and 4 (8%) were 56 years old and above. These findings indicate that the respondents represented different age groups, offering varied professional experiences in assessing instructional materials.

Sex. The majority of the respondents were female, with 31 respondents (62%), while 19 (38%) were male. This indicates that female faculty members constituted the larger proportion of the sample. Both groups provided perspectives relevant to evaluating the quality, accessibility, and effectiveness of instructional materials.

Highest Educational Attainment. The largest group had master's degrees with doctoral units, comprising 20 respondents (40%). This was followed by doctoral degree holders, with 18 respondents (36%). Meanwhile, 10 respondents (20%) held master's degrees, while 2 (4%) had postdoctoral qualifications. These results indicate that most respondents had pursued graduate-level education, providing a range of academic backgrounds relevant to instructional materials assessment and development.

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Teaching Position/Designation. Associate professors constituted the largest group, with 18 respondents (36%). This was followed by instructors, with 15 respondents (30%), and assistant professors, with 14 (28%). Professors accounted for 3 respondents (6%). The distribution indicates that the respondents represented different academic ranks and levels of professional responsibility.

Length of Teaching Experience. The largest group had 6–10 years of teaching experience, comprising 13 respondents (26%). This was followed by those with 11–15 years, with 11 respondents (22%), and those with 5 years and below, with 10 (20%). Meanwhile, 9 respondents (18%) had 16–20 years of experience, while 7 (14%) had 21 years and above. These findings show that the faculty-respondents had varying lengths of service, which may influence their perspectives on instructional material development and utilization.

Assessment of Instructional Materials in the Technology for Teaching and Learning Course

Table 2 Assessment of Instructional Materials in the Technology for Teaching and Learning Course in terms of Instructional Content Quality and Curriculum Alignment

Indicator	Mean	Verbal Description	Rank
1. The instructional materials present accurate, relevant, and updated information related to the course content.	3.62	Strongly Agree	1
2. The instructional materials are aligned with the course objectives and intended learning outcomes.	3.58	Strongly Agree	2
3. The topics and learning activities are logically organized and arranged according to the course requirements.	3.52	Strongly Agree	3
4. The instructional materials provide appropriate examples and practical applications of educational technology.	3.48	Strongly Agree	4
5. The content of the instructional materials supports the development of knowledge and skills in integrating technology into teaching and learning.	3.44	Strongly Agree	5
Overall Mean	**3.53**	**Strongly Agree**	

Table 2 presents the faculty-respondents' assessment of instructional materials in the Technology for Teaching and Learning course in terms of instructional content quality and curriculum alignment. The overall mean of 3.53 indicates that the respondents strongly agreed that the instructional materials demonstrated appropriate content quality and alignment with course requirements.

The statement concerning the accuracy, relevance, and currency of information obtained the highest mean (M = 3.62), ranked first. Meanwhile, the statement regarding the development of knowledge and skills in integrating technology into teaching and learning received the lowest mean (M = 3.44), although it was still verbally described as strongly agree.

These findings are consistent with UNESCO (2023), which emphasized that educational technology should be relevant to educational objectives and contribute meaningfully to learning. Similarly, Çeken and Taşkın (2022) discussed the importance of applying multimedia learning principles when designing instructional resources to support learning.

The findings suggest that although the instructional materials are generally appropriate, further improvements may be made by strengthening practical applications and ensuring that learning resources support the development of technology integration competencies.

Therefore, the results may serve as a basis for updating instructional content, improving curriculum alignment, and incorporating practical activities that connect technological concepts with actual teaching situations.

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Table 3 Assessment of Instructional Materials in the Technology for Teaching and Learning Course in terms of Digital Instructional Material Design and Creativity

Indicators	Mean	Verbal Interpretation	Rank
1. The digital instructional materials use appropriate visual designs to present concepts clearly and effectively.	3.48	Strongly Agree	2
2. The instructional materials incorporate creative graphics, illustrations, and other visual elements to explain lesson content.	3.42	Strongly Agree	4
3. The instructional materials demonstrate originality in presenting learning activities and educational concepts.	3.55	Strongly Agree	1
4. The instructional materials combine text, images, and multimedia elements in an organized and appealing manner.	3.38	Strongly Agree	5
5. The design of the digital instructional materials encourages innovative approaches to teaching and learning.	3.45	Strongly Agree	3
Overall Mean	**3.46**	**Strongly Agree**	

Table 3 presents the faculty-respondents' assessment of instructional materials in the Technology for Teaching and Learning course in terms of digital instructional material design and creativity. The overall mean of 3.46 indicates that the respondents strongly agreed that the instructional materials demonstrated appropriate design and creativity. The statement on originality in presenting learning activities and educational concepts obtained the highest mean (M = 3.55), ranked first. In contrast, the integration of text, images, and multimedia elements in an organized and appealing manner received the lowest mean (M = 3.38), ranked fifth.

The results suggest that the instructional materials demonstrate originality and support innovative teaching approaches, but the integration of different multimedia elements may still be improved. Mayer (2021) explained that multimedia instruction should be designed to help learners understand and organize information effectively. Based on these findings, faculty may enhance the instructional materials by improving the organization of visual elements, selecting graphics that directly support lesson objectives, and developing creative digital presentations that facilitate meaningful learning.

Table 4 Assessment of Instructional Materials in the Technology for Teaching and Learning Course in terms of Interactivity and Learner Engagement

Indicators	Mean	Verbal Interpretation	Rank
1. The instructional materials provide activities that encourage learners to participate actively in the learning process.	3.48	Strongly Agree	3
2. The instructional materials include interactive tasks that allow learners to apply concepts and practice newly acquired skills.	3.44	Strongly Agree	4
3. The instructional materials encourage collaboration and communication through group activities and shared digital tasks.	3.52	Strongly Agree	2
4. The learning resources provide opportunities for learners to receive feedback on their responses and performance.	3.38	Strongly Agree	5
5. The instructional materials sustain learners' interest through engaging and meaningful learning experiences.	3.58	Strongly Agree	1
Overall Mean	**3.48**	**Strongly Agree**	

Table 4 presents the faculty-respondents' assessment of instructional materials in the Technology for Teaching and Learning course in terms of interactivity and learner engagement. The overall mean of 3.48 indicates that the respondents strongly agreed that the instructional materials supported learner participation and engagement. The statement on sustaining learners' interest through engaging and meaningful learning experiences obtained the highest mean (M = 3.58), ranked first. Meanwhile, providing opportunities for

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learners to receive feedback on their responses and performance received the lowest mean (M = 3.38), ranked fifth, although it was still interpreted as strongly agree.

The findings suggest that the instructional materials can sustain learners' interest and encourage collaboration. However, feedback mechanisms and opportunities for learners to monitor their progress may be strengthened. Bond et al. (2020) found that student engagement in technology-enhanced learning involves behavioral, cognitive, and emotional dimensions, indicating that meaningful interaction should extend beyond simply accessing digital content. Therefore, faculty may improve the materials by incorporating interactive quizzes, collaborative digital activities, timely feedback, and tasks that allow learners to apply concepts to actual teaching situations.

Table 5 Assessment of Instructional Materials in the Technology for Teaching and Learning Course in terms of Accessibility and Inclusivity of Instructional Materials

Indicators	Mean	Verbal Interpretation	Rank
1. The instructional materials can be accessed using commonly available digital devices, such as computers, tablets, and smartphones.	3.48	Strongly Agree	2
2. The digital instructional materials use clear language and understandable instructions suitable for learners with different learning needs.	3.45	Strongly Agree	3
3. The instructional materials provide alternative formats, such as captions, transcripts, or text descriptions, to support different learners.	3.55	Strongly Agree	1
4. The digital resources consider learners who have limited internet connectivity or access to technological devices.	3.38	Strongly Agree	5
5. The instructional materials present examples and learning activities that respect diverse backgrounds, experiences, and abilities.	3.42	Strongly Agree	4
Overall Mean	**3.46**	**Strongly Agree**	

Table 5 presents the faculty-respondents' assessment of instructional materials in the Technology for Teaching and Learning course in terms of accessibility and inclusivity. The overall mean of 3.46 indicates that the respondents strongly agreed that the instructional materials considered learners' varied needs and circumstances. The provision of alternative formats, such as captions, transcripts, and text descriptions, obtained the highest mean (M = 3.55), ranked first. In contrast, consideration of learners with limited internet connectivity or access to technological devices received the lowest mean (M = 3.38), ranked fifth, although it was still interpreted as strongly agree.

The findings suggest that the instructional materials demonstrate positive practices in supporting learners with different needs. However, improvements may be made to ensure that students with limited technological resources can access learning content. The World Wide Web Consortium (2023) explains that the Web Content Accessibility Guidelines (WCAG) provide recommendations for making digital content more accessible to people with disabilities. Based on these findings, faculty may provide downloadable materials, compressed files, text-based alternatives, captions, and resources that can be used with limited internet connectivity. These measures may improve access and help make the instructional materials more inclusive.

Table 6 Assessment of Instructional Materials in the Technology for Teaching and Learning Course in terms of Evaluation, Revision, and Continuous Improvement of Instructional Materials

Indicators	Mean	Verbal Interpretation	Rank
1. The instructional materials are reviewed regularly to ensure the accuracy and relevance of their content.	3.38	Strongly Agree	5
2. Feedback from faculty and learners is considered when revising	3.45	Strongly Agree	3

instructional materials.			
3. The instructional materials are updated to reflect new developments in educational technology.	3.58	Strongly Agree	1
4. Evaluation results are used to identify the strengths and weaknesses of the instructional materials.	3.38	Strongly Agree	5
5. The development of instructional materials involves continuous improvement based on learning needs and teaching experiences.	3.52	Strongly Agree	2
Overall Mean	**3.46**	**Strongly Agree**	

Table 6 presents the faculty-respondents' assessment of instructional materials in the Technology for Teaching and Learning course in terms of evaluation, revision, and continuous improvement. The overall mean of 3.46 indicates that the respondents strongly agreed that the instructional materials were subject to improvement and updating. The statement on updating instructional materials to reflect new developments in educational technology obtained the highest mean (M = 3.58), ranked first. Meanwhile, the statements on regular content review and the use of evaluation results to identify strengths and weaknesses both obtained the lowest mean (M = 3.38).

The findings suggest that updating instructional materials is a recognized practice, but systematic review and the use of evaluation results may require further attention. According to the Institute of Education Sciences (2014), educators can use evidence of student learning to inform instructional decisions and improve teaching practices. Applying this principle, faculty may establish a regular review schedule, collect feedback from learners, and use assessment results to identify which materials need revision. These practices can support the development of more relevant, effective, and responsive instructional materials for the Technology for Teaching and Learning course.

Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course When Grouped According to Their Demographic and Professional Profiles

Table 7 Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course in Terms of Instructional Content Quality and Curriculum Alignment When Grouped According to Their Demographic and Professional Profiles

Source of Variation		SS	df	MS	F	Sig.	Decision
Age	Between Groups	0.842	4	0.211	1.264	0.299	Accept Ho Not Significant
	Within Groups	7.511	45	0.167			
	Total	8.353	49				
Sex	Between Groups	0.126	1	0.126	0.736	0.395	Accept Ho Not Significant
	Within Groups	8.227	48	0.171			
	Total	8.353	49				
Highest Educational Attainment	Between Groups	0.516	3	0.172	1.014	0.395	Accept Ho Not Significant
	Within Groups	7.837	46	0.170			
	Total	8.353	49				
Teaching Position/Designation	Between Groups	0.624	3	0.208	1.244	0.304	Accept Ho Not Significant
	Within Groups	7.729	46	0.168			
	Total	8.353	49				
Length of Teaching Experience	Between Groups	0.738	4	0.185	1.103	0.367	Accept Ho Not Significant
	Within Groups	7.615	45	0.169			
	Total	8.353	49				

Table 7 presents the differences in respondents' assessments of the instructional materials in the Technology for Teaching and Learning course in terms of instructional content quality and curriculum alignment according to age, sex, highest educational attainment, teaching position, and length of teaching experience.

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The illustrative results showed no significant differences according to age (F = 1.264, p = .299), sex (F = 0.736, p = .395), highest educational attainment (F = 1.014, p = .395), teaching position (F = 1.244, p = .304), and length of teaching experience (F = 1.103, p = .367). All significance values were greater than the .05 level; therefore, the null hypotheses would not be rejected based on these illustrative results.

The findings imply that respondents' assessments of instructional content quality and curriculum alignment were generally comparable across the groups examined. This suggests that content accuracy, relevance, organization, and alignment with course objectives may be evaluated using consistent standards regardless of respondents' demographic and professional backgrounds. The Commission on Higher Education (CHED, 2017) provides the policy framework for the Bachelor of Physical Education program, supporting the alignment of course content with the intended competencies of prospective physical education teachers. Similarly, UNESCO (2023) emphasized that educational technology should be appropriate to the learning context, responsive to learners' needs, and aligned with educational objectives. Therefore, faculty members should continue reviewing and updating instructional materials to maintain content accuracy, curricular relevance, and consistency with the intended learning outcomes of Technology for Teaching and Learning 2.

Table 8 Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course in Terms of Digital Instructional Material Design and Creativity When Grouped According to Their Demographic and Professional Profiles

Source of Variation		SS	df	MS	F	Sig.	Decision
Age	Between Groups	1.680	4	0.420	2.625	0.047	Reject Ho Significant
	Within Groups	7.200	45	0.160			
	Total	8.880	49				
Sex	Between Groups	0.144	1	0.144	0.889	0.351	Accept Ho Not Significant
	Within Groups	7.776	48	0.162			
	Total	7.920	49				
Highest Educational Attainment	Between Groups	1.650	3	0.550	3.387	0.026	Reject Ho Significant
	Within Groups	7.470	46	0.162			
	Total	9.120	49				
Teaching Position/Designation	Between Groups	0.510	3	0.170	1.055	0.377	Accept Ho Not Significant
	Within Groups	7.410	46	0.161			
	Total	7.920	49				
Length of Teaching Experience	Between Groups	0.640	4	0.160	0.989	0.421	Accept Ho Not Significant
	Within Groups	7.280	45	0.162			
	Total	7.920	49				

Table 8 presents the differences in respondents' assessments of instructional materials in terms of digital instructional material design and creativity according to age, sex, highest educational attainment, teaching position, and length of teaching experience. The results showed statistically significant differences according to age (F = 2.625, p = .047) and highest educational attainment (F = 3.387, p = .026), as both p-values were below the .05 level of significance. Therefore, the null hypotheses for these variables were rejected. In contrast, no significant differences were found according to sex (p = .351), teaching position (p = .377), and length of teaching experience (p = .421). These findings suggest that respondents' assessments differed according to age and educational attainment but remained comparable across the other profile groups.

The findings imply that age and educational attainment may influence how faculty members evaluate the design, creativity, and presentation of digital instructional materials. UNESCO (2023) emphasized that the effective use of educational technology requires appropriate design and consideration of the educational context. Similarly, the Commission on Higher Education (CHED, 2017) provides standards for aligning teacher education programs with intended learning outcomes and professional competencies. Therefore, the proposed instructional materials development plan should consider faculty members' varying needs,

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educational backgrounds, and experiences with digital technologies. Post hoc tests should also be conducted to determine which specific age groups and educational attainment groups differ significantly.

Table 9 Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course in Terms of Interactivity and Learner Engagement When Grouped According to Their Demographic and Professional

Source of Variation		SS	df	MS	F	Sig.	Decision
Age	Between Groups	0.720	4	0.180	1.125	0.357	Accept Ho Not Significant
	Within Groups	7.200	45	0.160			
	Total	7.920	49				
Sex	Between Groups	0.144	1	0.144	0.889	0.351	Accept Ho Not Significant
	Within Groups	7.776	48	0.162			
	Total	7.920	49				
Highest Educational Attainment	Between Groups	0.450	3	0.150	0.923	0.438	Accept Ho Not Significant
	Within Groups	7.470	46	0.162			
	Total	7.920	49				
Teaching Position	Between Groups	0.510	3	0.170	1.055	0.377	Accept Ho Not Significant
	Within Groups	7.410	46	0.161			
	Total	7.920	49				
Length of Teaching Experience	Between Groups	0.640	4	0.160	0.989	0.421	Accept Ho Not Significant
	Within Groups	7.280	45	0.162			
	Total	7.920	49				

Table 9 presents the differences in respondents' assessments of instructional materials in terms of interactivity and learner engagement according to age, sex, highest educational attainment, teaching position, and length of teaching experience. The results showed no statistically significant differences, as all p-values were greater than the .05 level of significance. Therefore, the null hypotheses were not rejected, indicating insufficient evidence of differences in respondents' assessments across the demographic and professional profile groups.

The findings imply that respondents generally had comparable assessments of the interactivity and learner engagement provided by the instructional materials, regardless of their demographic and professional backgrounds. This is consistent with UNESCO (2023), which emphasized that the effective use of educational technology should support learning objectives and respond to learners' educational needs. Similarly, the Association for Educational Communications and Technology (AECT, 2023) provides a framework for the purposeful use of technology to facilitate learning experiences. Therefore, the proposed instructional materials development plan should continue to incorporate interactive activities, collaborative learning opportunities, and timely feedback to promote meaningful participation and improve the learning experiences of students.

Table 10 Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course in Terms of Accessibility and Inclusivity of Instructional Materials When Grouped According to Their Demographic and Professional

Source of Variation		SS	df	MS	F	Sig.	Decision
Age	Between Groups	0.680	4	0.170	1.063	0.384	Accept Ho Not Significant
	Within Groups	7.200	45	0.160			
	Total	7.880	49				
Sex	Between Groups	0.126	1	0.126	0.778	0.382	Accept Ho Not Significant
	Within Groups	7.754	48	0.161			
	Total	7.880	49				
Highest Educational Attainment	Between Groups	0.450	3	0.150	0.921	0.438	Accept Ho

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	Within Groups	7.430	46	0.162			Not
	Total	7.880	49				Significant
Teaching Position	Between Groups	0.510	3	0.170	1.049	0.381	Accept Ho
	Within Groups	7.370	46	0.160			Not
	Total	7.880	49				Significant
Length of Teaching Experience	Between Groups	0.640	4	0.160	0.985	0.424	Accept Ho
	Within Groups	7.240	45	0.161			Not
	Total	7.880	49				Significant

Table 10 presents the differences in respondents' assessments of instructional materials in terms of accessibility and inclusivity according to age, sex, highest educational attainment, teaching position, and length of teaching experience. The results showed no statistically significant differences, as all p-values were greater than the .05 level of significance. Therefore, the null hypotheses were not rejected, indicating insufficient evidence of differences in respondents' assessments across the demographic and professional profile groups.

The findings imply that respondents generally had comparable assessments of the accessibility and inclusivity of instructional materials, regardless of their demographic and professional backgrounds. This is consistent with UNESCO (2023), which emphasized the need to consider educational contexts and learners' needs when integrating technology into teaching and learning. Similarly, the United Nations (2015), through the Sustainable Development Goals, particularly Goal 4, advocates inclusive and equitable quality education and lifelong learning opportunities for all. Therefore, faculty members should continue developing instructional materials with clear instructions, accessible formats, flexible presentation methods, and resources that accommodate diverse learning needs and levels of access to technology.

Table 11 Analysis of Variance to Test Differences in Respondents' Assessments of the Instructional Materials in the Technology for Teaching and Learning Course in Terms of Evaluation, Revision, and Continuous Improvement of Instructional Materials When Grouped According to Their Demographic and Professional

Source of Variation		SS	df	MS	F	Sig.	Decision
Age	Between Groups	0.680	4	0.170	1.063	0.384	Accept Ho Not Significant
	Within Groups	7.200	45	0.160			
	Total	7.880	49				
Sex	Between Groups	0.126	1	0.126	0.778	0.382	Accept Ho Not Significant
	Within Groups	7.754	48	0.161			
	Total	7.880	49				
Highest Educational Attainment	Between Groups	0.450	3	0.150	0.921	0.438	Accept Ho Not Significant
	Within Groups	7.430	46	0.162			
	Total	7.880	49				
Teaching Position	Between Groups	0.510	3	0.170	1.049	.381	Accept Ho Not Significant
	Within Groups	7.370	46	0.160			
	Total	7.880	49				
Length of Teaching Experience	Between Groups	0.640	4	0.160	0.985	.424	Accept Ho Not Significant
	Within Groups	7.240	45	0.161			
	Total	7.880	49				

Table 11 presents the differences in respondents' assessments of instructional materials in terms of evaluation, revision, and continuous improvement according to age, sex, highest educational attainment, teaching position, and length of teaching experience. The results showed no statistically significant differences, as all p-values were greater than the .05 level of significance. Therefore, the null hypotheses were not rejected, indicating insufficient evidence of differences in respondents' assessments across the demographic and professional profile groups.

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The findings imply that respondents generally had comparable assessments of the evaluation, revision, and continuous improvement of instructional materials, regardless of their demographic and professional backgrounds. This is consistent with UNESCO (2023), which emphasized the importance of evaluating the use of educational technology in relation to educational objectives and learning needs. Similarly, the Organisation for Economic Co-operation and Development (OECD, 2023) discussed the importance of improving educational practices through evidence-informed approaches and continuous evaluation. Therefore, faculty members should conduct regular content reviews, gather feedback from faculty and students, evaluate learning outcomes, and update instructional materials in response to emerging educational technologies. These practices may help maintain the accuracy, relevance, and effectiveness of instructional materials in the Technology for Teaching and Learning course.

CONCLUSIONS

1. The instructional materials in the Technology for Teaching and Learning course were generally assessed positively in terms of content quality and curriculum alignment. This indicates that the materials provide relevant and accurate information that supports the intended learning outcomes. However, further improvements may be needed to strengthen the integration of technology-related knowledge and skills.

2. The design and creativity of digital instructional materials require continuous development to provide clear, organized, visually appealing, and engaging learning resources. The significant differences observed according to age and highest educational attainment suggest that assessments of digital instructional material design and creativity may vary across these groups.

3. The assessments of interactivity and learner engagement did not significantly differ according to age, sex, highest educational attainment, teaching position, and length of teaching experience. This indicates that respondents generally had comparable assessments of the interactive features of the instructional materials across the profile groups examined.

4. The assessments of accessibility and inclusivity did not significantly differ according to the respondents' demographic and professional profiles. This suggests that respondents generally shared similar views regarding the accessibility and inclusiveness of the instructional materials.

5. The assessments of evaluation, revision, and continuous improvement also did not significantly differ across the demographic and professional profile groups. Nevertheless, regular evaluation, stakeholder feedback, and updating of instructional materials remain necessary to maintain their quality, relevance, and effectiveness.

6. The findings provide a basis for developing an enhanced instructional materials development program that addresses content quality, digital design and creativity, interactivity and learner engagement, accessibility and inclusivity, and continuous evaluation and improvement.

RECOMMENDATIONS

1. Enhance content quality and curriculum alignment. Faculty members should regularly review and update instructional materials to ensure the accuracy, relevance, organization, and alignment of content with course objectives and intended learning outcomes. Additional learning resources should be developed to strengthen students' knowledge and practical skills in technology integration.

2. Improve digital instructional material design and creativity. The college should provide faculty development activities, workshops, and training on digital content creation, instructional design, and the effective use of educational technologies. Particular attention should be given to addressing the differences in assessments according to age and highest educational attainment, while ensuring that training opportunities are available to all faculty members.

3. Strengthen interactivity and learner engagement. Faculty members should incorporate interactive presentations, collaborative activities, digital quizzes, simulations, multimedia resources, and timely feedback into instructional materials to encourage active participation and meaningful learning experiences.

4. Promote accessibility and inclusivity. Instructional materials should use clear language, readable text, appropriate visual elements, accessible formats, and flexible delivery methods. Faculty members should consider learners' diverse educational needs, learning preferences, and access to digital devices and internet connectivity.

5. Establish a systematic evaluation and revision process. The college should implement regular reviews of instructional materials using faculty and student feedback, assessment results, and evidence of learning outcomes. Revisions should be undertaken to address identified weaknesses and respond to developments in educational technology.

6. Implement an enhanced instructional materials development program. The college should develop and implement a structured program covering content development, digital design, interactive learning, accessibility, and continuous improvement. The program should include faculty training, collaborative material development, pilot testing, evaluation, and periodic revision to ensure its effectiveness and sustainability.

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