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CONTENTS OF THE ISSUE

Regulation of Access to Higher Education in Brazil: Bibliometric Analysis of Literature

By Zilka Sulamita Teixeira Maia & Wagner dos Santos

Abstract- The study sought to understand, through bibliographical research, how the debate in the scientific field regarding the regulation of access to higher education in Brazil between 1997 and 2017 was constituted. We mapped academic production based on the databases *Web of Science, Scopus and Scielo,* bibliometrically analyzing its impact, considering production and citation indicators. We point out the temporal distribution of articles and their impact and identify the journals most devoted to the topic.

Keywords: higher education, educational policies, regulation, access.

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Regulation of Access to Higher Education in Brazil: Bibliometric Analysis of Literature

Regulação do Acesso a Educação Superior no Brasil: Análise Bibliométrica da Literatura

Regulación del Acceso a la Educación Superior en Brasil: Análisis Bibliométrico de la Literatura

Zilka Sulamita Teixeira Maia ᵃ & Wagner dos Santos ᵟ

Resumo- O estudo buscou compreender, por meio da pesquisa bibliográfica, como se constituiu o debate no campo científico referente à regulação do acesso à educação superior no Brasil entre 1997 e 2017. Mapeamos a produção acadêmica a partir das bases de dados *Web of Science, Scopus* e *Scielo*, analisando bibliometricamente seu impacto, tendo em vista os indicadores de produção e de citação. Apontamos a distribuição temporal dos artigos e seu impacto e identificamos os periódicos mais devotados ao tema.

Palavras-Chave: educação superior, políticas educacionais, regulação, acesso.

Resumen- El estudio buscó comprender, a través de una investigación bibliográfica, cómo se constituyó el debate en el campo científico sobre la regulación del acceso a la educación superior en Brasil entre 1997 y 2017. Mapeamos la producción académica a partir de las bases de datos *Web of Science, Scopus y Scielo,* analizando bibliométricamente su impacto, teniendo en cuenta indicadores de producción y citación. Señalamos la distribución temporal de los artículos y su impacto e identificamos las revistas más dedicadas al tema.

Palabras Clave: educación superior, políticas educativas, regulación, acceso.

Abstract- The study sought to understand, through bibliographical research, how the debate in the scientific field regarding the regulation of access to higher education in Brazil between 1997 and 2017 was constituted. We mapped academic production based on the databases *Web of Science, Scopus and Scielo,* bibliometrically analyzing its impact, considering production and citation indicators. We point out the temporal distribution of articles and their impact and identify the journals most devoted to the topic.

Keywords: higher education, educational policies, regulation, access.

I. Introdução

No Brasil, a educação deve ser vinculada ao mundo do trabalho, à prática social e organizada a partir do princípio da democratização do acesso e da permanência (Brasil, 1988). Contudo, uma análise das políticas educacionais promulgadas a partir da instituição da atual Lei de Diretrizes e Bases da Educação nº 9.394/1996 (LDB), evidencia que tanto a determinação legal quanto sua implementação têm seguido diferentes projetos societários e educacionais que se relacionam em concorrência e em negociação em determinados períodos, segundo o jogo de forças dos diferentes grupos que detém hegemonia política e econômica.

Assim, a regulação estatal do Estado brasileiro assumiu diferentes formas ao longo dos anos, articulando-se com os distintos contextos, constituindo-se como o modo como são produzidas e aplicadas as políticas educacionais e à (re)ação dos diversos atores sociais às disposições estatais, e, também, como os processos de reajustamento decorrentes da diversidade de ações dos mais variados atores, que possuem posições e interesses distintos (Barroso, 2005).

Nessa perspectiva, asseveramos que historicamente as políticas educacionais se constituem como produto histórico de diversos projetos de educação e de sociedade em disputa, concorrência e negociação, os quais denotam estágios e configurações das formas de regulação que se sucedem, mas que, sobretudo, imbricam-se dialeticamente no tempo e no espaço.

Assim, na materialidade de projetos de educação e de sociedade concorrentes, as políticas educacionais devem ser analisadas tendo em vista seus fins proclamados e seus fins reais. Os proclamados indicam finalidades gerais enquanto as intenções últimas se inscrevem no campo do ideal, onde o consenso, a convergência de interesses é sempre possível. Os fins reais situam-se num plano diferente, onde se defrontam interesses antagônicos que determinam o curso da ação e as forças que controlam o processo (Saviani, 2003).

Por vezes, a implementação de uma política pode apresentar fins que mascararam as finalidades reais de sua implementação. No contexto deste estudo,

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2

trazemos nossas considerações sobre a relação entre as políticas da última etapa da educação básica e da educação superior, defendendo a ideia de que para compreendermos as políticas do ensino médio precisamos compreender também a maneira como esta etapa se relaciona com o acesso à educação superior e vice-versa.

No que diz respeito ao ensino médio, as políticas foram constituindo diferentes formas de regulação do Estado brasileiro, trazendo consequências na função social do papel do ensino médio como mediação da consolidação do ensino fundamental, mas, também, na constituição do acesso à educação superior. No tocante à educação superior, além das assimetrias entre as demandas por educação superior em quantidade e qualidade, mecanismos de segregação e de exclusão operam, de um lado, garantindo certa exclusividade aos cursos de destaque das melhores universidades para determinados setores e grupos, e de outro, preservando importantes espaços de um mercado do ensino superior privado que viceja, predominantemente, em que a oferta pública de qualidade é escassa e ou inacessível.

Fixamos como marcos temporais os anos de 1997 e 2017 em razão de duas importantes políticas implementadas no ensino médio, que, a nosso ver, possuem finalidades reais relacionadas ao direcionamento de percursos formativos distintos, segundo as diferentes classes sociais, assegurando a dualidade no processo formativo com recorte de classe – para uma parte da população, a educação profissional até o nível médio, e, para outra, a educação superior –, enquanto proclamam como finalidade a implementação de currículos voltados à realidade e aos interesses dos estudantes. No âmbito curricular, o Decreto nº 2208/1997 determinou a proibição da oferta da educação profissional com o ensino médio na mesma unidade escolar e com a mesma matrícula, apequenando a educação profissional. A Lei nº 13.415/2017 instituiu a última reforma do ensino médio, que regulamentou a estruturação de itinerários formativos conforme capacidade de oferta dos sistemas de ensino.

Diante dessa problemática, emergiu a questão de investigação que norteou nossas escolhas teórico-metodológicas, a saber: como tem se constituído o debate na produção científica disponibilizada nas bases de dados *Web Of Science, Scopus* e *Scielo*, entre 1997 e 2017, acerca das reformas do ensino médio, da regulação educacional e do acesso à educação superior? Assim, desenvolvemos essa pesquisa, buscando compreender como se constituiu o debate no campo científico referente à regulação do acesso à educação superior no Brasil entre 1997 e 2017, mapeando a produção acadêmica a partir das bases de dados *Web Of Science, Scopus* e *Scielo* e analisando de forma bibliométrica seu impacto.

Como resultados da revisão bibliométrica da literatura, apresentamos um corpus documental composto por 28 artigos produzidos por 34 autores (brasileiros e estrangeiros) e publicados por 7 periódicos devotados ao tema (Educação e Sociedade; Avaliação: Revista de Avaliação da Educação Superior; Higher Education; Actualidades Investigativas en Educación; Race Ethnicity and Education; Revista Brasileira de Educação; e, Revista Lusófona de Educação).

II. Teoria

A ciência produz ideias, comunicações e reações dos outros pesquisadores diante do que foi comunicado, constituindo-se histórica e socialmente. O avanço científico do século XX, expresso no crescente volume de produção acadêmica, evidencia que as publicações têm se consolidado como importante meio para que a informação se torne acessível para a comunidade científica (Macias-Chapula, 1998).

Nesse contexto, emergiram metodologias e procedimentos de avaliação do ascendente incremento da pesquisa e de seus resultados. Assim, o uso de métodos quantitativos, que compõem o conjunto de conhecimentos relacionados à avaliação da informação e da ciência produzida, especialmente a partir de procedimentos matemáticos, estatísticos e computacionais tem crescido, inclusive, em campos em que anteriormente estes não eram empregados dado a natureza dos objetos de estudo (Oliveira, 2018).

Nesse bojo, tomamos a bibliometria[1] como "[...] ferramenta que permite observar o estado da ciência" presente no acumulado da produção da literatura científica em um determinado nível de especificação (Macias-Chapula, 1998, p. 135). Elegemos este método como parte da estratégia de estudo bibliográfico do nosso objeto de pesquisa, pois consideramos que sua aplicação nos permitirá analisar e elaborar indicadores referentes à produção científica de um determinado campo, instituição e países.

Os indicadores bibliométricos foram eleitos em razão de tornarem-se parâmetros para medir a atividade da pesquisa. No caso em tela, esses procedimentos postos em ação contribuíram para elucidar aspectos relevantes da produção acadêmica que debate direta ou indiretamente a regulação do acesso à educação superior no Brasil.

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[1] A origem do termo bibliometria é controversa. Em 1934, Paul Otlet utilizou o termo esclarecendo que a medida é uma forma superior assumida pelo conhecimento em qualquer área e que "[...] existem razões para constituir em um conjunto coordenado as medidas relativas ao livro e ao documento: a bibliometria" (Otlet, 1934, p. 17). Em 1969, Pritchard afirmou que empreendeu uma pesquisa intensiva da literatura, que não revelou qualquer uso anterior do termo bibliometria, definindo-a, assim, como a "[...] aplicação de métodos matemáticos e estatísticos a livros e outros meios de comunicação" (Pritchard, 1969, p. 349). Neste trabalho, nos preocupamos com a aplicação do que preconizam as leis bibliométricas em detrimento à origem e/ou autoria do termo.

Por meio dos indicadores é possível compreender e situar a produção científica sobre um determinado assunto, estabelecer relações dessa produção de um país com o mundo, de uma instituição em relação a seu país, de pesquisadores em relação às suas próprias comunidades científicas. Isso contribui para evidenciar o impacto da pesquisa na própria ciência, contribuindo, assim, no processo de compreensão dos objetos e objetivos das pesquisas, da organização da comunidade científica, denotando o impacto social, político e econômico da produção científica (Santos; Kobaschi, 2008).

Optamos pela aplicação das leis bibliométricas da produtividade científica de autores proposta por Alfred James Lotka em 1926, bem como da lei da produtividade de periódicos, desenvolvida por Samuel Clement Bradford em 1934; e, ainda, de outras elaborações, quais sejam: as leis do elitismo e do crescimento exponencial da ciência, desenvolvida por Solla Price (1963 apud Braga, 1974); o índice h, elaborado por Hirsch (2005); e o fator de impacto de periódicos, proposto por Garfield (1994).

Como Kobashi e Santos (2008, p. 108), reconhecemos que o "[...] conhecimento qualitativo pode ser objetivado por relações quantificadas, provindas da aplicação de técnicas bibliométricas" e, portanto, um conhecimento não elimina dados quantitativos, pois o tomamos como meio para compreender e explicar objetos. Lado outro, entendemos que os números devem ser analisados em correlação com o comportamento da ciência, a partir de indicadores, "[...] por meio de análises epistemológicas, históricas e sociais, do contexto onde nasceram" (Oliveira, 2018, p. 23).

Nessas bases, caracterizamos este estudo como de natureza descritiva, em relação aos seus objetivos, uma vez que viabiliza a descrição das características do objeto estudado, proporcionando condições favoráveis ao estabelecimento de relações entre variáveis. No que se refere aos procedimentos técnicos, trata-se de uma pesquisa bibliográfica desenvolvida com base em material já elaborado (Michel, 2008).

No que diz respeito aos métodos empregados, baseamos nas recomendações do protocolo *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (Prisma), que estabelece etapas na execução das revisões, quais sejam: 1) perguntar e estabelecer questões de investigação claras; 2) desenvolver um protocolo de todas as fases da revisão, contendo os métodos a serem empregados; 3) identificar os estudos mais relevantes a partir do protocolo estabelecido (optamos pelo *check list* Prisma com diagrama de fluxo para identificar, selecionar, eleger e incluir os artigos); 4) avaliar a produção mapeada; 5) colecionar dados usando ferramentas que minimizem os erros durante a transcrição dos resultados; e 6) sintetizar os dados,

organizando e analisando os resultados, fazendo emergir algo novo a partir dos elementos separados (Gough; Oliver; Thomas, 2017).

III. Método

Operacionalizamos as buscas nas bases de dados *Web Of Science*, *Scopus* e *Scielo*, tendo em vista sua relevância atribuída nos critérios estabelecidos para classificação dos periódicos da área 38 – Educação nos estratos mais elevados, segundo Relatório do Qualis Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes), publicado no ano de 2019 (A1, A2, A3 e A4). Tomando por base uma relação de parâmetros previamente configurados, dentre outros critérios, o documento estabelece que, para ser classificado com Qualis A1, o periódico deve estar presente em, pelo menos, quatro bases de dados, sendo obrigatória a presença em uma das seguintes bases, *Scielo* BR, *Scopus*, *JCR/Web Of Science*. A classificação A2 requer que o periódico esteja presente em quatro (4) indexadores, sendo, obrigatória a presença em pelo menos um dos seguintes: *Educ@*, *Scielo* BR, *Scopus*, *JCR/Web Of Science*. As classificações A3 e A4 requerem presença do periódico em pelo menos quatro bases indexadas e obrigatoriamente, em dois (para classificação A3) ou um (para classificação A4) dos seguintes, *Educ@*, *Scielo* BR, *Scopus*, *Redalyc*, *DOAJ*, *Iresie*, *BBE*, *Latindex*, *Index Copernicus* e *Clase* (Brasil, 2019).

Estabelecemos três descritores de busca: "reformas do ensino médio", "regulação" e "acesso à educação superior" em língua inglesa, por se tratar de bases (indexadores) internacionais. Procuramos os descritores nos títulos, resumos e palavras-chave. Fixamos o período entre 1997 e 2017.

Efetuamos as buscas nas bases selecionadas a partir do Portal de Periódicos da Capes, acessando institucionalmente e de forma remota cada uma das bases, a partir da Comunidade Acadêmica Federada (CAFe). Todo esse processo ocorreu na segunda quinzena de julho de 2020. Ademais, as buscas foram realizadas seguindo os mesmos parâmetros em cada base de dados.

Na base de dados *Web Of Science*, elencando tipos de documento, artigos; tempo estipulado no período de 1997 a 2017; e selecionamos os tópicos: títulos, resumos, palavras-chave, palavras-chave extras, além das categorias específicas da base (*Education Educational Research* e *Multidisciplinary Sciences*). Na base de dados *Scopus*, selecionamos o tipo de documento, artigo; o período, de 1997 a 2017; buscando nos tópicos: títulos, resumos e palavras-chave; áreas de estudo (ciências sociais) e título da fonte (periódicos da educação). Na base de dados *Scielo*, tomamos elementos como: tipo de documento, artigos; tempo estipulado (1997 a 2017), tendo em vista a busca dos tópicos: títulos, resumos e palavras-chave;

Scielo Áreas Temáticas – Ciências Sociais Aplicadas em periódicos da educação.

Os artigos encontrados foram exportados para o gerenciador de bibliografias *EndNote Online*, a partir do qual procedemos a exclusão dos duplicados e uma seleção prévia a partir dos títulos e, posteriormente, exportamos para o *Microsoft Excel*, onde organizamos a planilha principal que deu origem aos quadros e gráficos. A planilha contém: base de dados, descritor, filtros efetuados, número de artigos após aplicação dos filtros, refinamentos aplicados, título dos artigos, primeiro autor, país de atuação do primeiro autor, segundo autor, país de atuação do segundo autor, terceiro autor, país de atuação do terceiro autor, quarto autor, país de atuação do quarto autor, periódico, país de origem do periódico, ano de publicação, citações no *Google Scholar*, palavras-chave e resumo. O número de citações dos artigos foi verificado em março de 2024.

Para elaboração de indicadores bibliométricos, buscamos as citações dos artigos no *Google Scholar* em razão do não fornecimento desse indicador nas três bases pesquisadas e visando a uniformidade da base em que o indicador foi apurado. Para levantamento dos dados sobre os periódicos, analisamos seus *websites* e o Qualis-Capes na Plataforma Sucupira (triênio 2013-2016). Para identificação do país de origem dos autores, procedemos à pesquisa nas bases *Web Of Science* e *Scopus.*

Esses registros também foram inseridos em uma planilha no *Microsoft Excel*, onde todas as etapas, métodos e resultados foram informados conforme protocolo Prisma, evidenciando o fluxo próprio do método. A redação descritiva de todas as etapas foi elaborada no editor de texto *Microsoft Word.*

IV. Resultados e Análises

A busca na base de dados *Web Of Science* resultou em 271 artigos encontrados, dos quais três foram incluídos; na base de dados *Scopus*, os números foram 516 e quatro, respectivamente; enquanto na base da *Scielo,* foram 337 encontradas e 21 incluídos. Os resultados, segundo os descritores de busca, evidenciam que, a partir do descritor "reforma do ensino médio" foram encontrados 127 artigos nas três bases, dos quais sete foram incluídos na pesquisa; com o descritor "regulação" encontramos 113 artigos e cinco incluídos na revisão; e com o descritor "acesso à educação superior", encontramos 917 artigos nas três bases e incluímos 16 deles.

Assim, foram identificados 1.124 artigos inicialmente. Em seguida, procedemos à exclusão dos duplicados (283 exclusões); efetuamos a triagem nos 841 artigos restantes, analisando títulos e resumos para selecionar apenas aqueles que tinham relação com o nosso objeto, resultando na exclusão de 769 artigos. Por fim, acessamos 72 artigos para averiguação da elegibilidade com dois autores e, dentre eles, identificamos que a temática principal de 44 não se relacionava com nosso objeto ou não analisavam o contexto da educação brasileira, o que gerou sua exclusão. Esse processo resultou em 28 artigos incluídos, como apresentamos na Figura 1.
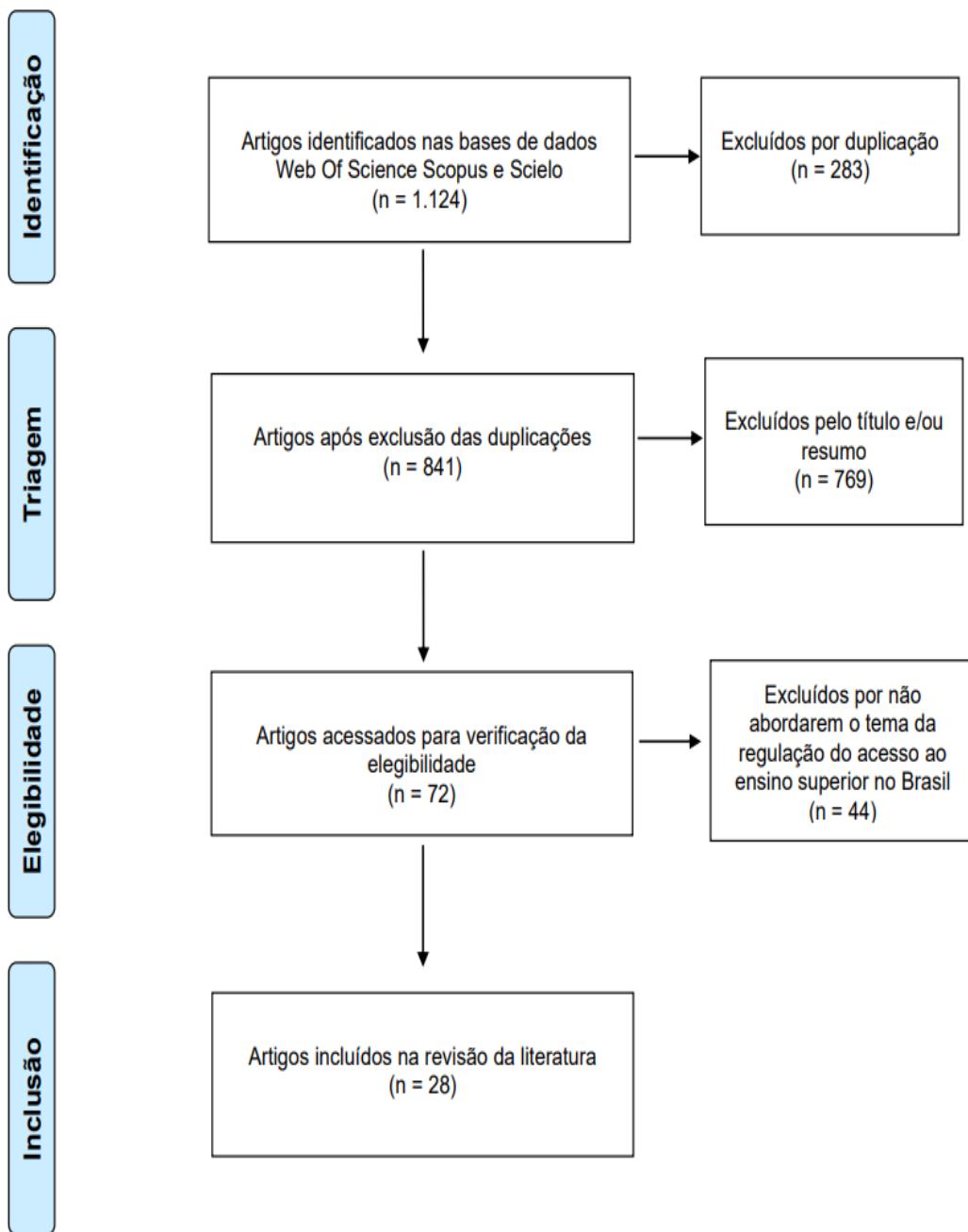
Fonte: Elaboração própria.

Figura 1: Diagrama de fluxo Prisma

V. Fluxo e Impacto da Produção Mapeada

O *corpus* documental compõe-se de 28 trabalhos publicados entre 2003 e 2017. Destes, 16 artigos abordam o acesso à educação superior, 5 tratam da regulação estatal das políticas educacionais e 7 analisam as reformas do ensino médio, conforme Quadro 1.

Quadro 1: Artigos mapeados

Título	Autoria	Ano
O ensino superior no octênio FHC	Luís Antonio Cunha	2003
Expansion without equity: An analysis of current policy on access to higher education in Brazil	McCowan	2004
O acesso à educação superior no Brasil	Pinto	2004
O Estado, a educação e regulação das políticas	Barroso	2005
Políticas de regulação e mercantilização da educação: socialização para uma nova cidadania?	Krawczyk	2005
Refundar o ensino médio? Alguns antecedentes e atuais desdobramentos das políticas dos anos de 1990	Zibas	2005
Regulação estatal versus cultura de endosso institucional?	Sguissardi	2008
Políticas curriculares, Estado e regulação	Hypolito	2010
O acesso ao ensino superior no contexto da globalização: Os casos do Brasil e de Portugal	Jezine e Cabrito	2011
As relações entre o ensino médio e a educação superior no Brasil: profissionalização e privatização	Silva Júnior; Lucena; Ferreira	2011
Democratização do acesso e do sucesso no ensino superior: uma reflexão a partir das realidades de Portugal e do Brasil	Almeida; Marinho-Araujo; Amaral; Dias	2012
Acesso nas políticas da educação superior: dimensões e indicadores em questão	Martins Silva; Veloso	2013
Educação superior: bem público, equidade e democratização	Sobrinho	2013
Expanding opportunities in higher education or democratization ?: Four experiences in Latin America	Chiroleu	2013
Políticas de educação superior no Brasil na primeira década do século XXI: alguns cenários e leituras	Lima	2013
Regulação estatal e desafios da expansão mercantil da educação superior	Sguissardi	2013
Tendências das desigualdades de acesso ao ensino superior no Brasil: 1982-2010	Mont'Alvão Neto	2014
Expansão da educação superior no Brasil: limites e possibilidades	Barros	2015
Ensino médio: unitário ou multiforme?	Nosella	2015
Equity of access to higher education in the context of South–South cooperation in Latin America: a pluriscalar analysis	Muhr	2016
Escolarização de jovens e igualdade no exercício do direito à educação no Brasil: embates do início do século XXI	Pochmann; Ferreira	2016
Políticas de democratização da educação superior brasileira: limites e desafios para a próxima década	Paula	2017
A contrarreforma do ensino médio no contexto da nova ordem e progresso	Ferreira	2017
Ensino médio: Atalho para o passado	Cunha	2017
Massificar sem democratizar: o excesso que oprimi	Pina	2017
The vicious circle: effects of race and class on university entrance in Brazil	Valente	2017
Por que a emergência da reforma do ensino médio? Medida provisória n. 746/2016 (Lei nº 13.415 / 2017)	Motta; Frigotto	2017
Trabalho e escola: a flexibilização do ensino médio no contexto do regime de acumulação flexível	Kuenzer	2017

Fonte: Elaboração própria.

Para compreender o fluxo das produções mapeadas, tendo em vista a distribuição temporal das publicações e o impacto causado por elas no meio científico, elaboramos gráficos que mostram a distribuição temporal dos artigos (Gráfico 1), considerando exclusivamente a quantidade de artigos por ano; e o impacto dessas produções (Gráfico 2), considerando as citações recebidas por ano.

6
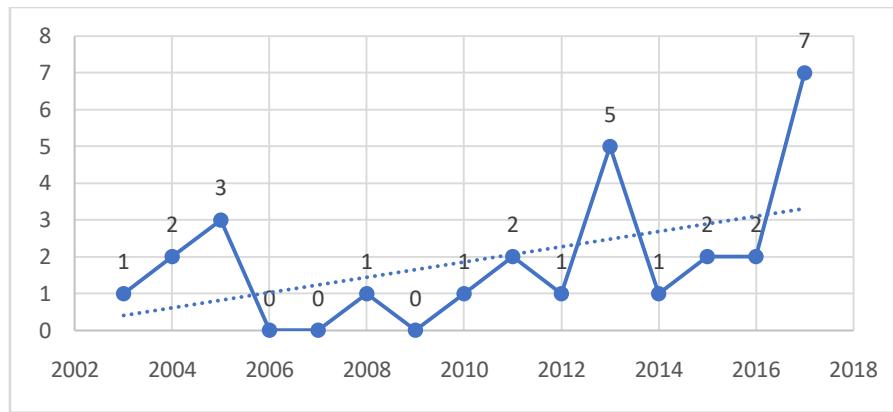
Gráfico 1: Distribuição temporal dos artigos mapeados

A produção mapeada está concentrada entre 2003 e 2017, com ascendência nos três primeiros anos e picos de crescimento em 2013 e em 2017, que se justificam quando analisamos o objeto dos artigos e o contexto de reformas em que foram produzidos.

Nesse sentido, destacam-se: a Lei nº 12.711/2012, que estabeleceu que as instituições federais de educação superior reservassem no mínimo 50% (cinquenta por cento) de suas vagas nos cursos de graduação para estudantes que tivessem cursado integralmente o ensino médio em escolas públicas, por concurso, curso e turno; a Medida Provisória nº 746/2016, que propôs a reformulação do ensino médio; o Projeto de Lei de Conversão nº 34/2016, que propôs alterar o ensino médio e a regulamentação do Fundeb, instituindo política de fomento à implementação de escolas em tempo integral; e a Lei nº 13.415/2017, que alterou as Leis nº 9.394/1996, que estabelece as diretrizes e bases da educação nacional, e a nº 11.494/2007, que regulamenta o Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação, a Consolidação das Leis do Trabalho – CLT, aprovada pelo Decreto-Lei nº 5.452/1943, e o Decreto-Lei nº 236/1967; além de revogar a Lei nº 11.161/2005; e instituir a Política de Fomento à Implementação de Escolas de Ensino Médio em Tempo Integral.

Desse modo, inferimos que a constituição desses dispositivos legais provocou a reação da comunidade científica, que os analisou e publicou suas pesquisas acerca do acesso à educação superior (todos os artigos de 2013 tratam da temática) e das mudanças no ensino médio (todos os artigos de 2017 abordam a reforma).

O impacto das produções do período se apresenta no gráfico 2, que indica 2005 como sendo o ano com maior número de citações dos artigos mapeados (1327), seguido por 2017 (1081) e 2004 (615).
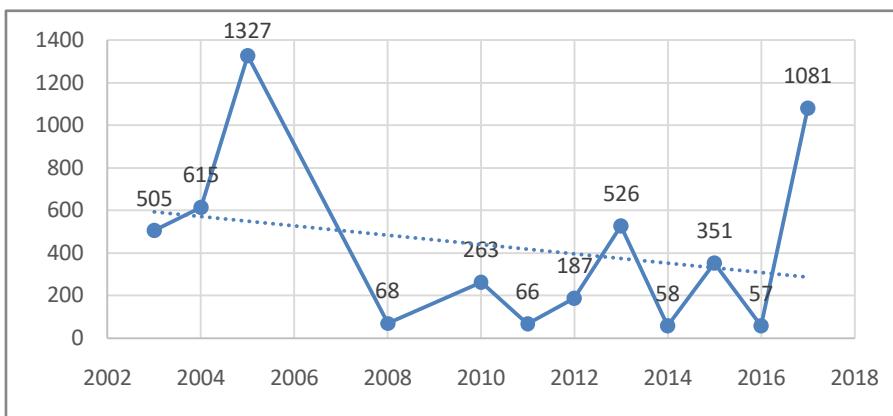
Gráfico 2: Impacto temporal da produção

As pesquisas publicadas em 2005 abordaram a relação entre o Estado, a educação e regulação das políticas educacionais (Barroso, 2005); as políticas de regulação e mercantilização da educação num contexto de socialização para nova cidadania (Krawczyk, 2005); e, os desdobramentos das políticas reformadoras do ensino médio implementadas nos anos de 1990 (Zibas, 2005). Um ano antes foi implementado o Decreto nº

5154/2004, que regulamentou a articulação entre o ensino médio e a educação profissional, alterando o que estava posto no Decreto nº 2208/1997, que regulamentou a desarticulação entre o ensino propedêutico e a educação profissional; e pela Resolução CNE/CEB nº 3/1998, que instituiu as Diretrizes Curriculares Nacionais para o Ensino Médio nesses moldes.

As produções publicadas em 2017 abordam fundamentalmente questões relativas à reforma do ensino médio promovida pela Lei nº 13.415/2017 e sua constituição a partir da Medida Provisória nº 746/2016 e a as questões da expansão e democratização da educação superior brasileira.

Motta e Frigotto (2017) criticam a emergência da Medida Provisória que embasou a reformo promulgada posteriormente; Ferreira (2017) analisa reforma do ensino médio no contexto da crise política, econômica e social brasileira; Cunha (2017) considera a reforma retrógrada, um atalho para o passado, referindo-se à profissionalização compulsória regulamentada em 1971; e, Kuenzer (2017) considera flexibilização do ensino médio uma característica própria do regime de acumulação flexível.

Por outro lado, Pina (2017) problematiza a massificação da educação superior num contexto opressão e não de democratização; e, Valente (2017) analisa os efeitos de raça e classe no ingresso universitário no Brasil.

Em 2004 foram feitas publicações relativas ao acesso à educação superior (Pinto, 2004) e referente à expansão sem equidade (McCowan, 2004). Segundo Pinto (2204), apesar dos indicadores educacionais evidenciarem a expansão da educação superior, os resultados desse processo indicam elitização do perfil dos alunos fundamentalmente nos mais concorridos e nas instituições privadas; o autor alerta que a presença de afrodescendentes e de pobres ainda permanece aquém das demandas sociais do Brasil.

Para McCowan (2004), o acesso à educação superior privada se deu com apoio do Banco Mundial. Tal expansão, entretanto, não assegurou condições igualitárias de acesso, servindo como "[...] instrumento de reprodução de desigualdades devido à relação entre os custos dos cursos e o valor real do diploma [...]" (McCowan, 2004).

A análise do impacto das produções, indicou que o primeiro triênio (2003-2005) possui seis artigos e 2.447 citações recebidas, representando 48% do total (5.104) das citações de todo o *corpus* documental desta pesquisa. Ao mesmo tempo, em quantidade, o referido triênio representa 21% do total de artigos mapeados. Associamos esse movimento à credibilidade que determinados autores possuem em seu campo de atuação. Nesse sentido, observamos que as produções dos anos de 2003, 2004 e 2005 foram publicadas por autores que detêm o reconhecimento da comunidade acadêmica e possuem numerosas publicações envolvendo o seu objeto de pesquisa, tornando-os referência em seu campo de atuação[2].

A análise combinada dos gráficos evidencia o crescimento em número de artigos ao longo do tempo, indicando que os primeiros artigos são os de maior impacto. Consideramos que esse fenômeno pode ser explicado tendo em vista a época de publicação dos artigos e o impacto que causaram no decorrer dos anos, relacionando-se, sobretudo, com a preconização da lei do crescimento exponencial[3], proposta por Solla Prince (1963), segundo a qual o tamanho da ciência dobra tanto em quantidade de cientistas como em número de publicações a cada período de dez a quinze anos.

Nomeadamente no que se refere à constituição do campo das políticas educacionais, creditamos seu crescimento ao aumento do financiamento público federal para implementação dessas políticas (Lobo; Ximenes, 2020), o que parece ter acordado o interesse dos pesquisadores e gerado um aumento no número de publicações. Ademais, houve uma evolução quantitativa da pós-graduação *strictu senso* a partir do ano 2000 (Cirani; Campanaro; Silva, 2015).

A organização dos artigos em ordem decrescente, segundo citações recebidas, possibilitou encontrar o núcleo h da revisão, que é igual a 21, tendo em vista que 21 é o número de artigos que possuem 28 (número total de produções que compõem o *corpus* documental) ou mais citações, conforme preconiza Hirsch (2005).

A maior parte dos artigos desse núcleo, estabelecido a partir do índice h, aborda o acesso à educação superior (11 artigos) e a regulação educacional (4), sendo que o mais citado analisa a

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[2] Segundo as plataformas *Lattes* e *Researchgate*, João Barroso é um importante pesquisador da regulação educacional; Luiz A. Cunha se dedicou a pesquisar as reformas do ensino médio e do ensino superior; João R. M. Pinto tem se dedicado aos estudos sobre política e gestão educacional com ênfase em financiamento da educação; T. McCowan pesquisa a questão da equidade no ensino superior; N. R. Krawczyk dedica-se aos estudos sobre políticas educacionais na América Latina; e D. M. L. Zibas consolidou-se como pesquisadora do ensino médio.

[3] Segundo essa lei, o crescimento de áreas gerais é exponencial, enquanto o de subáreas, após uma fase exponencial, torna-se linear. O fator exponencial faz com que a literatura dobre de volume num período aproximado de dez a quinze anos, sendo pouco afetado por pressões externas. Assim, apesar das unidades de medidas variarem, chega-se a três conclusões fundamentais. A primeira é que todas as curvas de crescimento tem aproximadamente o mesmo padrão, independentemente dos parâmetros utilizados; a segunda é que a curva é sempre exponencial, o desenvolvimento dos organismos tende a se relacionar às suas magnitudes, quanto maiores se tornam mais rapidamente se expandem; e a terceira é que a constante obtida, em um intervalo entre dez e quinze anos, gera o efeito de dobrar os dados iniciais, comparativamente o número de cientistas e documentos científicos torna-se dez vezes maior no mesmo período de tempo em que a população mundial dobra (Braga, 1974).

evolução da intervenção do Estado na educação no quadro das transformações que ocorrem na regulação das políticas e da ação públicas em diferentes países, conforme gráfico 3.
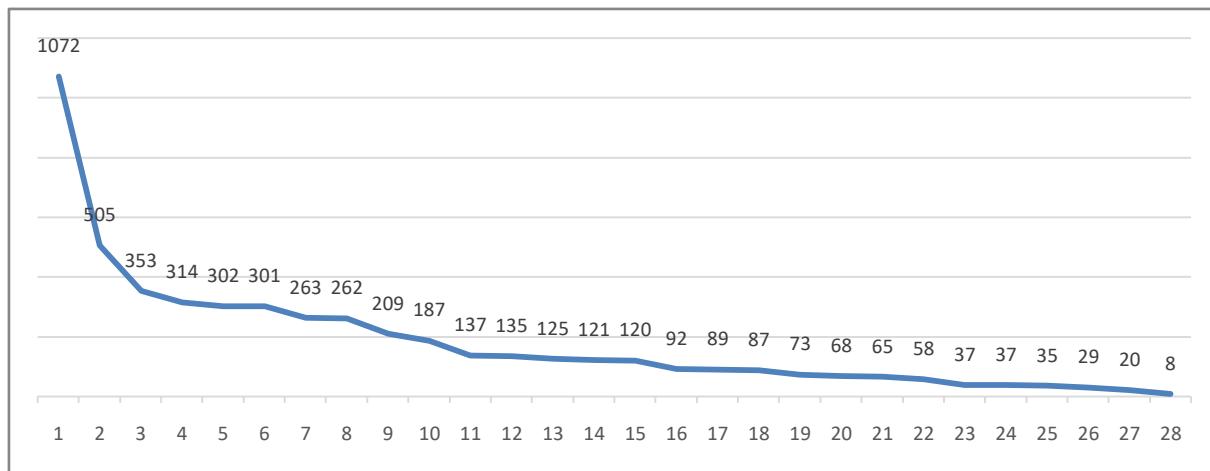
Gráfico 3: Impacto temporal da produção

Legenda:

1. O Estado, a educação e regulação das políticas. Autoria: J. Barroso.
2. O ensino superior no octênio FHC. Autoria: L. A. Cunha.
3. Por que a emergência da reforma do ensino médio? Medida provisória n. 746/2016 (Lei nº 13.415/2017). Autoria: V. C da Motta; e, G. Frigotto.
4. O acesso à educação superior no Brasil. Autoria: J. M. de R. Pinto.
5. Trabalho e escola: a flexibilização do ensino médio no contexto do regime de acumulação flexível. Autoria: A. Z. Kuenzer.
6. Expansão sem equidade: uma análise da política atual de acesso ao ensino superior no Brasil Autoria: T. McCowan.
7. Políticas curriculares, Estado e regulação. Autoria: A. M. Hypólito.
8. Expansão da educação superior no Brasil: limites e possibilidades. Autoria: A. da S. X. Barros.
9. Educação superior: bem público, equidade e democratização. Autoria: J. Dias Sobrinho.
10. Democratização do acesso e do sucesso no ensino superior: uma reflexão a partir das realidades de Portugal e do Brasil. Autoria: L. Almeida; C. M. Marinho-Araujo; A. Amaral; D. Dias.
11. Ensino médio: Atalho para o passado. Autoria: L. A. Cunha.
12. Políticas de regulação e mercantilização da educação: socialização para uma nova cidadania? Autoria: N. R. Krawczyk.
13. Políticas de democratização da educação superior brasileira: limites e desafios para a próxima década. Autoria: M. de F. C. de Paula.
14. A contrarreforma do ensino médio no contexto da nova ordem e progresso. Autoria: V. Sguissardi.
15. Refundar o ensino médio? Alguns antecedentes e atuais desdobramentos das políticas dos anos de 1990. Autoria: D. M. L. Zibas.
16. Políticas de educação superior no Brasil na primeira década do século XXI: alguns cenários e leituras. Autoria: P. G. Lima.
17. Ensino médio: unitário ou multiforme? Autoria: P. Nosella.
18. Acesso nas políticas da educação superior: dimensões e indicadores em questão. Autoria: M. das G. Martins Silva; T. C. M. A. Veloso.
19. Expansão de oportunidades no ensino superior ou democratização? Quatro experiências na América Latina. Autoria: A. Chiroleu.
20. Regulação estatal versus cultura de endosso institucional? Autoria: V. Sguissardi.
21. Regulação estatal e desafios da expansão mercantil da educação superior. Autoria: V. Sguissardi.
22. Tendências das desigualdades de acesso ao ensino superior no Brasil: 1982-2010. Autoria: A. L. Mont'Alvão Neto.
23. O acesso ao ensino superior no contexto da globalização: Os casos do Brasil e de Portugal. Autoria: E. Jezine; V. L. Jacob Chaves; B. Gil Cabrito.
24. Equidade de acesso ao ensino superior no contexto da cooperação Sul-Sul na América Latina: uma análise pluriescalar. Autoria: T. Muhr.
25. O círculo vicioso: efeitos da raça e da classe na entrada da universidade no Brasil. Autoria: R. R, Valente.
26. As relações entre o ensino médio e a educação superior no Brasil: profissionalização e privatização. Autoria: J. dos R. Silva Júnior; C. Lucena; L. R. Ferreira.

27. Escolarização de jovens e igualdade no exercício do direito à educação no Brasil: embates do início do século XXI. Autoria: M. Pochmann; e, E. B. Ferreira.
28. Massificar sem democratizar: o excesso que oprime. Autoria: K. V. Pina.Fonte: Elaboração própria.

A análise dos artigos em ordem decrescente das citações recebidas mostra que o primeiro quartil (os primeiros sete artigos com maior número de citações) abordam a regulação das políticas educacionais (2 artigos), o acesso ao ensino superior (2 artigos) e as reformas do ensino médio (3 artigos). Nos trabalhos os autores trazem uma análise crítica das políticas educacionais que têm sido constituídas no bojo dos ideais e referências neoliberais e defendem o acesso democrático à escola/educação superior pública.

VI. Classificação dos Periódicos

Os trabalhos mapeados foram publicados por sete periódicos, sendo três brasileiros (Educação e Sociedade, Revista de Avaliação da Educação Superior e Revista Brasileira de Educação) e quatro estrangeiros (*Actualidades Investigativas en Educación*, *Higher Education*, *Race Ethnicity and Education* e Revista Lusófona de Educação). As publicações dos periódicos brasileiros representam 82,14% do universo mapeado (23 artigos); seguidas das publicações feitas por periódicos da Alemanha, com 7,14% da produção (2 artigos); e da Inglaterra, Costa Rica e Portugal com 3,57% (1 artigo) cada.

O predomínio dos periódicos brasileiros se justifica tendo em vista os procedimentos do protocolo Prisma, nos quais excluímos os trabalhos que não analisavam o contexto brasileiro de forma mais direta.

Adotando os preceitos da lei da dispersão do conhecimento científico, formulada por Bradford (1934)[4] estabelecemos três zonas (um núcleo central e duas zonas periféricas), definindo o número de artigos de cada zona a partir do cálculo de um terço (9,3) do universo dos artigos mapeados (28) para cada uma, conforme apresentamos na figura 2 que exibe o "core" da produção acerca do tema pesquisado. Organizamos

os periódicos em ordem decrescente de produtividade e os distribuímos[5].

Fonte: Elaboração própria.

Figura 2: Diagrama de fluxo Prisma

Essa distribuição dos artigos em zonas nos deu os periódicos Higher Education; Actualidades Investigativas en Educación; Race Ethnicity and Education; Revista Brasileira de Educação; e, Revista Lusófona de Educação na terceira zona periférica com 6 artigos e 537 citações. O periódico Avaliação: Revista de Avaliação da Educação Superior foi alocado na segunda zona periférica, que possui 6 artigos e 768 citações. No núcleo central, encontramos o periódico mais publicações sobre o tema, Educação e Sociedade, com 16 artigos e 3.764 citações recebidas.

O núcleo central possui 57% do número total de artigos e 74% do total de citações recebidas pelos artigos da revisão. Criado em 1978, o periódico Educação e Sociedade é uma publicação do Centro de Estudos Educação e Sociedade (Cedes, que possui classificação Qualis/Capes A1 e fator de impacto[6] igual a 0.1218 no ano-base 2019, considerando um período de três anos. Esse periódico dedica-se às pesquisas acadêmicas sobre a educação nos diversos prismas de sua relação com a sociedade. Entre 1978 e 2024 publicou 151 edições, ininterruptamente, cada uma com uma média de 40 artigos, possuindo acervo de pesquisas com análises e informações referentes ao debate no campo educacional, fontes teóricas e experiências pedagógicas, conforme dados informados no sítio do periódico sobre seu escopo.

Os artigos dessa zona concentram, fundamentalmente, análises críticas sobre as reformas

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[4] A lei Bradford (1934), ou lei da produtividade dos periódicos, determina que se periódicos científicos forem dispostos em ordem decrescente de produtividade de artigos sobre um determinado tema, pode-se distinguir um núcleo de periódicos mais particularmente devotado a este tema e vários grupos ou zonas que incluem o mesmo número de artigos que o núcleo, sempre que o número de periódicos existentes no núcleo e nas zonas sucessivas (Bradford, 1961). Assim, a organização de uma coleção de periódicos em ordem de produtividade decrescente significativa sobre um determinado tema fará emergir três zonas, cada uma com 1/3 do número total de artigos relevantes: a primeira conterá o "core" daquele assunto, um pequeno número de periódicos altamente produtivos; a segunda, um número maior de periódicos menos produtivos; e a terceira zona inclui ainda mais periódicos com menos produtividade (Araújo, 2006).

[5] Na impossibilidade de considerar metade de um artigo ou parte dos artigos de um mesmo periódico, a distribuição foi feita preservando o periódico do núcleo central e distribuindo os demais segundo citações recebidas.

[6] Garfield (1994) elegeu o fator de impacto como instrumento como meio de classificar e avaliar os periódicos inseridos na base de dados bibliográficos *Science Citation Index* (SCI), da qual fora criador, assim, o valor do fator de impacto é obtido a partir da divisão do número total de citações dos artigos do periódico, acumulados nos últimos dois anos, pelo número total de artigos publicados (acumulados) pela revista no mesmo período (Garfield, 1994).

do ensino médio promovidas nos anos de 1990 e em 2017, correlacionando-as com outros temas, quais sejam: reforma de 1971; contexto da acumulação flexível; discussão em torno da medida provisória nº 746/2016; acesso à educação superior; políticas educacionais de regulação estatal no contexto da mercantilização da educação básica e superior nacional e transnacional; processos de expansão e acesso à educação superior no Brasil, seus limites e possibilidades; tendências das desigualdades; análise do octênio da gestão FHC; e, massificação sem democratização do acesso à educação superior.

Analisando suas publicações, identificamos edições especiais que abordam temáticas que dialogam diretamente com nosso objeto, o que explica o volume de artigos em um único periódico. Nesse sentido, destacamos a edição especial de 2005 intitulada, *Políticas Públicas de Regulação: Problemas e Perspectivas da Educação Básica*, na qual foram publicados três artigos que compõem essa revisão[7]. Destacamos também a edição de 2017 com título *Ensino Médio: Antigas e Novas Polêmicas*, incluindo dossiê sobre a *Centralidade do Ensino Médio no*

contexto da Nova "Ordem e Progresso"; nessa edição foram publicados quatro artigos da revisão[8]. Assim, temos sete artigos publicados em número especial/dossiê, confirmando a emergência das pesquisas envolvendo as políticas educacionais em 2005 e da reforma do ensino médio em 2017.

Para compreender o impacto da produção da zona central ao longo do tempo, elaboramos um gráfico das citações recebidos pelos artigos por ano de publicação (Gráfico 4). A elaboração do gráfico com os artigos da zona central a partir dos mais citados possibilitou a compreensão da relação entre o objeto dos artigos e seu impacto ao longo do tempo no contexto da produção acadêmica e sua provável repercussão em outras pesquisas.

Nesse sentido, destacam-se as produções de 2005, que abordam a regulação educacional, o papel do Estado na regulação e as reformas do ensino médio dos anos de 1990, como sendo as de maior impacto; seguidas dos artigos de 2010 e de 2017, cujo objeto diz respeito ao acesso à educação superior e a reforma do ensino médio trazida pela Lei Nº 13.415.
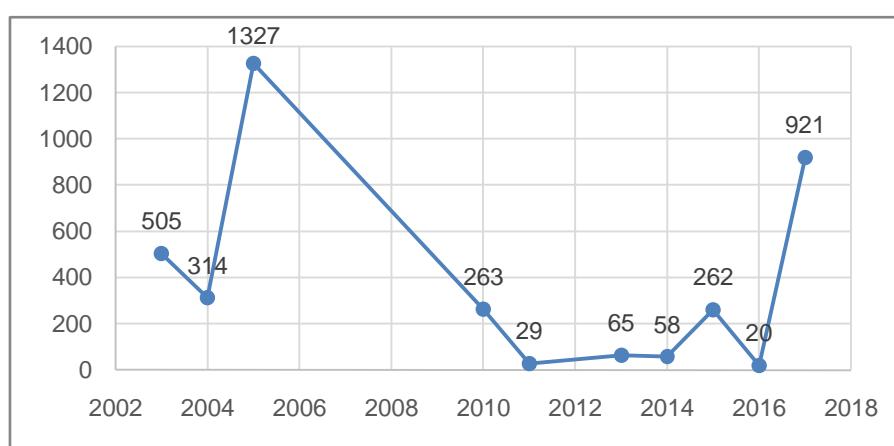
Fonte: Elaboração própria.

Gráfico 4: Impacto temporal da produção

Assim como ocorreu no núcleo central, a análise da zona periférica 2 evidencia a existência de um único periódico, a Revista de Avaliação da Educação Superior, com 21,4% do número total de artigos e 15% das citações totais, abordando de modo especial as políticas de educação superior no Brasil e em Portugal, à questão da democratização e da equidade, os cenários e as leituras da primeira década do século XXI e a regulação no âmbito dessas políticas.

Criado em 1996, o periódico é publicado pela Rede Brasileira de Avaliação Institucional do Ensino

Superior, em parceria com a Universidade Estadual de Campinas (Unicamp) e a Universidade de Sorocaba (Uniso). Dentre as prioridades de suas publicações da revista estão os artigos que abordam temas relacionados à avaliação institucional da educação superior, às tendências e perspectivas da educação superior e às políticas de ciência e tecnologia. Além

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[7] Apresentamos títulos e autoria dos artigos dessa edição especial: O Estado, a educação e regulação das políticas, de João Barroso; Políticas de regulação e mercantilização da educação: socialização para uma nova cidadania? De Nora R. Krawczyck; e, refundar o ensino médio? Alguns antecedentes e atuais desdobramentos das políticas dos anos de 1990, de Dagmar M. I. Zibas.

[8] São artigos que compõe a edição supracitada: Por que a urgência da reforma do ensino médio? Medida Provisória nº 746/2016 (Lei Nº 13.415/2017), de autoria de Vânia C. da Motta e Gaudêncio Frigotto; Ensino Médio: atalho para o passado, de Luiz Antônio Cunha; A contrarreforma do ensino médio no contexto da nova Ordem e Progresso, de Eliza B. Ferreira; e Trabalho e escola: a flexibilização do ensino médio no contexto do regime de acumulação flexível, de Acácia Zeneida Kuenzer.

disso, possui Qualis-Capes A1 e fator de impacto igual 0.2061 no ano base 2019, tendo como parâmetro os últimos três anos, conforme informações coletadas no sítio do periódico.

Diferentemente do núcleo central e da zona periférica 2, que possuíam apenas um periódico, na zona periférica 3 encontramos cinco periódicos de diferentes países, quais sejam, *Higher Education, Actualidades Investigativas en Educación* e *Race Ethnicity and Education.*

O periódico alemão *Higher Education*, criado em 1972 e ligado ao grupo *Springer Nature*[7], se interessa pelos desenvolvimentos educacionais em todo o mundo em universidades, institutos politécnicos, faculdades e instituições de educação superior (em geral públicas e privadas), as contribuições no campo da ciência vêm de pesquisadores de diferentes países e seus objetos abordam os problemas envolvendo professores, administradores e planejadores desse nível de ensino. Possui fator impacto igual a 2.856 (em 2019).

Criado em 2001, o periódico *Actualidades Investigativas en Educación*[8] visa instituir um espaço para análise, discussão e reflexão na educação, disseminando pesquisas de especialistas do campo e suas contribuições, sem, contudo, priorizar produções sobre políticas educacionais. Trata-se de um periódico do Instituto de Investigação em Educação (INIE) da Universidade da Costa Rica. Possui Qualis-Capes B1 (triênio 2013-2016).

O periódico inglês *Race Ethnicity and Education*[9], fundado em 1998, se interessa por pesquisas que abordam racismo, desigualdade racial na educação, políticas educacionais e interconexões entre raça, etnia e múltiplas formas de opressão, incluindo classe, gênero, sexualidade e deficiência. Apresenta-se como principal revista revisada por pares sobre a dinâmica da raça, racismo e etnia na política e teoria e prática educacional. É apoiada pelo AERA *Critical Examination of Race, Ethnicity*, *Class and Gender in Education Special Interest Group* e o Grupo de Interesse Especial de Etnia e Educação. Seu fator impacto é igual a 1.807 em 2019, de acordo com dados disponibilizados eu seu sítio eletrônico.

A Revista Brasileira de Educação data de 1995, trata-se de uma publicação da Associação Nacional de Pós-Graduação e Pesquisa em Educação (ANPEd), que tem a missão de publicar artigos acadêmicos e científicos, ao mesmo tempo em que está voltada para melhorar o intercâmbio acadêmico dentro de um cenário nacional e internacional, sua área de interesse principal é: a educação básica (ensino fundamental e médio), a educação superior, as políticas educacionais e os movimentos sociais na sua relação com e educação. Possui Qualis-Capes A1 (triênio 2013-2016) e fator de impacto é igual a 0.3317 (triênio 2017-2019).

Fundada em 2003, a Revista Lusófona de Educação[10] tem como objetivos prioritários a publicação de trabalhos científicos na área das Ciências de Educação e o intercâmbio com outras publicações científicas da mesma área ou áreas afins. Trata-se de uma publicação científica do Centro de Estudos Interdisciplinares em Educação e Desenvolvimento (CeIED) do Instituto de Educação da Universidade Lusófona de Humanidades e Tecnologias. Possui Qualis-Capes A1 (triênio 2013-2016).

A análise do escopo dos periódicos evidencia que quatro têm as políticas educacionais dentre os objetos centrais (Educação e Sociedade; Avaliação da Educação Superior; *Race Ethnicity and Education* e Revista Brasileira de Educação), enquanto três têm escopo mais abrangente (*Higher Education*, *Actualidades Investigativas en Educación* e Revista Lusófona de Educação).Assim, fica evidenciada a relação que estabelecem com o objetivo desse estudo, que se insere no campo das políticas educacionais brasileiras.

VII. Considerações Finais

As análises que empreendemos buscaram seguir o rigor que os procedimentos que escolhemos exigiram, implicando na sistematização dos resultados e construções analíticas que visaram guardar coerência e consistência com as escolhas metodológicas que percorrem a totalidade do estudo.

A partir das análises bibliométricas, especialmente tendo em vista os indicadores de produção e de citação, apontamos a distribuição temporal dos artigos mapeados e o impacto temporal da produção. Identificamos, ainda, os periódicos mais devotados ao nosso objeto.

Observamos que a produção acadêmica se concentra entre os anos de 2003 e 2017, sendo crescente no tocante a quantidade de artigos, tendo como trabalhos de maior impacto as publicações do primeiro triênio do período (2003-2005).

Identificamos que o periódico Educação e Sociedade encontra-se no núcleo central da classificação efetuada segundo preceitos da lei da dispersão do conhecimento científico, seguido da Revista Avaliação da Educação Superior, que está na zona periférica 2, e dos periódicos *Higher Education, Actualidades Investigativas en Educación, Race Ethnicity*

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[9] A empresa resulta da fusão de duas editoras alemãs privadas (Springer Science, Business Media e Macmillan Science and Education, segundo informações do próprio sítio eletrônico.

[10] No sítio eletrônico do periódico não há informação referente ao seu fator de impacto.

[11] No sítio eletrônico da plataforma Sucupira não foi encontrado o Qualis-Capes do periódico.

[12] No sítio eletrônico do periódico não há informação referente ao seu fator de impacto.

and Education, Revista Brasileira de Educação e Revista Lusófona de Educação.

Outrossim, os procedimentos empregados neste mapeamento possibilitaram a aproximação com importantes pesquisas que dialogam com a regulação estatal, com as políticas que reformaram o ensino médio e a educação superior, indicando como tem se constituído o debate no campo científico referente a esse objeto. Os autores dos trabalhos analisados analisam a realidade de forma crítica, defendendo um acesso democrático à educação (básica e superior). Acesso que desconstrua a dualidade histórica da educação brasileira que tem preparado os brasileiros para a inserção social tendo em vista um recorte classista onde a profissionalização é direcionada aos que historicamente são marginalizados do acesso ao nível mais elevado de ensino enquanto os mais ricos têm acesso à educação superior.

As análises bibliométricas possibilitaram, em última instância, a constatação de que, observado o universo investigado, evidencia-se a necessidade premente de publicações no campo das políticas educacionais acerca da forma como o Estado brasileiro tem regulado o acesso à educação superior especialmente no que se refere aos indicadores de acesso dos grupos historicamente excluídos aos níveis mais elevados de educação.

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Exploring Students' Multifaceted Engagement with Academic Results: Insights from Secondary School Certificate (SSC)

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Abstract- Secondary School Certificate (SSC) level students have high expectations of achieving the best results, so they put in their best efforts to achieve the highest possible outcomes. The main objective of this study was to examine the nature of students' engagements and related activities in relation to their academic results. Data were collected using the tools and techniques of the social survey method. A structured questionnaire including both closed-ended and open-ended questions was employed for data collection. Data were collected from a total of 105 respondents. The majority of the respondents expressed satisfaction with their academic results. The research findings reveal that, in pursuit of better academic outcomes, students beyond regular school attendance actively participate in private tutoring, coaching centres, and other learning opportunities available to them. Engagement in private tuition and coaching entails significant financial costs. Furthermore, parents, close relatives, friends, and acquaintances closely keep an eye on students' academic progress and results. In the past, examination results were typically known only to the students themselves and their parents. However, a much wider circle of involvement is now observed. Whereas students previously shared their results primarily with their parents, they now share this information to multiple individuals. These practices reflect the multifaceted nature of students' engagement with academic achievement in contemporary era.

Keywords: education, results, engagement, supple- mentary education, SSC examination.

GJHSS-G Classification: LCC Code: LB1620

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I. Introduction

Education can be used as a tool to implement the hopes and aspirations of a nation and to build a new society. Education is the key to the overall development of a country. Education is extremely important for the development of children's minds and its impact falls upon students' entire lives (Prodhan, 2016). Education is considered one of the basic requirements for human resource development and for inducing social change and promoting the overall economic growth of a country. Education is a lifelong process. It begins the day we are born and ends the day we die. It is found in every society and comes in many forms, ranging from the "school of hard knocks," or learning by experience, to formal institutional learning from postindustrial to nonindustrial communities, from rural to urban settings, and from youth to older learners (Ballantine et al. 2017). According to Hossain (2016: 199), education is the process by which our mind develops through formal learning at an institution like a school, college or university. It is both a mental and intellectual training institution that provides growth opportunities, equips individuals to meet challenges, and helps them overcome obstacles to progress.

According to Flannery (1975), true education is aimed at the total development of a person for the good of society. Therefore, education is not only academic information but also a holistic and humanistic human development. Education integrates values, skills, innovations, culture, continuing growth, and societal concerns. Bangladesh is a developing country with a heavy population density. This population can be a resource for its development. Education is the best cost-effective means for increasing human capital, reducing poverty and achieving sustainable economic growth. It is a key determinant for enhancing the productive capacities of individuals and the aggregate level of economic development. Formal education in Bangladesh consists of pre-primary education, primary education (five years), secondary education (seven years), and finally higher education. The level of education after primary education is referred to as secondary education (Khan, 2014). Bangladesh has made good progress and has introduced changes into its education system, particularly in the primary and secondary levels of education, to meet the challenges of the 21st century (Jahan, 2010). Education has a crucial role in creating the elements of good citizenship and in generating progress in society. Zbar et al. (2003) said that values education is broader and refers to any explicit and/or implicit school-based activity to promote student understanding and knowledge of values, and to inculcate the skills and dispositions of students so they can enact particular values as individuals and as members of the wider community. Students continue multifaceted efforts to pursue education, which are expressed through their diverse engagements. According to Manivannan and Venkataraman (2021), student engagement is defined as an active and meaningful involvement of students in the learning process. It is a measure of how much a student is actively engaged in learning activities and is related to

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many aspects of the learning environment, such as student motivation, teacher-student interactions, classroom environment, and the use of educational technology. In this study, students' engagement refers to the respondents' multifaceted involvement in the SSC examination and its preparation.

The study aims to examine the nature and extent of students' engagements in relation to their academic results, to identify the financial costs associated with these engagements, and to investigate the factors contributing to the students' academic performance, and engagements.

II. Idea on Education and Engagement

Education plays a critical role in fostering basic intellectual abilities, expanding further educational opportunities that are vital to success in a world where power is closely linked with knowledge (Rahman et al., 2010). Each child is born with some innate tendencies, capacities and inherent powers. Education draws these powers out and develops them to the full. The word education means to develop the inborn qualities of a child to the full. Thus, education is a process of development (Sharma, 2003). Plato (1996) mentioned that education includes what parents teach their children, what peers learn from peers, and how the state and society instruct their people to distinguish between friends and enemies, safety and danger, good and evil, respectability and disrepute. In Bangladesh, secondary education coincides with education from grade 6 through 12 or the second stage of education that commences after primary education and continues up to beginning of higher education (Khatun, 2003). Secondary education creates the bridge for ensuring the regularity or continuity of further education (Rahman et al., 2018). To pursue education and secure the best results, students are engaging in various ways. Qian and Saidin (2025) said, student engagement is a crucial factor which could influence both academic success and personal development in educational settings.

According to Suaalii and Tufuga (2024), the concept of student engagement represents both the time and effort students put into their studies and how effectively the institution organizes the curriculum and other learning opportunities to encourage students to participate hence leading to desired outcomes. Willms (2003) said that the term engagement refers to the extent to which students identify with and value schooling outcomes and participate in academic and non-academic school activities. Fasco et al. (2024) mentioned that student engagement encompasses the degree of attention, curiosity, interest, optimism, and passion that students exhibit during their learning process or when being taught. Delfino (2019) opined that student engagement is one of the essential constructs that is used to understand the behaviour of

the student towards the teaching-learning process. When teachers work together to improve their practice students learn more. Anyichie et al. (2023) said that student engagement as measured by concentration was related to their motivational aspect of engagement (i.e., perceptions of interest, importance and enjoyment).

Shah's (2009) study revealed that the impact of teachers' behaviour plays a vital role in the academic achievement of students. According to Hossain (2018), the duty of a teacher is to help the students understand correctly so that they can learn their lesson in the class instead of at home. On the other hand, mother's education has significance effect on the academic performance of the students. However, the parental educational qualification of the students was identified to have a statistical significant impact on the academic performance of the students (Easmin, et al. 2015). According to Russell (2010), children should be educated entirely at home is an opinion which is now obsolete. As a result, students are running behind in the different sources.

Hamid et al. found that successful learning achievement depends on the student's clear perception of English; so, they think that private tuition is vital for English learning. In this less wealthy society like rural Bangladesh private tuition in English is so much popular (cited in Akter, 2017). According to Hamilton et al. (2011), by definition, the greater the role that parents play, the lesser the role that schools play in the following ways: teacher effects on student learning are real, and these effects vary according to the match of each teacher to each student; teacher effects are a joint function of teachers' skills and effort, the first of which is strongly shaped by experiences before entering the profession; school environments, which encompass both administrative structures and networks of social relations, shape both student effort and teacher effort; effective schools align student effort and teacher effort to advance student learning. The definition of teaching implies an interaction between teacher and student. Yet, such interactions are often ignored for macro-level educational concerns. The role of teachers was to pursue the reproduction of ideal values, beliefs, and morals, alongside the kinds of knowledge necessary to suit the diverse economic and civic needs of society (Ainsworth, 2013). Today parents think that a reputed educational institution can prepare their children for a GPA of 5. When guardians fail to provide enough time for their children, they start to believe that money can solve this problem. They turn to expensive schools and coaching centres for their children's education. Every year, the cost of education is rising. People have been struggling alarmingly to afford the expenses of their children's studies (Rahman, 2017).

III. Theoretical Framework

Student engagement focuses on how students interact with learning environments, encompassing behavioural, emotional, and cognitive dimensions. The theoretical framework for this study is built on four key theories: Kahn's Engagement Theory; Fredricks, Blumenfeld, and Paris's Framework; Self-Determination Theory, and the Customer Engagement Cycle. These theories explore individual and student engagement in various activities.

Kahn (1990) proposed one of the foundational theories of employee engagement, defining personal engagement as the simultaneous expression of an individual's physical, cognitive, and emotional self during the performance of working roles. According to him, engagement emerges when three psychological conditions are met: psychological meaningfulness, psychological safety, and psychological availability. Secondary school students become attentive in their studies when they find the content and significance of their learning meaningful. They engage in various activities, such as class tests, to achieve good results. In the classrooms, private tuition, or coaching centres, students feel psychologically safe to express their ideas in a supportive and congenial environment that allows them sufficient time and energy to focus.

Fredricks, Blumenfeld, and Paris's Framework (2004) identifies three types of student engagement: behavioural, emotional, and cognitive. A secondary school student demonstrates high engagement when they exhibit all three dimensions: behavioural engagement (actively attending classes and other learning activities), emotional engagement (enjoying the classes and feeling positive about them), and cognitive engagement (investing additional effort in understanding and solving problems).

Self-Determination Theory, developed by Ryan and Deci (2000), emphasises three psychological needs for engagement: competence, relatedness, and autonomy. Secondary school students exhibit greater engagement in group-based subjects like humanities, science, or commerce when the learning environment supports autonomy (choice of their topics), competence (meaningful feedback for their improvement), and relatedness (collaboration and sharing with their peers).

Sashi's (2012) model describes customer engagement as a cyclical process involving connection, interaction, satisfaction, retention, loyalty, advocacy, and engagement. It emphasises emotional bonds and active participation with brands. Although these theoretical ideas were originally developed in customer and production oriented contexts, they can be effectively applied to understanding and enhancing student engagement. A student receives education from a school or other institution that is his connection, interacts with teachers that is his interaction, is satisfied with his learning as well as the result is his satisfaction, becomes a loyal student is retention, recommends the school or other institutions to others, which is advocacy, and actively engages by acquiring knowledge, which is engagement.

IV. Research Methodology

This study was conducted at the Department of Sociology, University of Rajshahi, Bangladesh. The Department of Sociology was selected for purposive sampling. Data were collected from students of the 2019-2020 academic session. The total number of students was 105 (57 males and 48 females). All the students were included in the study. A structured questionnaire containing both closed-ended and open-ended questions was used for data collection. The questionnaire was designed in accordance with the study's objectives and included items related to the students' SSC examination experiences and results. A questionnaire was sent to each student within an envelope. After completing the questionnaire, respondents returned it to the researcher in the envelope provided. Upon receiving the completed questionnaires, the researcher tabulated and analysed the data based on the respondents' responses.

V. Review of the Related Literature

Numerous studies related to the SSC examination and education, including engagement, has been conducted in different context. These studies related to the current research have been reviewed and cited according to the year of publication. Park (2003) opined that students who actively engage with what they are studying tend to understand more, learn more, remember more, enjoy it more and be more able to appreciate the relevance of what they have learned than students who passively receive what teachers teach them. Blatz (2011) noted that the relationship between home and school is vital and can significantly impact student achievement. Traditionally, homework has served as a communication tool to inform parents of the objectives practiced in school, and the practice of homework has been widely used at all grade levels. Veiga et al. (2014) stated that the relationship between Students' Engagement in School (SES) personal variables, as well as academic performance, is worth exploring. There is general agreement concerning the multidimensional nature of this construct, encompassing three dimensions-cognitive, affective and behavioural. Alrashidi et al. (2016) explored that fostering students' motivation (e.g., self-efficacy) and social factors (e.g., teacher support) is one pathway to heighten and enhance students' proactive engagement in school and academic-related activities.

Ningsih and Sumarmi (2017) study suggested that teachers in the learning activities choose the round

table and rally coach model of cooperative learning, as these two models were proven to be able to increase students' activity and learning outcomes. Smoczyk (2018) revealed that effective curriculum design and teacher practices can positively influence student engagement in secondary classrooms. Kızıldağ et al. (2017) mentioned that students' high academic achievement, positive peer relationship, and regular attendance at school may affect their school engagement. Rahman et al. (2018) argue that it is necessarily true that to enhance and improve the quality of the secondary education sector, it requires a well-organized definite sector management.

Zaman (2019) opined that student engagement in learning and leading is highlighted as a crucial element in the development of students' language skills. Every student has different interest, experiences, reading and learning styles. Therefore, they tend to prefer self-selected learning materials. Alonso et al. (2019) said that research should help design activities that will result in the well-rounded education of our students, considering that the students are committed when the teachers help them find answers to their real questions. Anwer (2019) investigated that teaching styles attract students and play a positive role in student motivation and improve academic achievement for better results in learning. Delfino (2019) described that the respondents preferred to have lively and dynamic classroom discussions. Maximizing student engagement would be helpful in providing meaningful learning experiences for the students. Sakir and Kim (2020) explored the context of Indonesia, where promoting PBL (problem-based learning) to be used in the science learning process by teachers in the schools of rural areas in Indonesia was successfully applied. Students' learning activities and outcomes in biology class were increased after the implementation of the PBL model.

Molin et al. (2021) mentioned the importance of discussion in learning, that teacher feedback, whether or not combined with peer discussions, improves learning outcomes. Kong (2021) opined that due to the birth of positive psychology in the process of education, classroom engagement has flourished and has a remarkable role in the academic field. The other significant determining factor of success in education is motivation, which is in line with classroom engagement. Manivannan and Venkataraman (2021) revealed that student engagement is closely associated with academic achievement and has a positive effect on student motivation, learning and overall school performance. Student engagement is positively related to academic success, better attendance, and improved behaviour.

Mashrabjonov (2022) said that the teacher's lesson is the ability to create problem situations in the processes and intellectual student psychological and pedagogical ways of organizing education. The main stages of teaching based on problem-based education goals are indicated. Iqbal and Afzal (2022) found that students learn more by activity-based teaching rather than traditional teaching. It is also shown in findings that activity-based teaching increases problem-solving skills in students and generates problem-solving skills as well as social skills. Wu et al. (2023) mentioned that questioning and responding appeared most frequently in group discourse, while argumentation and justification appeared least frequently. The high-performing groups closely connected questioning and responding strongly with exploring solutions, and focused more on task planning than task regulation. While the medium-performing groups kept a balance between exploring solutions and questioning and answering, they put more focus on task regulation than the high-performing groups did. The low-performing group focused on solution exploration, which, however, was not well connected with questioning and responding; the latter is crucial to stimulating in-depth exploration of the problem and solution during the task. Campeanu et al. (2023) revealed that the most relevant dimensions of student engagement, during remote education, that contribute the most to outcomes were represented by the behavioural, social, cognitive, and emotional engagement dimensions. Lingling (2023) mentioned that students were highly engaged in science modular instruction in terms of affective, behavioral, and cognitive aspects.

Miju et al. (2024) revealed that the education system at various levels in Bangladesh is mainly based on theories and information. Students have no scope for practical work experience in the educational institutions. They also added that the lack of efficiency in education means wastage in education. Tindan (2024) said that hands-on science education boosts academic and cognitive performance. Studies show that these activities improve students' conceptual understanding, critical thinking, problem-solving, and engagement. Interactive and dynamic learning environments are essential for academic and professional development. Martin-Alguacil et al. (2024) opined that students should be encouraged to prioritize critical thinking skills over memorization for their future professional development. By recognizing and addressing the initial difficulties students face in moving to a student-centered approach, educators can facilitate a smoother transition and create a more effective and engaging learning environment. Suaalii and Tufuga (2024) mentioned that the key findings from the analyses contributed to identifying the impacts of student engagement (behavioral, emotional, and cognitive) on the students' achievements. Their study concludes that there is significant importance in the role of the teacher in creating a learning environment that promotes student engagement. Fasco et al. (2024) said, the study

investigates several dimensions of student engagement, such as cognitive, emotional, and behavioral factors, and their impact on learning results.

Al-Rashidi (2025) said that academic engagement is an essential catalyst for academic competence in secondary school students. Guo (2025) mentioned that teacher emotional support can significantly and positively predict learning engagement, with academic self-efficacy and academic resilience playing key mediating roles in the process. Furthermore, teacher emotional support enhances students' academic resilience and self-efficacy, which in turn further promotes their learning engagement. Suscano et al. (2025) revealed that students exhibited high levels of engagement, particularly in areas such as family support and the perceived value of education in creating future opportunities. Shao et al. (2025) opined that positive academic emotion moderated the relationship between academic self-efficacy and psychological resilience. Deng and Yang (2025) mentioned about the online education that changes in student behaviour in online education were significant and were related to cognition and emotion. These changes were significant in shaping students' future academic performance and development, as they revealed the dual nature of their physical and mental development. Brandmo and Gamlem (2025) highlighted that regular homework checks, clear feedback, and praise boost behavioral engagement, while unclear feedback and a lack of trust prevent students from effectively applying feedback. They added that trust and empathetic feedback enhance resilience, while critical feedback reduces help-seeking behaviour. Task retention improves with behavioural-specific praise and interest-based strategies, though engagement varies by gender and individual preferences. Qian and Saidin (2025) explored that students' engagement is influenced by both internal and external factors. Internal factors are motivation, self-efficacy, student beliefs, autonomy and learning strategies. Intrinsic motivation drives students to learn for enjoyment and satisfaction, which is closely linked to higher engagement, academic success, and personal growth. Repon (2025) reported that most students engage private tutors and coaching classes, in addition to regular school, to achieve the best academic results.

The studies reviewed above clearly indicate that while various aspects of students' engagement have been discussed, there has been no discussion or review of the nature of student's engagements in relation to their academic results, financial costs associated with their engagements and contributors of multifaceted engagements on achieving the best results in the SSC examination, which the current research attempts to analyse in the context of Bangladesh.

VI. Results and Discussion

a) Locations of Schools

Table 1: Analysis of the Locations of Schools of the Respondents

Locations	Frequency	Percentage
Rural areas	69	65.71
Municipal areas	26	24.76
City-corporation areas	10	9.53
Total	105	100.00

The data reveal that 65.71 per cent of the respondents studied in rural areas, 24.76 per cent in municipal areas, and only 9.53 per cent in city corporation areas. At the SSC level, respondents typically lived with their parents and had limited opportunities to move away from home. It was noteworthy that the majority came from rural areas, which also suggests that they were generally studious and meritorious.

b) Residence in Relation to School Attendance

Table 2: Analysis of the Respondents' Residence in Relation to their School Attendance

Residence	Frequency	Percentage
Own home	93	88.58
Rental house	8	7.62
Hostel	1	0.95
Mess	2	1.90
Uncle's home (maternal)	1	0.95
Total	105	100.00

Data show that 88.58 per cent of the respondents attended school while living in their own homes. The prime reasons for staying at home included proximity of the school, family companionship, the school being located within or near the village, a sense of comfort and security at home, financial constraints, parental preference, and the respondents' own reluctance to live away from home at that time.

A smaller number of the respondent lived away from home. Some rented accommodation due to family-related reasons, the need for a better study environment, the absence of their own house, and their father's job location. Others stayed at hostels because no quality school existed in their village, because the school was too far from home. A very small number lived in messes; in such cases, parents believed that studying from home was not feasible because rural children were perceived as less focused on their academics. Uncle was a schoolteacher who helped me to stay at his home to study well.

In this study, by 'own home' it is implied that one has been asked to reside in a separate house in the name of one's own parents. By 'rental house' it is implied that many people have been asked to live with their family through their own sons or other members in the name of others. By 'hostel' it is implied that one has been asked to leave the house permanently or to live separately instead of in the original house in the name of schools. By 'mess' it is implied that many people have been asked to live separately through their own sons or daughters, or to live with one son or several sons in one unit in the name of others.

c) *Sources of Supplementary Education*

Table 3: Analysis of the Sources of Supplementary Education of the Respondents

Sources	Frequency	Percentage
House tutor	18	17.14
The elder brother of the neighbour	3	2.86
Private tuition for schoolteachers	88	83.81
Coaching	47	44.76
Cousin (paternal)	1	0.95
Honors' student	1	0.95
No anywhere	1	0.95

Taking multiple answers

Respondents engaged in activities beyond their school education to achieve optimal academic results. Most of the respondents attended private tuition in addition to school classes for several reasons: to improve their performance, as the school syllabus was often too expensive to cover fully; teachers provided more effective instruction during private tuition compared to school classes; and complex mathematical calculations, which students found challenging, were more easily addressed through private tuition. Limited class time in schools made it difficult for students to prepare thoroughly for examinations, as not all topics were adequately covered in the regular curriculum.

In most cases, students supplemented their learning through alternative methods outside of school.

Several factors contributed to this trend: a shortage of qualified teachers in schools, encouragement from senior students to attend private tuition, and the comprehensive coverage of all subjects at coaching centres. Weekly examinations at these centres helped students to prepare effectively, depending on their understanding of scientific concepts, enhance the quality of their learning, and acquire more comprehensive knowledge. Additional reasons for securing supplementary education included unsuitable study environments at home, difficulty of understanding school lectures, and the need to strengthen critical subjects, particularly mathematics and English.

d) *Monthly Expenditure on Private Tuition and Coaching*

Table 4: Analysis of Monthly Expenditure on Private Tuition and Coaching of the Respondents

Taka	Private Tuition				Coaching		
	X	F	FX	%	F	FX	%
< 500	250	14	3500	13.46	4	1000	8.51
500-1000	750	48	36000	46.15	21	15750	44.7
1000-1500	1250	12	15000	11.54	7	8750	14.9

1500-2000	1750	14	24500	13.46	7	12250	14.9
2000-2500	2250	3	6750	2.89	1	2250	2.13
2500-3000	2750	3	8250	2.89	1	2750	2.13
3000-3500	3250	2	6500	1.91	1	3250	2.13
3500-4000	3750	3	11250	2.89	3	11250	6.38
4000+	4250	5	21250	4.81	2	8500	4.26
Total		104	133000	100	47	65750	100

The average monthly expenditure on private tuition per respondent was 1,278.85 taka, amounting to 15,346.15 taka annually. Across all respondents, the total annual expenditure on private tuition was 1,596,000 taka. The highest amount of money a respondent spent was 12000 taka, and the lowest was 150 taka per month for a single private tutor.

On the other hand, the average monthly expenditure on coaching per respondents was 1398.94 taka. The average expenditure on coaching centres was higher, with an annual figure of 16,787.23 taka per respondent and a total of 789,000 taka across all respondents. The highest amount spent by a single respondent on coaching was 12,000 taka per month, while the lowest was 400 taka per month for a single coaching centre.

e) *Paying Advanced Money*

Table 5: Analysis of Payments Made by the Respondents

Opinions	Private Tuition		Coaching	
	F	%	F	%
Yes	31	29.81	28	59.57
No	73	70.19	19	40.43
Total	104	100.00	47	100.00

Approximately 29.81 per cent of the respondents had to pay advance or security money for private tuition, and 59.57 per cent of the respondents had to pay advance or security money for coaching centres. This amount was typically spent before starting tuition or coaching for the admission fee. The amount of advance money varies depending on the quality of the private tutor and coaching centre.

f) *Amount of Security Money*

Table 6: Analysis of Security Money for the Private Tuition and Coaching of the Respondents

Amount (Tk.)	Private Tuition				Coaching		
	X	F	FX	%	F	FX	%
< 1000	500	14	7000	45.15	3	1500	10.71
1000-2000	1500	2	3000	6.45	2	3000	7.15
2000-3000	2500	3	7500	9.68	3	7500	10.71
3000-4000	3500	2	7000	6.45	3	10500	10.71
4000-5000	4500	1	4500	3.23	5	22500	17.86
5000-6000	5500	3	16500	9.68	2	11000	7.14
6000-7000	6500	1	6500	3.23	3	19500	10.71
8000-9000	7500	2	15000	6.45	3	22500	10.71
9000+	8500	3	25500	9.68	4	34000	14.30
Total		31	92500	100.00	28	132000	100.00

The average money secured for private tuition was 2983.87 taka, and for coaching it was 4714.29 taka per month. The highest security money of a respondent was about 12000 taka, and the lowest was 200 taka for a single private tutor. On the contrary, the highest security money of a respondent was about 12000 taka, and the lowest was 1000 taka for a single coaching centre. For most guardians, this security money represented a significant financial burden, yet they felt compelled to pay for it due to the existing system.

g) Timing of Payment for the Private Tuition and Coaching

Table 7: Analysis of Timing Payment for the Private Tuition and Coaching of the Respondents

Opinions	Private Tuition		Coaching	
	F	%	F	%
Beginning of the month	24	23.08	21	44.68
End of the month	73	70.19	25	53.19
Any time	5	4.81	1	2.13
One month interval	1	0.96	--	--
Before the completion of courses	1	0.96	--	--
Total	104	100.00	47	100.00

Payment schedules varied between private tuition and coaching centres. In most cases, they are privileged to pay money at the end of the month. For private tuition, 70.19 per cent of the respondents paid at the end of the month. For coaching centres, 53.19 per cent paid at the end of the month, while 44.68 per cent paid at the beginning of the month. Respondents generally viewed coaching centres as more commercial than private tuition, which explains the stricter payment policies.

h) By Whom the Respondents were First Informed of their SSC Result

Usually, the examinees themselves and their parents eagerly wait for the results achieved by the examinee. Numerous individuals are now involved in the education process and take an active interest in students' SSC results. These reflect their opinions on who informed first of the SSC result were father, mother, brother, elder sister, friend, aunty (parental), uncle (parental), uncle (maternal), schoolteacher, self through internet, grandfather, private teacher, sister-in-law (*bhabi*). In most cases, the examinees themselves checked their results online reflecting easy access to the internet and the involvement of multiple well-wishers. These also reflect the involvement of multiple stakeholders in the educational process (Table 8).

Table 8: Analysis of the Primary Sources through which Respondents First Learned about their Results

Opinions	Frequency	Percentage
Not in mind	1	0.95
Elder sister	3	2.85
Friend	9	8.57
Mother	1	0.95
Aunty (parental)	1	0.95
Uncle (parental)	1	0.95
Father	12	11.43
Schoolteacher	9	8.57
Brother	19	18.10
Uncle (maternal)	6	6.72
Self through the internet	36	34.29
Grandfather	1	0.95
Self through school	3	2.85
Neighbor	1	0.95
Private teacher	1	0.95
Sister-in-law (*bhabi*)	1	0.95
Total	105	100.00

i) *Persons Informed First of SSC Results by the Respondents*

Table 9: Analysis of the respondents' Opinions on being Informed First about the SSC Results

Opinions	Frequency	Percentage
Not in mind	2	1.90
Nobody	1	0.95
Mother	58	55.24
Father	23	21.90
Friend	3	2.86
Prospective sister-in-law	1	0.95
Brother	3	2.86
Elder sister	1	0.95
Family member	7	6.67
Cousin (maternal)	1	0.95
Uncle (parental)	3	2.86
Grandmother	1	0.95
Grandfather (maternal)	1	0.95
Total	105	100.00

Respondents informed their SSC results through a variety of family members first, including mother, father, brother, elder sister, cousin (maternal), uncle (paternal), grandmother, grandfather (maternal), prospective sister-in-law, and other relatives. Fathers and mothers were informed first most frequently. 55.24 per cent of the respondents informed their results to their mother because of their anxiousness about their children's results, the happiness of their mother, trying to know first about any crucial issues for their mother, always putting their mother first, the mother's role is much more than others, mother was in front of me at that time, and their mother always helps them.

Common reasons for informing the father first included his strong interest in the results, his physical distance from home, his role as the outstanding motivator and financial supporter, and the perception that fathers deserve priority. A few respondents could not recall whom they informed first at that time. But they clearly stated that those who contribute their lives were told first by the respondents.

j) *Satisfaction with the SSC Results*
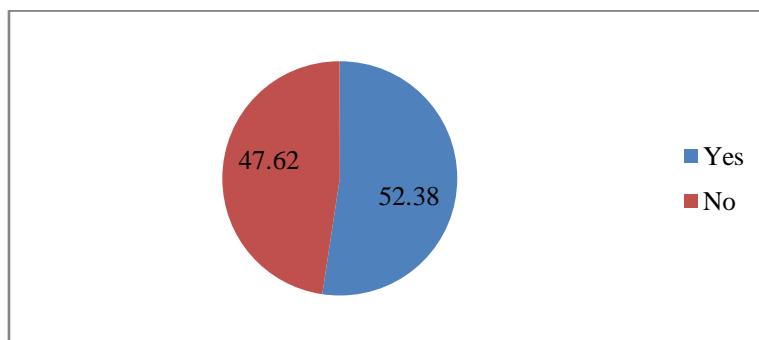
Figure 1: Satisfaction with the SSC Results of the Respondents

More than half of the respondents (52.38 per cent) were satisfied with their SSC results, while 47.62 per cent were dissatisfied with a figure that cannot be ignored. Those who were satisfied cited reasons such as achieving good or expected results, obtaining the highest score in their school, securing a GPA of 5.00, or making their parents thrilled, even 20.95 per cent of the respondents when the GPA was below 5.00, like 3.95. Someone believed the result reflected their efforts and accepted it as Allah's desire.

Dissatisfied respondents had expected a GPA of 5.00, suffered from illness during exam preparation, or felt their hard work was not adequately rewarded. Interestingly, 2.86 per cent of the respondents who achieved a GPA of 5.00 were still unhappy because they failed to secure a "Golden GPA 5.00" (at least 80.00 per cent marks in each subjects).

k) Contributors to the SSC Results

Table 10: Analysis of the Contributors to the SSC Results of the Respondents

Contributors	Frequency	Percentage
Almighty Allah	1	0.95
Self	13	12.38
Parents	69	65.71
Father	1	0.95
Mother	10	9.52
Grandfather (maternal)	1	0.95
Aunty (paternal)	1	0.95
School teacher	45	42.86
Private tutor	34	32.38
Coachingteacher	15	14.29
Uncle (maternal)	3	2.86
Brother	8	7.62
Sister	6	5.71
Family members	1	0.95

Taking multiple answers

Time immemorial, school was the only contributor to way for a student to achieve good results. Even a very few number of teachers were called a contributor to obtaining good results for the students in that respective school. Nowadays, it is quite impossible to identify the prime contributor to the best result of a student due to so many engagements besides their school work. Data shows that 14 sources contributed to their result in the SSC examination. Respondents have no scope to mention a single person who contributes more to their life. Remarkably, almost twice the number of people opined in the table. Family members, teachers, tutors, and others contributed in various ways: providing inspiration, suggestions, discipline, study routines, direct teaching, guidance, psychological supports, and financial assistance. Respondents found it difficult to identify a single contributor, indicating that success at the SSC level is usually multifaceted efforts.

VII. Conclusion

Education is the process through which students' minds develop through systematic learning in various institutions. Many of the respondents completed their SSC examinations in rural areas. A huge involvement is explicitly clear in the examination process through private tuition and coaching centres. Over the years, students and their families have become extremely involved in supplementary education, with significant financial resources directed at private tutors and coaching centres. Although most of the respondents were satisfied with their SSC results, a substantial portion remained dissatisfied, often because of extraordinarily high expectations, particularly the desire for a GPA of 5.00 or a Golden GPA. Whereas in the past, examinees and parents showed keen interest in results, today a wide range of family members and others eagerly await and celebrate the SSC results. The critical role played by private tutors and coaching centres in achieving the best results is widely recognised. Respondents generally believe that success is the outcome of multifaceted contributions from parents, teachers, tutors, and peers rather than the effort of any single individual. These multifaceted engagements and efforts in secondary education in Bangladesh are both remarkable and indicative of the scenario of the public examinations.

To strengthen students' engagement and achieve the expected results in the SSC examination need to attention the following steps: reform the SSC curriculum to incorporate more interactive issues; regulate private tutoring and coaching centres to ensure quality and affordability, and provide subsidized tutoring for the low income students; strengthen parental and community involvement; enhance teaching learning for engagement strategies; ensure equal opportunities for the rural and urban students; and enhancing interactivity and facilities in the class rooms.

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Teacher Education, Research, and Human Rights: A Systematic Literature Review Unveiling Participation as a Transformative Principle of Education

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Abstract- This article aims to conduct a Systematic Literature Review (SLR) on the use of participatory research methodologies in teacher education, its relationship with education and human rights, gathering the main trends and gaps in the academic literature from the past ten years, thereby contributing to the debate on reflective and emancipatory pedagogical practices. The guiding question of the SLR is based on the assumption that participatory research strengthens teachers' professionalism and professional identity, promoting a training model grounded in critical reflection, inclusion, and social justice. The chosen methodological strategy followed the procedures outlined in the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) for a Systematic Literature Review, according to the guidelines established by Moher et al. (2009) and updated by Page et al. (2021), aiming to ensure rigor, transparency, and reproducibility in conducting the research. The internationally recognized databases used for this review include Scopus, Web of Science, ERIC, SciELO, and Google Scholar.

Keywords: teacher education, professional development, emancipatory education, human rights, narratives of experience.

GJHSS-G Classification: LCC Code: LB1705

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Cristiano de Souza Calisto [α], Ana Cristina Laranjeira [σ], Isabel Cavas [ρ], Pedro Demo [ω] & Conceição Leal da Costa [¥]

Abstract- This article aims to conduct a Systematic Literature Review (SLR) on the use of participatory research methodologies in teacher education, its relationship with education and human rights, gathering the main trends and gaps in the academic literature from the past ten years, thereby contributing to the debate on reflective and emancipatory pedagogical practices. The guiding question of the SLR is based on the assumption that participatory research strengthens teachers' professionalism and professional identity, promoting a training model grounded in critical reflection, inclusion, and social justice. The chosen methodological strategy followed the procedures outlined in the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) for a Systematic Literature Review, according to the guidelines established by Moher et al. (2009) and updated by Page et al. (2021), aiming to ensure rigor, transparency, and reproducibility in conducting the research. The internationally recognized databases used for this review include Scopus, Web of Science, ERIC, SciELO, and Google Scholar.

The research was conducted using Boolean operators, combining the terms Participatory Research, Teacher Education, Emancipatory Education, Narratives, and Human Rights. The inclusion criteria involved peer-reviewed studies published between 2014 and 2024, in Portuguese, English, and Spanish, explicitly addressing participatory methodologies and their relationship with teacher education. The qualitative data analysis was based on Content Analysis (Bardin, 2011) and Narrative Analysis, allowing for the identification of patterns and pedagogical reflections.

Keywords: teacher education, professional development, emancipatory education, human rights, narratives of experience.

I. Introduction

Increasingly, we face the need to engage teachers in their pedagogical practice, transforming their work environments into spaces for professional development. Several authors argue that teacher education should be viewed as a continuous lifelong process (Day, 2001; Dubar, 2012; Nogueira, 2012), as this training process strengthens professionalism, contributing to an education grounded in self-reflection on life experiences, critical reflection, inclusion, and social justice, thus embracing the fundamental principles of education based on Human Rights.

The literature highlights the role of pedagogical narratives and active listening as essential epistemological tools for constructing teacher knowledge, enabling not only the analysis of formative processes but also understanding the (re)construction of professional identities (Passeggi, 2021). Furthermore, participatory research is considered a means of valuing knowledge produced in educational contexts, aligning with the premises of evidence-based education (Demo, 1995). Teachers must reflect on their pedagogical practice, making it a reflective practice. What is interesting is seeing how the profession itself incorporates research dynamics into its routine, a professional reflection conducted through systemic analysis of the work developed, done in collaboration with colleagues. The dimension of teacher professional development is built through the sharing of experiences and intercommunicative analysis, which produces and is produced by reflection in action, on action, and about reflection in action (Schön, 1983, as cited in Silva, 2000). It is crucial to provide collaborative spaces and environments for teachers to feel they are not alone, that they can count on their peers for the development of their work, that teaching should not be confined to complete isolation but should be open to sharing and mutual assistance (Sanches, 2007; Dias, 2015). According to Formosinho and Machado (2015), "it is in promoting a collaborative work standard that we can find an organizational alternative that enhances alternative pedagogical projects" (p. 105). In this sense, the movement of reflective practice involves recognizing that teachers must play an active role in formulating the goals and purposes of their work (Zeichner, 2008).

In this context, "Qualitative research is not a methodological concession, in the sense of a tolerable procedure, acceptable at the limit, but necessary..." (Demo; Calisto, 2025c, p. 33), and therefore, conducting research with narratives allows for an awareness of the life experiences of study participants, leading to the

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emergence of a developing individual through their critical reflection, thus enabling access to their life history. This is, as Passeggi (2023) argues, the life narrative, but also the construction of each individual's historicity. Therefore, as Sarmento, T. and Leal da Costa (2019) defend, "narratives are fundamental foundations in the (re)construction of professional identities; they ultimately reveal that teachers, as professionals in development, are both the process and the product of training, and thus agents of humanization in education and schools" (p. 60).

For reflective, plural education that is capable of promoting the training of emancipated subjects who construct their own history, certain questions must be addressed regarding the role of teacher education in building habits and educational practices that contribute to emancipatory education, promoting processes that enable the construction of historically self-sufficient and critical subjects. It is important to understand how relations occur in the structure, in educational spaces, and in the realization of habits and practices, observing how these translate into the effects of training on the teacher profile and pedagogical praxis, moving toward Education, in and for Human Rights. "The teacher education that emerges from this reading is not neutral; it is situated, insurgent, and challenges the boundaries of the legitimacy of school knowledge" (Demo; Calisto, 2025b, p. 48). Understanding teacher education and its implications in the outcomes of educational processes from an emancipatory perspective requires a deeper study that should focus not only on aspects related to the "pedagogical doing," but also on the formal and political quality of education, as well as the processes inherent in class struggles, the relations of production and social division of labor, and ethnic-racial and gender issues. Thus, considering the aspects discussed thus far, this research is guided by the aim of understanding the role of teacher education for education, in and for human rights, and vice versa, particularly considering the following dimensions:

a) *Formal Quality:* Observation of habits, practices, instruments, methods, techniques, and procedures applied in teacher education that contribute to the construction of teaching-learning relations embedded in pedagogical praxis;

b) *Political Quality:* The capacity of education to contribute to creating socially emancipated individuals, understanding that political quality in education means knowing how to think better to intervene better, so that this education is aimed at combating political poverty (Demo, 2010, p. 16).

Since we are all endowed with emotions that influence our behavior in any given situation, in the case of teachers, they also influence teaching practice and the development of professional identity. In this sense, it is important to promote educational contexts that provide teacher training and professional development pedagogies that enable the development of professional identity, including the personal, social, and reflective components in the training and professional development process. According to Flores (2015), the professional identity of teachers is related to their experiences within and outside the school context, with their personal way of being and their approach to the profession. Furthermore, it represents a mutable, evolving, continuous, relational, and constructive process developed through the interaction between the individual and the collective, which leads teachers to reflect on themselves, their practices, motivations, how they understand the profession and contexts, and what it means to be a teacher. In this sense, the ongoing construction of professional identity is essential for their training and for teachers to become aware of and reflect on themselves as individuals and professionals. This is how the research component in teacher education has become one of the most debated aspects in the scientific community. In a way, research is assumed to be the structuring axis of training, making teachers not only producers but also consumers of research (Flores, 2017). As Sarmento, T. (2002) states:

> The construction of professional identity is associated both with the interactions that the teacher establishes with their profession, with the communities they work with, and with their peer group, and with the symbolic, personal, and interpersonal construction that these interactions imply" (p. 115).

II. Methodology

In this study, we chose to conduct systematic research in academic databases to identify publications related to teacher education, research-based education, and human rights in education. Internationally recognized databases were used, and the selection of studies was conducted using specific descriptors and Boolean operators. The inclusion and exclusion criteria for the articles followed strict guidelines to ensure the relevance and quality of the sources analyzed. At this point, we present the methodological processes applied in identifying publications that discuss teacher education within the context of education for and in human rights. To ensure the breadth and quality of the studies reviewed, the following databases were initially selected:

- *Scopus:* One of the largest indexing databases for peer-reviewed scientific articles.

- *Web of Science:* A global reference for multidisciplinary scientific research.

- *ERIC (Education Resources Information Center):* Specializing in educational studies.

- *SciELO:* An open-access repository with a strong presence of Latin American academic literature.

- *Google Scholar:* An academic search engine indexing articles, theses, and books.

a) Research in the SciELO Database and Unsatisfactory Results

SciELO was selected as a relevant database due to its role in disseminating Latin American academic production and its open access. However, searches conducted using descriptors in Portuguese and English, combined with various Boolean operators, did not return satisfactory results. Several attempts to adjust the terms and search strategies were made, but it was still impossible to retrieve scientific articles aligned with the objectives of the Systematic Literature Review. Not knowing the exact reason for this outcome, we assume that among the possible situations that may have occurred, we can consider the absence of publications on the specific topic in the database, limitations in the indexing of articles in SciELO, or failures in the platform's search mechanism. Therefore, in accordance with the steps and conditions outlined in the PRISMA protocol, while the methodology adopted in this review, we chose to exclude SciELO from the research context.

b) Exclusion of Google Scholar as a Data Source

Google Scholar was initially included as a search engine to broaden the scope of the search due to its wide coverage of indexing articles, theses, and academic books. However, searches conducted returned an excessive volume of articles, often without rigorous academic quality criteria. This large number of results made it difficult to triage and apply the inclusion and exclusion criteria defined for this study. Furthermore, Google Scholar did not allow for precise filtering by publication type (e.g., only peer-reviewed articles), which compromised the reliability of the data collected. Many results included non-scientific documents, such as conference presentations without formal review and institutional repositories with texts not indexed in recognized databases. Due to these limitations, we opted to exclude Google Scholar from this Systematic Literature Review, ensuring that the selection of articles was carried out only in databases that allowed for better control of academic quality and study indexing.

c) Research Procedures

The strategy used in this research was structured using specific descriptors related to the topic, combined through Boolean operators AND and OR to expand or refine results. The descriptors used were grouped into six sets (Folders 0 to 5), each representing a specific focus of the research. For each of these sets, different combinations of Boolean operators were applied, as represented in the table below for better understanding:

Folder	Research Focus	Boolean Operators	Search Descriptors
0	General coverage of the research.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Professional Development" OR "Teacher Professional Growth" OR "Continuing Teacher Education") AND ("Emancipatory Education" OR "Critical Pedagogy") AND ("Human Rights Education" OR "Educational Justice" OR "Equity in Education")	Teacher Education, Professional Development, Emancipatory Education, Human Rights
1	Relationship between teacher education and human rights.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Human Rights Education" OR "Educational Justice" OR "Equity in Education" OR "Emancipatory Education")	Teacher Education, Human Rights, Emancipatory Education
2	Teacher education and professional development.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Professional Development" OR "Teacher Professional Growth" OR "Continuing Teacher Education") AND ("Human Rights Education" OR "Educational Justice" OR "Equity in Education")	Teacher Education, Professional Development, Human Rights
3	Reflective pedagogical practice and narrative inquiry.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Professional Development" OR "Teacher Growth") AND ("Reflective Teaching Practice" OR "Reflective Pedagogical Practice" OR "Teacher Reflection") AND ("Narrative Inquiry" OR "Narrative-Based Research" OR "Narratives of Experience")	Teacher Education, Reflective Practice, Narrative Inquiry
4	Participatory research and collaboration in teacher education.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Professional Development" OR "Continuing Teacher Education") AND ("Participatory Research" OR "Collaborative Inquiry in Education")	Teacher Education, Participatory Research, Research-Training
5	Teacher education based on research-training.	("Teacher Education" OR "Teacher Training" OR "Teacher Preparation") AND ("Professional Development" OR "Continuing Teacher Education") AND ("Training-Research" OR "Teacher Inquiry")	Teacher Education, Research-Training

d) Article Selection Process

Specific criteria were adopted for the inclusion and exclusion of articles. The inclusion criteria were: publications in peer-reviewed journals; studies published in the last ten years (2014-2024); works using qualitative or mixed methodologies; research in Portuguese, English, and Spanish; studies addressing teacher education, human rights in education, and research-based education. The exclusion criteria considered were: non-peer-reviewed articles; publications before 2014; exclusively quantitative studies; articles not explicitly discussing teacher education; articles in languages other than Portuguese, English, or Spanish.

After defining and applying the research criteria, the articles were filtered based on titles, abstracts, and keywords. Studies that met the inclusion criteria moved on to a more detailed analysis of the full text. The methodology adopted ensured that the review was systematic, replicable, and comprehensive, guaranteeing a rigorous selection of publications relevant to the investigated topic.

i. *Use of the Zotero Program as a Bibliographic Manager and Artificial Intelligence*

To ensure efficient organization of the selected articles and scientific documents, the Zotero program was used as a reference manager. This software allowed for the structured storage of found texts, organizing them in a way that maintained all the data and metadata of the files appropriately and accessibly. Furthermore, Zotero allowed the categorization of

articles according to the inclusion and exclusion criteria, facilitating traceability and control of the gathered academic production. The resulting bibliographic reference library was shared among the researchers involved in the study, enabling continuous collaboration and ensuring methodological alignment. This sharing was essential for the completion of all stages of the research, ensuring that the results were discussed jointly and that the Systematic Literature Review adhered strictly to the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses).

In this study, artificial intelligence (AI) was used as an auxiliary tool in the screening, organization, and analysis of the included and excluded texts in the Systematic Literature Review (SLR). With the support of natural language processing algorithms, it was possible to automate the verification of duplicates, identify semantic patterns, and carry out preliminary classification of contents according to the criteria defined in the PRISMA protocol. This application did not replace the critical and interpretative analysis of the researchers but optimized operational stages and helped ensure greater precision and transparency in decision-making, particularly during the exclusion phases due to thematic relevance, repetition, or methodological inconsistency. The experience reaffirms the potential of AI as an ally in critical educational research, provided it is used with ethical and epistemological rigor.

e)   The PRISMA Protocol and Its Application in Research

The PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) refers to a set of guidelines designed for conducting Systematic Literature Reviews (SLR) and Meta-Analyses. It establishes a structured flow to ensure transparency, reproducibility, and methodological rigor in the selection, analysis, and presentation of the reviewed studies. The PRISMA protocol structures the systematic review into four main stages:

1. *Identification:* Initial survey of studies in databases using descriptors and Boolean operators for structured searching;

2. *Screening:* Application of inclusion and exclusion criteria for the preliminary selection of studies based on titles and abstracts;

3. *Eligibility:* Detailed analysis of the full texts of the selected studies to verify their alignment with the research objectives;

4. *Inclusion:* Final selection of the articles to be included in the Systematic Review, followed by data extraction and analysis of relevant information.

In the identification phase, structured searches were conducted in the selected databases using specific descriptors and Boolean operators to ensure a broad and precise survey. In the screening phase,

inclusion and exclusion criteria were applied to select the most relevant studies based on titles and abstracts. In the eligibility phase, the selected articles were analyzed in full to check their suitability for the research objective. Finally, the inclusion phase was carried out, consolidating the studies that became part of the Systematic Literature Review and organizing the extracted data for analysis and discussion of the results. Initially, 1,023 articles were obtained, which, after applying the temporal exclusion criterion, resulted in 587 articles. After applying the exclusion criterion for articles that were not peer-reviewed, the research was reduced to 415 articles. After the final inclusion criterion, a critical reading of titles and abstracts to check for methodological and thematic adherence to the SLR objectives, 17 articles were selected for full analysis.
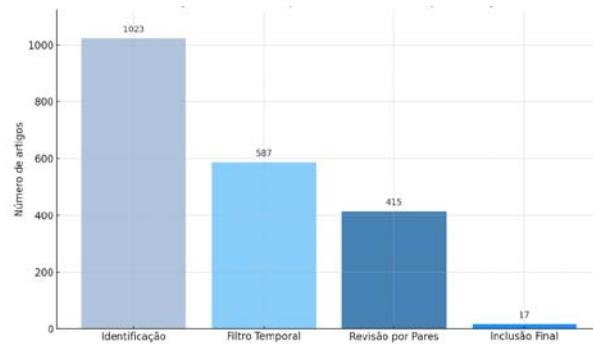
Fig. 1: PRISMA Flowchart (adapted) – Article Selection Process.

f)   Results and Discussion

From the analysis of the selected texts, it was possible to construct a robust analytical framework that integrates methodological elements, emerging categories, and contributions to critical teacher education. This systematization not only highlights the individual contributions of each study but also allows for the identification of patterns, convergences, and theoretical and methodological shifts between them.

The studies analyzed show remarkable methodological diversity, including qualitative approaches (autoethnography, narrative, ethnography), theoretical analysis, case studies, and mixed research. This methodological plurality converges in a common political commitment to social transformation and educational justice, revealing that the method is not just a technique but an ethical and epistemological choice. "To sustain this expectation, we need an epistemology of complexity or diversity..." (Demo; Calisto, 2025c, p. 97). The central contributions revolve around three structuring axes:

● *Teacher Agency:* Understood as the ability for critical action and the transformation of the educational context;

● *Equity and Social Justice:* As guiding principles for assessment, education, and pedagogical practice;

- *Insurgent and Localized Knowledges:* Valuing experiences, narratives, and formative practices anchored in specific territories.

Studies such as those by Luna et al. (2022), Gollifer (2022), and Kinloch et al. (2020) demonstrate how narrative and ethnographic practices involve teacher authorship, radical listening, and symbolic resistance. Authors such as Cochran-Smith and Reagan (2022) and Jurow and Freeman (2020) propose evaluative and experimental models rooted in racial justice and formative equity. The analysis also highlights recurring limits, such as:

- The difficulty of generalizing research, given the contextual anchoring of the investigations;
- Fragility in structured policies, particularly in the field of Human Rights Education (HRE);
- The mismatch between curriculum proposals and actual formative practices (Van Katwijk et al., 2021).

Analyzing the emerging categories reveals a strong connection with the foundations of critical pedagogy, epistemology, and cognitive justice. The most frequent of these include:

- Situated Education
- Insurgent Narratives
- Education as an Emancipatory Practice
- Critical Hermeneutics
- Collaborative Research

Subcategories, in turn, materialize these overarching themes into specific formative practices, such as "autoethnography as a critical praxis" or "change projects as training."

The studies analyzed adopt a methodological diversity with a focus on qualitative, mixed, and action-research-based approaches, reflecting the political and formative commitment to social transformation in the context of teacher education. Luna et al. (2022) use an approach based on autoethnography and Grounded Theory, allowing for the interpretation of teaching practices as forms of symbolic resistance. Gollifer (2022), in turn, uses narrative analysis of interviews to investigate the critical knowledges mobilized in Human Rights Education (HRE). Kinloch et al. (2020) combine ethnography and narrative, highlighting storying as a political and humanizing practice. Zembylas et al. (2016) adopt a critical hermeneutical methodology, based on documentary analysis and in-depth interviews, with a focus on HRE in conflict contexts. Mayra and Daniel (2020) adopt action-research using interviews and discussion groups, promoting reflection on pedagogical practice. Brooks and Adams (2015) and Hardy (2014) conduct case studies focusing on teacher agency and research as a continuous formative axis. Lucena (2024) investigates popular education contexts through interviews, highlighting the relevance of community educational programs as critical training territories. Villa

et al. (2020) explore "training incubators," research-action environments that integrate theory, practice, and collaborative knowledge production.

Van Katwijk et al. (2021) use a combination of questionnaires and focus groups to understand teacher research training in the Netherlands. Ramirez et al. (2023) apply a mixed methodology to investigate the impact of conceptual change pedagogy on educational practice. Poultney (2016) adopts a sequential mixed-methods model, focusing on practical evidence and the networked sharing of pedagogical knowledge. Ullah et al. (2024) use a multi-wave survey based on the Theory of Planned Behavior to investigate the influence of networks for sharing and collaboration in initial teacher training.

Cochran-Smith and Reagan (2022) develop a critical theoretical analysis of evaluative policies, proposing a model focused on equity and social justice. Ahmed et al. (2020) combine critical documentary analysis with international case studies (Bangladesh and the USA), reflecting on agency as a tool and formative goal in HRE.

In summary, critical teacher education research is characterized by a methodological plurality that integrates ethnography, narrative analysis, Grounded Theory, action-research, and mixed methods, consolidating reflective and collaborative practices focused on equity, agency, and social justice.

i. *Synthesis and Implications*

The data reinforce that collaborative research not only generates knowledge but also constitutes a formative device, stimulating critical reflection and the co-construction of pedagogical meanings. It is grounded in the necessity to understand the specificity of professional practice in context, highlighting the research cycle as a driver of teacher development. This cross-sectional analysis allows us to affirm that, more than a mere juxtaposition of studies, what emerges is a critical map of teacher education, where theory, practice, politics, and ethics intertwine to promote an education committed to equity and human rights.

ii. *Analysis of Selected Studies in Light of Education in and for Human Rights*

Education in and for Human Rights (HRE) starts from the premise that education must be a tool for emancipation and the promotion of equity, being committed to social transformation. This perspective is clearly present in the following authors: Ahmed, Martin, and Uddin (2020), who emphasize "agency" as both the objective and tool of HRE, focusing on political empowerment; Jurow and Freeman (2020), who propose critical remediation practices as a response to racial evasiveness, connecting HRE to racial justice; Lucena (2024), who highlights popular education programs as territories of resistance and formative practices against structural exclusions. These works

materialize the transformative principles of HRE by directly addressing structures of power, exclusion, and oppression, promoting an education geared toward critical action and social engagement.

The analysis of the seventeen studies included in the Systematic Literature Review (SLR) reveals a theoretical and methodological commitment to critical, situated, and emancipatory teacher education. The analyzed texts demonstrate that formative processes capable of producing reflective and politically engaged teacher subjects require more than content transmission: they require research practices, authorship, and resistance to the reproductive paradigms of modern education. It is essential to highlight that "without one's own production, there is no teaching" (Demo, 2011, p. 58), a stance that destabilizes the logic of the class as an end in itself and proposes learning through research as a fundamental educational principle. Research, in this sense, is seen as a right, with the task of critically reconstructing the lived world.

The results of the SLR also emphasize the need to build an authorial teacher education, committed to social justice and critical praxis. This perspective aligns with Paulo Freire's (2019) critique of banking education and Michel Foucault's (2014) call for analyzing power discourses operating within educational institutions. As Louis Althusser (2022) proposes, the school, as an ideological apparatus of the state, must be questioned about the type of subject it forms and the role it plays in maintaining or rupturing the dominant order.

In this context, it is crucial to situate the influence of neoliberalism on formative processes and the field of human rights education. The rise of neoliberalism in recent decades not only reconfigured global economic dynamics but also deeply penetrated educational structures, transforming teacher education into a space for technocratic management and standardization. In the context of education, neoliberalism operates through managerial rationality, turning the school into a business, students into clients, and teachers into workers of instruction. As Laval and Dardot (2016) warn, this regime is not merely an economic model but a form of subjectivation that redefines the meanings of pedagogical action, eroding teacher autonomy and obscuring its critical social function. In this model, continuing education tends to be reduced to performance control instruments, subject to quantitative evaluations and productivity metrics that ignore the sociocultural realities of the training subjects. "Resisting neoliberalism in education is also claiming the school as a space of dignity, authorship, and social transformation" (Demo; Calisto, 2025, p. 50).

In the field of human rights, the effects of this logic are even more pernicious: by prioritizing efficiency, competition, and meritocratic individualism, neoliberalism undermines the foundations of social justice, solidarity, and equity. Education, when subjected to this rationality, ceases to be understood as a universal right and becomes treated as a service conditioned by the cultural and economic capital of individuals. Instead of promoting inclusion, it reproduces inequalities, naturalizes exclusion, and makes structural oppressions of race, class, and gender invisible. As Demo and Calisto (2025) argue, the challenge of education committed to human rights requires directly confronting this model, embracing diversity as a political and epistemic principle, rather than as a tolerant concession or empty rhetoric. Therefore, resisting neoliberalism in education is also claiming the school as a space of dignity, authorship, and social transformation.

Continuing education, especially when instrumentalized by public policies, is regarded in the studies as a space of epistemic and political disputes. The texts highlight, for example, the tension between emancipatory proposals and the limits imposed by hierarchical structures and normative curricula. This contradiction is also discussed by Demo and Calisto (2025a), who argue that, especially in poor and developing countries, "public schools continue to be poor for the poor and white for the white" (p. 02), exposing the colonial face of the school and human rights when these are not rooted in the real diversity of the subjects.

In this scenario, studies that address practices such as autoethnography, narrative research, teacher training in peripheral territories, and collaborative methodologies align with the proposal for a political quality of education (Demo, 2010), which is not limited to evaluating outcomes but commits to epistemic equity and teacher authorship as criteria for cognitive justice (Santos, 2007, 2009). Teacher education that emerges from this reading is not neutral; it is situated, insurgent, and challenges the boundaries of the legitimacy of school knowledge.

The reference to phenomenology as an interpretative lens is also present, especially when understanding teacher education as lived experience — as a lived world and meaning within the relations of power, school practices, and social expectations. Phenomenology, as Nogueira (2004) affirms, allows us to uncover the intentions behind practices, becoming a hermeneutic key to understanding the effects of teacher education on the subjective constitution of teachers.

The analysis of the studies also reveals the systematic absence of consolidated teacher education policies for and in human rights, a gap that highlights the persistence of neoliberal logic and technicism in formative programs. This finding reinforces the critique by Demo (2023), who states that Brazil has normalized a public school system that systematically fails its subjects while legitimizing it as the only space for social ascension — thus operating as a technology of exclusion.

The texts analyzed also engage with the critique presented in "*Human Rights: Equal and Diverse: Challenges of Egalitarianism,*" a work in which Demo and Calisto (2025) propose a reconceptualization of human rights through the articulation between equality and diversity. The authors assert that "the claim for equality is essential, but it is only half. Diversity is the other half" (Demo; Calisto, 2025, p. 16), challenging the Eurocentric foundations of Enlightenment thought and denouncing the erasure of the multiple forms of existence that constitute human experience. This position is central to understanding teacher education as a political act that requires the recognition of the cultural, epistemic, and subjective plurality of the subjects involved. By emphasizing that science and education must be open to epistemic and cultural plurality, Demo and Calisto (2025) advocate for a radical critique of the dominant civilizational model, asserting that "there can be no peace in a society divided by such violent exclusions" (p. 39). This argument calls on education to overcome both institutional indifference and homogeneous curricula, positioning itself as a place of dispute and the reconstruction of human dignity.

Finally, by valuing the listening of teacher narratives, collaborative work, and the analysis of practice, the selected studies point to pathways for an education that integrates critical thinking, creativity, and commitment to transformative education. This analytical journey aligns with Freire's (1970) concept of praxis and with Demo-Foucault's demand to interrogate the educational system at its epistemic and political foundations.

III. Conclusion

From the analyses conducted, it is clear that the systematized studies converge in advocating for teacher education as a critical, situated, and transformative practice. Each of the methodologies adopted not only reveals the multiplicity of educational contexts investigated but also broadens the understanding of teaching as a field of epistemic and political dispute. "The plurality of approaches is also crucial because it is part of the qualitative vision of meaning through diversity..." (Demo; Calisto, 2025c, p. 97). The constant presence of the notion of agency as the critical capacity of subjects highlights a significant shift in recent literature: training teachers is not merely about preparing them to teach content but about preparing them to read the world and intervene in it with social responsibility.

The analysis revealed that agency must be understood in multiple layers. In Luna et al. (2022), it appears as teacher authorship, symbolic resistance, and intellectual action in the face of neoliberal rationality. In Brooks and Adams (2015), agency is activated through collaborative change projects, allowing in-service educators to play a leading role in reinventing their practices. In Ahmed, Martin, and Uddin (2020), agency is both an end and a means, integrating into human rights education as political emancipation. This multiplicity points to a relational and situated understanding of the concept, influenced by social, cultural, epistemic, and historical contexts. In feminist and decolonial approaches, this concept is further deepened: Judith Butler associates it with performativity and the possibility of subverting normative discourses (1990). bell hooks (2013) highlights its connection to resistance against intersectional oppressions (1994). Paulo Freire proposes agency as praxis, a union of action and critical reflection, as the foundation of liberatory pedagogy (1968). Authors like Giddens (1984) situate agency in the dialectical relationship between structure and action, emphasizing the ability of subjects to modify or reproduce social systems. From a decolonial perspective (Mignolo, Quijano, Santos, 2005), agency emerges as epistemic disobedience, claiming the right to think outside the margins of Eurocentric universalism.

Thus, this systematic review not only offers a methodological and analytical contribution to the literature but also provides a powerful conceptual map for future research. The commitment to human rights education, shaped by dialogical practices, insurgent narratives, equity policies, and plural epistemologies, requires recognizing agency as a key axis for articulating knowledge, power, and transformation. Therefore, quality is written with politics, not with rankings (Demo; Calisto, 2025a), connecting with their transformative proposal. The ethical and political challenge remains: how can we ensure that teacher education programs, whether institutional or popular, can effectively cultivate critical, sensitive, and committed subjects to anti-racist, decolonial, and socially just education?.

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Creative Practice of Everyday Life

By Sérgio Oliveira dos Santos, Eugenia Trigo & José Maria Pazos Couto

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Summary- The essay explores the creative praxis of everyday life as a fundamental element for individual and collective human existence. Starting from philosophical and sociological perspectives (Lalive D'Epinay, Maturana, Innerarity), the authors analyze how everyday life, understood as a space between routines and events, can be a source of both creativity and plenitude as well as oppression and alienation. Techno-economic globalization is criticized and the paradox of a hyperconnected world that generates solitude and automatism is highlighted. The study reveals scarce studies on everyday creativity (e.g. only 1 thesis in Teseo), but also recent work (Scopus, Science) linking creative activities with psychological well-being, resilience and social transformation. Faced with challenges such as the digital era, algorithms and AI, an education based on autonomy, critical thinking and complexity (Morin) is proposed, which promotes "vital motricity", based on a balance between survival and fulfillment. The essay concludes with a call to celebrate daily creativity, resist dehumanization and inhabit "matters" between productivity and meaning, without falling into polarization.

Keywords: everyday creativity, algorithmic dependence, vital motricity, educational complexity.

GJHSS-G Classification: LCC Code: HM656, HM711

CREATIVEPRACTICEOFEVERYDAYLIFE

Strictly as per the compliance and regulations of:

Creative Practice of Everyday Life

Praxis Creativa de la Vida Cotidiana

Sérgio Oliveira dos Santos [α], Eugenia Trigo [σ] & José Maria Pazos Couto [ρ]

Resumen- El ensayo explora la praxis creativa de la vida cotidiana como eje fundamental para la existencia humana individual y colectiva. Partiendo de perspectivas filosóficas y sociológicas (Lalive D'Epinay, Maturana, Innerarity), los autores analizan cómo la cotidianidad, entendida como un espacio entre rutinas y acontecimiento, puede ser fuente tanto de creatividad y plenitud como de opresión y alienación. Se critica la globalización tecno-económica y se destaca la paradoja de un mundo hiperconectado que genera soledad y automatismo. El estudio revela escasos estudios sobre creatividad cotidiana (ej. solo 1 tesis en Teseo), aunque trabajos recientes (Scopus, Science) vinculan actividades creativas con bienestar psicológico, resiliencia y transformación social. Frente a desafíos como la era digital, los algoritmos y la IA, se propone una educación basada en autonomía, pensamiento crítico y complejidad (Morin), que fomente la "motricidad vital", basado en un equilibrio entre sobrevivencia y plenitud. El ensayo concluye con un llamado a celebrar la creatividad diaria, resistir la deshumanización y habitar "matices" entre productividad y sentido, sin caer en polarizaciones.

Palabras clave: creatividad cotidiana, dependencia algorítmica, motricidad vital, complejidad educativa.

Summary- The essay explores the creative praxis of everyday life as a fundamental element for individual and collective human existence. Starting from philosophical and sociological perspectives (Lalive D'Epinay, Maturana, Innerarity), the authors analyze how everyday life, understood as a space between routines and events, can be a source of both creativity and plenitude as well as oppression and alienation. Techno-economic globalization is criticized and the paradox of a hyperconnected world that generates solitude and automatism is highlighted. The study reveals scarce studies on everyday creativity (e.g. only 1 thesis in Teseo), but also recent work (Scopus, Science) linking creative activities with psychological well-being, resilience and social transformation. Faced with challenges such as the digital era, algorithms and AI, an education based on autonomy, critical thinking and complexity (Morin) is proposed, which promotes "vital motricity", based on a balance between survival and fulfillment. The essay concludes with a call to celebrate daily creativity, resist dehumanization and inhabit "matters" between productivity and meaning, without falling into polarization.

Keywords: everyday creativity, algorithmic dependence, vital motricity, educational complexity.

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I. El Vivir Cotidiano

La praxis de la vida cotidiana es la que hace funcionar la vida cotidiana.
(Álvarez, 2023)

La construcción de lo cotidiano es la condición sine qua non de la vida individual y colectiva. Pero lo cotidiano construido revela ser tanto el soporte de formas de creación y de vida como la fuente de formas de opresión y de muerte. Ecce homo…

(Lalive D´Epinay, 2008)

¿Algo más sencillo que la definición que abre este texto? Debería ser así y, sin embargo, parece que la vida del día a día se nos escapa en pro de mirar hacia adelante, hacia el futuro, hacia horizontes que, si bien son necesarios como vida proyectiva, no es la vida misma. De esto se trata este escrito. De hablar de cómo vivimos, cómo afrontamos el diario vivir, cómo nos posicionamos y entendemos la propia vida.

No pretendemos desarrollar un texto filosófico, otros lo han hecho con diversas profundidades a lo largo de la historia (Cuellar, 2009) (Santos Herceg, 2014), (Alvira Dominguez, 1999) ni sociológico (Lalive D´epinay, 2008) Nuestra intención es reflexionar de manera "casi coloquial" sobre qué es la vida vivida por las gentes "del común". Del tú, del nosotros con quienes convivimos y creamos formas distintas de ser-y-estar en el mundo. ¿Y no es esto filosofía?, ¿no es la filosofía el lugar-común del preguntarse por las cosas importantes de la vida?, ¿o es que la filosofía solo existe en los espacios del mundo académico?

La filosofía se ocupa del estudio de lo que todo el mundo da por sabido; pone el esfuerzo de reflexión para descubrir la profundidad oculta en lo anecdótico y aparentemente trivial. Por eso la vida cotidiana es un objeto propio del interés filosófico (Alvira Dominguez, 1999).

Vivir el día a día y preguntarse por el sentido de la vida ha estado siempre presente a lo largo de toda la historia de la humanidad. Y hemos aprendido que, si bien hay preguntas genéricas que nos atañen a todos, cada uno tiene que afrontarlas y tomar posiciones respecto a ellas. No hay recetas, no hay moldes, no hay formas únicas de ser-y-estar-en-el-mundo. Simplemente vivimos. Y en ese vivir nos desarrollamos, evolucionamos o involucionamos como sujetos y como sociedades. Y ello, fue así, a lo largo de toda la historia de la humanidad y… de todo ser viviente. Se lucha por sobrevivir, principio inalienable de toda vida (Maturana,

2004) y por VIVIR y en ese principio es en el que el CoMoVi[1] asienta lo que viene denominando Motricidad Vital[2].

Sobrevivir es la condición biológica de todos los seres vivos. Son los nutrientes que nos permiten permanecer vivos en los distintos contextos en que todos los seres vivos se desarrollan. Cada uno en su hábitat y con sus condicionantes, habilidades y posibilidades. Unos condicionantes que vienen determinados por la especie, otros por las condiciones ambientales, culturales, actitudinales, sociales, etc. Vivimos en una combinación entre lo rutinario (que me permite la sobrevivencia) y los acontecimientos (que me permiten fluir más allá de las rutinas de sobrevivencia) como nos lo explica Lalive D´epinay (2008).

Los seres humanos estamos tan contaminados de las "noticias" que día tras día entran en nuestros espacios de vida que, en ocasiones, nos olvidamos de vivir nuestra propia vida. Siendo en ese diario vivir, en esa forma de vivir el tiempo que nos mostramos como somos y desenvolvemos nuestra creatividad, como elemento de la evolución.

La creatividad no es una cualidad especial de algunos genios, ni siquiera, está limitada al ámbito de las artes, como muchas veces se observa. Es un aspecto substancial de la propia evolución y, por tanto, como nos muestra (De La Herrán Gascón, 2009; 2010a; b) está presente en todo ser vivo y en todo ser humano por el hecho de ser animal humano. La creatividad, según el mismo autor, es libertad interior, proceso de consciencia, conocimiento y evolución. A lo que nosotros añadimos ética y en sumo una "actitud ante la vida".

¿Y la investigación sobre esta temática?, ¿hay estudios al respecto? Hemos realizado una búsqueda en las bases de datos Teseo, Scopus y web of science y encontramos lo que mostramos a continuación.

II. Estudios Sobre la vida Cotidiana y Creatividad

La base de datos Teseo con "vida cotidiana" arroja 83 resultados. Al filtrar por años hallamos los siguientes datos: 2009-2024 = 52; 2013-2024 = 41. Al realizar la búsqueda con "vida cotidiana" y "creatividad" solamente aparece una tesis doctoral del 2021 defendida en la Universidad del País Vasco por María Corcuera Atienza con el título "la actitud creativa y la capacidad creativa en la creatividad cotidiana: una satisfacción y un reto". En ella se concluye que la

concepción que tienen los sujetos del común sobre la creatividad determina su desempeño creativo, así como la satisfacción, los retos que incluyen problemas, necesidades, inquietudes y deseos. También que la actitud creativa dirigida por las motivaciones intrínsecas se consolida como el motor del desarrollo creativo, mientras que las motivaciones extrínsecas actúan apoyando o bloqueando a las motivaciones intrínsecas.

En la base de datos "Scientic Reports", con la entrada "Everyday life" aparecen 3092 entradas, al combinarla con "creativity", aparecen "cero" entradas.

En Scopus ya haciendo la combinatoria entre "everyday life" y "creativity" entre los años 2020-2024 arroja 18 resultados. Artículos (11), capítulos de libro (3), editorial (2), libro (1), revisión (1). Todos ellos escritos en inglés. Si lo buscamos en español, hay un solo resultado diferente de los 18 anteriores; es una investigación realizada con madres bailarinas en Buenos Aires y publicada por una revista colombiana de antropología.

En Science aparecen 36 documentos entre los años 2020 y 2024. Artículos (19); tesis (11); artículo de revisión (5); beca otorgada (2); libros (2). De todos ellos 11 son repetidos de Scoopus. Por tanto, nos quedaríamos con 25 documentos nuevos en esta base de datos.

¿Qué hemos encontrado en estos documentos?, ¿cuáles de ellos tienen alguna relación con lo que nosotros queremos estudiar? Veámoslo.

La creatividad cotidiana emerge como una fuerza fundamental que impulsa y transforma la experiencia de las personas en diferentes etapas y contextos de la vida. Según diversas investigaciones, el deseo y la pasión actúan como motores que movilizan a los individuos a crear y actuar dentro de su entorno social, generando flujos liberadores que enriquecen su vida diaria (Barlott; Turpin, 2022).

En un trabajo llevado a cabo entre diversos investigadores (Silvia; Beaty; Nusbaum; Eddington *et al.*, 2014) se comenta que la felicidad y la sensación de estar activos están estrechamente vinculadas a la participación en actividades creativas, las cuales no solo fomentan procesos psicológicos positivos, sino que también contribuyen a la salud mental y al bienestar general.

La creatividad, entendida como un fenómeno cotidiano, se basa en la interacción continua entre las personas y las herramientas o recursos existentes, permitiendo tanto la continuidad como la renovación en las prácticas y objetos del día a día (Tanggard, 2023).

En el caso de las mujeres mayores, la tesis doctoral de (Cohen, 2024) concluye que la actividad creativa se relaciona con la autoexpresión, el disfrute y la conexión con algo más grande, ayudando a afrontar traumas y mantener una buena salud mental, además de estar vinculada en gran medida con el ocio y la elección intrínseca.

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[1] CoMoVi (Colectivo Motricidad Vital) Grupo de investigación que coordina y ejecuta investigaciones en diversas áreas de conocimiento para ampliar el proceso epistémico sobre vida y movimiento en la perspectiva de la praxis creadora.
[2] Motricidad Vital es definida por el CoMoVi, de manera sucinta, como la energía que nos impulsa a vivir. Para más información consultar Comovi (2022).

Por otro lado, las prácticas urbanas creativas, como las artes de la calle, muestran que el espacio urbano puede ser percibido y vivido de maneras más inclusivas y equitativas, promoviendo la participación social (Wees, 2022).

La creatividad también desempeña un papel crucial en la gestión del estrés, ayudando a mejorar las relaciones sociales y las habilidades de afrontamiento, demostrando que todos los seres humanos poseen un potencial creativo innato para interactuar y comprometerse con su entorno (Lingerfelt, 2017).

En suma, la creatividad cotidiana no solo enriquece la vida individual, sino que también tiene un impacto social y comunitario, siendo un recurso vital para afrontar cambios, traumas y desafíos en diferentes etapas de la vida.

a) Viviendo en la Piel "El Horroris" del Mundo Globalizado del Hoy

Un primer viaje a Japón autogestionado se hizo posible después de décadas de pensar en ello. ¡Por fin podríamos acercarnos al país del sol naciente!, ¿cuál sería la diferencia y/o similitudes con lo vivido en otros países orientales en décadas pasadas?

Y… lo vivido fue un… nada que ver con la imagen que tenía de este país. De lo caminado (Tokio, Kioto, Osaka, Nara) nos queda un país que se dejó comer por la globalización tecno-económica-consumista en su máxima expresión.

El turismo (buscado e impulsado) lo llena todo. No hay espacios de calma y tranquila contemplación, todo está masificado, domesticado y agrandado. ¿Existe otro Japón?, ¿hay pueblos todavía no comidos por el turismo de masas? No lo sabemos. Este Japón que vi, me pareció un horror de venta y consumo, comenzando por las propias mujeres jóvenes expuestas en calles y establecimientos.

Vidas apresuradas, trabajadas hasta la extenuación, suicidios, drogas, alcoholismo, prostitución y juego (escondida bajo otras prácticas), calles oscuras y estrechas en medio de grandes avenidas, rascacielos, templos y santuarios. Un país envejecido, con el índice de natalidad en mínimos históricos nos llamó poderosamente la atención. No ver mujeres embarazadas y por el contrario ver personas muy mayores atendiendo en supermercados u organizando la información y las "colas" en el transporte. ¿En dónde está la riqueza de Japón?

Al lado de estos despropósitos nos encontramos con personas (de todas las edades) sumamente amables y dispuestas a ayudarte en cualquier situación, sin necesidad de solicitarlo. Acercarse a ti cuando estás detenida observando o buscando una dirección y preguntarte si necesitas ayuda, es una norma de educación que vivimos placenteramente. ¡La educación y amabilidad no está reñida con el propio exceso de turistas que ellos también sufren!

Templos (budistas) y santuarios (sintoístas) se mezclan con los edificios modernos y rascacielos, tanto, que en ocasiones no sabes si visitas un templo-santuario o una feria. Se vende el "budismo" y el "sintoísmo" como mercancía, no como cultura ni religión. Todo está a la venta y los "monjes" lo reciben con sumo gusto. Todo se mezcla y nos sorprende haciéndonos preguntar ¿fue siempre así?, ¿en qué momento lo espiritual se convirtió en mercancía?

Nos sentimos defraudados con el país y al mismo tiempo comprendiendo que ya no quedan espacios libres de la cultura global instituida. Que ya da igual adonde viajes, qué quieras conocer, porque vas a encontrar más de lo mismo. Eso nos lleva a preguntarnos ¿merece la pena pensar en viajar?, ¿quedan algunos lugares que amerite visitar?

No es diferente de los dramas existenciales experimentados por muchos que están tratando de vivir su vida diaria, un día a la vez, en formas de vida sin hogar. Llamamos la atención sobre aquellos que no tienen vivienda, aunque tengan trabajo, que generalmente es muy precario e infravalorado, precisamente porque hay un aumento absurdo en el precio de los alquileres. Todas las grandes ciudades del mundo deben lidiar con esta realidad, con diferentes grados de problematización. Cómo vivir el día a día de la vida con dignidad sin que la persona tenga, al menos, un lugar donde dormir, donde pueda componer su perspectiva de la vida. ¿Es posible tener un día a día digno sin vivienda?

Si ponemos todo esto en relación con lo que venimos trabajando en CoMoVi, ¿qué sacamos en limpio?, ¿qué nos aportó el viaje para dar al grupo?, ¿hay espacio para crear diferente cuando se niega la diferencia?, ¿podemos vivir al margen de esta globalización tecno-económica? ¿Qué capacidad tenemos de elegir cuando somos dominados por los algoritmos?, ¿tenemos, todos los sujetos, información encarnada suficiente para comprender el alcance de los algoritmos y la manipulación que ellos realizan de manera subliminal?

En muy pocos años hemos pasado del mundo analógico al digital sin percibir los cambios a que eso está dando lugar. Nos hemos dejado llevar por el impacto de las imágenes, la luz, el sonido, la aceleración sin detenernos a pensar si es ése el camino que queremos seguir. Simplemente lo seguimos como zombis o burros detrás de una zanahoria. Lo importante es hacer, estar siempre en permanente acción-consumista, el pensar está desechado del cotidiano vivir por peligroso. Parece que se ha instituido una norma "no pienses que ya lo hacemos nosotros por ti, tú dedícate a vivir". Y eso estamos haciendo, lo aprendimos muy rápido porque es más sencillo dejarse

43

llevar que detenerse a pensar, analizar, cuestionar, sugerir, crear.

Fonte: https://carmeloaveiro.carmelitas.pt/a-vida-contemplativa-porta-para-o-misterio-da-trindade/

Figura 1: Detenerse a pensar y contemplar

¿Qué podemos esperar de un mundo zómbico? La respuesta siempre está en la frase maravillosa de Edgar Morin: "lo improbable puede ser posible", por tanto, no perdamos el horizonte del soñar, imaginar, proyectar mundos posibles que nos hagan sentido como humanidad, como especie entre las otras especies. No es el planeta el que está en causa (Gaia se puede ver afectada pero vivirá), lo que está en causa somos la especie humana porque de seguir este rumbo, no conseguiremos sobrevivir. ¿Nos contentamos con sobrevivir? Pues como decía Oscar Wilde "vivir es la cosa menos frecuente en el mundo. La mayoría de la gente simplemente existe".

b) Más allá del "horroris" del mundo actual…

Veamos a nuestro alrededor. Salgamos de la burbuja del salón, de la mirada puesta en alguna de las múltiples pantallas que nos rodean. ¿Qué vemos?

En el contexto de uno de los autores, te diré lo que veo simplemente asomándome a la ventana de un barrio popular de una ciudad media del común. Veo a personas diversas caminando, paseando con sus mascotas, conversando, sentadas compartiendo algo en común, haciendo compras de localidad (con sus bolsas y/o carritos), bicicleteando (como ocio o como desplazamiento hacia algún lugar), patinando, esperando el bus, trastabillando con sus andadores, acompañantes y sillas de ruedas, leyendo… En fin, sin salir de casa, veo una gran diversidad de formas de vivir la cotidianeidad.

Al mismo tiempo que vivo y observo el diario vivir de mis coetáneos, escucho, leo, veo las irreverencias que los magnates del mundo quieren hacer del mundo. Un lugar solamente para la vida-eficiente-económica de unos pocos que se consideran con el derecho de gobernar para sí mismos, simplemente "porque pueden". Tenemos que escuchar al "loco" de Trump decir que los gazatíes-palestinos tienen que abandonar (voluntariamente) Gaza y establecerse en los países vecinos porque Gaza será un espacio turístico para los ricos.

Los seres vivos convivimos con estas dos realidades: la de la macro-política y macro-economía en que lo que prima es el poder del dinero y; la de la vida en sí misma del día a día en que trabajo, estudio, paseo, etc.

No dejarnos llevar por la primera de las situaciones (sin ser ignorantes de esa realidad) para poder centrarnos en lo importante que es VIVIR. Y el vivir el día a día no es incompatible con las reivindicaciones de los derechos y el trabajo por conseguir mejoras salariales, de salud, de educación, de equidad y demás necesidades que tenemos como sujetos. No es solamente la existencia de infraestructuras en las sociedades sino la manera como las diversas personas se apropian de sus espacios. Pues como nos dice Innerarity (2022, p. 111): "Por encima de la infraestructura material de la sociedad del conocimiento hay toda una superestructura simbólica en donde se juegan las verdaderas cuestiones de la existencia individual y colectiva".

Figura 2: Fiesta y reivindicaciones

Nos quieren convencer que, todos y, fundamentalmente los jóvenes, viven enfrascados en las pantallas de sus móviles y no atienden ni gozan de otros espacios abiertos al mundo. ¿Es esto así realmente?, ¿en qué situaciones y contextos?

La era de las pantallas es la era actual, es la cuarta revolución tecnológica que nos acarreará (ya lo hace) formas-otras de vivir y afrontar los problemas de la vida diaria, el trabajo, el estudio, un sinfín de profesiones y un cambio de valores que, en muchas ocasiones y como nos dice Serrat, nos quede el desafío que la "angustia no se instale en nuestros corazones" (Edumate Peru, 2022).

Pero ¡no es la única manera en que las personas viven! Las personas, en general y también los jóvenes, disfrutan sus tiempos, simultáneamente, y no solamente, pegados a las pantallas. Las personas salen a caminar (por la ciudad, los pueblos y la naturaleza), a contemplar una puesta de sol, a sentarse en una cafetería y compartir con los suyos, a participar de toda cuánta fiesta hay en sus entornos inmediatos y no tan cercanos (fiestas musicales, gastronómicas, folklóricas, culturales, etc.), lectura.

Todo eso sucede al margen de las pantallas, lo vivimos todos los días y fundamentalmente los fines de semana en que las calles se llenan de fiesta, música, espectáculos diversos. Teatros al aire libre o en lugares cerrados preparados para ello y que se llenan con gentes de diversas generaciones. Unos espacios donde las personas se reúnen y disfrutan juntas e individualmente de lo que les da sentido y placer. Espacios intergeneracionales y espacios específicos para determinados grupos de edad y gustos. A la gente le gusta bailar y ver bailar, hacer teatro y ver teatro, ir al cine (no solamente el cine del salón de su casa), tocar un instrumento y asistir a un concierto y así podríamos continuar.

Esta realidad, propia de la región de Galicia, no siempre está presente en otras localidades. En algunas ciudades brasileñas también hay una intensa vida cultural pero, en general, contrastada con realidades existenciales con diversas vulnerabilidades, debido a la inmensa desigualdad social. Las fiestas populares son las que aún resisten en algunas regiones del país y acogen la participación de personas de diferentes clases sociales.

Pero también, cuando nos alejamos de las pantallas, surgen desafíos y posibilidades para vivir una vida corporalmente situada en el tiempo y el espacio de la vida analógica. Lo que para algunos es un momento de liberación que genera placer, para otros puede representar inseguridad, inestabilidad y sentimientos de no pertenencia, debido a la adicción instalada en la vida cotidiana excesivamente virtualizada. Para esas personas, encontrar espacios y dinámicas sociales que estén más allá de las barbaridades existenciales de la vida actual puede variar mucho de un lugar a otro. ¿Qué espacios populares aún se conservan y que exista una posibilidad real de vivir la cultura popular, propia de la regionalidad donde viven estas personas, y que aún no han sido tomados por las especulaciones inmobiliarias y urbanas, que crean zonas artificiales de convivencia estandarizadas para satisfacer intereses económicos?

El hecho es que somos seres sociales y por ello necesitamos de los otros para sentirnos vivos y en compañía. Por eso salimos de casa y buscamos espacios diversos de estar-con-otros. Siendo esto así, también somos seres libres y autónomos que nos autogestionamos y no siempre de una manera creativa de desenvolvimiento personal para ser mejores personas y sociedades. A veces, cuando nos quedamos solos (no siempre y en todo momento podemos/debemos estar con otros) es que nos inunda la soledad, el miedo y el refugio en las pantallas. Nos

hemos acostumbrado a estar siempre conectados y hemos perdido la capacidad de estar con nosotros mismos (aburriéndonos, creando, reflexionando). Ése sí es un problema del mundo actual y de la educación que continúa ofreciendo programas del siglo XIX y XX, como veremos más adelante.

No somos sólo trabajadores y/o estudiantes, somos vividores/disfrutadores de la vida, de lo que el contexto me ofrece. Hay contextos autogestionados (por uno mismo, la familia, los amigos) y otros que son gestionados por diversas instituciones (públicas y privadas) para beneficio de la comunidad. ¡Eso existe!, sí. ¿Por qué lo negamos y sólo vemos lo que es "noticiable" ?, ¿es que la vida de las personas-del-común no son importantes?, ¿sólo nos interesan los datos, los algoritmos, los números, la actividad de los poderosos y "sobresalientes"?

Esa es la complejidad de la vida, la super-complejidad del mundo de hoy. Un mundo lleno de incertezas y posibilidades, de problemas y alternativas, de pobrezas y riquezas, de virtualidades y presencialidades, de vulnerabilidades y vitalizaciones (Santos; Trigo; Soares, 2025). Nadamos en esas ambigüedades y diversidades. Nada es todo para todos, nada es igual para todos. Y de esas diversidades de formas de vivir la vida se construye la cultura. La cultura propia de cada uno de nosotros y las culturas identitarias que nos permite reconocernos como sujetos que formamos parte de un algo en común. Como nos dice Innerarity (2022, p.140): "Cuánto más cultura se tiene menos dócil se es a los dictados del tiempo y las modas. El pensamiento propio nos libera tanto de la satisfacción con el propio tiempo como de la permanente indignación crítica".

Un mundo en que, en muchas ocasiones, nos sentimos perdidos ante tanta diversidad y alternativas y nos cuesta decidir en qué y cómo emplear "nuestro" tiempo. "Demasiadas opciones, menos felicidad" como nos comentan (Botella I Soler; López Alós, 2025); (Serrano León, 2025) acudiendo a la "paradoja de la elección" propuesta por el psicólogo Barry Schwartz quien propuso que "el exceso de libertad puede tener efectos adversos sobre el bienestar. En lugar de hacernos más felices, una abundancia de opciones tiende a bloquear, frustrar y provocar la sensación persistente de que se podría haber elegido mejor".

Esa paradoja la observamos en nuestros entornos cuando por el afán del "activismo" y el ritmo trepidante de la vida actual, caemos, mayores y pequeños en querer ocupar nuestro tiempo todo el tiempo con diversidad de actividades que nos impiden descansar, contemplar y vibrar.

¿Dónde está el límite?, ¿quién determina cuánto es mucho y cuánto es poco o nada?, ¿somos realmente libres en elegir y decidir qué hacer con nuestra vida cotidiana?, ¿somos conscientes que estamos condicionados, en la mayoría o en muchas ocasiones, por los sesgos informativos y los sesgos que nuestro propio cerebro nos "manda"?

c) *El mundo cambiará con la nueva era IA, ¿y cuándo no mudó?*

La era de la Inteligencia Artificial es una hoja de ruta esencial para nuestro presente y nuestro futuro, una era distinta a todas las anteriores. (Kissinger et al., 2021)

En el año 2024, en el CoMoVi nos dedicamos a estudiar sobre la inteligencia artificial y a pensar en cómo esta nueva era nos afecta cómo seres humanos y sociedades y cuáles serían/son nuestras propuestas para caminar. Llegamos a publicar algún artículo al respecto y continuamos nuestro vivir como sujetos, educadores e investigadores (Trigo; Santos; Pazos Couto, 2023).

Pasado "el susto" y el miedo a-lo-que-viene (más bien lo que ya está aquí) continuamos estudiando y reflexionando sobre la evolución y la historia de la humanidad y de la vida. Y nos surgieron nuevas preguntas que no estábamos teniendo en cuenta por el "miedo" a la IA y los cambios que suponen: ¿la IA no es una era más en la historia evolutiva de la humanidad?, ¿no es parte del proceso creador inherente al ser humano?, ¿no somos seres inquietos que precisamos, siempre, ir más allá?, ¿se puede detener la evolución?

Mientras nos enfrentábamos a esas preguntas, cayeron en nuestras manos otros textos (Kissinger; Schmidt; Huttenlocher, 2021) que nos mostraban esos otros caminos por los cuales transitar junto con la era de la IA. Y aprendimos, más bien estamos aprendiendo que si la vida es cambio, mudanza, creación, adaptación, no podemos quedarnos atrapados en los miedos a lo nuevo, sino buscar los entresijos que nos permitan vivir con dignidad y plenitud "también" en la era IA. Y aquí estamos, buscando los vivires diversos con y a pesar del "dominio" de las máquinas (por muy inteligentes que nos las quieran hacer ver), mucho más allá de encontrarnos cómodos o incómodos con estos "artefactos" con los cuales convivimos, nos guste o no nos guste y que nos incita a buscar formas-otras de ser-y-estar-en-el-mundo.

Entonces nos surgen otras preguntas, ¿nos quedamos esperando que surja esa nueva filosofía que nos guíe en nuestro diario vivir o la vamos creando a medida que vivimos? Es decir, ¿esperamos pasivamente a que otros nos indiquen el camino o nos constituimos en seres humanos dignos y creadores de historias?, ¿nos importa más el desarrollo de la IA que la inteligencia natural como nos cuestiona Mafalda?

Figura 3: Mafalda y la inteligencia artificial

Sabemos que todo está relacionado con todo (principio de la complejidad bien explicado y desarrollado por Edgar Morin), por tanto, también nuestro diario vivir se ve contaminado por lo que somos y queremos ser, el contexto en que nos desenvolvemos, nuestros valores, gustos, emociones, pensamientos, posibilidades y actitudes ante la propia vida.

Vivir en el contexto es aprender a vivir en lo analógico y virtual sacando provecho de cada una de esas realidades para beneficio de las personas y sociedades del mundo actual-fututo.

"Podemos sacar el máximo provecho de la tecnología y de la IA al tiempo que protegemos nuestras habilidades. Cuanto más equilibremos los mundos cuantitativos, abstractos y acelerados de internet con nuestras habilidades arraigadas en el mundo real, más posibilidades tendremos de asegurar colectivamente que la tecnología mejora sin amenazar la condición humana". (Lee, 2022, p. 354)

Tomar decisiones en este complejo mundo no es ni fácil ni libre completamente, como comentamos más arriba. Los algoritmos (de los que ya nadie se queda afuera) entran en nuestra cotidianidad por diversas ventanas y ya no tenemos opciones de mantenerlas todas cerradas. En la mayoría, si no en todas las ocasiones, estos "bichitos" se cuelan por pequeñas rendijas u horadan muros sin que nos demos cuenta. Vivimos en esta era algorítmica y la cuestión es cuánto somos conscientes de ellos y cuánto actuamos de manera automática porque ése es el camino a seguir. Aquí entra ese refrán español "adónde vas Vicente, adónde va la gente". Nadie quiere quedarse aislado y nadie sabe ya, vivir aburrido, cuando el tedio es uno de los aspectos que nos permiten crear. Cuando estamos solos, con nosotros mismos, es cuando pueden surgir nuevas ideas que llevan a caminos-otros, como la historia nos ha enseñado. Pero si no somos capaces de combinar una vida social con una vida autónoma, estaremos eliminando una de las grandes capacidades que nos hace humanos y que nos ha llevado hasta el mundo actual: la creatividad. La capacidad de transformar realidades y crear otras nuevas.

d) *¿Qué educación para qué mundo?... Enseñar-aprender a ser autónomos y solidarios, más allá y/o al mismo tiempo que el aprendizaje de contenidos…*

¿Entendemos y vivimos la vida de la misma manera los que hemos nacido en décadas distintas?, ¿somos diversos o monotemáticos?, ¿se puede educar a los jóvenes de hoy de la misma manera cómo se hacía en décadas anteriores?, ¿qué supone la era de la virtualidad en la educación del hoy?

En el mundo actual estamos conviviendo generaciones con distintos intereses y formaciones en función, solamente, del periodo histórico-tecnológico en que nacieron. ¿Misma educación para todos? Veámoslo:

Los mileniales (1981-1996), la primera generación nativa digital y la generación Z (los nacidos entre 1997 y 2012, que no pueden imaginar la vida sin internet) son los mejor adaptados a la incorporación del metaverso en el entorno laboral. Las tecnologías que lo propician, desde la inteligencia artificial a la realidad aumentada, son nativas de estas generaciones, que superaron su adolescencia creando contenidos, en Tuenti unos y en TikTok otros, y utilizando filtros en Snapchat e Instagram, respectivamente.

Estas nuevas generaciones de trabajadores tienen integrados los conceptos de tecnología y bienestar en su vida personal y profesional. Buscan el equilibrio entre el trabajo y sus intereses personales, y se muestran dispuestos a sacrificar el beneficio económico por cosas que consideren significativas como su propio tiempo libre. Con estas generaciones se ha impuesto la incorporación del salario emocional.

Del otro lado encontramos las viejas generaciones en activo: los *baby boomers*, nacidos entre 1945 y 1965 e hijos de la posguerra, que crecieron en una época de optimismo

y oportunidades, apoyados en los valores de justicia social, trabajo y constancia. Y también la generación X (1965-1981), a la que se ha caracterizado como individualista, ambiciosa y adicta al trabajo, algo que habría contribuido –en las dos últimas décadas del siglo XX– a promover la eficiencia y la innovación en las organizaciones empresariales (Ortiz-De-Urbina Criado; Ramírez-Herrero, 2025).

Como nos muestra la serie de televisión "Adolescencia", vivimos en un total desconocimiento de la manera cómo aprenden y se comunican los jóvenes. Nos llama la atención muchos de sus comportamientos por no comprenderlos y sentir que estos adolescentes y primeros jóvenes están desvinculados de los valores que consideramos los adecuados para permanecer en la vida social. Pero ellos y ellas nos muestran otras formas de ser-y-estar-en-el-mundo que, si bien no comprendemos, es su forma habitual de comunicarse en el mundo tecnológico en el que han nacido. Su comunicación a través de memes y emojis es lo habitual y nuestra manera de interpretarlo totalmente contraria a las suyas. ¿Cómo intercomunicarnos con estas generaciones si no entendemos sus códigos y, posiblemente, ellos los nuestros?

¿Tiene sentido un sistema educativo -desde infantil a Universidad- centrado en los mismos contenidos de décadas pasadas?, ¿son los profesores los educadores de hoy?, ¿los padres han dejado su función educadora?, ¿son los medios y redes sociales los ejemplos a seguir y educar?, ¿qué cambios habría que introducir en este sistema para que todos los niños, adolescentes y jóvenes se sientan acogidos y parte de la sociedad?, ¿qué piensan y sienten ellos y ellas?, ¿se les pregunta o sólo se les impone?

Un sistema extremadamente regulado, sistematizado, normativizado de todo para todos, puede ser instrucción pero no formación y menos educación. Estos formatos, lo que están impidiendo es la generación de conocimiento, la alegría y curiosidad por aprender y la creatividad que siempre se caracteriza por ir más allá de lo normado. ¿Es eso lo que queremos para nuestros estudiantes, para nuestras sociedades? Pues como manifiesta (Innerarity, 2022, p. 162) "no hay reglas cuyo cumplimiento asegure la generación de conocimiento […] y la educación requiere espacios poco reglamentados; nuestros mejores descubrimientos han tenido lugar en entornos desordenados".

Preguntas que muchos tratan de responder, pero quizás todavía sin llegar a la raíz de los problemas, sin estudiar a fondo la nueva sociedad-tecno-económica-burocrática en que estamos inmersos y que afecta a todos sus miembros en valores y formas de comportarse. ¿Sólo nos quejamos y cogemos bajas médicas por depresión y/o ansiedad intentando aguantar hasta la jubilación?

¿Estamos dispuestos, como educadores-investigadores y sociedad a ir al fondo de los problemas? ¿Está la formación actual orientada hacia el aprender a vivir de manera plena? O, como dice (Herrán Gascón, 2024) ¿se ha dejado de hacer formación radical por estar mirando exclusivamente hacia afuera (producción, técnicas, exámenes) y se ha olvidado el mirar hacia dentro (autoformación)? Pensar más allá de los dualismos y dicotomías es uno de los grandes desafíos que tenemos por delante. Aprender a educar, pensar, vivir consciente en y con la complejidad es algo que echamos de menos desde la formación de profesores y que decanta en unas aulas-papagayo que no aportan nada o casi nada a las nuevas generaciones del mundo tecnológico del hoy y esto afecta a cómo los jóvenes y no tan jóvenes están viviendo su cotidianidad y se posicionan como sujetos "educados" en las sociedades complejas e inciertas del hoy en que son los mayores votantes de las extremas derechas. ¿Cómo se está educando a los jóvenes del siglo XXI?

III. Epílogo… Pensando en Alto Desde la Motricidad Vital Creadora de Mundos Posibles

¿Queremos ser y existir o solamente funcionar y producir? Preguntas que nos hace Benasayag (2023) a las que nosotros respondemos que para Vivir (en mayúsculas) tenemos que ser, existir y funcionar simultáneamente. Vivir plenamente es ser conscientes de nuestra humanidad-ecosistémica y no dejarnos embriagar por lo fácil, consumible y algorítmico. Ser consciente significa ser creador de nuestro día a día, nuestro devenir, responsables de nuestra propia vida y no caer en admirar y admitir la ignorancia y al imbécil (Aprile, 2025) como el líder de nuestros tiempos.

Y, porque tenemos necesidades de sobrevivencia y creamos sociedades complejas es que también somos responsables de "funcionar" adecuadamente, dando lo mejor de nosotros mismos en las distintas tareas que la comunidad coloca en nuestras manos.

Saber, reclamar, gestionar ambas realidades -el existir y el funcionar- forma parte de nuestro ser consciente, educado y creador. Como decimos desde hace décadas "pies en la tierra y cabeza en el horizonte". Es decir, vivir la cotidianidad con sus distintas facetas y compromisos y mantener los sueños y utopías que nos permiten, como sujetos y comunidades, caminar hacia vivires entrelazados con sentido y bien común.

Terminamos apuntando un horizonte de acciones que dialogan con las cuestiones dejadas anteriormente. ¿Hay espacio para crear diferente cuando se niega la diferencia?, ¿podemos vivir al margen de esta globalización tecno-económica?, ¿qué

capacidad tenemos de elegir cuando somos dominados por los algoritmos?, ¿tenemos, todos los sujetos, información encarnada suficiente para comprender el alcance de los algoritmos y la manipulación que ellos realizan de manera subliminal?

No caer en la desesperanza, en las mentiras, falsas noticias que nos quieren sembrar el miedo al futuro porque desde el miedo es que nos manipulan y someten. No caer en concebir el aburrimiento como un tiempo para rellenar con, no importa, qué, con quién, dónde y para qué. No caer en considerar la/s rutina/s del diario vivir como algo que impide el crear y ser uno mismo. Las rutinas son necesarias para organizar nuestra cotidianidad. No caer en el activismo que implica dejar de vivir plenamente el tiempo. No caer en la soledad, el encierro entre cuatro paredes que nos deprime y aísla. No caer en la excesiva digitalización de la vida y máxima experiencia algorítmica en detrimento de la vida analógica, ésa que nos da el contacto de nuestra sensibilidad corpórea con diversas formas de vida, humanas y no humanas. No caer en las interminables dualidades de los posicionamientos polarizados que restringen el ejercicio del pensar sin fronteras.

Permitirnos vivir nuestro día a día celebrando lo que somos y tenemos y no solamente lo que nos falta. Permitirnos vivir nuestro día a día confiando en el avance del conocimiento que nos traerá nuevas respuestas a preguntas o problemas del hoy. Permitirnos vivir nuestro día a día confiando en nosotros mismos, en los otros y en las instituciones de las que formo parte. Permitirnos vivir nuestro día a día de manera autónoma y al mismo tiempo colaborativa con nuestros-otros, humanos y no humanos. Permitirnos vivir nuestro día a día con alegría y ganas por ser cada día mejores como individuos y sociedades. Permitirnos vivir nuestro día a día creando mundos posibles en interacción con las diversidades que somos. Permitirnos vivir nuestra cotidianidad combinando coherentemente las acciones resilientes y sensibles, las productivas y plenas, nunca desplazadas del contexto (ya sea en ámbitos digitales y encarnados) pero que configuran posibilidades de vida más allá de lo ordinario, se construyen más valiosas que la mera supervivencia, más integrales que aquellas que solo satisfacen intereses privados. Permitir y respetar los ritmos biológicos y los ritos sociales, que conforman tanto la identidad normativa como las historias de vida, considerando las trayectorias personales y los logros colectivos.

Este enfoque de la vida cotidiana es, en sí mismo, un ejercicio dialógico, que no busca ignorar las tensiones de la vida, sino que proporciona subsidios para crear posibilidades. Nos invita a habitar los matices entre el contexto y la trascendencia, entre la productividad y la plenitud, entre la tradición y la innovación, al darnos cuenta de que es en estos despliegues donde emerge una vida con sentido. La coherencia a la que aspiramos no es estática, sino motricia, ya que modula las contradicciones del presente en semillas de futuros posibles.

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The Effectiveness of using Mathematical Games in Learning Centers in Improving Number Mastery among Preschool Students

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Abstract- The teaching approach using mathematical games is gaining more attention as an innovative method to improve the learning of preschool students. This study was conducted to evaluate the effectiveness of math games implemented in learning centers in improving number mastery among preschool students. This study involved 10 students selected from a population of 25 in a preschool class in Putrajaya. Instruments such as pre- and post-tests are used to find out the level of student achievement, in addition to observation and interviews to get an in-depth view of the effects of using games. The results of the study found that after this intervention program was carried out, there was a significant increase in understanding and mastering the concept of numbers. Mathematical games not only help improve cognitive performance, but also foster students' motivation, interest, and enjoyment in learning. Students who are exposed to this method are more confident and enthusiastic about engaging in activities related to Early Mathematics. This study also identified important factors such as the teacher's role as a facilitator, the compatibility of the game with the student's level of development, and consistent implementation to guarantee the effectiveness of this approach.

Keywords: mathematical games, learning centre, number mastery, preschool students.

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Hilmun Rafi

Abstract- The teaching approach using mathematical games is gaining more attention as an innovative method to improve the learning of preschool students. This study was conducted to evaluate the effectiveness of math games implemented in learning centers in improving number mastery among preschool students. This study involved 10 students selected from a population of 25 in a preschool class in Putrajaya. Instruments such as pre- and post-tests are used to find out the level of student achievement, in addition to observation and interviews to get an in-depth view of the effects of using games. The results of the study found that after this intervention program was carried out, there was a significant increase in understanding and mastering the concept of numbers. Mathematical games not only help improve cognitive performance, but also foster students' motivation, interest, and enjoyment in learning. Students who are exposed to this method are more confident and enthusiastic about engaging in activities related to Early Mathematics. This study also identified important factors such as the teacher's role as a facilitator, the compatibility of the game with the student's level of development, and consistent implementation to guarantee the effectiveness of this approach. Despite constraints such as limited time in formal learning sessions, math games prove to be an effective pedagogical tool. Therefore, the study suggests that this approach be expanded with the support of teacher training and the provision of sufficient learning materials.

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I. Introduction

The National Preschool Standard Curriculum (KSPK) was first introduced in 2010 and was later refined to meet the new policy requirements outlined in the Malaysian Education Blueprint (PPPM) 2013–2025. These improvements ensure that the Malaysian preschool curriculum meets international standards, in line with global best practices. As part of this reform, the Curriculum and Assessment Standard Document (DSKP) was formulated to strengthen the KSPK. The DSKP comprises three main components, namely Content Standards, Learning Standards, and Performance Standards. The implementation of Performance Standards in this curriculum document has brought about a major transformation in the country's education system, where students are now assessed continuously.

This approach allows their level of mastery in each area of learning to be identified more thoroughly. Teachers can also design follow-up actions or implement intervention programs to support students' optimal development. In the Early Mathematics subject in preschool, children are introduced to basic Mathematics skills through pre-number experiences. These activities help build a strong foundation in the concept of numbers and their uses in everyday life. Among the pre-number skills applied are matching, sorting, classifying, seriation, as well as identifying repeating patterns and building patterns. All these activities are not only fun, but also strategically designed to stimulate children's logical thinking and creativity.

Wong and Teo (2023) argue that structured games with clear learning objectives can have a greater impact on the mastery of mathematical concepts. This effect becomes more significant when the games are combined with effective teacher training. According to Griffin, Case, and Siegler (1994), the focus of mathematics learning in early childhood should begin with basic skills such as number recognition, counting, and calculating small quantities. Baroody (1987) emphasizes that early mathematics learning among children develops gradually. This process involves meaningful discovery and the building of a deeper understanding of numbers and calculation concepts.

Learning Centers are one of the effective strategies in teaching and learning (T&L) activities in preschool classrooms, in addition to theme-based and project-based learning approaches. When Learning Centers are optimally implemented during T&L sessions, students are given the opportunity to learn independently, according to their own interests and abilities. Through exploration in the Learning Centers, students not only gain relevant mathematical knowledge during T&L sessions but are also able to apply these concepts in daily life. This approach helps them build a deeper understanding of number mastery as well as more complex mathematical concepts, making learning more meaningful and enjoyable.

Preschool learning centers refer to places or spaces where preschool children learn and interact with the learning environment. Indirectly here we can see

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that the children gain a comprehensive and holistic learning experience. In addition, the preschool learning environment must provide a conducive environment for learning. This includes the use of appropriate learning materials, a safe space, and activities that stimulate children's interests. Therefore, preschool learning centers are places where preschool children gain comprehensive learning experience, develop skills, and foster positive attitudes in themselves.

Learning through play is a carefully planned and structured approach to ensure that children learn in a comfortable, fun, and positive atmosphere. Through this approach, they not only can enjoy learning, but can also explore the world around them more freely. These new experiences gained directly and naturally help children understand concepts more deeply, while fostering their curiosity and creativity. The implementation of effective Mathematics T&P among preschool students often faces challenges, especially when traditional teaching approaches do not sufficiently interest children. In this regard, the use of mathematics games in learning at preschool learning centres has been proposed as an innovative approach that can interest students in learning numbers. Mathematics games provide opportunities for students to explore number concepts through fun and interactive activities, this supporting the KSPK goal of producing students with basic Mathematics skills.

II. Literature Review

Previous studies have shown that mathematical games can enhance mathematical learning by making it a more enjoyable and effective learning activity, especially in helping children understand the concept of numbers at an early stage, namely preschool. Mathematical games refer to activities that involve mathematical concepts, such as in this study, the emphasis on mastery of numbers is implemented in the form of games or fun activities. This approach can attract preschool students to tend to learn through activities that involve movement and exploration (Sarama & Clements, 2009).

Piaget (1896–1980) believed that effective learning can only occur when there is a connection between previously learned concepts and new concepts acquired. This connection helps children understand new ideas more easily, while reinforcing their existing knowledge. Zoltan (1916–2014) was a Hungarian mathematician whose name is synonymous with the multi-base blocks (also known as Dienes blocks) that were invented for teaching place value. Dienes believed that to make learning mathematics more engaging for young children, we need to create an informal environment where children learn mathematics through play, singing, dancing, and using manipulative materials. Diene's is also known for his Six Stages

Theory of Learning Mathematics. By engaging in activities that involve mathematical processes, children are unaware that they are learning mathematical skills and concepts because they are not being directly done.

Mathematical games are an increasingly popular tool used in preschool education to expose children to number concepts. Ginsburg (2009), learning through games can not only attract students' attention, but also increase their understanding of basic mathematical concepts. Wright (2004) preschool children are more likely to be actively involved in fun and interactive activities, making mathematical games an effective medium to strengthen their number skills.

Several studies have shown the effectiveness of mathematical games in improving number mastery. Hughes (2012), games that involve object manipulation and the use of visuals can help children understand the relationships between numbers more clearly. These games give them the opportunity to practice practically and learn through experience, which is more effective than theoretical and passive teaching methods.

Previous Studies

A study by Thorell et al. (2009) showed that repetitive play has a positive impact on increasing mathematical knowledge among preschoolers. This repetitive play activity not only improves children's memory but also helps them master mathematical concepts better. Piaget & Inhelder (1969) also emphasized that allowing children to manipulate toys gives them the opportunity to see the results of their actions, which in turn deepens them understanding of the concept. Similarly, a study by Doig & Ompok (2010) emphasized the importance of providing a natural and conducive environment to help children's development. These studies prove that playing is not only fun but can also lead to positive achievement in the subject of mathematics among preschoolers. Therefore, game methods need to be integrated more widely in the teaching and learning (T&L) process to attract students' interest in mathematics.

Game-Based Learning (GBL) is an activity in the classroom where students will be involved in activities carried out by the teacher. They will learn mathematical concepts and increase their understanding of it through games. Zaida (1962) students can learn through their experiences and their involvement in game activities. For children, early mathematical understanding is a very important thing in learning mathematics (Zaida, 2018). Children need to be given emphasis on understanding concepts through experience with concrete objects, rather than relying entirely on rote learning techniques. Piaget (1962) divided cognitive development into three main stages, namely sensory motor training, symbolic at the preoperational stage, and rule-based play at the concrete operational stage. Sensory motor training, for example, involves games that encourage children to use

their senses to explore the world around them. For example, the Write That Number Game allows children to physically form numbers, providing direct experience in learning the concept of numbers through action.

Overall, this literature review shows that the use of mathematical games in preschool education is an effective tool in improving number mastery among students. The available evidence shows that these games can improve the understanding of number concepts in a more interesting and effective way. This study will focus on obtaining the effectiveness of the use of mathematical games in learning centers.

III. Research Methodology

This study is a case study; the research methodology is quantitative and qualitative to obtain comprehensive findings. This approach was chosen because it allows students to measure the effectiveness of mathematical games objectively through quantitative data, such as pre and post test scores, while exploring students' experiences in depth through qualitative data, such as observations and interviews. The combination of these two approaches not only provides complete data but also ensures that the study results are more meaningful and relevant to the real situation. The mixed approach was chosen because:

a) Quantitative

- Provides objective evidence of the effectiveness of math games based on changes in student test scores.
- Allows statistical comparisons to be made, through paired t-test analysis to determine significant differences between pre- and post-tests.

b) Qualitative

- Provides a deeper understanding of how math games influence student behavior, motivation, and learning experiences.
- Data from observations and interviews can complement quantitative findings byproviding more detailed explanations.

This approach is suitable because it provides different but complementary perspectives to answer the research questions in a more holistic way. Case studies allow researchers to focus on a specific group, namely preschoolers, and see how math games affect them holistically. The combination of approaches allows for more comprehensive research results, as it combines statistical data with student experience. Quantitative and qualitative data that support each other increase the credibility and validity of the study.

c) Research Design

This study employed a mixed-methods case study design to examine the effectiveness of math games on *number* mastery among preschoolers. The case study approach allowed an in-depth exploration of a specific group, while the mixed-methods framework integrated quantitative and qualitative data to provide both measurable evidence and contextual understanding. Quantitative data, such as test scores, documented improvements in number skills, while qualitative data from observations and interviews explained how the games facilitated conceptual understanding. This combination enhanced the rigor and relevance of the findings, providing both statistical validation and insight into the learning process.

d) Consistency in Implementation

A key aspect of this study was *systematic consistency,* applied throughout the nine-week intervention. Learning activities were carefully sequenced from simple to more complex tasks, starting with foundational number recognition and counting, and gradually progressing to problem-solving and higher order thinking challenges. This consistent approach allowed preschoolers to consolidate prior knowledge before engaging in more demanding tasks, reinforcing learning through repeated, scaffolded practice. By providing a stable and predictable learning environment, the intervention supported incremental skill development, promoted critical thinking, and facilitated the internalization of mathematical concepts. Consistency thus served as a crucial factor in achieving measurable improvement in number mastery and cognitive growth among participants.

e) Population and Sample

The study population is 25 students in the urban area of the Federal Territory of Putrajaya. The study sample involved 10 preschool students who were purposively selected based on the criteria of students with different levels of number mastery at the beginning, to see the difference in the impact of the game on students with different levels of mastery as well as students who were willing to participate in the math game session conducted in this study. Purposive sample selection allows this study to focus on students who can provide relevant views and feedback towards the objectives.

f) Research Instruments

The main instrument for collecting data was a pre- and post-assessment test which was carried out before and after the use of the math game. Unstructured interviews were conducted with 10 students involved. The interviews were conducted to obtain students' experiences while playing the math game, their views on the fun and effectiveness of the game in helping them understand numbers, as well as the challenges they faced. Interview questions will be designed based on the study objectives and will be adapted to the students' level of understanding and ability.

Observation or direct observation of students during a math game session. This includes observing the interactions between students, their involvement in playing activities, and how the game affects their understanding of number concepts. This observation also aims to assess whether math games can increase students' motivation and interest in the subject of Mathematics. The observation process involved 3 stages, namely:

Before Observation

- Introducing the game to the students.
- Provide clear instructions on how to play.

During Observation

- Observe the students directly and record observations using a checklist or form.
- Do not disturb the students while they are playing unless necessary.

After Observation

- Analyze the observational data based on the checklist and notes.
- Compare pre- and post-observation findings to identify changes.

The following include direct observations, oral questions, and practical activities:

Direct Observation

1. *Accuracy and Fluency in Counting:* Can the students count from 1 to 10 in ascending and descending order without errors?
2. *Accuracy in Sequencing:* Can the students arrange numbers in ascending and descending order correctly?
3. *Ability to Count and Fill in Missing Cards:* Can the students count and fill in missing cards in the correct numerical order?
4. *Ability to Complete Puzzles:* Can the students complete puzzles with the correct number arrangement?

Oral Questions

1. "Can you count from 1 to 10?"
2. "Can you arrange numbers from 10 to 1?"
3. "What number comes before 5?"
4. "What number comes after 6?"

Practical Activities

Practical activities are used as assessment tools to evaluate the sample in the following areas:

a) *Smart Counting Box Game:* Students can count from 1 to 10 in the correct order.
b) *I Love Pizza Game:* Students can recognize and name numbers randomly with accuracy.
c) *Cookie and Apple Counting Game:* Students can match groups of objects with numbers correctly.

d) *Caterpillar and Number Hopscotch Game:* Students can count numbers in ascending and descending order accurately and organize objects into groups in correct ascending and descending order.
e) *Choo-Choo Train Game:* Students can count continuously from 11 to 20 accurately.
f) *Caterpillar Game:* Students can count in groups of ten systematically, both in ascending and descending order, with precise numbers.

This observation guide helps to systematically assess the effectiveness of mathematical play, focusing on students' behavior, interactions, and performance. Furthermore, a learning portfolio and a student engagement rating scale are provided to collect students' work during the mathematical play activities for analysis.

IV. Research Study

This research will be conducted over four weeks, with the following procedures:

Phase 1: Introduction and Preparation

In the first week, students will be introduced to the study's objectives and the mathematical games to be used. They will be provided with explanations about the types of games they will play and how these games can assist in their learning of numbers.

Phase 2: Implementation of Mathematical Game Activities

From the second to the fourth week, mathematical game sessions will be conducted regularly. The chosen games will involve activities based on numbers and basic operations. Each session will last between 30 to 45 minutes and will be conducted in small groups to ensure each student receives sufficient attention.

Phase 3: Data Collection

Data will be collected through semi-structured interviews following each game session. The researchers will also observe the sessions, documenting student interactions and their comprehension of numbers. Activity documentation will be prepared to capture the overall learning process.

Phase 4: Data Analysis

Data will be analyzed using pre- and post-tests, unstructured interviews, observations, learning portfolios, and student engagement scales, adopting a thematic analysis approach. Key themes related to the effectiveness of mathematical games in enhancing number mastery among preschool students will be identified. Responses and feedback will be categorized to assess changes in number mastery and students' experiences throughout the learning process.

V. Data Collection Methods

Pre- and Post-Assessment Tests

- *Purpose:* To evaluate students' mastery of numbers before and after exposure to mathematical games.

- *Process:*

o Pre-tests are conducted prior to the implementation of mathematical game activities to establish baseline data.

o Post-tests are conducted after the mathematical game sessions to measure changes in mastery levels.

- *Data Collected:* Students' scores reflecting improvement or changes in number mastery.

Observation

o *Purpose:* To gain direct insights into students' behavior, engagement levels, and responses during mathematical game activities.

o *Process:* Observers record students' interactions with learning materials and peers.

o Checklists or field notes are used to ensure data collection is systematic.

o *Data Collected:* Students' behaviors, activity levels, and the effectiveness of games in capturing interest.

Unstructured Interviews

- *Purpose:* To gather qualitative information from students about their experiences and opinions regarding mathematical games.

- *Process:* Students are given opportunities to share their experiences informally and casually.

- *Data Collected:* Feedback and perspectives on the effectiveness of games in the learning process.

Learning Portfolios and Student Engagement Rating Scales

- *Purpose:* To document students' learning progress throughout the study.

- *Process:*

o Learning portfolios are filled with students' work, such as worksheets and records of mathematical game activities.

o Engagement rating scales are used to assess students' participation levels during learning activities.

- *Data Collected:* Students' work and engagement scores.

VI. Research Findings

This study involved a sample of 10 preschool students aged 6 years from the Federal Territory of Putrajaya. The sample was selected from a population of 25 preschool students. It consisted of 4 boys and 6 girls, all of whom were Malay, chosen based on the results of a pre-test conducted earlier.

The pre-test included 30 questions focusing on number recognition, counting, and arranging numbers in ascending and descending order. The selected sample comprised students who scored low to moderate marks, ranging from 0 to 26.

The primary objective of this study was to evaluate the effectiveness of using mathematical games in learning centers to enhance number mastery among preschool students. This study served as an intervention program, utilizing play-based teaching aids to capture students' interest and help them understand concepts more easily through engaging activities.

The mathematics assessment instrument used in this study consisted of 30 questions covering the topic of numbers, divided into six key areas:

1. Recognizing numbers 1–10 correctly.
2. Recognizing numbers 11–20 correctly.
3. Recognizing numbers 10–100 correctly.
4. Recognizing random numbers correctly.
5. Counting numbers in ascending and descending order correctly.
6. Counting numbers and matching them with objects accurately.

In this study, students were not required to write or color but participated in interactive games to achieve learning outcomes. The tasks included:

- Completing puzzles in the "*I Love Pizza*" Game.
- Arranging numbers in ascending and descending order using the "*Caterpillar Game*" and "*Choo-Choo Train*" Game.
- Counting objects from 1 to 10 using the "*Number Box*" Game.
- Counting chocolate chips and matching their quantity with the correct number in the "*My Cookies*" Game.
- Recognizing numbers 11–20 and 10–100 through the "*Caterpillar Game*".
- Matching numbers with objects in the "*Count the Apples*" Game.
- Identifying numbers in ascending and descending order through the "*Number Hopscotch*" Game.

These activities were designed to make learning enjoyable and interactive, systematically improving students' number recognition and counting skills while maintaining their interest and engagement.

Sample	Pre-Test	Post-Test
P1	22	28
P2	22	20
P3	0	30
P4	0	30
P5	23	30
P6	26	30
P7	20	30
P8	25	23
P9	25	26
P10	26	30

Diagram 1

Diagram 1 shows the data for the pre-test and post-test of ten students (P1 to P10). Based on the data:

1. *Pre-Test Scores:*

   o There were students with very low scores (0 marks), such as P3 and P4.
   o The overall average score for the pre-test is 18.9, indicating that the students' initial mastery of numbers was moderately low.
   o The standard deviation for the pre-test is 10.15, reflecting a large variation in students' performance before the intervention.

2. *Post-Test Scores:*

   o Students showed improvement in their post-test scores after the implementation of the mathematical play intervention.

   o The average post-test score is 27.7, showing a significant improvement in students' mastery of numbers.
   o The standard deviation for the post-test is 3.59, indicating that the variation in students' performance is smaller after the intervention, which reflects an improvement in consistency.

3. *Comparison of Pre-Test and Post-Test:*

   o Students such as P3 and P4 improved from 0 marks (pre-test) to 30 marks (post- test).
   o Overall, there was an average increase of 8.8 marks in students' achievement after using mathematical play.
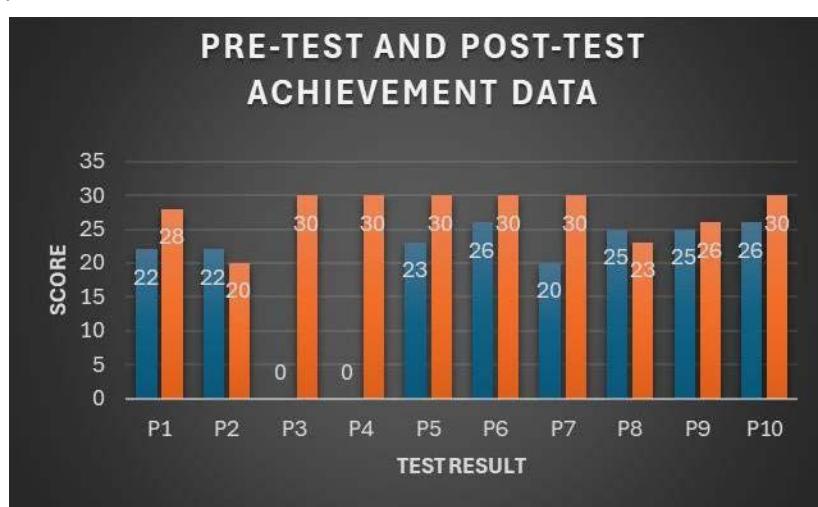

Diagram 2

Diagram 2 presents the achievement scores before and after the intervention for each student in the form of a bar graph, which facilitates the visualization of the changes that occurred.

1. *Improvement in Each Student's Achievement:*

   o All students showed consistent improvement in their post-test scores compared to the pre-test.

o Students P3 and P4, who scored 0 marks in the pre-test, achieved the maximum score (30 marks) in the post-test.

2. *Maximum Score (30 Marks):*

o Five students (P3, P4, P5, P6, and P10) achieved the maximum score in the post-test, reflecting the positive impact of the intervention.

3. *Data Visualization:*

o The graph shows a significant gap between the pre-test and post-test, especially for students with initially low achievements (such as P3 and P4).

o Students with higher pre-test scores (such as P6 and P10) also showed improvement, though their increase was smaller.

Based on both figures, the intervention using mathematical play was effective in improving the number mastery of preschool students. This improvement is evident not only in the overall average scores but also in the consistency of achievements across students. This data supports the study's hypothesis that game-based learning methods can significantly enhance students' performance.

Descriptive Analysis

1. *Average Scores for Pre-test and Post-test:*

o The average score for the pre-test is 18.9, indicating that the students' mastery of numbers before the intervention was low.

o The average score for the post-test is 27.7, showing a significant improvement after the use of mathematical play.

2. *Difference in Averages:*

o The difference in the average scores between the pre-test and post-test is 8.8 marks, reflecting the effectiveness of the intervention.

3. *Standard Deviation:*

o The standard deviation for the pre-test is 10.15, indicating a large variation in students' performance before the intervention.

o The standard deviation for the post-test is 3.59, showing that students' performance became more consistent after the intervention, reflecting an improvement in their achievement consistency.

4. *Improving the Performance of Weaker Students:*

o Students like P3 and P4, who scored 0 in the pre-test, achieved the maximum score (30 marks) in the post-test.

o This demonstrates that mathematical play was effective in helping students with lower levels of mastery.

5. *Percentage of Students Achieving Maximum Score:*

o Five students (50%) achieved the maximum score (30) in the post-test, compared to 0 students in the pre-test.

Inferential Analysis

A paired t-test was used in the inferential analysis to measure whether there was a statistically significant difference between the pre-test and post-test scores.

1. *Study Hypothesis:*

o H_o *(Null Hypothesis):* There is no significant difference between the pre-test and post-test scores.

o H_1 *(Alternative Hypothesis):* A significant difference exists between the achievements in the pre-test and post-test.

2. *Results of Paired t-test:*

o *t-statistic value:* 2.36

o *p-value:* 0.043

o *Results:* Since the p-value is < 0.05, the study rejects the null hypothesis (H_o) and supports the alternative hypothesis (H_1).

3. *Statistical Interpretation:*

• The results have demonstrated that there is a statistically significant difference between the pre-test and post-test scores.

• This indicates that the findings from the mathematical play intervention had a positive impact on students' number mastery.

4. *Impact of the Intervention:*

• The overall increase in scores shows that mathematical play not only improved students' average level of number mastery but also reduced the variation in achievement among students, making their performance more consistent.

Based on the descriptive and inferential analysis, it can be concluded that the average post-test scores significantly increased compared to the pre-test scores. This improvement was confirmed through the paired t-test, where the p-value showed statistically significant results. The intervention using mathematical play proved effective, especially in improving the performance of weaker students and achieving better consistency in their results.

Results of the Study on the Effectiveness of Mathematical Play to Improve Number Mastery Among Preschool Students:

1. *Improvement in Number Recognition Skills:*

o Intervention games such as *I Love Pizza*, *Caterpillar*, and *Cucucuu Train* helped students better recognize numbers. In parts i to iii, students showed gradual and consistent improvement in recognizing numbers 1-10, 11-20, and 10-100.

2. *Skills in Counting Upward and Downward:*

o Games such as *Teng Teng Numbers* and *Caterpillar* helped students understand the concept of

57

number sequencing both upward and downward more clearly. Activities like number sorting through play were found to engage students and increase their focus.

3. *Skills in Counting and Matching Numbers with Objects:*

   o Activities like *My Cookies*, *Number Boxes*, and *Count the Apples* provided students with the opportunity to count objects practically. Students quickly understood the concept of matching the number of objects to the correct number through direct play experiences.

4. *Random Number Mastery:*

   o Activities involving interactive games like *Cucucuu Train* helped students recognize numbers randomly. They were able to identify numbers when called or shown without relying on a specific sequence.

5. *Enjoyment in Learning Through Play:*

   o Observations showed that students were more motivated to learn when the learning process was done through play. This activity increased their engagement and helped them grasp mathematical concepts naturally. Games like *Teng Teng Numbers* and *I Love Pizza* sparked healthy competition, fostering teamwork and interaction within groups.

6. *Understanding Concepts Through Practical Activities:*

   o Students demonstrated a deeper understanding when they were actively involved in activities such as sorting puzzles, matching objects, and direct counting.

Conclusion: The intervention program using teaching tools in the form of games successfully improved number mastery among preschool students. This approach made the teaching and learning process more enjoyable and helped students grasp basic mathematical concepts quickly and effectively.

Findings from the Unstructured Interviews During the Mathematical Play Activities:

1. *I Love Pizza Game* (Counting numbers and matching with objects correctly):

Question: "Do you like to eat pizza?"

Answer: "Yes, teacher, I like to eat pizza."

Question: "What card are you holding?"

Answer: "The tomato card, teacher."

Question: "How many items are on that card?"

Answer: "1...2...3...4...5...6...there are 6 in total, teacher."

Teacher's feedback: "Yes, that's correct...there are 6. Well done!"

2. *Number Box Game* (Identifying numbers 1–10 correctly):

Question: "What picture is on the box?"

Answer: "There's a picture of sea animals, teacher."

Question: "What animal is on your hand?"

Answer: "A starfish."

Question: "How many starfish are there? Can you count them for me?"

Answer: "1...2...3...4...5...there are 5."

Teacher's feedback: "Well done!"

3. *Caterpillar Game* (Identifying numbers randomly):

Question: "What are you doing?"

Answer: "I'm arranging the caterpillars."

Question: "What number is on your hand?"

Answer: "Number 15."

Question: "What number comes after 15?"

Answer: "Number 16."

Question: "Are you arranging the numbers from smaller to larger or vice versa?"

Answer: "From smaller to larger, teacher."

Question: "If you're making the numbers bigger, is that going up or down?"

Answer: "Up, teacher."

4. *Caterpillar and Cucucuu Train Games* (Identifying numbers 11 – 20, 10 – 100, and random numbers):

Situation 1:

Question: "What comes after number 11?"

Answer: "Number 12, teacher."

Situation 2:

Question: "What comes after number 20?"

Answer: "Number 30, teacher."

Situation 3:

Question: "What number is on the card you're holding?"

Answer: "Number 17, teacher."

Question: "Can you show me the card number 15? I want to see if you recognize it."

Answer: (Student shows card number 13 instead of 15).

Peer's feedback: "Hey, that's not number 15... that's number 13."

Peer's action: (Another peer shows the correct number 15 card).

Teacher's feedback: "Yes, that's correct... the card your friend is holding is number 15."

5. *Counting Apples Game* (Matching numbers with objects correctly):

Question: "Do you like eating apples?"

Answer: (Student nods and smiles).

Question: "There are so many apples on the tree... can you count how many apples are there?"

Answer: "1...2...3...4...5...6...7...8...there are 8, teacher."

Teacher's feedback: "Well done, that's correct... there are 8 apples on that tree."

6. *Teng Teng Number Game* (Increasing and decreasing numbers):

Question: "If the number is getting bigger, is it going up or down? From 1 to 10, is it going up or down?"

Answer: "It's going up, teacher... from smaller to bigger."

Question: "If you jump from the big number to the small number, like from 10 to 1, is that going up or down?"

Answer: "It's going down, teacher... because the numbers are getting smaller."

These findings indicate that structured interviews through interactive games not only help enhance students' mastery of basic mathematics but also highlight their interest, motivation, and ability to learn in a relaxed and enjoyable manner.

A learning portfolio is used to record and monitor students' progress in number mastery based on the mathematical play activities. Each portfolio documents the students' learning outcomes, including their success in the game activities, as well as changes in their attitudes and motivation. The Student Engagement Rating Scale is used to assess the level of student involvement during the mathematical play activities. Student engagement is measured based on observations of their behavior, interactions, and responses during the learning process.

VII. Discussion

In conclusion, the use of Mathematical games in preschool learning centers has been recognized as an effective approach to improving number mastery among preschool students. This is evidenced by the intervention program involving the use of Mathematical games. The results from the pre-test and post-test demonstrate a very positive impact on the sample. Their confusion and lack of understanding of numbers were indirectly addressed using games in early childhood mathematics. Mathematical games make learning more enjoyable and engaging, as the findings of this study indicate the effectiveness of using mathematical games in learning centers to enable number mastery among preschool students. Students are more motivated to learn when the learning is in the form of play.

Learning through play is fun, as observed in the study where the sample was deeply engaged with the learning materials and never bored of arranging and pasting the correct answers. Based on the findings from the unstructured interviews, it was found that the sample answered all the questions enthusiastically, indirectly showing that they were excited and interested in the learning session in the classroom that used this learning centre. The fun element in the games helps reduce students' anxiety towards the subject of Mathematics.

Games that focus on motor skills in early mathematics are essential in helping preschool students understand basic mathematical concepts while developing their fine and gross motor skills. The games used in this study, such as *Number Box Game*, *I Love Pizza*, *Cookies*, *Counting Apple*, *Caterpillar*, *Teng Teng Number*, and *Cucucuu Train*, are all games focused on motor skills. For example, the number puzzle game *I Love Pizza* helps preschoolers form a pizza according to the correct number while matching it correctly. Indirectly, this game trains students to identify numbers and develop hand muscles and hand-eye coordination, which are activities involved in fine motor skills. Additionally, The *Teng Teng Number* game allows students to memorize the sequence of numbers in ascending and descending order, indirectly training their balance and body coordination, which are part of gross motor skills.

This study yields significant findings in early childhood education, particularly in mathematics instruction. The discussion based on these findings has also brought about many positive effects, including an improvement in the mastery of mathematical concepts among preschool students. Play-based activities are not only fun but also help reduce the stress typically associated with formal mathematics learning. Furthermore, the study also had a significant impact on low-performing students, with those who struggled with mathematics showing the most noticeable improvement. These findings confirm that play-based approaches are the most effective method for helping students who face challenges in understanding basic mathematical concepts.

However, there were limitations in this study, particularly the short duration of the intervention, which restricted the study and was a major constraint. This short time frame may not have been sufficient to assess the long-term effects or the overall effectiveness of this approach. Additionally, the study was conducted in a single preschool location, which may limit the generalization of the findings to other educational contexts with different socio- economic and cultural backgrounds. Comparison with Previous Studies.

This study aligns with various previous studies that support the effectiveness of play-based learning. Sarama and Clements (2009) stated that play-based learning can improve mastery of mathematical concepts, which is consistent with the findings of this study. According to Kim et al. (2018), interactive mathematical games significantly improve preschoolers' cognitive and numeracy skills because they focus on collaboration and healthy competition. Additionally, a study by Papadakis et al. (2020) found that using technology such as mobile app-based digital games could enhance motivation and mastery of mathematical concepts among students.

This study provides significant implications for early childhood education practices, particularly in enhancing mathematical skills among students, especially in terms of number mastery. Therefore, this approach should be implemented widely in preschools

to maximize its effectiveness. This learning method not only provides academic benefits but also enhances cognitive skills such as critical thinking and social skills like teamwork.

Fun play activities can strengthen student motivation and interest in learning. This approach makes students more active, enthusiastic, and engaged in the learning process. Teachers are also encouraged to explore and use creative learning resources, such as innovative teaching aids and appropriate games.

Ongoing professional development should be provided to teachers to ensure they can implement this approach effectively. Teachers should also be trained to integrate technology into learning games. A child-friendly learning environment should be created to support play- based learning. Parental and community support also plays a crucial role in the success of this approach. This activity-based approach encourages more active learning, where students interact directly in the learning process. In addition to making learning more enjoyable, it also helps students understand concepts more deeply and meaningfully.

VIII. Conclusion

Logically, the acquisition of knowledge using learning tools such as games can have a positive impact on the achievement of preschool students, as it is inherent in children to enjoy playing. The findings from this study, which involved both quantitative and qualitative approaches with the study sample, clearly show that the objectives of this study were achieved. Through the analysis of data obtained from both methods, it is evident that significant changes have occurred, confirming the effectiveness of the applied approach. The observations and interviews conducted provided a deeper understanding of the participants' experiences, further reinforcing the conclusion that the objectives of this study were successfully met.

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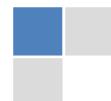
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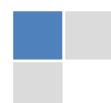
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	GJ Community Access	GJ Community Access	

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We accept the manuscript submissions in any standard (generic) format.

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7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

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The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi   (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

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TIPS FOR WRITING A GOOD QUALITY SOCIAL SCIENCE RESEARCH PAPER

Techniques for writing a good quality homan social science research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of homan social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.
Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

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Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.
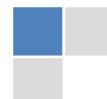
The following approach can create a valuable beginning:

- o Explain the value (significance) of the study.
- o Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- o Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- o Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- o Report the method and not the particulars of each process that engaged the same methodology.
- o Describe the method entirely.
- o To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- o Simplify—detail how procedures were completed, not how they were performed on a particular day.
- o If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- o Resources and methods are not a set of information.
- o Skip all descriptive information and surroundings—save it for the argument.
- o Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- o   Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- o   In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- o   Present a background, such as by describing the question that was addressed by creation of an exacting study.
- o   Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- o   Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- o   Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- o   Do not include raw data or intermediate calculations in a research manuscript.
- o   Do not present similar data more than once.
- o   A manuscript should complement any figures or tables, not duplicate information.
- o   Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
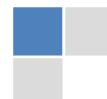
Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- o You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- o Give details of all of your remarks as much as possible, focusing on mechanisms.
- o Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- o One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- o Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

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