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## ARTICLE

# Characteristics Of Effective Language Teacher Professional Development Programs For K-12 Teachers And University Instructors: Insights On Integrating Educational Technologies

ONUR URAL

*University of Arizona*

*E-mail: [onurural@arizona.edu](mailto:onurural@arizona.edu)*

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This study explores language educators' insights to identify the characteristics of effective professional development programs for K-12 teachers and university instructors seeking to integrate educational technologies into language teaching. In pursuit of this goal, a group of language educators participated in a professional development program designed to enhance their skills in experiential and technological material development in language teaching. After completing the program, educators were invited to evaluate it and provide insights on what characteristics define a successful language teacher professional development program focused on the integration of educational technologies in language teaching. Multiple data sources were analyzed to explore participants' insights and experiences. Data collection involved written open-ended questions, a focus group conversation, and individual interviews. The findings suggest that participants in the language teacher professional development program emphasize promoting multimodality, preparing teachers for implementation, welcoming teachers' language learning philosophies, addressing critical perspectives, and presenting examples and resources. The results point to implications for the refinement of language teacher professional development programs, highlighting effective practices that provide continuous and sustainable support post-training, involve teachers in setting the goals of teacher education programs, and take into account their needs and classroom settings.

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## INTRODUCTION

Teacher professional development is operationalized in the literature as the dynamic processes (Hua, 2024) through which teachers “learn from peers, experts, and feedback” (Nguyen, 2024, p. 227) and apply this knowledge in their classrooms (Postholm, 2012). It represents a multidimensional structure in which teachers' needs, emotions, motivations, experiences, and concerns are placed into consideration (Korthagen, 2017; Sancar et al., 2021) through reflective discussion sessions (Ur, 1997). Teacher professional development is an “ongoing journey” (Li, 2024, p. 171) since “[n]o teacher reaches a definitive peak in their professional skill; rather, professional growth is an ongoing and unrelenting process” (Amilda, 2024, p. 1781). It can manifest in the form of co-teaching, working with a mentor, discussions in a book club or a teacher network, and teaching in one's own classroom (Desimone, 2009). Consequently, teacher professional development emerges as a complex process requiring cognitive and emotional involvement, prompting teachers to question their beliefs and explore enactment of alternatives for improvement (Avalos, 2011).

A significant challenge faced in such programming is the insufficient provision of sustainable and continuous support in the implementation of ideas and methods in the long term (Roberts, 2016). Sessions are “often delivered in one-shot workshops or courses” (Borko et al., 2010, p.548). Systematic after-course support is neglected (Altun, 2011) that might explore the outcomes and implications of the programs implemented (Uysal, 2012).

In addition to a lack of sustained support, teachers often play a limited role in planning objectives and “little effort is made to get teachers to consider the rationale or principles underlying” the content of teacher professional development programs (Atay, 2004, p. 145). The alignment of teachers' expectations, working conditions, and their students' needs with the content of professional development programs is frequently insufficient (Avalos, 2011; Borko et al., 2010). Teachers' individual needs and circumstances as well as their instructional needs and expectations are rarely addressed; instead, top-down, centralized approaches to teacher professional development program are common (Roberts, 2016). To address this, there is a pressing need to adopt an approach closely aligned with grounded practice, one which aims to foster a “learner-centered structure that supports teachers as they collaboratively develop the professional knowledge they need to use in their own context” (Borko et al., 2010, p. 548).

As such, teacher professional development on technology integration in language teaching settings transcends the acquisition of knowledge provided in a few sessions of teacher education programs. It is a complex of many dynamic variables encompassing teacher agency (Benson, 2016), teaching experience (Booth et al., 2017), work environment (Cirocki & Anam, 2021), and a sense of empowerment and autonomy regarding professional development (Kong, 2022). However, as Mayer et al. (2017) write, “research to date has tended to focus on what does not work in ... teacher education, rather than what does” (p. 79). In this spirit, the study invited educators who previously participated in a technology-focused professional development program to reflect on its effectiveness and identify the characteristics of successful programs.

The article begins with a review of literature on technology integration in language teacher development, followed by a description of the study's design, participants, and data collection methods. The findings highlight key characteristics of effective teacher professional development programs obtained through participant insights and discussed in light of existing scholarship. We conclude by addressing implications for program design and offering recommendations for future research.

## **Evolving Language Teacher Development For Emerging Technologies**

As educational technologies become increasingly integrated in classrooms, the need to align language teacher professional development with these digital demands has grown significantly. This growth is driven by rapid advancements in internet and communication technologies, which have led to the emergence of interactive tools in language education (He et al., 2024). However, “[w]hile it has almost become a cliché to emphasize the necessity of integrating technology into language teaching in today's society, how to do so still remains a pending issue” (Dooly & Sadler, 2016, p. 73). Teacher professional development needs to undergo substantial changes as new technologies like virtual reality, augmented reality, and artificial intelligence are integrated into instruction (Bei & Shibing, 2024). Educational institutions may allocate significant financial resources to introduce technology into language classrooms; however, the effective adoption of innovation is possible only through robust teacher

professional development, specifically addressing the why and how of technology use (El Shaban & Egbert, 2018).

## **Teacher Professional Development Of Language Teachers**

Language instructor professional development involves particular dynamics that may not apply in other teacher professional development programs (König et al., 2017). A primary issue is the inherent nature of language itself. Within this context, a power dynamic (Tupas, 2022) may emerge between native-speaking and non-native-speaking language teachers and teacher educators. From a sociocultural perspective, dynamics between the nativeness of educators and teachers participating in a language teacher professional development may enable each party varying levels of power (Nizęgorodcew, 2017). Native teacher educators might be perceived to “purportedly have the best technical know-how of the complexities” of the target language (Sugiharto, 2015, p. 228). Conversely, the inverse scenario may yield noteworthy implications. Despite the potential impact of these dynamics, there is a notable absence of empirical studies addressing this issue in current research.

A second pressing issue that needs to be addressed is the limited availability of language teacher professional development and licensure programs catering to the specific needs of teachers of less commonly taught languages (Kissau, 2020). Existing research is predominantly dedicated to the teaching and learning of the most commonly taught languages such as English and Spanish, with a noticeable scarcity of studies addressing less commonly taught languages such as Japanese, Portuguese, sign languages, Turkish, and Yoruba (Ural, 2022). One might inquire about the extent of demand for learning less commonly taught languages and the availability of teacher education programs tailored for instructors teaching these languages. According to the National Council of Less Commonly Taught Languages (2025), approximately nine percent of American students enroll in less commonly taught language courses. However, this figure significantly rises when considering language teaching at community schools, exemplified by approximately 1400 Korean community schools in the United States (Cheon, 2017). A research study by Yang and Liang-Itsara (2024) underscores that teachers of less commonly taught languages often face challenges that point to the importance of continued teacher development and collaboration. This issue highlights the importance of online education and language teachers’ proficiency in technology-rich environments, since some “classes may be possible only through distance learning” (Godwin-Jones, 2013, p. 7). In light of the possible geographical distance among teachers of less commonly taught languages, implementing language teacher professional development programs online became a viable and essential consideration in this research study.

Language teacher professional development is a process of mindset shifting particular to how language teachers view languages. This shift extends to World Englishes (Canagarajah, 2006) and other world languages such as World Spanishes (Demuro & Gurney, 2018), World Chinesees (Lin et al., 2019), and World Turkishes. Hence, professional development ought to be directed by instructors’ expressed needs, rather than merely providing them with a system of delivering information (Koşar et al., 2022). In such a system, language teacher participants often lack autonomy (Ural & Dikilitaş, 2024), power (Masutov, 2023) and a voice in shaping the content of the professional development programs they attend. In contrast, programs that center the significance of a sociocultural perspective attend to teachers’ experience, context, and social interactions, recognizing that learning is a “progressive movement from external,

socially mediated activity to internal mediational control by individual learners” (Johnson, 2009, p. 2).

## PREVIOUS STUDIES

In this article, we emphasize the importance of maintaining a sustainable and continuous connection subsequent to an initial language teacher professional development series. Secondly, we explore the characteristics of series that leverage technology for second language acquisition. Consequently, the following section is organized into three main parts, corresponding to these central points.

### **Research On Language Teacher Professional Development With Continuous And Sustainable Support**

Chao (2015) explored the connections formed by language teachers between their experiences in training programs focused on digital learning and their subsequent teaching practices eight months after the program's implementation. The researcher found that teachers seldom used the tools in the ways initially planned. Instead, teachers adapted the tools and the concepts in their unique way given their contexts and circumstances. This finding corroborates Roberts' (2016) claims that “model-based training ignores individual differences in student-teachers' beliefs, values and experiences” (p. 15) and that in the ideal scenario, “[practice] is presented through multiple exemplars, not single models” (p. 17).

El Shaban and Egbert (2018) adapted Rogers's (2003) Diffusion of Innovations Theory and integrated it into language teacher professional development in computer assisted language learning. Their objective was to address the question of what an effective professional development in computer assisted language learning might entail. Diffusion of innovation is defined as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). To this end, according to El Shaban and Egbert (2018), although the concept of educational technologies is not entirely new, some teachers may perceive it as such since the idea of educational technologies as an innovation may not be entirely common. To address this, they recommend a two-phase approach: the first involves a needs assessment stage to explore teachers' prior knowledge and abilities, particularly as they bear on general knowledge of educational technologies, followed by practice and implementation. The second phase incorporates opportunities for communication and collaboration via in-person or digital means, along with administrative support for professional development, access to resources, and encouragement.

The two-phase approach to professional development programming is also reflected, albeit articulated with different terminology, in Johnson's (2009) guidelines to “second language teacher education ... [from] a sociocultural perspective” (p. 6). Johnson emphasizes the significance of verbalizing teacher perspectives in the first stage of a language teacher professional development program. She contends that when teachers' “understandings (or misunderstandings) have been verbalized they become known to peers and/or to me [teacher educator] as we participate in the discussion” (p. 66). Thus, both studies underscore the importance of delving into teachers' prior knowledge, pedagogical perspectives, and abilities before introducing changes. From a language acquisition perspective, teachers' views might range from adopting translation-based grammar teaching (Thornbury, 1999) as the main

approach to language teaching to Communicative Language Teaching (Brown, 2000) and translanguaging (García, 2009).

While sustainable and continuous communication in a coda to the teacher professional development programs is highly advocated, one concern arises from the potential lack of response or interest from the participants. Denton and Tsai (1991) delved into strategies to elicit more response from participants in a teacher professional development program. In two experiments, they sent teachers mail informing them of a token monetary incentive. The monetary amount was increased in the second experiment, and a raffle was added. The results indicated that monetary incentives did not provide an added response ratio. However, they found that teachers who regularly received a newsletter from the program responded more frequently to the surveys of the program than those who did not. The researchers posited that teachers who received newsletters on a regular basis were aware of the development efforts by the program, understanding the significance of their contributions.

### **Research On Defining Key Characteristics Of Teacher Professional Development Programs**

Reviewing the literature to date, Mayer et al. (2017) explored the characteristics of initial teacher education programs that teachers reported as the most effective. The researchers concluded that teachers placed emphasis on the importance of in-school teaching practices (practicum) during their education. These practices were found to be most beneficial if the schools mirrored the environments in which teachers were initially employed after completing their education. Such alignment was seen to enhance their perception of preparedness. Another identified characteristic of an effective teacher education program was reported to be the alignment of program content with post-program practices, with teachers placing significance on explicit connections between the two. This result corroborates theoretical frameworks of Roberts (2016), which highlights the importance of addressing teachers' underlying beliefs and thought processes, not merely their practices.

Sims et al. (2021) investigated characteristics of the studies and interventions in the literature on teacher professional development. This systematic research analyzed 104 studies published in English during or after 2002. The results highlighted that studies in the field predominantly focused on curriculum, high stakes standardized tests, curricular reform, early career teachers, and educational technology. While these represent the prevalent characteristics of studies in the literature, the results also provided insights into the needs of teachers and characteristics of an effective teacher professional development program.

Studies on teacher professional development mainly concentrate on “documenting teacher satisfaction, attitude change, or commitment to innovation rather than its results or the processes by which it worked” (Desimone, 2009, p. 181). Consequently, there is a need for a study that investigates the attributes of professional development that language teachers assert to have been effective. There is limited research exploring discrete attributes of such programs (Soine & Lumpe, 2014).

### **Research From 2022 Onwards: Language Teacher Professional Development**

The year 2022 marks an important turning point in the evolution of technology, one which has a bearing on our everyday lives. Since the launch of several generative artificial intelligence tools in that year, one prominent discussion has centered its impact on education and

academia, given its remarkable ability to produce texts that closely resemble human-written work (García-Peñalvo, 2023). Moreover, the use of these tools is not limited to text generation; they are also integrated into various technological devices and applications. Specifically, generative artificial intelligence, a key feature of many of these tools, plays a central role in technologies like virtual field experiences, which is the primary technological tool used in this research article during the language teacher professional development series. Therefore, fostering free discussion among teachers and consulting them about their needs when planning a language teacher professional series is vital. This is because advocating for the integration of the most recent tools in classrooms without providing adequate support risks exacerbating the already extensive responsibilities of teachers and reinforcing existing reservations they may have about the use of such technologies (Vogt & Flindt, 2023).

In a qualitative study, Zamani et al. (2023) explored recruitment practices and professional development approaches used by 30 language institute managers in hiring teacher educators via semi-structured interviews. The results indicated that job experience, academic qualifications, and digital literacy are the key qualifications influencing the recruitment of teacher educators. The study is important in highlighting digital literacy in particular, since that is expected to guide language teachers in response to “the rise of technology-enhanced language education” (p. 62).

Using an attitude scale, Tunaz (2023) investigated if gender and year of study influence the attitudes of prospective language teachers on the use of Web 2.0 tools for language teaching purposes. Results indicated that gender is not a statistically significant factor in the attitudes of prospective language teachers; however, the year of study (pre-service teachers in their fourth year vs pre-service teachers in their first year) was a statistically significant factor since pre-service language teachers in their fourth year, who were still completing their teacher education, reported that “the students developed a positive attitude toward using Web 2.0 tools in language teaching as their year of study increased” (p. 644).

A study by Riyanda et al. (2025) “evaluates the digital skills, level of technology integration in teaching, and challenges” faced by 105 vocational high school teachers. Results showed “offering practice-based continuous training” (p. 10) is essential for overcoming barriers to technology integration and enhancing vocational teachers' digital skills to meet the demands of 21st-century education.

To date, the literature does not establish a link between the characteristics of language teacher professional development and technology-rich language learning environments. This research study thus aims to fill in this gap.

## METHODS

### Research Questions

1. What are the key characteristics of language teacher professional development programs, particularly with respect to the integration of educational technologies in language teaching?
2. How do language teachers' insights enhance understanding of effective professional development programs, especially regarding educational technology integration in language teaching?

## Procedure and Participation

The study was conducted at a research university situated in the southwestern region of the United States. Having secured funding for participating teachers through an educational foundation, researchers announced a teacher professional development program focused on the creation of virtual expeditions geared toward target language and culture. These expeditions are designed to engage language learners in cultural content development and offer second language exposure online (Koçoğlu & Haidari, 2025). To illustrate, they incorporate a primary image or a video that can also be 360° to enable immersive experiences in the target language and culture. Both students and teachers have the option to insert annotations to describe the social, cultural, and linguistic elements in the primary image. These descriptions may be presented in students' first language, in the target language, or in a multilingual format. Encouraging diverse means of communication, users can also provide oral descriptions. Alongside annotations and information boxes, users are empowered to insert additional images and videos, guiding people in the course of the virtual expeditions.

Table 1

### *Timeline*

<b>Period</b>	<b>Procedures</b>
Initial Announcement	Researchers announced the teacher professional development program focused on creating virtual expeditions for exposure to target language and culture.
Selection of First Cohort	8 language teachers from Title 1 schools were selected based on specific criteria.
12-Hour Education Program	Participating teachers completed a comprehensive education program to develop virtual language and cultural expeditions.
Completion of Program	Upon completing the program, participants received a stipend, a certificate of participation, and a letter for their school principals.
Semester Following Initial Sessions	Selection of a second cohort of 9 language teachers, with two experienced teachers from the first cohort serving as facilitators.
Completion of Second Cohort Program	Similar to the first cohort, participants received a stipend, a certificate of participation, and a letter for their school principals.
Post-Professional Development Series	Regular correspondence between researchers and participating teachers to track the implementation of virtual expeditions in their educational settings. Teachers and students showcased their virtual expeditions at school-parent meetings and academic conferences.
Formation of Teacher Team	After the second semester, a team of teachers was convened to solicit input on the professional development series. Eight teachers accepted the invitation to participate in a 5-hour online process to provide recommendations and reflect on the series.

Participants were selected through a multi-step invitation and screening process. Invitations were sent to schools in the city where the study was conducted, addressed specifically to school principals. These invitations outlined the purpose of the study and requested teachers' participation. Schools were also encouraged to share the invitation with their networks. The invitation included a formal letter and a Google Form to collect preliminary background information. From the applicants, eight language teachers were selected based on specific criteria, including employment at Title 1 schools, defined as schools where at least 40% of students come from low-income families (US Department of Education, 2020). The participating teachers meeting these criteria underwent a comprehensive education program where they acquired the skills to develop virtual language and cultural expeditions tailored to their unique curriculum, classroom settings, departmental requirements, and the specific language they teach, among other pertinent factors. Taking 12 hours to complete, this education program provided foundational knowledge and practical experience for participants with little to no prior familiarity with virtual field experiences. Upon completion of the series, participants received a stipend, a certificate of participation, and a letter addressed to their school principals that could be utilized for promotion.

In the semester following the initial sessions of the series, a subsequent cohort of 9 language teachers were selected based on identical criteria from the pool of applicants. Two of the experienced language teachers from the previous cohort were invited to serve as facilitators in the program. Mirroring the approach taken with the first cohort, the participating teachers in the second cohort were compensated with a stipend, furnished with a certificate of participation, and provided with a letter addressed to their school principals offering commendation and recognition for their active involvement in the initiative.

Researchers continued regular correspondence with the participating teachers to track the implementation of virtual language and cultural expeditions in their respective educational settings following the culmination of the professional development series. Teachers along with their students who actively contributed to the creation of virtual language and cultural expeditions showcased their achievements at school through parent meetings and academic conferences. Throughout these presentations, a collaborative partnership persisted between researchers and teachers, fostering ongoing cooperation and shared efforts in the advancement and dissemination of virtual language and cultural expedition initiatives.

Following the second semester of the language teacher professional development series, a team of teachers was convened with the aim of soliciting input regarding teachers' perspectives on the series. All participating teachers were invited to offer recommendations concerning the design and creation of virtual language and cultural expeditions. The initial contact was made through email, and eight teachers accepted the invitation. They were asked to allocate five hours, during which they responded to questions related to their language ideology and engaged in reflective discussions on the materials and resources shared throughout the learning series. In a coda to this process, they critically reviewed the pacing guide developed for teacher education. This study explores systematic analysis of the data derived from an in-depth investigation of teachers' responses.

Table 2

*Participant Information*

Study alias	Language of instruction	Grade level(s) taught
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Adeline	Mandarin	grades 8-12
Kinzie	Spanish	grades 9-12
Shira	Hebrew	grade 2
Andie	American sign language	grades 9-12
Kayleigh	English	grade 8
Carmen	Spanish	grade 5
Natalie	French	grades 9-12
Jaime	Spanish	undergraduate level

### Data Collection

Data collection occurred in three sequential stages. A summary of the data obtained is indicated in the table below:

Table 3

#### *Stages of Data Collection*

Stages	Data type and Duration	Subsections
Stage 1	Written open-ended questions - 3 hours	<p>Articulation of goals: Inviting teachers to provide feedback on the goals of the language teacher professional development series.</p> <p>Virtual language and cultural expedition example review: Encouraging teachers to review an example trip crafted by a fellow participant and share their insights.</p> <p>Timeline examination: Seeking input from teachers on the timeline of the language teacher professional development series, encouraging them to scrutinize the sequence of events.</p> <p>Reflection questions: Soliciting teachers' responses to reflection questions aimed at gauging their individual insights and considerations.</p> <p>Session slide examination: Requesting teachers to examine and provide feedback on the slides utilized during the various sessions of the professional development series.</p>
Stage 2	Focus group conversation -	Semi-structured questions, online

	1.5 hours	
Stage 3	Individual interview - 0.5 hour	A multiple-choice survey: This survey aimed at asking questions on logistics including the dates, times, and duration of the professional development series, prioritization of activities during the session including discussions on digital citizenship, examples from peers, and getting feedback from peers.  Semi-structured questions, online

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In stage 1, participating teachers received a set of documents and slides accompanied by detailed instructions outlining the written portion of the data collection. This segment of the process spanned three of the five hours stipulated for participation. Participants were allocated one week to complete the initial stage of data collection, with the flexibility to divide the task according to their preferences, as it did not necessitate completion in a single session. The primary objective with the written portion was to leverage it prior to focus group discussions as a means to bring the team of teachers into conversation with one another in exchanging ideas that would yield group reflections and recommendations.

To facilitate the data collection process, researchers established a dedicated Google folder for each participating teacher, in which teachers were presented with six documents and four Google slide decks corresponding to the sessions of the teacher professional development series that they attended. The purpose behind this arrangement was to gather individual ideas about the pacing of the sessions, the design of learning activities, connections to methods of supporting language learning, reflections on what they learned, and ways to make the sessions more active for participation.

In stage 2, teachers were invited to participate in a focus group conversation that took place online (necessitated by the geographical dispersion of participants across different states). The researchers posed semi-structured questions using Google slides. While the researchers provided a framework of questions, they also allowed for the emergence of additional inquiries during the course of the conversation. The focus group session took 90 minutes and was video recorded to facilitate future analysis.

There was a division of tasks among the researchers for the individual interviews in stage 3. Each researcher was assigned to one or two of the participating teachers. Researchers benefited from a semi-structured interview scheme. Individual interviews also involved the phase of answering some multiple-choice questions. Each interview lasted approximately 30 minutes and was video recorded for future analysis.

## Data Analysis

The responses from participants were collectively coded and analyzed inductively to address the research questions. Inductive analysis is “from the ground up, rather than handed down entirely from a theory or from the perspectives of the inquirer” (Creswell, 2013, p. 22). Data on the written portion, focus group conversation, and individual interviews were collected to answer the research questions. Underlying ideas were examined qualitatively in a semantic

context for data triangulation, which refers to “combinations and comparisons of multiple data sources” (Teddlie & Tashakkori, 2009, p. 27).

Data analysis was conducted promptly after each stage of data collection. This enabled researchers to plan and implement necessary adjustments in the subsequent stages of data collection to address the research questions.

Table 4

*Steps of Data Analysis*

Data	Steps of data analysis
Written open-ended questions	<ul style="list-style-type: none"> <li>● Division of tasks among researchers to bring key points on a Google Doc</li> <li>● Researchers’ meeting to discuss the key points for interrater reliability</li> <li>● Preparation of probes for focus group conversation</li> </ul>
Focus group conversation	<ul style="list-style-type: none"> <li>● Initial discussion of the data</li> <li>● Data transcription</li> <li>● Inductive coding</li> <li>● Creation of a code book</li> </ul>
Individual interview	<ul style="list-style-type: none"> <li>● Model analysis of one interview</li> <li>● Inductive coding</li> <li>● Adding code into the codebook</li> </ul>
Multiple choice questions	<ul style="list-style-type: none"> <li>● Descriptive analysis</li> <li>● Obtaining themes (key characteristics of a language teacher professional development program)</li> </ul>

***Data Analysis Post-Written Open-Ended Questions***

Data obtained in Stage 1 via written open-ended questions was initially analyzed by the research team. There was a division of tasks among the researchers to bring out a summary of key points in each subsection of the written data, which was compiled on a single Google document accessible to all researchers. Researchers convened to discuss key points for interrater reliability, then used these to formulate probes for the focus group conversation.

***Data Analysis Post-Focus Group Conversation***

Data analysis for the focus group conversation (Stage 2) occurred in three consecutive stages. The researchers met just after the focus group conversation for initial discussion. In the next stage, data was prepared for analysis with the transcription process, followed by a revision process in which inductive coding procedures were implemented. In the course of the second and third meetings, the researchers collaboratively created a code book.

### ***Data Analysis Post-Individual Interviews***

For the individual interview data analysis, researchers came together to analyze one of the interviews as a model for subsequent ones. This process commenced with transcription. Researchers benefited from online transcription tools but also had concerns about their reliability, prompting necessary revisions. They then read the transcripts and identified deductive codes.

### ***Final Steps In Data Analysis***

Multiple-choice data analysis started as researchers initially examined the results. In the following two meetings, researchers discussed these results and prepared the data for descriptive analysis. In a coda to these processes, themes were derived that provided answers to the research questions.

## **FINDINGS**

This research seeks to identify the specific attributes and components that define the essential characteristics of professional development programming, particularly with respect to the integration of educational technologies in language teaching. Additionally, it aims to explore how the insights provided by language teachers contribute to a nuanced understanding of these characteristics. Data analysis of written answers, focus group conversation, individual interviews, and multiple-choice questions yielded five central themes that together set the parameters for effective language teacher professional development programs, particularly with respect to the integration of educational technologies.

### **Promote Multimodality To Allow Diverse Means Of Communication**

The first characteristic of language teacher professional development programs discussed here is the promotion of multimodality. This involves integrating various means of creating meaning and communication, encompassing written forms of the target language as well as diverse modalities such as sounds, images, videos, and more.

Table 5

*Theme: Promote Multimodality To Allow Diverse Means Of Communication*

<b>Subthemes</b>	<b>Sample Quotation</b>
modalities' semiotic weight	<i>"The target linguistic code must be taught, no doubt, but sometimes other modalities may have a lot more semiotic weight, especially when technology is involved."</i> (Jaime, written open ended questions)
communicative possibilities	<i>"Creates a stronger link to language learning for teachers by being able to link reading, writing, social studies, and art in a digital form. Students are provided new communicative possibilities"</i> (Carmen, written open ended questions)
incorporation of	<i>"I built for them, um, like a walk in Israel with a map, which incorporates sounds and pictures,</i>

modes	<i>because it is the way I teach.”</i> (Shira, individual interview)
immersivity	<i>“Our challenge with kids here in Hawaii is that it’s challenging to travel from here. I feel like it’s almost the next best thing to being there. It’s even better than just watching the video, it’s interactive.”</i> (Kayleigh, individual interview)

Participating teachers indicated the potential benefits that the incorporation of multiple modes might bring to language classes. Their insights in the issue of multimodality were reiterated in written data, focus group conversation, and individual interviews.

## Prepare Teachers For Implementation In Their Own Settings

Participating teachers in the study emphasized the importance of being prepared to implement their learnings in their educational settings. They noted that language teacher professional development programs should move beyond one-size-fits-all models and theories, as school contexts often require adaptations. Effective programs, therefore, should equip teachers with the tools and flexibility needed to apply their knowledge in context-specific ways.

Table 6

*Theme: Prepare Teachers For Implementation In Their Own Settings*

Subthemes	Sample Quotation
full potential of technologies	<i>“If teachers are not provided effective professional development on new technologies, they will not be capable of using it to its full potential.”</i> (Carmen, written open ended questions)
student design as the target	<i>“If the students are capable of designing—wow, they are creating in the target language—then it should be the objective [of a language teacher professional development series].”</i> (Shira, focus group conversation)
alignment with curriculum	<i>“Aligning the content [of a language teacher professional development series] to curriculum is important. I mean, I’m sure most people work from a curriculum, and you know I cannot go away from it.”</i> (Kinzie, focus group conversation)
conference presentation	<i>“I created my own ... I presented it to my students. And after that, the students went on to creating their own... I presented it at a conference. I included students’ work.”</i> (Carmen, individual interview)
projects beyond school	<i>“We’re trying to launch a program this year that has to do with sustainable tourism in Hawaii. ...the kids to work on some kind of projects.”</i> (Kayleigh, individual interview)

Implementation, as indicated in the data, was not limited to in-class practices. Results show that implementation goes beyond that, and it also involves teachers’ engagement with conferences and projects beyond the classroom.

## Welcome Teachers' Diverse Language Learning Philosophies

Teachers participating in a language teacher professional development program may hold diverse philosophies and ideologies regarding language learning. Effective programs feature design that encourages an openness to accommodating teachers and their individual language learning philosophies, a focus that forms the third key characteristic researchers pinpointed.

Table 7

*Theme: Welcome Teachers' Diverse Language Learning Philosophies*

Subthemes	Sample Quotation
learning in context	<i>"Students need to use the language, communicate, learn grammar in context."</i> (Natalie, written open ended questions)
repetition	<i>"Language learning occurs when interactions using the language are repeated until they become second nature for the students."</i> (Shira, written open ended questions)
developing teaching skills	<i>"We are constantly focusing on developing our own skills and our own knowledge [of second language learning]"</i> (Andie, focus group conversation)
language for communication	<i>"They [students] can do real things that they can explore through using a language as they realize that language is for the purpose of communication."</i> (Adeline, individual interview)

As indicated in the preceding table, some educators endorse the repetition of target language items, while others subscribe to the belief that language learning is most effective within a context or for communication purposes. Additionally, teachers bring a wide range of experience and levels in terms of acquiring new skills and knowledge related to language learning.

## Address Equity And Inclusion Concerns Of Language Teachers

Teachers placed an emphasis on critical perspectives of second language acquisition, indicating a fourth characteristic of effective professional development programming.

Table 8

*Theme: Address Equity And Inclusion Concerns Of Language Teachers*

Subthemes	Sample Quotation
digital divide	<i>"When students are required to bring their own device to school, there can be large differences in device capability."</i> (Carmen, written open ended questions)

stereotypes	<i>“When I taught Spanish, all the families from the different countries represented in the curriculum had light skin and were wealthy. How can we break out from this typical way of showing a language?”</i> (Andie, written open ended questions)
ensorships	<i>“Culture is necessary to communicate and a big part of the future of communication- businesses need people who can communicate across different cultures, not just languages. How much can be said before the government censors it?”</i> (Adeline, written open ended questions)
diversity	<i>“That would be a great way to get them [students] involved with different areas and looking at the diversity that there is, and that it’s not all Beijing or Shanghai.”</i> (Adeline, individual interview)

Teachers indicate that language teaching involves the consideration of critical perspectives such as different income levels in the classroom; how people, places, and ideas are represented in language materials; and possible limitations imposed by different administrative bodies.

### Present Participating Teachers With Multiple Examples And Resources

Finally, teachers indicated the significance of identifying and assembling pedagogical resources and materials. Rather than using them uncritically, they stressed the importance of such resources as potential models, to be organically integrated into their own settings and adjusted over multiple iterations.

Table 9

*Theme: Present Participating Teachers With Multiples Examples And Resources*

Subthemes	Sample Quotation
beginning teachers	<i>“If it’s a beginning teacher, they may need support with the resources, like collecting the resources. They need more help.”</i> (Natalie, focus group conversation)
preparation	<i>“I actually would prefer to have the examples sent to me ahead of time, and like to have a chance to look at them.”</i> (Andy, focus group conversation)
gallery walk	<i>“I think the gallery walks for me are especially helpful, seeing how other people integrated speaking, questioning of students, and facilitating it with students, how other teachers scaffolded the technologies with their students and set out very specifically what they want their students to accomplish, and their instructions, how they were graded on rubrics.”</i> (Adeline, individual interview)
different needs for different learner groups	<i>“Give examples for different types of teachers. For instance, teachers with young learners. It can be middle school, it can be high schoolers. I think just giving a taste of what each person can find in it.”</i> (Shira, individual interview)

As the participating teachers indicated, varied and plentiful materials and teaching exercises are particularly crucial for beginning teachers and experienced teachers too. The examples cited, such as a gallery walk, were reported to have helped teachers develop their language teaching materials.

## DISCUSSION

As discussed, researchers identified five key characteristics of effective language teacher professional development programs geared toward integrating educational technologies. The first distinctive feature is the promotion of multimodality. Multimodality refers to “approaches that understand communication and representation to be more than about language, and which attend to the full range of communicational forms people use—image, gesture, gaze, posture, and so on—and the relationships between them” (Jewitt, 2009). “This perspective elucidates how meaning is created through the synergistic interaction between different modes” (Smith et al., 2021, p. 3). Teachers recognize novel understandings to human meaning-making that is not limited to written means of communication (The New London Group, 1996), and that involves a combination of image, writing, layout, speech and even touch (Jewitt et al., 2016). Instead of viewing other modes of communication as an aid to the written form (Jewitt, 2009), teachers utilize various modes to access and create meaning. It is possible that teachers’ growing interest in multimodality and their search for tools and teaching methods that incorporate diverse means of communication stem from their learners’ multimodal means of communication in their lives (Vasudevan et al., 2010). As Ventola et al. (2004) assert, “[t]he various possibilities of combining communication modes in the ‘new’ media, like the computer and the Internet, have forced scholars to think about the particular characteristics of these modes and the way they semiotically function and combine in the modern discourse worlds” (p. 1). Likewise, teachers acknowledge the possibilities of using multiple modes of meaning-making that already exist in learners’ lives. Ajayi (2015) says there is an “urgent” demand from teachers to learn multiple ways to integrate multimodality into their school settings “so that teachers can prepare students to read and create multimodal texts” (p. 216). In keeping with these findings, we recommend that future language teacher professional development programs place emphasis on the promotion of multimodality.

Secondly, the results indicate that a language teacher professional development program is expected to equip teachers to implement their takeaways in their own educational settings. This result corroborates findings of El Shaban and Egbert (2018), which indicate that even though the concept of utilizing technology in language learning settings is not a new phenomenon, some teachers might perceive it as novel because the concept of educational technologies as an innovation may not be entirely diffused. Consequently, they advocate for post-education stages that include implementation, offering opportunities for communication, collaboration, professional development, resource access, and encouragement. Hence, in their study, implementation receives as much emphasis as educational stages.

This dovetails with the third key finding, which involves the creation of language materials and exercises in the course of implementation, a concept that is reflected on Hobbs’s (2017) create-to-learn approach, rooted in the idea that “people learn best when they create” (p. 3). The results indicate that teachers recognize the potency of student engagement and creation.

Fourth, we find that in order to recognize and reflect the diverse language learning philosophies that teachers bring to the program, an effective language teacher professional

development program is designed so as to welcome this diversity. The results showed that some teachers adhere to repetition of target language items, while others adopt communicative methods. There are also teachers open to learning new methods and approaches. To this end, a defining characteristic of a professional development program is its capacity to welcome participating teachers' varied experiences (Booth et al., 2017), their exercise of choice (Dikilitaş & Mumford, 2019), and their teacher identities (Derakhshan et al., 2020). These elements collectively help build the formulation of teachers' language learning philosophies that they apply to their teaching. Roberts (2016) underscores that established teachers value their knowledge and experiences, preferring to build upon them. To this end, an effective program acknowledges that “teacher learning emerges out of and is constructed by teachers within the settings and circumstances of their work” (Johnson, 2009, p. 3).

Lastly, teachers demonstrate an awareness of critical issues such as the digital divide in their classroom settings; stereotypical ideas and images represented in their lesson materials and an associated lack of diversity of people and accents; and problems related to social hierarchies and government censorship, not only in their own countries, but also in the countries where the target language is spoken. Ural (2022) indicates that critical perspectives are often ignored when designing educational technologies and that “it is important to note which voices are represented in the [language teaching] material. Stereotypical ideas prevalent in coursebooks might make it all the way to the cutting-edge technological course materials” (p. 201). To this end, there is a pressing need to incorporate critical perspectives in such programs, given the growing awareness of this issue among language teachers and demands for strategies to address potential issues present in both traditional language teaching materials and emerging educational technologies.

An essential aspect highlighted by teachers is the need for language teacher professional development programs to furnish participating teachers with examples and resources. However, it is crucial to clarify that examples should not be perceived as models for direct imitation or replication. Each teacher's micro and macro level working conditions differ considerably; therefore, top-down prescriptive directives are viewed as less relevant by teachers (Roberts, 2016). Instead, examples are provided with the participating teachers to strengthen their takeaways. As important as examples, the provision of resources for creating language teaching materials is indicated to be an essential component. Since language teachers are not expected to be passive recipients of information provided with them during professional development programs, they are asked to create and come up with lesson materials that take into account learning outcomes, school dynamics, and their takeaways from the program. Hence, providing participating teachers with a repository of examples and resources is a key characteristic of effective professional development programming.

## Limitations

The study explored the characteristics of language teacher professional development programs. Due to the limited number of participants involved in the study, different characteristics may emerge when working with other participant groups. Future studies with a bigger number of participants might benefit from quantitative data analysis, and future research might reflect and bring into conversation both instructor and student perspectives. Future studies are recommended to build on our findings by engaging different participant groups. Secondly, our data should not be interpreted as involving all the needs of language teachers attending a professional development program. Gaining an understanding of teachers

on their own terms before the content creation phase of a language teacher professional development program is recommended. Finally, although the study includes tracking of program implementation, its limitation lies in the absence of a long-term evaluation of its lasting impact on teaching practices, as the findings reflect most recent outcomes obtained.

## CONCLUSION

In examining and defining the essential characteristics of effective language teacher professional development programs, this study argued for the primacy of teacher generated insights in building a nuanced understanding of recommended parameters. Results indicated that a language teacher professional development program is expected to promote multimodality, prepare teachers for implementation, welcome teachers' diverse language learning philosophies, address critical perspectives, and present examples and resources. The findings of this study suggests that language teacher educators developing professional development programs are recommended to integrate these five characteristics to ensure effectiveness.

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