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The role of the school as an incubator of local and international creativity دور المدرسة كحاضنة للإبداع المحلي والدولي

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المخلص:

يبحث هذا البحث في الدور المحوري للمؤسسات التعليمية في تنمية الإبداع بين الطلاب، مع إدراك أهميته خارج المجالات الفنية التقليدية ليشمل المهارات الأساسية المبتكرة والتعاونية الحاسمة للنجاح في أماكن العمل المعاصرة. وتأكيداً على تكامل الإبداع في مختلف المواضيع، تدعو الدراسة إلى اتباع نهج شمولي يتخلل جميع جوانب التعليم المدرسي، والابتعاد عن المشاريع الفنية المعزولة نحو إطار تربوي شامل. من الأمور المركزية في هذا البحث استكشاف الإبداع في سياق التعليم الفلسطيني، وتجنب التعريفات الصارمة للتأكيد على أهميته الأساسية كمهارة حياتية وليس كمسعى اختياري. يعتبر غرس العقلية الإبداعية أمراً ضرورياً، خاصة خلال المرحلة النهائية، ووضع الإبداع في قلب التعلم لإثراء الرحلة التعليمية. وبالاعتماد على الأفكار المستمدة من المشاورات مع أصحاب المصلحة، يؤكد البحث على الضرورة المستمرة لتضافر الجهود في دمج الإبداع في المشهد التعليمي. تتم صياغة التوصيات لتعزيز الإبداع محلياً وعالمياً، والدعوة إلى التعاون مع مبادرات مثل الشباب المبدع والمواعاة مع استراتيجيات الصناعة الإبداعية. ومن خلال تهيئة بيئات مواتية لرعاية الإبداع والاحتفاء به، تستطيع المدارس تزويد الطلاب بالمهارات اللازمة لتحقيق الازدهار في عالم ديناميكي ومتربط.

كلمات مفتاحية: مدرستي – حاضنة – إبداع محلي - دولي

The role of the school as an incubator of local and international creativity

Abstract:

This research investigates the pivotal role of educational institutions in cultivating creativity among students, recognizing its significance beyond traditional artistic domains to encompass essential innovative and collaborative skills crucial for success in contemporary workplaces. Emphasizing the integration of creativity across various subjects, the study advocates for a holistic approach that permeates all aspects of school education, moving away from isolated art projects towards a comprehensive pedagogical framework. Central to the inquiry is the exploration of creativity within the context of Palestinian education, eschewing rigid definitions to underscore its fundamental importance as a life skill rather than an optional pursuit. Particularly during the Senior Cycle, instilling a creative mindset is deemed essential, positioning creativity at the heart of learning to enrich the educational journey. Drawing on insights from consultations with stakeholders, the research underscores the ongoing necessity for concerted efforts in embedding creativity within the educational landscape. Recommendations are formulated to foster creativity both locally and globally, advocating for collaboration with initiatives such as Creative Youth and alignment with creative industry strategies. By establishing environments conducive to nurturing and celebrating creativity, schools can equip students with the skills necessary for thriving in a dynamic and interconnected world.

Keywords: school - incubator - local - international – creativity

1. Introduction

1.1. Background of the study

In education, nurturing creativity is essential for school advancement. The Department of Education emphasizes creativity's role in developing innovative skills for the workplace. Creative initiatives across subjects are crucial, as individual projects may not be enough. Collaboration with the Creative Industries Roadmap is key for educational growth.

Creativity in Irish education focuses on embedding it naturally into learning without strict guidelines. Senior Cycle aims to cultivate creativity as a lifestyle rather than an option. Creating an innovative learning environment is vital for student creativity, requiring teachers to utilize physical spaces and social contexts effectively. Training educators on fostering creativity in students is essential for success. See references: (Education, 2022, pages 26-30)^[3], (Swanzy-Impraim et al., 2023)^[7].

1.2. Purpose of the study

The aim of this research is to explore the fundamental role that educational institutions play in nurturing creativity in students. Creativity goes beyond just the arts and encompasses innovative and collaborative skills essential for thriving in the modern workplace. The focus will be on how creativity can be infused into different subjects to enrich teaching and learning methodologies. It is imperative to move away from isolated art projects and instead adopt a holistic approach that permeates all aspects of school education.

Moreover, this study seeks to delve into the definition of creativity within the context of Irish education without imposing rigid definitions. Placing creativity at the heart of learning is crucial, especially during the Senior Cycle, to instill a creative mindset as a fundamental aspect of life rather than an additional element. The consultation underscored the necessity for continual efforts in this area to ensure that creativity becomes an intrinsic part of the educational journey.

By examining these themes and feedback from stakeholders, this research aims to offer recommendations for fostering creativity in schools at both local and global levels. By collaborating with initiatives like Creative Youth and aligning with creative industry strategies, schools can establish an environment conducive to nurturing and celebrating creativity among students. See references: (Education, 2022, pages 26-30)^[3], (Education, 2022, pages 36-40)^[3].

2. The Role of Schools as Incubators of

Creativity

2.1. Definition of creativity in education

Fostering creativity in the field of education encompasses a wide range of aspects, as highlighted by the International Institute for Competency Development's 21st Century Skills 4Cs Assessment Framework. This framework emphasizes the importance of nurturing creativity through the creative process, creative environment, and creative product, recognizing it as a crucial skill for students in today's constantly evolving world.

Creativity in educational settings extends beyond traditional ideas of artistic expression to encompass critical thinking, collaboration, and effective communication. Assessment frameworks such as the 4Cs underline the value of divergent thinking, convergent thinking, mental flexibility, and creative dispositions in fostering creativity among learners.

The role of educators in cultivating creativity should not be underestimated. Creative teachers are instrumental in shaping student growth by demonstrating innovative thinking and encouraging exploration of new concepts. Strategies to enhance the creativity of teachers include offering professional development opportunities, fostering a culture of support within schools, and integrating innovative teaching approaches into the curriculum.

In essence, promoting creativity in education requires establishing an atmosphere that encourages experimentation, exploration, and a willingness to take risks. By incorporating cutting-edge practices into teaching methodologies, educational institutions can equip students with the essential skills needed to succeed in the contemporary landscape. See references: (Soh, 2017)^[9], (Thornhill-Miller et al., 2023)^[2].

Creativity	Creative Process	Creative Environment	Creative Product
Critical Thinking	Critical thinking about the world	Critical thinking about oneself	Critical action and decision making
Collaboration	Engagement and participation	Perspective taking and openness	Social regulation
Communication	Message formulation	Message delivery	Message and communication feedback

[Table 2](#): Three different components of each C in IICD's 21st Century Skills 4Cs Assessment Framework. (source: reference (Thornhill-Miller et al., 2023)^[2])

Creativity	Originality	Divergent Thinking	Convergent Thinking	Mental Flexibility	Creative Dispositions
Critical Thinking	Goal-adequate judgment/ discernment	Objective thinking	Metacognition	Elaborate reasoning	Uncertainty management
Collaboration	Collaboration fluency	Well-argued deliberation and consensus-based decision	Balance of contribution	Organization and coordination	Cognitive syncing, input, and support
Communication	Social Interactions	Social cognition	Mastery of written and spoken language	Verbal communication	Non-verbal communication

[Table 3](#): Five different components evaluated for each C by the 4Cs assessment framework for games. (source: reference (Thornhill-Miller et al., 2023)^[2])

Item	Mean	SD	Kurtosis	Skewness	PLS Loading
Flow					
<i>Absorption</i>					
ABS1	3.960	0.918	0.489	-0.827	0.820
ABS2	3.174	1.053	-0.637	0.039	0.804
ABS3	3.366	1.077	-0.603	-0.340	0.884
ABS4	3.567	0.989	-0.503	-0.299	0.932
<i>Work enjoyment</i>					
WE1	4.036	0.930	1.008	-1.044	0.910
WE2	4.049	0.960	0.846	-1.013	0.951
WE3	4.067	0.916	0.266	-0.835	0.960
WE4	4.022	0.938	0.982	-0.994	0.946
<i>Intrinsic work motivation</i>					
IWM1	3.964	0.944	1.177	-1.050	0.893
IWM2	3.598	1.035	-0.118	-0.545	0.782
IWM3	3.808	0.984	0.053	-0.654	0.899

Item	Mean	SD	Kurtosis	Skewness	PLS Loading
IWM4	4.018	0.916	1.532	-1.088	0.801
IWM5	3.933	0.921	-0.218	-0.626	0.890
Innovation climate					
<i>Incentive mechanism</i>					
IM1	3.848	0.883	0.442	-0.675	0.895
IM2	3.929	0.873	0.655	-0.751	0.906
IM3	3.906	0.889	1.469	-0.966	0.912
IM4	3.946	0.864	0.765	-0.773	0.896
<i>Teacher practice</i>					
TP1	3.978	0.899	1.723	-1.108	0.913
TP2	4.076	0.870	1.727	-1.130	0.928
TP3	4.103	0.932	2.158	-1.338	0.944
<i>Teamwork</i>					
TEA1	3.929	0.913	0.945	-0.884	0.931
TEA2	4.000	0.881	1.363	-1.024	0.932
TEA3	4.036	0.891	0.372	-0.795	0.932
<i>Teacher support</i>					
TS1	4.018	0.930	2.112	-1.274	0.925
TS2	4.067	0.866	1.765	-1.127	0.894
TS3	4.062	0.899	1.001	-1.014	0.901
TS4	4.094	0.909	1.791	-1.229	0.893
<i>Resource guarantee</i>					
RG1	2.750	1.102	-0.518	0.267	0.979
RG2	2.763	1.078	-0.514	0.225	0.938

Item	Mean	SD	Kurtosis	Skewness	PLS Loading
RG3	2.710	1.122	-0.493	0.286	0.882
<i>Organization promotion</i>					
OP1	3.826	0.941	1.199	-0.973	0.835
OP2	3.929	0.908	1.385	-1.009	0.940
OP3	4.040	0.965	1.471	-1.191	0.887
<i>Self-directed work</i>					
SDW1	3.594	1.000	0.092	-0.516	0.870
SDW2	3.759	0.894	1.135	-0.789	0.909
SDW3	3.612	0.943	0.087	-0.406	0.904
<i>Creative role identity</i>					
CRI1	3.554	0.953	-0.057	-0.341	0.785
CRI2	3.911	0.907	1.166	-0.979	0.884
CRI3	3.897	0.903	0.081	-0.638	0.876
CRI4	3.728	0.917	0.322	-0.551	0.903
CRI5	3.571	1.002	-0.478	-0.211	0.809

Table 4: Means, standard deviations, and PLS loadings. (source: reference (Deng et al., 2022)^[19])

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)
Correlations between selected practices and skills measured at kindergarten entry in 1998						

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)
Correlations between selected practices and skills measured at kindergarten entry in 1998						
Center-based pre-K	0.106*** (0.016)	0.097*** (0.015)	-0.125*** (0.018)	-0.001 (0.018)	-0.006 (0.019)	0.018 (0.016)
Number of books	0.012*** (0.002)	0.016*** (0.002)	0.004** (0.002)	0.008*** (0.002)	0.002 (0.002)	0.006*** (0.002)
Reading/literacy	0.166*** (0.016)	0.068*** (0.015)	0.010 (0.018)	0.030* (0.016)	0.143*** (0.018)	0.315*** (0.017)
Other activities	-0.115*** (0.015)	-0.036*** (0.014)	0.047*** (0.017)	0.033** (0.016)	0.046*** (0.017)	0.292*** (0.016)
Correlations between parents' expectations about their children's highest level of educational attainment and skills measured at kindergarten entry in 1998						
Two or more years of college/vocational school	0.029	0.066**	0.072*	0.115***	0.180***	0.136***

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)
Correlations between selected practices and skills measured at kindergarten entry in 1998						
	(0.025)	(0.026)	(0.042)	(0.037)	(0.038)	(0.033)
Bachelor's degree	0.114***	0.172***	0.141***	0.211***	0.272***	0.228***
	(0.023)	(0.023)	(0.036)	(0.032)	(0.036)	(0.030)
Master's degree or more	0.160***	0.220***	0.120***	0.219***	0.254***	0.377***
	(0.026)	(0.025)	(0.039)	(0.034)	(0.036)	(0.033)
Changes from 1998 to 2010 in the correlations between selected practices and skills measured at kindergarten entry						
Center-based pre-K	-0.005	-0.036	0.060*	-0.010	-0.020	0.010
	(0.025)	(0.025)	(0.032)	(0.031)	(0.031)	(0.026)
Number of books	0.002	-0.001	0.001	0.002	-0.002	0.004
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)
Reading/literacy	0.018	0.008	0.015	0.014	-0.079***	-0.173***
	(0.025)	(0.024)	(0.031)	(0.028)	(0.030)	(0.027)

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)
Correlations between selected practices and skills measured at kindergarten entry in 1998						
Other activities	-0.008	-0.016	0.031	0.020	0.218***	0.265***
	(0.025)	(0.024)	(0.029)	(0.028)	(0.029)	(0.025)
Changes from 1998 to 2010 in the correlations between parents' expectations about their children's highest level of educational attainment and skills measured at kindergarten entry						
Two or more years of college/vocational school	0.121**	0.106*	0.201**	0.204***	-0.030	0.151**
	(0.055)	(0.059)	(0.081)	(0.072)	(0.084)	(0.066)
Bachelor's degree	0.139***	0.103**	0.136*	0.174***	-0.084	0.100
	(0.048)	(0.051)	(0.070)	(0.063)	(0.078)	(0.061)
Master's degree or more	0.186***	0.117**	0.140*	0.189***	-0.041	0.076
	(0.052)	(0.054)	(0.074)	(0.066)	(0.081)	(0.063)

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)
Correlations between selected practices and skills measured at kindergarten entry in 1998						
Observations	26,050	26,890	25,080	26,460	27,220	27,240
Adj.R2	0.293	0.336	0.175	0.204	0.079	0.228

Table 5: Notes: The robust standard errors are in parentheses. For statistical significance, *** denotes $p < 0.01$, ** denotes $p < 0.05$, and * denotes $p < 0.1$. The number of observations is rounded to the nearest multiple of 10. Source: EPI analysis of ECLS-K, kindergarten classes of 1998-1999 and 2010-2011 (National Center for Education Statistics) (source: reference (Garcia & Weiss, 2017)^[11])

2.2. Importance of fostering creativity in schools

Fostering creativity in educational institutions is crucial in today's world where adaptability and innovation are key to success. Creativity should permeate all aspects of academics, as it plays a vital role in problem-solving and overall well-being. In a fast-paced environment with evolving job demands, creativity is no longer a luxury but a necessity. Educators are instrumental in nurturing creativity by incorporating innovative teaching methods to inspire students and unleash their creative potential. The 4 P's model of creativity guides the process of stimulating cognitive processes for creative outcomes. By fostering creativity in schools, we not only benefit individual students but also society as a whole, empowering future generations to confront challenges and drive innovation. See references: (Soh, 2017)^[9], (Petrie, 2021)^[13], (Ritter et al., 2020)^[17].

	Flow (direct effect)	CRI (direct effect)	CRI (indirect effect)	CRI (total effect)
Flow		0.263**		0.263***
IC	0.817***	0.557***	0.215	0.771***

[Table 6](#): Direct, indirect, and total effects of each factor on creative role identity. (source: reference (Deng et al., 2022)^[19])

Fixed effect	<i>B</i>	SE	<i>t</i>	<i>df</i>	<i>p</i>
Overall average (γ_{00})	3.87	.12	33.32	19	< .001

[Table 7](#): The results of the unconditional model of children's creative dispositions (source: reference (Kang, 2020)^[41])

2.3. Overview of current practices in promoting creativity

Modern educational institutions are embracing creativity as a key element in education to enhance problem-solving skills and innovative thinking among students. By creating a conducive environment that encourages exploration, collaboration, and diverse perspectives, schools can help students unleash their creative potential and improve critical thinking abilities. Integrating creativity into the curriculum through hands-on projects and real-world applications inspires students to think creatively and apply knowledge in unconventional ways. Encouraging risk-taking, experimentation, and learning from failures cultivates a growth mindset that values creativity as essential for success. Community partnerships with artists, professionals, and organizations provide students with diverse experiences that stimulate creativity both inside and outside the classroom. Developing creative teachers who embrace innovative teaching methods and promote experimentation is crucial in inspiring student creativity. Establishing a stimulating learning environment that nurtures creative potential, fostering community collaborations, cultivating creative educators, and encouraging risk-taking are all essential strategies for building a culture of innovation in schools that prepares students for success in the 21st century. See references: (Thornhill-Miller et al., 2023)^[2], (Education, 2022, pages 16-20)^[3], (Ritter et al., 2020)^[17].

3. International Level: Together We Learn Initiative

3.1. Overview of the Together We Learn initiative

The Global Creativity Alliance is a joint endeavor aimed at enhancing creativity in educational settings worldwide. This alliance focuses on harnessing the potential of digital resources to facilitate tailored learning experiences that cater to a diverse range of skills and backgrounds. By promoting active communication and collaboration among schools and educators at local, national, and international levels, the alliance strives to create an environment conducive to nurturing creativity.

Additionally, the Global Creativity Alliance encourages engagement with the open-source community to innovate educational tools and digital platforms. Prioritizing media literacy and education, the alliance advocates for the responsible and secure use of digital technologies in early childhood and primary education. By leveraging resources like the Erasmus+ Programme and the European Structural and Investment Fund, member countries are urged to implement strategies that enhance creativity, innovation, and digital skills in the education sector.

Through extensive research and effective methodology identification, the Global Creativity Alliance aims to empower teachers and early childhood professionals in fostering children's creative abilities. By implementing core principles outlined in the Quality Framework for Early Childhood Education and Care (ECEC), this initiative seeks to provide continuous support for educators across all educational stages to promote creativity and digital proficiency among students.

In conclusion, the Global Creativity Alliance presents a holistic approach towards fostering creativity in schools on a global scale. By advocating for collaboration, utilizing digital tools efficiently, and emphasizing media literacy, this initiative plays a pivotal role in shaping the future of education by placing creativity at the forefront of learning. See references: (Office, 2015)^[14], (Creativity and IP Education for Youth, 2024)^[10].

3.2. Implementation of the initiative in schools

The successful implementation of the Together We Learn program in educational institutions is paramount to fostering creativity globally. This initiative places a strong emphasis on various key factors to effectively promote creativity. A fundamental element is the Teaching Curriculum, which highlights and advocates for the 4Cs - creativity, critical thinking, communication, and collaboration. By incorporating these principles into the overall academic curriculum, schools can establish an environment that fosters creativity among students.

Moreover, the Tools and Techniques segment of the initiative guarantees that schools have access to a wide array of resources, materials, space, and expertise to support creative activities. This includes digital tools, mnemonic devices, heuristic approaches, and other aids that encourage innovative exploration and expression. Through the Implementation phase, students actively engage with these resources to enhance creativity within their educational experiences.

Additionally, the Meta-reflection aspect promotes critical thinking and metacognition regarding the creative processes being undertaken. This self-awareness enables students to better comprehend their creative journey and refine their strategies for fostering creativity. The Competence of Actors component underscores the significance of formal and informal training for educators and staff to effectively promote the 4Cs within school environments.

Furthermore, engaging with external community resources plays a crucial role in enriching creativity by integrating outside support for creative endeavors within schools. Finally, User Initiative ensures that students have the necessary resources to generate products or events that necessitate creative input.

By implementing these diverse facets of the Together We Learn initiative in schools across the globe, it becomes feasible to establish a nurturing ecosystem that fosters creativity among students on an international level. See references: (Office, 2015)^[14], (Thornhill-Miller et al., 2023)^[2], (Childhood education: fostering creativity, innovation and digital competence | EUR-Lex, 2024)^[12].

Teaching Curriculum	Aspects of the overall educational program teaching, emphasizing, and promoting the 4Cs
Tools and Techniques	Availability and access to different means, materials, space, and expertise, digital technologies, mnemonic and heuristic methods, etc. to assist in the proper use and exercise of the 4Cs
Implementation	Actual student and program use of available resources promoting the 4Cs
Meta-reflection	Critical reflection and metacognition on the process being engaged in around the 4Cs
Competence of Actors	The formal and informal training, skills, and abilities of teachers/trainers and staff and their program of development as promoters of the 4Cs
Outside community contact	Use and integration of the full range of resources external to the institution available to enhance the 4Cs
User Initiative *	Availability of resources for students to create and actualize products, programs, events, etc. that require the exercise, promotion, or manifestation of the 4Cs

[Table 8](#): Seven dimensions evaluated for the 3 different components of each C. (source: reference (Thornhill-Miller et al., 2023)^[2])

3.3. Impact on promoting creativity at an international level

The global initiative known as Together We Learn has made a significant impact on nurturing creativity in schools worldwide. By facilitating dialogue among students, educators, curriculum developers, and intellectual property (IP) offices, this program has set the stage for young learners and teachers to engage with IP education. Through the exchange of ideas, policy papers, and research on the advantages of introducing IP concepts early on, Together We Learn has supported the integration of IP education materials into national school curricula.

Moreover, by offering a wide range of services to enhance innovative and creative skills in students, educators, and policymakers, this initiative has helped bridge the gap between countries in terms of exposure to IP concepts. It has also highlighted the importance of fostering creativity, ingenuity, and entrepreneurial mindset through collaborative efforts at an international level.

The impact of Together We Learn goes beyond traditional educational boundaries by promoting IP education as a crucial factor in nurturing creativity globally. By focusing on individual talents, collaborative problem-solving, and group work, this initiative has opened new pathways for enhancing creativity in schools around the world. See reference (Creativity and IP Education for Youth, 2024)^[10].

4. Local Level Engagement

4.1. Building community partnerships

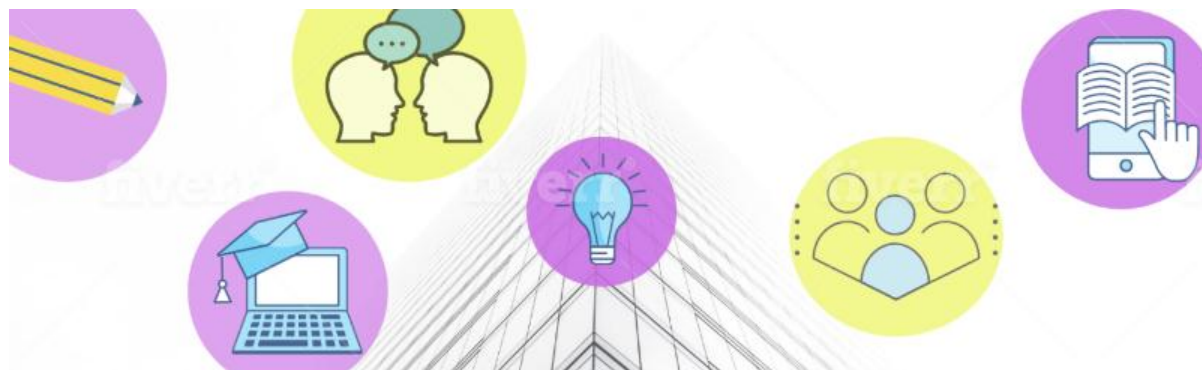
Developing strong partnerships within the community is vital for schools to cultivate creativity in students. By teaming up with local artists, arts organizations, and community groups, schools can offer diverse learning experiences that complement the standard curriculum. Engaging students in creative endeavors beyond the school walls has been proven to unearth hidden talents that may not surface during regular school activities.

Collaborating with artists and creatives also serves to strengthen the bond between schools and the local community. Students gain valuable insights into potential career paths and broaden their perspectives on the significance of creativity through interactions with professionals in artistic fields. These partnerships not only boost student involvement but also create opportunities for teachers to engage in professional development activities that enhance their teaching methods.

Furthermore, forging community partnerships enables schools to expand their influence beyond the confines of the classroom, exposing students to a variety of experiences that contribute to their overall educational growth. By working closely with external partners, schools can establish a dynamic learning atmosphere that encourages creativity, analytical thinking, and teamwork among students.

In summary, establishing robust community collaborations is essential for schools to foster creativity and innovation among students. By tapping into the knowledge and skills of local artists and organizations, schools can design distinctive learning experiences that motivate students to think

creatively and explore their capabilities to the fullest. See references: (Education, 2022, pages 26-30)^[3], (Education, 2022, pages 16-20)^[3], (Ford, 2023)^[16].



[Figure 1](#): Agility in Education and Community Development. (source: reference (Ford, 2023)^[16])



[Figure 2](#): The Role of Community Engagement in Education:... (source: reference (Ford, 2023)^[16])

4.2. Bridging the gap between school and home

Closing the bridge between school and home plays a crucial role in nurturing creativity among students. As mentioned in the consultations, creativity often begins at home, and parents are key in fostering creative opportunities for their children. Nevertheless, many parents may lack awareness of how to provide such opportunities or the advantages of doing so. Hence, there is a necessity for a communication plan that links all stakeholders involved in the Creative Youth initiative, including schools, parents, creative professionals, and the broader community. This plan should engage with various levels of the education system and establish effective communication channels to ensure widespread participation.

Furthermore, partnerships with artists, creatives, cultural institutions, and community organizations have been pivotal in shaping creative programs within schools. These collaborations have resulted in enriching experiences for students by offering them unique learning chances that complement traditional academic learning. Through involvement in collaborative projects outside school premises, these partnerships bring forth hidden talents that might otherwise remain undiscovered.

To sum up, bridging the gap between school and home through efficient communication strategies and partnerships with external stakeholders is fundamental to nurturing creativity in students. By engaging parents and the community in creative initiatives, schools can foster a supportive environment where students can unleash their creative potential beyond the confines of the classroom. See references: (Education, 2022, pages 26-30)^[3], (Garcia & Weiss, 2017)^[11].

4.3. Collaborative efforts for intellectual and educational formation

Partnerships and collaborations are key in fostering creativity and intellectual growth within educational institutions. The synergy between creative professionals, educators, and students is crucial in providing a conducive environment for exploring and nurturing the creative abilities of young learners. Through shared expertise and perspectives, these stakeholders can facilitate innovative experiences that benefit students within the school setting. This collaborative approach not only enriches teachers' knowledge of the creative process but also offers them valuable opportunities to engage with artistic practices.

Moreover, the success of initiatives aimed at promoting creativity among youth heavily relies on the close bond between creative practitioners and educators. By equipping artists with continuous professional development opportunities in educational environments, they can gain a deeper understanding of the curriculum and school dynamics, thereby amplifying their influence on student creativity. The Education Centre Network has been instrumental in supporting teacher development

through programs such as Creative Clusters, alleviating administrative burdens, and providing crucial assistance to schools.

In essence, fostering partnerships and collaborations involving creative professionals, teachers, and students is essential for nurturing intellectual growth and creativity within educational settings. By establishing supportive relationships that champion creativity at local and global levels, schools can create an environment that empowers students to excel both creatively and academically. See reference (Education, 2022, pages 26-30)^[3].

5. Creating Creative and Distinguished Teachers

5.1. Importance of teacher creativity in student development

The significance of teacher creativity in student growth cannot be emphasized enough. Teachers have a pivotal role in molding the creative atmosphere of their classrooms, directly influencing the creative mindsets and tendencies of young learners. Educators who embrace and promote creativity amongst their students establish a safe space where children can freely explore new concepts, voice their ideas, and think independently. By giving constructive feedback, encouraging unconventional thinking, and fostering a positive classroom environment, teachers empower students to effectively harness their natural creative talents.

Furthermore, an analysis using a multilevel model on children's creative tendencies underscores that children in exceptional kindergarten settings demonstrate higher levels of creativity when teachers perceive a creatively supportive environment. While teachers' individual creativity may not directly impact students' creativity, the kindergarten environment and teachers' perceptions of creativity significantly influence children's creative inclinations. Hence, it is crucial for educators to receive support to take risks, receive feedback on their teaching approaches, and cultivate cooperative relationships with colleagues to enhance creativity within the classroom.

In summary, teacher creativity stands as a fundamental element in student development. By cultivating a creative classroom ambiance through encouragement, assistance, and collaboration, teachers can effectively foster students' creative thinking skills and enrich their overall learning journey. See reference (Kang, 2020)^[1].

5.2. Strategies for developing creative teachers

To enhance the creativity of educators, it is crucial to focus on their individual traits, capacity for critical thinking, emotional characteristics, and approach to fostering creativity. Research indicates that

innovative teachers actively engage in group activities to nurture their creativity. They feel comfortable improvising and influencing students' creative abilities through their teaching methods, emotional encouragement, and by serving as creative role models. Teachers' positive perspectives on creativity directly contribute to establishing a creative classroom environment and school culture. Therefore, it is vital for teachers to acquire knowledge on effectively utilizing physical spaces and social contexts to promote creativity among students.

Moreover, the organizational atmosphere of kindergartens plays a pivotal role in harnessing teachers' creativity within classrooms. Outstanding kindergartens provide resources and support to teachers, enabling them to focus on designing creative lessons for children. School administrators work collaboratively with teachers to exchange ideas with other kindergartens, fostering a creative work environment. By assigning tasks based on teachers' strengths and encouraging teamwork among educators, these kindergartens create a conducive setting for nurturing creativity.

In conclusion, nurturing teachers' creativity involves acknowledging their unique qualities and offering collaborative opportunities within educational institutions. By fostering an environment that values differences, promotes equality, encourages curiosity and freedom of expression, and fosters interactions among educators, schools can establish a space where teacher-student relationships thrive and innovative projects flourish. See reference (Kang, 2020)^[1].

5.3. Impact on student creativity and learning outcomes

Fostering creativity in educational settings is crucial for enhancing students' academic achievements. Encouraging creative exercises, divergent thinking, and problem-solving can boost critical thinking skills and unlock growth potential. Teachers who take risks, seek feedback, and collaborate with peers can better nurture creativity in students. Research shows that creative classroom atmospheres positively impact children's cognitive skills, self-assurance, and adaptability. By promoting creativity through innovative methods, collaborative partnerships, creative educators, and extracurricular activities, schools can significantly influence student creativity and academic success. Embracing a culture of risk-taking, trust, respect, and integrity is key to creating an environment where creativity thrives and students excel. See references: (Kang, 2020)^[1], (Sadykova & Shelestova, 2016, pages 1-5)^[8].

Factor	Sub-factor	Definition
Cognitive support (Cropley 1992)	Divergent thinking	<p>Creating a climate to support divergent thinking rather than convergent thinking</p> <p>Creating an atmosphere that evaluates various answers rather than one answer</p>

Factor	Sub-factor	Definition
Original thinking	Creating a climate that supports a variety of problem-solving methods, rather than one method	
Affective support	Intrinsic motivation (Furman 1998)	Creating a climate where children are more intrinsically motivated to engage than being extrinsically motivated
Fun (Nickerson 1999)	Creating a fun atmosphere	
Openness (Cropley 1992)	Creating a climate where opinions from various perspectives are accepted	
Challenge spirit (Cropley 1992)	Creating a climate to take risks and action	
Independence (Choe et al. 2005)	Creating an atmosphere that supports each student's own ideas	
Relational support (Bak and Park 2009)	Relationship with teachers and peers	Creating an atmosphere where all children are welcomed and supported Creating a climate of mutual respect and support among children

[Table 9](#): Characteristics of creative classroom climate (source: reference (Kang, 2020)^[11])

		Pre-measure	Half-way measure	Post-measure
Training	Correct	21	25	29
	Incorrect	36	11	7
Control	Correct	12	5	5
	Incorrect	9	4	4
Total		78	45	45

[Table 10](#): Descriptive statistics of the incubation effect between the training and control groups at pre-measure, half-way measure and post-measure. (source: reference (Ritter et al., 2020)^[17])

6. Shared Learning Initiative through Extracurricular Activities

6.1. Overview of the Shared Learning Initiative

The Collaborative Learning Program strives to establish a supportive environment for student creativity through extracurricular initiatives. Involving clubs focused on literature, poetry, drama, journalism, and film, students have the opportunity to expand their knowledge, hone their skills, and showcase their creative abilities. By allowing students to choose their participation and join willingly, these clubs foster a strong bond between facilitators and participants, creating a warm and welcoming setting. Students are encouraged to be spontaneous, plan activities independently, and learn without the pressure of making mistakes or receiving grades.

A study conducted in schools in Osijek shed light on the popularity of these extracurricular clubs. They provide a platform for students to engage in creative endeavors, leading to tangible examples of student creativity spanning various fields. The creative processes within these clubs align with established theories on fostering creativity through open-ended tasks and freedom of expression.

A comparison between primary and secondary school clubs revealed that high school students tend to take on more responsibility and actively participate in tasks compared to their counterparts in primary school. This distinction is particularly noticeable in journalism, radio broadcasting, and film clubs where technical skills such as computer literacy come into play. These findings underscore how extracurricular activities can stimulate student creativity through originality, spontaneity, collaboration, exploration, analysis, and problem-solving.

The Collaborative Learning Program plays a vital role in promoting creativity at both local and global levels by providing students with a platform to explore their interests collectively beyond the confines of traditional academic settings. See references: (Kuhar & Sabljic, 2016, pages 1-5)^[4], (Kuhar & Sabljic, 2016, pages 6-10)^[4].

6.2. Extracurricular activities supporting creative methodology

Engagement in extracurricular activities plays a pivotal role in nurturing student creativity by offering them avenues to deepen their understanding, cultivate diverse abilities, and fulfill their creative desires. Through involvement in literary, poetry, drama, journalism, radio, and film clubs, students can partake in endeavors that inspire creativity through originality and distinctive expressions. These clubs provide conducive environments for students to freely apply their knowledge, propose innovative concepts, tackle challenges without the fear of failure, and experience gratification from their contributions. The

spontaneous ambiance within these clubs enables students to experiment with various forms of expression devoid of strict regulations.

Moreover, research focused on these extracurricular clubs has highlighted that high school students exhibit greater responsibility and engagement in tasks compared to their primary school counterparts. This distinction is particularly evident in journalism, radio broadcasting, and film clubs where technical proficiency such as computer literacy or operating recording equipment is required. Through collaborative initiatives and collective projects within these clubs, students partake in co-creation processes that enrich collaborative creativity.

In essence, extracurricular activities provide a space for students to enhance their creativity by honing and practicing their skills. By presenting real-world challenges that encourage problem-solving and adaptability, these activities not only enhance academic performance but also promote an atmosphere of open-mindedness and free-spirited student conduct. Engaging in creative pursuits nurtures the development of resilience and critical thinking skills essential for student achievement. See references: (Kuhar & Sabljic, 2016, pages 1-5)^[4], (Benefits of Extracurricular Activities, 2024)^[18], (Soomro et al., 2023)^[15], (Kuhar & Sabljic, 2016, pages 6-10)^[4].

7. Case Studies and Examples

7.1. The case studies will provide real-life examples to illustrate how schools are successfully implementing strategies to promote creativity at both local and international levels.

Illustrative examples are key in demonstrating how schools effectively implement strategies to foster creativity on a local and global scale. Take, for instance, the case of Alliance Schools in Austin, Texas, where parents and teachers collaborate to boost test scores, particularly among low-income and minority students. This joint effort underscores the significance of community engagement in nurturing creativity within educational institutions.

Furthermore, programs like the Northside Achievement Zone in Minneapolis team up with organizations like Big Brothers Big Sisters to pair students with mentors, resulting in improved performance on standardized assessments. This serves as a testament to the positive influence of mentorship initiatives on student growth and creative development.

On an international level, the Together We Learn project in Vancouver, Washington, connects volunteer mentors with students to address their academic and holistic needs. This initiative showcases how global partnerships can amplify creativity in schools by offering additional support to students.

Moreover, institutions such as High Tech High in California and the Big Picture Learning network have successfully integrated project-based learning and personalized methods to stimulate student creativity. Despite facing challenges from traditional educational models, these schools have proven the efficacy of their approaches through heightened student engagement and innovative projects.

In essence, these cases underscore the importance of collaborative endeavors among educators, parents, and community groups in fostering creativity within educational settings at both local and international levels. See references: (Sina, 2024)^[5], (Garcia & Weiss, 2017)^[11].

Part of school district	Entire school district	Across multiple school districts
Austin, Texas	Joplin, Missouri	Eastern Kentucky*
Boston, Massachusetts	Kalamazoo, Michigan	
Durham, North Carolina (East Durham)	Montgomery County, Maryland*	
Minneapolis, Minnesota (North Minneapolis)	Pea Ridge, Arkansas	
New York, New York	Vancouver, Washington**	
Orange County, Florida (Tangelo Park)		

Table 11: *Indicates that while the initiative covers the entire county or region, a portion of the county or region receives more intensive services. **Indicates that the initiative will cover the entire school district under plans to expand. Source: Case studies published on the Broader, Bolder Approach to Education website ((source: reference (Garcia & Weiss, 2017)^[11])

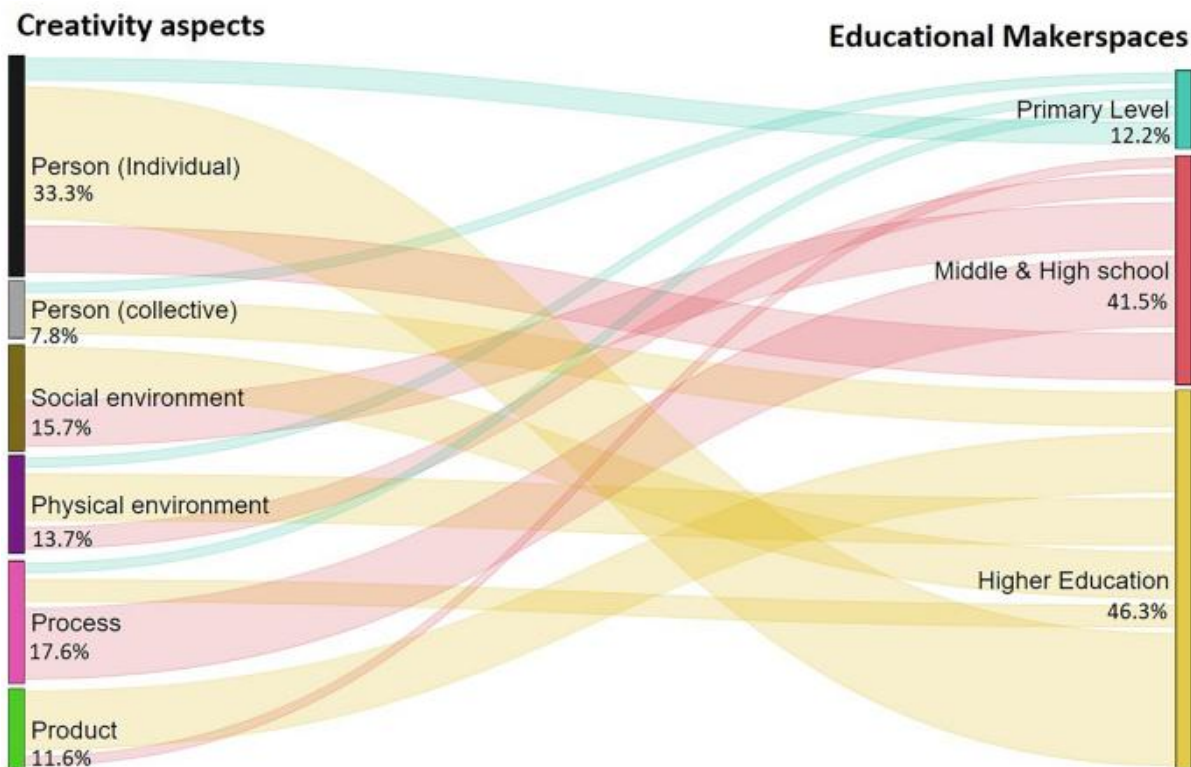


Figure 3: Relationship between aspects creativity and educational makerspaces Full size image (source: reference (Soomro et al., 2023)^[5])

8. Challenges and Opportunities

8.1. Addressing obstacles in fostering creativity in schools

Fostering creativity in schools faces challenges due to standardized teaching methods and test-based assessments. This rigid approach limits experimentation and innovative thinking among educators and students. To promote creativity, schools should prioritize collaboration, risk-taking, and learning from mistakes. Professional development opportunities for teachers can enhance creative practices and improve student outcomes. By creating an environment that values creativity and problem-solving, schools can establish a more engaging educational experience for all involved. See reference (Sahlberg, n.d., pages 1-5)^[6].

	Cronbach's alpha	CR	AVE	ABS	CRI	IM	IWM	OP	RG	SDW	TEA	TP	TS	WE
ABS	0.883	0.920	0.742	0.862										
CRI	0.906	0.930	0.727	0.606	0.853									
Flow	0.956	0.962	0.661	0.861	0.718									
IC	0.957	0.964	0.569	0.659	0.771									
IM	0.924	0.946	0.814	0.542	0.685	0.902								
IWM	0.906	0.931	0.730	0.728	0.717	0.661	0.854							
OP	0.866	0.918	0.789	0.529	0.675	0.760	0.725	0.888						
RG	0.932	0.953	0.872	0.106	0.163	0.064	0.080	0.069	0.934					
SDW	0.875	0.923	0.800	0.649	0.789	0.640	0.716	0.684	0.154	0.894				
TEA	0.924	0.952	0.868	0.568	0.663	0.707	0.661	0.714	0.048	0.686	0.932			
TP	0.920	0.949	0.862	0.620	0.643	0.805	0.715	0.757	0.023	0.638	0.788	0.929		
TS	0.925	0.947	0.816	0.616	0.678	0.790	0.738	0.797	0.039	0.698	0.820	0.880	0.904	
WE	0.957	0.969	0.887	0.703	0.643	0.652	0.853	0.685	0.050	0.646	0.693	0.746	0.757	0.942

Table 12: Reliability, validity, and corrections of the constructs. (source: reference (Deng et al., 2022)^[19])

	Gap between high-SES (fifth) and low-SES (first) quintiles in 1998	Change in gap from 1998 to 2010
Reading	0.60	0.08
Math	0.61	0.05
Self-control (by teachers)	0.18	0.09
Approaches to learning (by teachers)	0.44	-0.04

	Gap between high-SES (fifth) and low-SES (first) quintiles in 1998	Change in gap from 1998 to 2010
Self-control (by parents)	0.29	0.00
Approaches to learning (by parents)	0.13	0.11

Figure 4: (source: reference (Garcia & Weiss, 2017)^[11])

	Gap between top and bottom quintiles in 1998	Change in gap from 1998 to 2010
Reading	1.29	-0.02
Math	1.46	-0.15
Self-control (by teachers)	0.32	-0.10
Approaches to learning (by teachers)	0.64	-0.24
Self-control (by parents)	0.47	-0.14
Approaches to learning (by parents)	0.66	-0.08

Figure 5: (source: reference (Garcia & Weiss, 2017)^[11])

Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)

	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)
Gap in 1998	1.294***	0.696***	1.457***	0.681***	0.317***	0.076	0.638***	0.409***	0.471***	0.254***	0.655***	0.221***
	(0.038)	(0.058)	(0.036)	(0.050)	(0.039)	(0.048)	(0.038)	(0.042)	(0.039)	(0.049)	(0.039)	(0.045)
Change in gap by 2010	-0.020	-0.075	-0.154***	-0.119*	-0.099*	0.046	-0.237***	-0.141*	-0.136**	-0.093	-0.084	-0.004
	(0.051)	(0.082)	(0.049)	(0.070)	(0.055)	(0.081)	(0.053)	(0.074)	(0.053)	(0.080)	(0.053)	(0.070)
Controls												
Demographics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Education and engagement	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Parental expectations	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
School fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	26,660	23,880	27,570	24,710	25,790	23,170	27,200	24,380	27,280	25,040	27,290	25,050
Adjusted R2	0.134	0.282	0.166	0.328	0.009	0.172	0.029	0.199	0.017	0.079	0.032	0.223

Table 13: (source: reference (Garcia & Weiss, 2017)^[11])

	Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)	1 (unadjusted)	4 (fully adjusted)
Gap in 1998	1.090***	0.384***	1.308***	0.443***	0.419***	0.119**	0.603***	0.325***	0.443***	0.272***	0.436***	0.073		
	(0.042)	(0.058)	(0.041)	(0.060)	(0.045)	(0.050)	(0.044)	(0.049)	(0.045)	(0.051)	(0.044)	(0.052)		
Change in gap by 2010	-0.127**	-0.006	-0.230***	-0.060	0.049	0.228***	-0.128**	0.008	0.044	0.106	0.032	0.051		
	(0.060)	(0.084)	(0.059)	(0.082)	(0.066)	(0.081)	(0.064)	(0.079)	(0.065)	(0.084)	(0.064)	(0.080)		
Controls														
Demographics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Education and engagement	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Parental expectations	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
School fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	28,650	26,050	29,560	26,890	27,550	25,080	29,110	26,460	28,170	27,220	28,190	27,240		
Adjusted R2	0.103	0.276	0.143	0.321	0.023	0.174	0.036	0.199	0.019	0.079	0.019	0.226		

[Table 14](#): (source: reference (Garcia & Weiss, 2017)^[11])

8.2. Identifying opportunities for further enhancement

Exploring ways to further cultivate creativity in educational settings is essential for nurturing students' creative abilities and mindset. While challenges like competition, standardization, and test-focused assessments can impede the development of creativity, there are also pathways to enable a more creative learning environment through collaboration, risk-taking, and embracing failure.

One key avenue for improvement involves valuing and promoting creativity across all levels of the school system. By instilling a culture of creativity among teachers, students, and the broader school community, schools can foster curiosity and innovation in various aspects of school life. Creative clusters can help pinpoint areas requiring additional support, leading to curriculum enhancements and professional development opportunities for staff in critical areas.

Moreover, integrating creativity into the inspection process can provide further support for schools on their creative journey. Requiring training on recognizing and appreciating creativity during inspections can encourage schools to prioritize creative approaches in their teaching methods. Educating the public on the importance of enhancing student creativity in schools and shifting focus towards higher-order learning skills can lead to a positive evolution in societal perceptions of education.

Additionally, implementing formal recognition mechanisms such as awards programs or digital badges can help celebrate and acknowledge creativity among students, teachers, school leaders, and the schools themselves. These initiatives can inspire individuals to continue fostering a creative learning environment and motivate others to engage in innovative practices.

By seizing these opportunities for improvement and actively addressing obstacles to creativity in schools, we can establish an environment that effectively nurtures student creativity. See references: (Education, 2022, pages 26-30)^[3], (Sahlberg, n.d., pages 1-5)^[6].

	Gap between top and bottom quintiles in 1998	Change in gap from 1998 to 2010
Reading	1.09	-0.13
Math	1.31	-0.23
Self-control (by teachers)	0.42	0.05
Approaches to learning (by teachers)	0.60	-0.13

	Gap between top and bottom quintiles in 1998	Change in gap from 1998 to 2010
Self-control (by parents)	0.44	0.04
Approaches to learning (by parents)	0.44	0.03

Figure 6: (source: reference (Garcia & Weiss, 2017)^[11])

	Gap between top and bottom quintiles in 1998	Change in gap from 1998 to 2010
Reading	0.74	0.08
Math	0.97	-0.02
Self-control (by teachers)	0.32	-0.07
Approaches to learning (by teachers)	0.46	-0.06
Self-control (by parents)	0.28	-0.04
Approaches to learning (by parents)	0.58	0.09

Figure 7: (source: reference (Garcia & Weiss, 2017)^[11])

Reading	Math	Self-control (reported by teachers)	Approaches to learning (reported by teachers)	Self-control (reported by parents)	Approaches to learning (reported by parents)

	1 (unadjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	4 (fully adjusted)	
Gap in 1998	0.736***	0.347***	0.966***	0.424***	0.324***	0.105***	0.455***	0.241***	0.283***	0.117***	0.583***	0.136***
	(0.028)	(0.034)	(0.027)	(0.031)	(0.029)	(0.035)	(0.028)	(0.033)	(0.029)	(0.037)	(0.028)	(0.033)
Change in gap by 2010	0.083**	-0.540***	-0.019	-0.818***	-0.068	-0.126	-0.058	-0.244	-0.044	-0.248	0.085**	-0.026
	(0.039)	(0.184)	(0.038)	(0.188)	(0.042)	(0.225)	(0.041)	(0.184)	(0.041)	(0.216)	(0.039)	(0.178)
Controls												
Demographics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Education and engagement	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Parental expectations	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
School fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	29,060	26,050	29,920	26,890	27,730	25,080	29,350	26,460	30,200	27,220	30,220	27,240
Adjusted R2	0.080	0.270	0.120	0.314	0.012	0.172	0.024	0.194	0.009	0.075	0.047	0.226

Table 15: (source: reference (Garcia & Weiss, 2017)^[11])

9. Conclusion and Recommendations

9.1. Summary of key findings

The feedback phase brought to light essential suggestions for enhancing creativity in the educational landscape of Ireland. It stressed the importance of expanding our perception of creative expression and incorporating creativity as a foundational element of our educational framework. Offering ongoing opportunities for professional growth to educators is key to seamlessly infusing creativity into school environments. Moreover, placing creativity at the heart of educational practices, viewing it as an intrinsic mindset rather than an optional feature, is crucial for nurturing creativity across all educational tiers.

The thorough examination of makerspaces in the literature review unveiled valuable insights on fostering creativity, especially in STEM fields. It distinguished between various types of makerspaces and emphasized four key aspects of creativity: individual, process-oriented, environmental, and end-product. The review underscored the significance of cross-disciplinary cooperation, thoughtful selection of teaching methods, and encouraging students to think beyond boundaries to enhance creativity in makerspaces. Additionally, it delved into different approaches to assessing creative outcomes in makerspaces and highlighted the growing emphasis on studying creative processes within STEM education over time.

In conclusion, championing creativity in educational institutions is paramount for equipping students with the skills needed to tackle future challenges and seize opportunities. By embracing a broader interpretation of creative expression, offering continuous professional development for teachers, and ingraining creativity as a core mindset in education, schools can effectively cultivate creativity on both local and global scales. See references: (Education, 2022, pages 36-40)^[3], (Soomro et al., 2023)^[15].

9.2. Recommendations for future practices in promoting school as an incubator of local and international creativity

To advance schools as hubs of local and global creativity, it is vital to prioritize creativity as a fundamental aspect of education. Continuous professional development for educators is essential to integrate creativity at all levels, especially in senior cycle education. Incorporating research elements into creative endeavors from the start can assess impact and promote diversity and inclusion.

Recognizing and acknowledging creativity among all stakeholders in education, including students, teachers, and schools, is crucial. Establishing Local Creative Youth Partnerships nationally can identify the needs of young individuals at the community level. Collaboration with national cultural institutions can enhance interdisciplinary projects at different education levels.

Creating learning networks that encourage collaboration and best practice exchange through local, national, and international partnerships is key to promoting creativity. Using digital tools to personalize learning experiences for students with diverse abilities can further enhance creativity in education.

Emphasizing media education and safe digital technology usage from early childhood onwards is important for nurturing creative capacities in students. See references: (Office, 2015)^[14], (Education, 2022, pages 36-40)^[3].

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