

Teachers' predispositions toward playful learning: implications for teacher training

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Abstract

During Covid-19, schools adopted Emergency Remote Teaching, and teachers had the opportunity to use methodologies based on playful learning (free and guided play, etc.). In this context, quantitative research was designed on the predispositions of 157 Brazilian teachers towards playful learning, comparing teaching experience, educational level and type of institution. The results obtained from a previously validated questionnaire showed the teachers of “*Fundamental I*” (6-10 years) and municipal schools are more predisposed to playful learning, use it more frequently and consider it more suitable for Emergency Remote Teaching. On the other hand, teachers from “*Municipal*” and “*Estadual*” public schools reported less support in teacher training focused on didactic diversification and perceived more difficulties during the Emergency Remote Teaching. In addition, these difficulties were significantly related to the non-diversification of activities in the period.

Keywords

playful learning; Emergency Remote Teaching; Teachers' predispositions; teacher training.

Predisposições dos professores sobre a aprendizagem lúdica: implicações para a formação docente

Resumo

Durante a Covid-19, as escolas adotaram o Ensino Remoto Emergencial e os professores tiveram a oportunidade de utilizar metodologias baseadas na aprendizagem lúdica (brincar livre e guiado, etc.). Nesse contexto, desenvolveu-se uma pesquisa quantitativa sobre as predisposições de 157 professores brasileiros para a aprendizagem lúdica, comparando-se experiência docente, nível educacional e tipo de instituição. Os resultados obtidos a partir de um questionário previamente validado mostraram que os professores do ensino fundamental I (6-10 anos) e das escolas municipais estão mais predispostos ao aprendizado lúdico, o utilizam com mais frequência e o consideram mais adequado ao Ensino Remoto de Emergencial. Por outro lado, os professores das escolas municipais e estaduais relataram menos apoio na formação docente voltada para a diversificação didática e perceberam mais dificuldades durante o Ensino Remoto de Emergencial. Além disso, essas dificuldades estão significativamente relacionadas a não diversificação das atividades no período.

Palavras-chave

aprendizagem lúdica; Ensino Remoto de Emergencial; predisposição dos professores; formação de professores.

Predisposiciones del profesorado sobre el aprendizaje lúdico: implicaciones para la formación docente

Resumen

Durante la Covid-19, las escuelas adoptaron la Enseñanza Remota de Emergencia y los docentes tuvieron la oportunidad de usar metodologías basadas en el aprendizaje lúdico (juego libre y guiado, etc.). En este marco, se diseñó una investigación cuantitativa sobre las predisposiciones de 157 profesores brasileños hacia el aprendizaje lúdico, comparándose la experiencia docente, el nivel educativo y el tipo de institución. Los resultados obtenidos a partir de un cuestionario previamente validado mostraron que los profesores del “Fundamental I” (6-10 años) y de escuelas municipales están más predispuestos al aprendizaje lúdico, lo utilizan más frecuentemente y lo consideran más ajustado a la Enseñanza Remota de Emergencia. Por otro lado, los docentes de las escuelas municipales y estatales reportaron menor apoyo en la formación docente enfocada a la diversificación didáctica y percibieron más dificultades durante la Enseñanza Remota de Emergencia. Además, estas dificultades se relacionaron significativamente con la no diversificación de las actividades en el periodo.

Palabras clave

aprendizaje lúdico; Enseñanza Remota de Emergencia; predisposición de docentes; formación de profesores.

1 Introduction

Play is recognised as a freedom right in the Brazilian Child and Adolescent Statute (BRASIL, 1990). This concern is shared globally, as observed in the Convention on the Rights of the Child (UN, 1989). If the importance of play is well addressed in childhood, it seems to dissipate as people get older. Some adults may consider playing an insignificant component of their world (TEGANO; GROVES; CATRON, 1999). It sometimes is even viewed as the antithesis of professionalism and adult life (VARELA; FRAGUELA-VALE; LÓPEZ-GÓMEZ, 2021).

However, play is a hard concept to define (MITTON; MURRAY-ORR, 2022; ZOSH *et al.*, 2018). Discussions around it are usually vague and void of nuance (ZOSH *et al.*, 2018). Some people consider playing exclusively as free play, which means unstructured activities initiated and self-directed by children (MITTON; MURRAY-ORR, 2022). On other occasions, playing is referred to as a synonym for games (MINEIRO; D'ÁVILA, 2019), wherein voluntary participants agree on structure and rules and are driven by pure entertainment without extrinsic goals such as learning.

If, on the one hand, joy provided by play already justifies its value (if it had to be defended in the first place). On the other hand, play goes beyond the pursuit of joy. Play

is an intrinsic social and human activity established through interaction with the world (SILVESTRE; BARBOSA, 2022). In this sense, Heljakka (2021) investigated a social phenomenon in Finland during the pandemic of Covid-19. Adults and children enrolled in a social play of displaying teddy bears in visible places such as windows and gardens. People created different compositions with those toys and shared many photos on social media. The author highlighted playfulness as resilience. In this case, play aimed to mitigate the adverse effects of social distancing. Through this trend, people could reconnect with each other and express feelings, such as positivity and willingness to contribute to the common good.

In this way, despite a disinterested first look, playfulness is also addressed with purposeful outcomes. Accordingly, it is a topic of increasing interest in education (SANTOS; PEREIRA, 2019). A plethora of studies argue for the positive impact of playfulness on students' motivation, learning content knowledge, skills (ZOSH *et al.*, 2018) and behaviour change, such as fostering a positive attitude toward reading books (QUIXADÁ; LINS; TAVARES, 2018).

The bulk of the research literature on playful learning is concentrated in childhood (ALSINA, 2004; MINEIRO; D'ÁVILA, 2019; MITTON; MURRAY-ORR, 2022; SILVA, N.; SILVA, J.; COSTA, 2020), and accordingly, most teachers assert a playful role in child life (OLIVEIRA; SILVA, 2016). On the contrary, little research has been conducted considering the impact on older children or adults (KING, 2018).

In this research, we argue that play constitutes individual, social, cultural (SANTOS; PEREIRA, 2019), and intergenerational (HELJAKKA, 2021) enterprise accessed through different forms (SANTOS; PEREIRA, 2019). In this sense, play is understood as a spectrum (ZOSH *et al.*, 2018) which goes from unstructured to formal and organised activities. Playful encompasses free play at one end, passing through activities such as guided play, games, gamification (LÓPEZ; RODRIGUES-SILVA; ALSINA, 2021), and theatre (MORAL-BARRIGÜETE; MASSÓ GUIJARRO, 2022) until playful direct instruction at the other end.

This broader view of play as a spectrum allows it to be considered across educational levels (MITTON; MURRAY-ORR, 2022). Play becomes more structured as we progress in the academic percuss (MITTON; MURRAY-ORR, 2022; TEGANO;

GROVES; CATRON, 1999). So free play might be more suitable in early childhood, and games/gamification may gradually gain space with older students.

Teachers are likely to understand the concept of playfulness differently (KHALIL *et al.*, 2022), and they may not have this wide-ranging understanding of it. Tegano, Groves and Catron (1999) found a strong positive correlation between teachers' playfulness as a personal trait and their ambiguity tolerance. They concluded that playful teachers might even create ambiguous situations to support students' curiosity and risk-taking.

Playfulness requires appropriate planning to contextualise knowledge and achieve learning goals (TOMAZ DE AQUINO *et al.*, 2020). Mitton and Murray-orr (2022) enrolled in an in-depth of one middle school teacher's practices with a focus on how she infuses play into learning. They observed three main aspects that should be nurtured in play infusion: belief in students' efficacy, relationship with students and families, and excitement. Moreover, the authors concluded that teachers need, beyond this pedagogical knowledge, creativity to infuse play and create optimum learning conditions.

Teachers consider the infusion of play a complex task (NDLOVU; MNCUBE, 2021). They report weak theoretical scaffolding (KHALIL *et al.*, 2022; OLIVEIRA; SILVA, 2016) and a low ability to design play-based learning (KHALIL *et al.*, 2022). Poorly planned environments lead to chaos, while this confusion and disharmony do not give children the opportunity for creative growth (TEGANO; GROVES; CATRON, 1999).

As stated before, the play might be a coping mechanism for increased perseverance in challenging times such as pandemics (HELJAKKA, 2021). In this sense, playful learning seems reasonable to be adopted during Emergency Remote Teaching (ERT). However, teachers and educators expressed that their motivations for play decreased due to the ERT context imposed by the pandemic period (KHALIL *et al.*, 2022).

Covid-19 lockdown resulted in restrictions on conventional spaces for play and shrunk to the domestic sphere (HELJAKKA, 2021). It changed the kind of game, limiting physical games, principally those that require displacement and object manipulation (VARELA; FRAGUELA-VALE; LÓPEZ-GÓMEZ, 2021). Varela, Fraguela-Vale, and López-Gómez *et al.* (2021) studied the lockdown effect on time dedicated to games in Spain. They concluded that the time of playing games increased notably but especially concerning digital ones. Schools increased assistance to families with games. However,

only half of the families received recommendations and game-related school assignments.

Although playful learning is a source of enjoyment for both teachers and students (KHALIL *et al.*, 2022), teachers' predisposition encounters contradictory landscapes: playful learning is highly recommended in education, but the vague definition may prevent them from considering it throughout the continuum of educational levels. Teachers may face other difficulties, such as inadequate time to enrol in playful activities (SANTOS; PEREIRA, 2019), curriculum inflexibility, and insufficient resources and physical space (KHALIL *et al.*, 2022). Additionally, the Covid-19 lockdown reduced spaces available for playing, which became mainly restricted to the domestic sphere (HELJAKKA, 2021). Consequently, teachers' opinions regarding playful learning in this context are unclear.

According to all presented above, this research should explore Brazilian teachers' opinions, training and application of playful learning, bearing in mind the ERT adopted during the pandemics of Covid-19. We aim to make comparisons of those aspects regarding their teaching experience, educational level, and institution type.

Next, the article presents the research methods with information about the questionnaire we administered, the sample characteristic, and the data analysis procedure. Results and discussions follow the order of topics from this data collection instrument.

2 Methods

According to the presented objective, this research was developed with a quantitative approach, and a cross-section design, which means data was collected once at a time (LAWSON; FAUL; VERBIST, 2019).

2.1 Data collection instrument

As an instrument, we administered an online survey adapted from Fernandes, Santana and Rodrigues-Silva (2022). Those authors also explored Brazilian teachers' opinions on playful learning in ERT, focusing on teachers of History.

Table 1 presents a summary of the instrument used in this research. It has four blocks, namely: Sample characteristics, Playful learning and ERT, Teacher training centred on teaching methods diversification, and use of playful activities.

Table 1 – Instrument summary of topics

Block	Variable	Item	Variable type
Sample characteristic	Teaching experience	1	Categorical
	Educational level	1	Categorical
	Institution type	1	Categorical
Playful learning and ERT	Predispositions toward playful learning	4	Scale (aggregation)
	Playful learning suitability in ERT	4	Scale (aggregation)
	Difficulties in ERT	13	Scale (aggregation)
	Teaching method diversification in ERT	14	Scale (aggregation)
Teacher training centred on teaching methods diversification	Teacher training provided by the institution*	2	Ordinal (Likert)
	Teacher training searched autonomously*	2	Ordinal (Likert)
Use of playful activities	Use of playful activities*	2	Ordinal (Likert)

* Repeated measure of the variable considering before the pandemics and during ERT.
Source: Own elaboration (2022).

Each variable will be further explained in the topic of data analysis. However, at this point, some instrument features are worth highlighting. For example, sample characteristics comprise the independent variables used to establish comparison groups: teaching experience, educational level, and institution type. Moreover, variables in the second block were obtained from an aggregation of Likert questions. Difficulties in ERT refer to a list of items teachers were likely to face during the ERT: poor internet access and excessive workload. Teaching method diversification in ERT refers to a list of strategies, e.g., games, seminars, discussion boards.

This survey was publicised through online channels such as email lists and social media and focused on teachers from basic education.

2.2 Sample

After approximately one month of divulgation, 157 Brazilian teachers volunteered to participate in the research. All of them firmed a consent term and were considered in

this research. Those participants are in-service teachers from different subjects. Their main characteristics are summarised in Table 2.

Table 2 – Sample characteristics (independent variables for comparison groups)

Sample characteristic (independent variable)	Level	N	%
Teaching experience	Novice (up to 5 years)	52	33%
	Experienced (more than 5 years)	105	67%
Educational level	<i>Ensino Fundamental I</i> (students' age: 6 – 10 years)	39	25%
	<i>Ensino Fundamental II</i> (students' age: 11 – 14 years)	48	31%
	<i>Ensino Médio</i> (students' age: 15 – 17 years)	70	45%
Institution type	Private school	28	18%
	<i>Municipal</i> (Public schools funded at the town level)	44	28%
	<i>Estadual</i> (Public schools funded at the state level)	60	38%
	<i>Federal</i> (Public schools funded at the federal level)	25	16%

Source: Own elaboration (2022).

As stated earlier, those characteristics will be addressed as independent variables. So, we better explain how their levels were constituted. Teaching experience has two levels: novice, a newly qualified teacher with up to five years of professional teaching practice (MAKOA; SEGALO, 2021); and experienced teacher, with more than five years of teaching. The Educational level variable has three divisions established according to the Brazilian Curriculum (BRASIL, 2018). Those educational levels can be approximated to the British curriculum, for example, as Primary School corresponding to “*Ensino Fundamental I*” and “*Ensino Fundamental II*” and Secondary School being analogous to “*Ensino Médio*”. In Brazil, education responsibility is shared between towns, states and federal levels. For instance, towns are responsible to guarantee people access in “*Fundamental*” level (BRASIL, 1996).

2.3 Data analysis

During the analysis, Statistical Package for the Social Sciences (SPSS) served as the computational tool for the statistics. The significance α of 5% was set as the threshold in all statistical tests throughout this research.

The first instrument block refers to playful learning and ERT. In this part, ordinal variables (Likert) were aggregated into four scale variables: predisposition toward playful learning (ranging from 13 to 65), difficulties in ERT (ranging from 4 to 20), teaching

method diversification in ERT (ranging from 14 to 70) and playful learning suitability in ERT (ranging from 4 to 20). Then, a Pearson r was calculated to observe the relation between them.

Afterwards, we conducted One-Way ANOVA in those same four variables to verify differences considering the independent variables. Whenever Levene's test was significant, we conducted the non-parametric options: Wilcoxon Mann-Whitney Test for two groups; or Kruskal-Wallis Test for more than two groups (LAWSON; FAUL; VERBIST, 2019).

Next, elements from the two last instrument blocks are addressed as ordinal variables. The third block refers to teacher training centred on diversifying teaching methods. The training is specified whether it was provided by the institution or searched autonomously. Finally, the fourth block refers to the use of playful activities. At this point, the analysis addressed data which were answered considering the period before the pandemic. Non-parametric options, Wilcoxon Mann-Whitney Test (for two groups) or Kruskal-Wallis Test (for more than two groups), were applied because of the ordinal nature of those independent variables.

Despite the cross-sectional research design, participants were to answer questions from those two last instrument blocks considering the temporal frames: before the pandemics and during the ERT. In this case, we highlight data concerning the period before pandemics relies on teachers' memory. However, pandemics could not be anticipated in this research. Therefore, this strategy allowed us to do a virtual pre-post design. Wilcoxon Signed Ranks Tests were suitable for within-subject paired comparisons (WILCOXON, 1945). Following, we present the results obtained from those analyses.

3 Results

Results are presented following the sequence in which data was analysed. As stated before, questions of the first block of the instrument were aggregated into four scale variables. Table 3 presents the calculus of the Person r coefficient, which indicates the relationship between them.

Table 3 – Relationship between teachers' opinions about playful learning, Teaching method diversification, and ERT. Person r coefficient

	Predispositions toward playful learning	Playful learning suitability in ERT	Difficulties in ERT	Teaching method diversification in ERT
Predisposition toward playful learning	1	.702**	-.014	.116
Playful learning suitability in Emergency Remote Teaching (ERT)	.702**	1	-.135	.269**
Difficulties in ERT	-.014	-.135	1	-.324**
Teaching method diversification in ERT	.116	.269**	-.324**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Own elaboration (2022).

Results indicate a significant strong positive relationship between teachers' predisposition toward playful learning and how they value the Playful learning suitability in ERT ($r = .702$, $p = 001$). This result is relatively straightforward. Teachers with a higher predisposition toward playful learning consider it an important approach during the ERT. Moreover, a significant moderate positive points to the relationship between the Playful learning suitability in ERT and teaching method diversification in ERT ($r = .269$, $p = 001$). Again, teachers who diversify their teaching in the ERT consider playful learning as an essential approach during this period.

The variable about difficulties in ERT was not statistically related to teachers' predisposition to playful learning or teachers' evaluation of the Playful learning suitability in ERT. However, the variable on difficulties in ERT was negatively related to teaching method diversification in ERT ($r = -.324$, $p = 001$). So, results suggest teachers tend to diversify their teaching less as they face more difficulties during this period.

Cautiously, a global insight can be drawn if we observe the means of those four elements divided by the number of original elements. Predispositions toward playful learning had a mean of 4.4. Similarly, playful learning suitability in ERT had a mean of 4.1. Those values are closer to the fourth element of the original Likert scale, pointing to an overall agreement with each aggregated question. On the other hand, teaching method diversification in ERT had a mean of 3.3, and Difficulties in ERT had a mean of

2.8. Those means are closer to the third element of the original Likert scale, which denotes being neutral to each question.

Continuing analysis of this first instrument block, ANOVA (or non-parametric equivalent) tests were run to compare those four scale variables considering the independent variables, as presented in Table 4.

Table 4 – Comparisons of teachers' opinions on playful learning and ERT regarding the independent variables. ANOVA or Kruskal-Wallis tests

Independent variable		Predispositions toward playful learning	Playful learning suitability in ERT	Difficulties in ERT	Teaching method diversification in ERT
Teaching experience	Test p	$F_{(1,155)} = .006$.936	$F_{(1,155)} = .366$.563	$F_{(1,155)} = .451$, .503	$F_{(1,155)} = 1.46$.229
Educational level	Test p	$\chi^2_{(2)} = 6.92$.031*	$F_{(2,154)} = 3.56$.031*	$F_{(2,154)} = 1.81$, .167	$F_{(2,154)} = 1.44$.241
Institution type	Test p	$\chi^2_{(3)} = 8.61$.035*	$F_{(3,153)} = 4.38$.005*	$F_{(3,153)} = 5.13$, .002*	$\chi^2_{(3)} = 5.48$.140

Source: Own elaboration (2022).

Kruskal-Wallis Test indicated a significant difference in teachers' predisposition toward playful learning regarding the educational level ($\chi^2_{(2)} = 6.92$, $p = .031$). "*Ensino Fundamental I*" presents the highest mean rank (94.8), followed by "*Ensino Fundamental II*" (76.0) and "*Ensino Médio*" (72.3). Another Kruskal-Wallis Test also evidenced significant differences in teachers' predisposition toward playful learning considering the institution type ($\chi^2_{(3)} = 8.61$, $p = .035$). "*Municipal*" schools presented the highest mean rank (93.8), followed by Private (77.1), "*Estadual*" (75.5) and "*Federal*" (63.4) schools.

An ANOVA pointed to significant differences in teachers' assertion of the Playful learning suitability in ERT according to the educational level ($F_{(2,154)} = 3.56$, $p = .031$). A Bonferroni post hoc comparison was conducted to determine the differences between groups. It indicated "*Ensino fundamental I*" had a significantly higher mean, 17.2 (SD 2.80), in comparison to "*Ensino Médio*", with a mean of 15,3 (SD 3.68) ($p = .001$). Moreover, teachers' evaluation of the Playful learning suitability in ERT also varies according to the institution type ($F_{(3,153)} = 4.38$, $p = .005$). A Bonferroni post hoc comparison clarified that "*Municipal*" schools had a mean of 16.8 (SD 2.70), significantly superior to the "*Federal*" school, with a mean of 14,44 (SD 3.70) ($p = .012$). Other combinations had non-significant differences.

Teachers evaluated difficulties in ERT differently according to the institution type they work (ANOVA $F_{(3,153)} = 5.13$, $p = .002$). A Bonferroni post hoc comparison test indicated that teachers' from Private and "Federal" schools evaluate a similar level of difficulty, with means of 38.3 (SD 11.1) and 43.3 (SD 11.2), respectively. Notwithstanding, Private schools have a significantly lower mean compared to "Estadual" – 45.0 (SD 10.1) ($p = .042$) or to "Municipal" Schools – mean 46.5 (SD 11.7) ($p = .012$). The means of "Estadual" and "Municipal" schools showed no significant difference.

Now on, we present results from the two last instrument blocks. Questions from those blocks were answered considering the period before the pandemic. Descriptive analysis shows that teacher training provided by the institution had a median of 3, which means neutral on the original Likert scale. At the same time, an autonomous search for such training presented a median of 5, which corresponds to very frequent in the original Likert scale. The use of playfulness was evaluated with a median of 4, which means frequent. Moreover, we used Kruskal-Wallis or Wilcoxon Mann-Whitney tests to compare differences in those three variables regarding the independent variables, as shown in Table 5.

Table 5 – Teacher training and Use of playful activities before the pandemic period, compared to the independent variables. Kruskal-Wallis and Wilcoxon Mann-Whitney tests

Independent variable		Teacher training* (provided by the institution)	Teacher training* (autonomous search)	Use of playful activities
Teaching experience	Test p	Z = -.330 .741	Z = -1.50 .132	Z = -.160 .873
Educational level	Test p	$\chi^2_{(2)} = 1.66$.436	$\chi^2_{(2)} = .771$.680	$\chi^2_{(2)} = 23.8$.001*
Institution type	Test p	$\chi^2_{(3)} = 19.5$.001*	$\chi^2_{(3)} = 1.961$, .581	$\chi^2_{(3)} = 13.0$.005*

* Centred on teaching methods diversification.

Source: Own elaboration (2022).

Kruskal Wallis test pointed to a significant difference in teacher training provided by the institution regarding the institution type ($\chi^2_{(3)} = 19.5$, $p = .001$). Private and "Federal" schools present the highest mean ranks, 105.8 and 94.2, respectively. By contrast, "Municipal" and "Estadual" schools resulted in smaller rank means, 69.6 and 67.0, respectively.

The Use of playful activities frequency differs significantly regarding teachers' educational level of activity ($\chi^2_{(2)} = 23.8, p = .001$). “*Ensino Fundamental I*” presented a much higher mean rank, 108.4, than the levels “*Ensino Fundamental II*”, 70.9; and “*Ensino Médio*”, 68.2. Adicionally, the Use of playful activities also varies according to the institution type ($\chi^2_{(3)} = 13.0, p = .005$). “*Municipal*” school had a mean rank of 97.5; Private school, 80.9; “*Federal*” school, 72.8; and “*Estadua*” school, 67.1.

Those same three aspects were analysed through Wilcoxon Signed Ranks tests to verify changes that might exist between the period before the pandemic and during ERT. Those results are presented in Table 6.

Table 6 – Paired comparisons of teacher training and Use of playful activities before pandemics and during ERT. Wilcoxon Signed-Ranks Test

	Teacher training* (provided by the institution)	Teacher training* (autonomous search)	Use of playful activities
Test	Z = -1,251 ^a	Z = -2,276 ^a	Z = -3,668 ^b
p	.211	.023*	.001*

* Centred on teaching methods diversification.

^a ERT > before pandemics

^b ERT < before pandemics

Source: Own elaboration (2022).

Before the pandemic, teacher training provided by the institution had a median of three, corresponding to neutral on the Likert scale. This value did not change considering the ERT period. Differently, teacher training searched autonomously had a median of five, which corresponds to very frequent. During the ERT, this median also remained at the same value, but a Wilcoxon Signed Ranks test indicated the frequency increased significantly during the ERT ($Z = -2,276 p = .023$).

The Use of playful activities had a median of 4, corresponding to the frequency on the Likert scale before pandemics. During ERT, the median value changed to three, corresponding to neutral. Wilcoxon Signed Ranks test confirmed that the Use of playful activities diminished significantly between those periods ($Z = -2,276 p = .023$).

4 Discussions

First, we analysed the relation between predispositions toward playful learning, playful learning suitability in ERT, difficulties in ERT, and teaching method diversification

in ERT. Results showed teachers have high levels of predispositions toward playful learning, and they evaluate it as suitable in ERT. Accordingly, this high value of teachers' predispositions to play was also found in other studies (KHALIL *et al.*, 2022). The Pearson r correlation indicated that the higher teachers' predispositions toward playful learning, the greater their evaluation of its suitability in ERT. Moreover, teachers who more intensely diversify their teaching methods in ERT also tend to positively evaluate playful learning as a suitable strategy during the ERT.

Afterwards, those same four aspects were compared regarding groups from independent variables: teaching experience, educational level and institution type. Teaching experience presented no significant differences, indicating novice and experienced teachers have similar predispositions toward playful learning, and they similarly evaluate playful learning suitability in ERT.

On the other hand, predisposition toward playful learning, evaluation of playful learning suitability in ERT, and Use of playful activities had significant differences regarding teachers' educational level and institution type. Results showed that teachers of younger children, particularly "*Ensino Fundamental I*", have a greater predisposition toward playful learning, consider it more suitable in ERT, and use it more frequently in their classes. Regarding the type of institution, teachers from "*Municipal*" schools showed a greater predisposition toward playful learning. They consider it more suitable in ERT and use it more frequently in their classes. Since "*Municipal*" schools are mainly responsible for "*Fundamental*" (BRASIL, 1996), this result represents the tendency presented in the literature that playful learning is highly valued and practised in earlier years (ALSINA, 2004; MINEIRO; D'ÁVILA, 2019; MITTON; MURRAY-ORR, 2022; SILVA, N.; SILVA, J.; COSTA, 2020). It also points out that teachers may have a restricted view of playfulness only suitable to those children instead of seeing its possibilities of applications throughout the continuum of educational levels.

Difficulties faced in ERT had significant differences only according to the institution type. Results pointed out that teachers from Private and "*Federal*" schools report fewer difficulties in this period compared to "*Municipal*" and "*Estadual*" Schools. Researchers reported that "*Municipal*" schools in Rio de Janeiro had a higher percentage of teachers who completely interrupted their activities during the pandemic period compared to the other types of schools (SANTOS; OLIVEIRA, 2021). Fonseca, Colares

and Costa (2019) support awareness of Brazilian society on the urge to prioritise children's education in the governmental budget. Moreover, any budget manoeuvre should not diminish those resources (MENDES; MOREIRA, 2018).

Teacher training centred on teaching methods diversification also differs significantly according to the institution type. Private and “*Federal*” schools seem to provide more such teacher training than “*Municipal*” and “*Estadual*” Schools. Additionally, according to teachers’ perception, the frequency of those training remained unchanged compared to before the pandemic and during ERT. Researchers report that teachers perceived they had to sort out autonomous activities during pandemics. Additionally, they felt a lack of guidance and decontrol of their institutions (SANTOS; OLIVEIRA, 2021).

Teachers indicated they frequently search for teacher training on teaching methods diversification. This autonomous search augmented significantly during the ERT. Literature states that Brazilian schools and teachers, with the pandemic, saw no way out other than, finally, reinventing, learning and embracing Information and Communication Technologies (ICT) (SOUZA, 2020).

Although results indicated difficulties in ERT are not significantly related to teachers' predispositions toward playful learning and how they evaluate its suitability in ERT, those difficulties are indeed negatively related to teaching methods diversification in this period. The use of playful activities decreased during the ERT compared to the pre-pandemic period. This result is similar to teachers from other countries, e.g., Palestinian teachers expressed that their motivation toward using playful activities decreased due to the inability to teach face-to-face during pandemics (KHALIL *et al.*, 2022).

5 Final considerations

In this study, we explored Brazilian teachers' predispositions toward playful learning bearing in mind the Emergency Remote Teaching period. We compared answers from 157 teachers according to groups of teaching experience, educational level and type of institution. Results showed an increased autonomous search for teacher education in diversifying teaching methodologies. At the same time, the formation provided by the government/institution did not accompany this augment.

Furthermore, results showed teachers from “*Ensino Fundamental I*”, and “*Municipal Schools*” have a greater predisposition toward playful learning, consider it more suitable in ERT and use it more frequently in their classes. Beyond pandemics, this configuration of “*Ensino Fundamental I*” and “*Municipal Schools*” corresponds to teaching young children. This result may be the effect of a restricted idea of playful learning being only suitable for the first educational levels.

This study has inherent limitations concerning teachers’ qualitative understanding of playfulness. However, the quantitative differences presented are already potent evidence of the urge for teacher training programmes that consider those beliefs and, at the same time, reintroduce playful learning as a spectrum. Both teaching training and research about playful learning are necessary regarding its effects on older students. There should be a more nuanced understanding of play in which teachers can consider and apply it through different activities according to specific needs through the continuum of educational levels.

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